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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

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The Greatest Story Ever Told

TIME was when the stream of gold from California's mines saved the Union. An equal claim cannot be made as to her wonderful production of crops during the recent war, though they were a great factor in the feeding of the world. Great as they were in the more strenuous years of the war, last year's exceeded all previous records. The chronicle of this production has been characterized as "the greatest story ever told." While it exceeded in tonnage, the acreage was slightly less than that of the two preceding years, but its value was beyond all precedent and expectation. The total acreage of field crops harvested in 1919 was 5,881,340; in 1918, 5,914,200. Expressing the production in tons, the total for 1919 was 7,627,256, this as against 6,355,668 in 1918.

In fruit crops the increase was still greater. The fruit crops for 1919 aggregated 2,071,525 tons worth an average of $113 per ton; for 1918, 1,766,675 tons worth an average of $101 per ton. Again, oats and barley decreased slightly in production because of material increase in wheat and rice. Our wheat production in 1919 was 215.1 per cent of that of 1918; rice, 107.4 per cent; hay, 143.3 per cent; cotton, 104.05 per cent; hops, 143 per cent; apples 131 per cent; peaches, 147 per cent; pears, 106 per cent; prunes, 288 per cent; apricots, 121 per cent; almonds, 151 per cent; walnuts, 107 per cent; lemons, 140 per cent; raisins, 107 per cent. Decrease was shown in the production of oranges, 94 per cent of last year's; and potatoes, 88 per cent. The most serious slump, however, was in beans. The bean crop suffered because of reduced planting, because of unfortunate weather conditions (resulting in the abandonment of 20,000 acres which had been planted), and the grower because of juggling of the markets by selfish interests, but more because of his own lack of cooperation. The grower will benefit, however, by the lesson he has learned during the past 12 months, and another year will show a marked change in methods of marketing.

Another one of the producing interests which has failed to take advantage of the present conditions and reap largest returns is that of the sugar beet growers. The value of sugar beets produced during the past year is nearly $11,000,000 as compared with $8,500,000 the preceding year, but the increase might have been still greater had the true cooperative spirit prevailed among the growers. The weather besides was unfavorable; 130,000 acres were planted but only 110,900 harvested. The crop amounted to 821,000 tons from which 127,900 tons of sugar was obtained.

Peaches, prunes and raisins made the most striking showing among the fruits. The peach crop made a record, the state producing 38,000 tons of dried peaches alone. Shipments of fresh peaches out of the state totalled 2,774 carloads. Because of previously made contracts the price per ton to the grower does not average as high as for other fruits, in fact, not much above $60 per ton. California produced 34.3 per cent of the peaches of the United States; nearly 130,000 tons of prunes; 67,000 tons of this in the Santa Clara district, 30,000 tons in the Sacramento and Napa Valleys, 20,000 tons in Sonoma, Lake and Mendocino Counties and 12,000 tons in the San Joaquin Valley. It is estimated that nearly 40,000 tons was cut from the yield of raisins because of lack of irrigation water in July and August. As it was, however, the average was 1,960 pounds per acre and the total production not far from 180,000 tons. Shipments of table grapes totalled 19,017 carloads.

Truly, the most wonderful story ever told, and, as we have noted, the golden returns are due, to a large extent, to cooperation, and cooperation another year will be far more effective. Note the "Outlook" in the Cultivator last week where Cultivator readers of the northern, the central and the southern parts of the state gave of their opinions as to the possibilities of the coming year's opportunities.

May we not be able another year to chronicle as great a story of the state's production?

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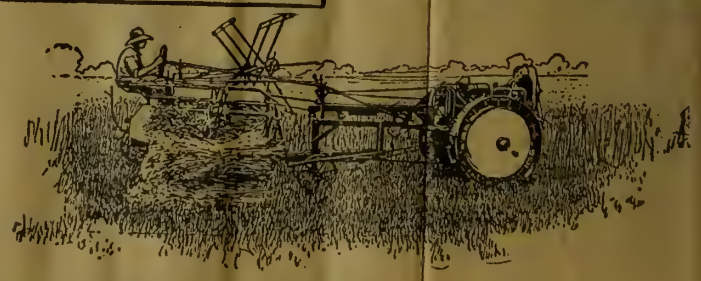

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The Luscious Japanese Persimmon

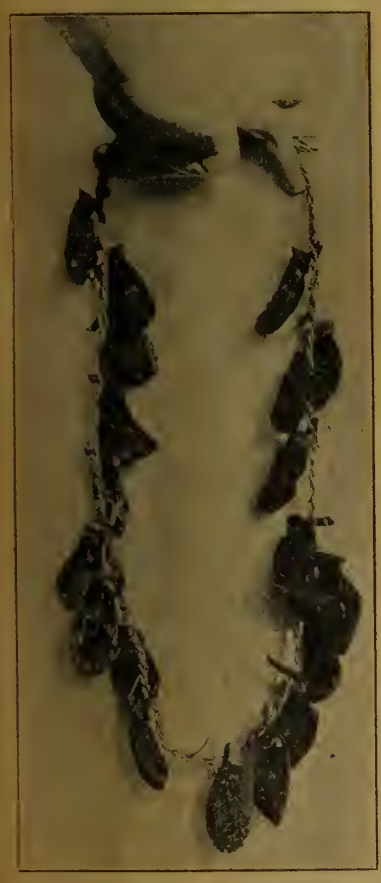
By Robert W. Hodgson

AMONG California's wealth of horticultural products of especial interest at this season of the year is the persimmon. And when we speak of persimmons in California we mean the Japanese or Kaki persimmon, for it is not only a fruit superior in every way to the Eastern article, but it is practically the only persimmon now grown in California.

Although introduced into the United States from Japan in 1856 by Commodore Perry and into the Golden State as early as 1870, persimmon culture on a commercial scale has not been practiced to any considerable extent until within the last eight or ten years, the tree being found quite commonly as a dooryard or garden proposition but not being planted much in orchard form. At the time of the last census it was estimated that there were enough such bearing trees in the state to make some hundred acres. At the present time, however, undoubtedly there are several hundred acres of bearing and young orchards to be found, and interest in this fruit is growing all the time.

The Apple of Japan

Just why the persimmon was slow in gaining a place in the estimation of Californians it is difficult to say, as a ripe, luscious persimmon is excelled by few fruits. In Japan the persimmon bears the same relation to horticulture in general that the apple does to fruit growing in America. It



No Waste Crop With Persimmons
The dried persimmon is the prune of Japan. String of dried persimmons.

is the universal and popular fruit, having a very wide variety of uses. The juice from the unripe fruits serves as a stain for furniture, while the wood itself is quite valuable for fancy work. An extensive industry has been built up in the drying of persimmons in Japan, and after having tasted the dried article the writer must confess to having found it a most delectable product. The tree is easily grown, is free from serious diseases and insect pests and is remarkably prolific in California. The fruit is very attractive in appearance, ships well to both local and distant markets, and is almost universally liked if eaten in the proper condition.

No doubt one reason why this fruit has not gained more rapidly in popular esteem is the general lack of knowledge of its good qualities, as well as the fact that it has often been placed on sale before properly ripened. During the past few years, however, there has been a marked increase of interest in new fruits, and this, coupled with the fact that recently a persimmon stock has been introduced which makes the tree grow almost as freely and thriftily as the peach, makes the future for persimmon culture in California decidedly promising.

Although succeeding well in California the persimmon winter kills badly in locations where winter temperatures approach zero. In this respect it resembles the figs to a marked degree. It will likewise endure a great deal of summer heat without injury, good crops being borne in the Imperial Valley and other regions of extreme summer heat.

While the persimmon is remarkably resistant to adverse conditions in general, it appreciates good care and a rich soil. The best soil for persimmons in California seems to be a rather heavy loam or clay, well supplied with organic matter and provided with good underdrainage.

The stock referred to above is one of Chinese origin introduced into California a number of years ago by the late Frank Meyer and known as the lotus stock. It is an exceedingly vigorous and thrifty grower and makes a most congenial union with the Kaki persimmon. Trees on this stock are very much better growers and more satisfactory in every way than those on either the Kaki or Eastern root. Trees of suitable variety on this stock are now available in limited quantity from several nurseries.

The trees should be set from 18 to 20 feet apart, depending somewhat upon the variety, some being more spreading in habit than others. The care of a persimmon orchard does not differ to any extent from the care of other deciduous orchards. Irrigation, as well as cultivation, should be governed by the needs of the trees and existing soil conditions.

But Little Waste in the Persimmon
The persimmon is a coming fruit in California. This is a choice Kaki persimmon.

Pollination

In the past, and especially in other parts of the United States as well as Japan, it has frequently been reported that the trees often fail to set fruit, although a large amount of bloom is produced. On painstaking investigation it was found that the persimmon bears two distinct kinds of flowers, the male and the female, and certain varieties must carry both, either on the same tree or at no great distance from each other, if fruit is to be set. Others will set fruit if no male blossoms whatever are borne, the fruits being seedless, but if male flowers are produced the fruits contain seed. In certain varieties, whether seedless or not, the flesh is always light colored, and these varieties are called Pollination Constants. In others, known as Pollination Variants, if the fruit contains seed, the flesh is dark, but if seedless it is light colored. Until cleared up by investigation these confusing facts made it almost hopeless to distinguish between different varieties or to identify the same variety under different conditions.

There is little need to worry about pollination in California, however, as practically every variety which has been fruited has been found either not to require pollination or to carry male flowers. This condition has been found to apply to even the notorious shy bearing varieties of other sections.

Artificial Ripening

Most persimmons must be allowed to ripen until all astringency is lost before they are edible. And when they approach this condition they are so soft that it is impossible to ship them any distance. At present this difficulty is met by picking the fruit while still firm and hard but sufficiently developed and matured so that it continues to ripen in transit and storage. If picked too soon, instead of ripening the fruit shrivels and wilts and is worthless.

The Japanese have for years been practicing a method of treating hard persimmons so that the astringency is removed and the fruit rendered of excellent eating quality while still firm. This method is to enclose the persimmons in an airtight sake cask which has but recently been emptied. The alcoholic fumes act upon the tannin and render the fruit non-astringent without destroying its consistency. In 1905 Geo. C. Roeding first satisfactorily ripened the persimmon in California by this method. Since that time a number of methods for artificial ripening have been perfected. It was found that merely subjecting them to an atmosphere of carbon dioxide for several days would result in the loss of astringency.

Natural Non-Astringent Varieties

More recently it has been found that there are a number of naturally non-astringent varieties. Some of these, when seedless, however, are found to be astringent while others are always non-astringent. The fruits may be eaten out of hand when as solid as an apple and are very good indeed. Among the best of such varieties is the Hyakume, a variety now being grown somewhat in California and deserving of greater popularity on account of its regular habit of heavy yielding, and another is the Tamopan.

Persimmons Make a Handsome Orchard
Commercial persimmon orchard in Placer County.

Other Varieties for California

Among the best varieties for California are the Hachiya and the Tanenashi. The former is the principal drying variety of Japan and is the largest and finest in appearance of any fruit in California. It is an early and a heavy bearer and is always light fleshed and astringent until fairly soft.

Continued on Page 27.

Agricultural News Notes of the Pacific Coast

Northern California

The Sacramento delta is now shipping heavily of celery.

At Colusa 3,000 bags of rice sold for $7.87 a bag, a new record price.

The 1919 fruit shipments from Newcastle, Placer County, were 526 carloads.

Sonoma County has 3,800 cows under test to determine their dairy value.

San Francisco reports a marked advance in the price of potatoes and onions.

The state university reports Canada thistle gaining a foothold in Humboldt, Lake and Marin Counties.

San Francisco has been given $250,000 for the establishment of an aquarium in Golden Gate Park.

Last week two carloads of seedless raisins were shipped to Europe from College City, Colusa County.

San Francisco is fighting for milk at 13 cents a quart and against the distributor's price of 16 cents.

At the port of San Francisco in October there were examined 140,000 pieces of horticultural imports.

Yuba County bean growers will plant and harvest a crop of peas this year before time to plant beans.

The board of directors of the Glenn County Fair Association has chosen dates, September 27 to October 2.

The Pacific Rice Growers Association will build a string of warehouses throughout the Sacramento Valley.

The farm bureau of Butte County will handle that county's fall wool clip and ship it on January 6, 1920.

San Francisco reports an advance of 20 cents a barrel on family flour in one day, the present price being $12.30.

Three are dead in one family at San Rafael, Marin County, as the result of eating poisoned canned string beans.

Sacramento Valley livestock men are elated at the winnings made by California pure breds at the Chicago International.

Growers of Concord grapes at Martinez, Contra Costa County, report sales during the past season averaging $45 per ton.

The California Grape Grower is the title of a new publication put forth by the grape association from its San Francisco office.

Over 50 county and local cattlemen's associations were represented in the annual meeting recently held in San Francisco.

A Bartlett pear tree at Camino, El Dorado County, six years old, produced eight boxes of fruit and a Winter Nelis of same age, nine boxes.

Plumas-Tahoe Cattlemen's Association recently met and levied an assessment of five cents per head to create a fund for cattle protection.

The pioneer orange tree of Chico, Butte County, yielded a return of $150 and many were too high to pick. The tree stands in front of a hotel.

The Chico chamber of commerce entertained the fruit growers and nurserymen in annual convention, paid all bills and had eight cents remaining.

Two ships recently arriving at San Francisco brought large consignments of eggs from China and Yokahama. Another steamer brought 300 cases of egg yolk.

Central California

Apricot pits are now bringing $60 a ton at Fresno.

North Fresno is completing a $2,000,000 sewer system.

Fresno County grew 20,000,000 pounds of figs in 1919.

A Fresno packer estimates that the car shortage cost Fresno County growers $5,000,000.

An Eastern firm will plant 140,000 almond trees near San Miguel, San Luis Obispo County.

Kern County last year produced 46,318,405 barrels of oil in 1919, coming from 5,279 wells.

In the state egg laying contest at Santa Cruz a White Leghorn has laid 23 eggs in four weeks.

Monterey County produced about 210,000 tons of sugar beets which averaged the growers $11.50 a ton.

Bakersfield will build a $500,000 civic auditorium in memory of the service men from Kern County.

Fresno County grew 185,000 pounds of fine Turkish cigarette tobacco last year but the market is slow and poor.

At Woodlake, Tulare County, a four year old grapefruit orchard returned the grower $400 an acre, at $4.60 a box.

The cherry growers of Santa Clara Valley organized at San Jose recently on account of poor prices for the 1919 crop.

A 20 acre Malaga vineyard near Turlock, Stanislaus County, returned the owner $5,000 as against $3,000 last year.

Price cutting bakers in Modesto, Stanislaus County, have brought the price of loaves from 16 cents to ten cents.

Dairymen of Fresno County have this year received $3,116,190 for their products as against $2,000,000 for last year.

The Fresno farm bureau is conducting a membership campaign to get a representation of 100,000 more acres by March 1.

Olive growers who have investigated deaths in the East charged to the eating of ripe olives find that olives were not the cause.

Horticultural Commissioner Beers of Merced County suggests that corn stalks be used in protecting young fig trees from freezing weather.

The California Vegetable Union is making arrangements to handle large quantities of sweet potatoes grown in the northern end of the San Joaquin Valley.

It is estimated that 30,000 acres of cotton will be planted between Bakersfield in Kern County and Corcoran in Kings County, as against 4,000 acres in 1919.

Four Watsonville apple packers were recently fined $50 each for violation of the apple standardization law by marking boxes "Fancy" that contained wormy apples.

The Newman Creamery and Manufacturing Company has started up its machinery for a new dry milk factory. This is one of the largest dry milk factories ever built.

The Milk Producers of Central California recently met at Modesto. Only 175 members were present and [illegible] transactions were postponed [illegible] majority membership should b[illegible] ent.

Southern California

Hemet estimates its present orange crop at 75 carloads.

A farm tractor institute will be held at Fullerton, January 5-24.

The grapefruit shipped from Imperial this year will total 20 cars.

Fullerton, Orange County, has purchased a 30 acre city park for $60,000.

An extensive acreage of cotton is to be planted at Perris and a cotton gin built.

The Oxnard Walnut Growers Association paid its members $275,000 for the 1919 crop.

The acreage of cantaloupes for the Imperial Valley for 1920 is estimated at 26,000.

Oxnard bean growers are up in arms over the great number of petty thefts of sacked beans.

The Imperial Valley growers are worried over a shortage of shook for boxes and crates.

The Orange County poultry show will be held at Huntington Beach some time this month.

A new town site has been laid out near Yucaipa, San Bernardino County, and is called Appeloma.

Riverside has a new date packing house, receiving the fruit from Indio in the Coachella Valley.

The California fish and game commission will build a laboratory at San Pedro, Los Angeles City.

Orange County will soon vote on bonds to the amount of $200,000 to provide money for good roads.

The 1918 acreage of spinach in the Imperial Valley was 165; this year it is 1,200. The pea acreage is 860.

Riverside reports the Corona and La Habra lines of the Pacific Electric will be joined by a connecting link.

More than 1,700 tons of walnuts were shipped from the Hemet, Riverside County, packing house this season.

Palo Verde Valley cotton growers have organized a corporation to erect a cotton gin in Blythe before next season.

The prune growers of Banning, Riverside County, are driving for an increased membership to support the state organization.

A syndicate of Los Angeles men has bought 112 sections of non-agricultural land from the Southern Pacific and will drill for oil.

The Lemon Growers Association at Upland, San Bernardino County, will build another packing house of the same size as present one.

Snow in Bear Valley, San Bernardino County, is a foot deep and harvesters of Christmas trees experienced great difficulty in hauling them out.

Coal mining will be resumed at Alberhill, Riverside County, the coal burned by a gas company turned into gas and a gas heating system developed.

The growers cooperative cannery at Elsinore packed during the past season 168,000 cans of apricots, 240,000 cans of tomatoes and dried 210 tons of apricots.

An inspector from the United States department of agriculture will canvass the Imperial Valley cotton fields and grant certificates of grade for seed purposes.

The Coast and General

Coleman, Florida, is the center of 600 acres of early cabbage.

Gold Hill, Oregon, shipped 60 carloads of apples and pears in 1919.

Grant County, Oregon, shipped 300 carloads of fruit the past season.

Florida bean shipments are reported heavy, quality only fair, and demand poor.

The Oregon state hospital made a profit in 1919 of $10,000 from 4,000 hens.

The early cabbage crop about New Orleans is less than 50 per cent of normal.

Eighty acres of seed potatoes of 1919 were certified by the state board of Oregon.

Wapato, in the Yakima Valley, Washington, grows 3,600 acres of red clover for seed.

Kansas City dealers report heavy receipts of chilled or frozen potatoes, involving much resorting.

A new railroad is projected, to run from Ajo, Arizona, 90 miles south to San Jorges Bay, Sonora, Mexico.

A trapper at Burns, Oregon, sold 650 coyote skins for $16.50 each and got $3 bounty, a total of $12,512.

Clallam County, Washington, will next spring liberate young turkeys in the forests, hoping to stock them.

The Rocky Mountain Fruit Jobbers Association will hold their 1920 convention in San Francisco, January 30.

The potato crop of the Yakima Valley, Washington, will total 1,500 carloads, half of the 1918 output, frost damage being largely responsible.

Four feet of snow in the upper Hood River Valley, Oregon, falling on roofs and banking up walls, saved stored apples in a 24 below zero cold snap.

Citrus growers expect that the shipment of oranges and grapefruit this season will run to close to 150 carloads, or about double the shipments of last season.

Washington apple shippers put false floors in box cars with six inches of sawdust beneath, cover the walls with building paper and a four inch space is filled with sawdust.

In Puyallup Valley, Washington, last year's crop included 7,000,000 pounds of blackberries, 240,000 pounds of loganberries and 11,000,000 pounds of raspberries and strawberries.

Cotton picking throughout Arizona has progressed favorably and is well along for the season, with the prospect that if no more bad weather ensues the crop will be practically all gathered by the first of January.

The Arizona college of agriculture is planning feeding experiments with steers to be conducted at the Mesa experiment station farm. These tests will cover a period of several months and with four or five lots of steers The principal work attempted will be to determine the relative value of cotton seed products and alfalfa hay with silage.

A cotton school has been held under the direction of County Agent H. C. Heard and other officials of the state experiment station, in several sections of the Salt River Valley, Arizona, dur the past few weeks. Expert farmers and members of the station staff have taken up different phases of the cotton production problems and discussed them thoroughly.

Gopher Control

By E. R. de Ong

WITH the coming of the first heavy rains the most favorable opportunity of the year is offered for poisoning gophers in the orchard and field. Green feed is scarce in most places and vegetation will be slow in starting on account of low temperatures. Hence we will have opportunity for a month or more of fighting gophers when natural food is scarce.

The cheapest method of attack for large areas is poisoning, using freshly prepared vegetable or dried fruit bait made up similar to squirrel poison. Dried prunes or raisins may be used for the bait or chopped vegetables made up as follows:

Sweet potatoes, parsnips, or carrots, eight quarts; flour paste, one-half pint; strychnine alkaloid, powdered, one-fourth ounce; saccharine, one-sixteenth ounce.

Chop the vegetables or cut them with a knife into one inch cubes. Make a thin paste of flour and water and boil for a few minutes. Stir the strychnine and saccharine into one-half pint of the cooked paste and put it over the chopped vegetables, stirring until each piece is coated. Two or three of these cubes are to be dropped in each runway. The alkaloid form of strychnine should be used in preference to the sulphate as the former is but slightly soluble in water and remains largely on the outside of the bait, leaving the center sweet. The saccharine is used to disguise partially the bitterness of the strychnine.

For locating the underground burrows a simple tool may be used which can be made at any blacksmith shop. This is a shank of steel three-quarters of an inch in diameter and about 15 inches long, pointed at the lower end. This is fitted into a wooden or iron handle three feet long, the upper end of which is tapered slightly, to be used in enlarging the openings made into the runway. To aid in sinking the probe into the ground a foot piece should be welded on to one side of the steel rod. To use this tool it is necessary for the ground to be wet down to the ordinary depth at which the gophers are working, usually from three to eight inches below the surface. Sink the probe into the ground ten or 15 inches from the gopher hill, continuing the work until the burrow is located, which will be recognized by a sudden dropping of the probe. If necessary enlarge the opening into the runway with the blunt end of the handle, then drop in the bait and close the hole with the foot. The operator will soon become expert in locating the runways so that where gophers are abundant one man may bait hundreds of runs in a single day. One piece of seven acres of heavily infested alfalfa land has been covered by one man in a day and a half.

Poisoning is more successful from late summer, after green food has become scarce, until grass starts in the fall or winter, depending on rainfall and temperature. It should be delayed until the top layer of ground is thoroughly wet, not only to facilitate operations, but because after the heavy rains begin gophers have a tendency to migrate into fence rows or the uncultivated strip along driveways, which greatly reduces the amount of ground necessary to cover. One thorough application in such places should kill 70-90 per cent or more of the gophers. After another rain the ground can be gone over again and any fresh hills poisoned. Alfalfa is not as successfully treated as orchard or bare land on account of the abundance of succulent food.

If only a small amount of bait is necessary it can then be prepared in a much simpler manner. Cut a slit into the meaty portion of a raisin or prune or a piece of vegetable. Then place a very few crystals of strychnine (just what will rest on the very tip of a knife blade) in this slit and press the edges together. With a shovel open the main run or use prod if available and place one or two of the poisoned baits back from the opening and then close it. If the bait is simply dropped into an opening in the surface mound or the opening left unclosed the gopher sees the light and comes pushing a load of dirt ahead of him and nearly always throws the bait out unnoticed.

Trapping is also a desirable method of killing gophers but is slower and more expensive than poisoning. It is a good method for use where only an occasional gopher is seen or to follow up poisoning. For, irrespective of what methods are used, there will always be found a few individuals that can not be killed by the usual methods. There are different types of traps on the market, the Macabee being one of the most commonly used; the box trap and gopher gun are also successful in the hands of some operators. In all such work the skill of the operator is a big factor. In trapping as in poisoning the main run should be located with the aid of a shovel or a slender steel or hard wood probe. The surface mound is usually connected to the main run by a short lateral which may possibly never be used again while the regular burrow is used continuously. Some people set the trap in the lateral leading to the surface mound and by leaving the opening unclosed draw the gopher to the trap. But here also the plan may fail because the gopher may plug the hole farther back or clog the trap with dirt or throw it out on the surface.

After locating the main run clear out most of the loose dirt, set the trap lightly and if the Macabee trap or gopher gun is used, press them down firmly so that they are not easily thrown out of the way. When working in the main run two traps should be used, one facing each way. This makes the result much more certain than when only a single trap is used. The trap should be attached by a light wire or chain to a heavy chunk of wood or to a stake, the latter conspicuous enough so that it can be seen at a distance. If the traps are not anchored in some way they frequently will be found missing. Either they are sprung by the gopher and dragged off into the run, or a cat or dog finds the trap with a gopher in it and appropriates trap and all for its own use.

Carbon bisulphide is not as satisfactory on gophers as on ground squirrels. The gopher burrow is more extensive than that of the squirrels and also is more nearly level which prevents a heavy gas from penetrating it by gravity alone. The apparatus for generating the gas quickly and forcing it through the runs is especially valuable for gophers. In all cases the work should be done while the soil is wet enough to prevent the gas from escaping through cracks.

Flooding of orchards and alfalfa land is one of the quickest and most thorough methods of driving out gophers. With the aid of a good dog the irrigators can then take care of the gophers when they swim out on the level.

Farmers Grain Loading Stations and the Price of Barley

ANDREW KAISER, with his 100,000 bushel elevator, built near Hamilton City early in 1918, has demonstrated that a farmer can not only save large sums in the cost of sacks and extra labor by adopting bulk handling of grain in place of the old sack system, but can actually receive a higher price for his crop. He has done it for two seasons. In the very first one the savings effected and the higher price received were more than sufficient to pay the cost of the elevator and the other necessary charges.

The economy of bulk as opposed to sack handling has now been investigated and discussed by farmers, warehousemen and agricultural scientists until there is no further question of the advisability of the change. As long ago as June, 1916, Prof. B. H. Crocheron, superintendent of farm advisers, and C. J. Williams of the University of California published their Circular No. 152, "Some Observations on the Bulk Handling of Grain for California," reaching conclusions highly favorable to the modern method. Since that time the trend of events has been such as to make the need for the change more pronounced, and some of the circumstances cited as difficulties have disappeared.

The advantages everywhere admitted of bulk handling loading stations at the railroad sidings and metal grain bins on the farms are doing away with the cost of sacks (an item that has been extravagantly high in recent seasons and easily may become so again), the elimination of waste from the sacks as a result of rough handling, exposure to rain and sun and the gnawings of squirrels, rats and mice, a great reduction in the labor cost of handling, perfect protection of the grain from rain, fire and thieves, the retaining of the screenings with their considerable feeding value, and

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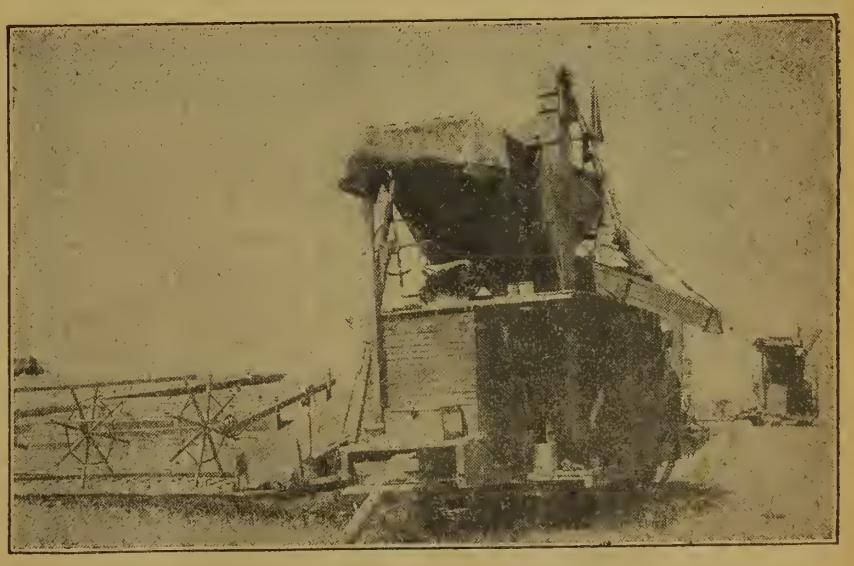
A Real Elevator

A view of the Kaiser elevator, Glenn County, showing the facilities for receiving and shipping.



As We Do It In California

Combined harvester used in grain fields, near the Kaiser elevator, showing the bulk handling attachment.

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914

Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday Jan. 3, 1920

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We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

There is a shortage of print paper. On this point our readers have been informed for several months, but during the last few weeks stories have come and gone as to shortage of pulp wood, extreme cold freezing the ponds where pulp wood is handled, and other circumstances which still further prevent manufacture and aggravate the shortage. And now publishers are anticipating an edict calling for great reduction in paper consumption. But regardless of any edict, conditions are so serious at the present that the publishers are watching every turn to reduce the tonnage. One step which the Cultivator is taking is shown on first cover page of this issue—instead of giving this space to an illustration this week it is used for editorial comment. We believe this particular comment, or statement of facts, is fully as interesting as the illustration. It is a wonderfully graphic presentation of California's importance as a food producing state.

Hereafter illustrations will not be taboo, for their worth is realized, and they will be used as much as possible, but more and more of the cover space will be given up to reading matter.

SOUND FINANCE

The supervisors of Imperial County, having nearly $2,000,000 of idle money, a portion of which it was impossible under the law to deposit in local banks, have proceeded to invest these funds in liberty bonds, or rather in certificates of indebtedness. This investment will net the county about $6,000 a month.

Not a bad turn for supervisors of other counties.

WHY NOT SUGAR FOR BEETS

A California beet grower who wished to secure full advantage of his year's work in the beet field asked the sugar factory to pay him in sugar at the price on which the factory based its returns to the grower; that is, the price paid for sugar at the factory door. If a nine cent price of sugar was used as a basis for figuring the grower's returns, why should not he be given his pay in nine cent sugar? But this suggestion was altogether too shocking to be considered for a minute by the manufacturer. He would not be so unjust as to ask the grower to take his pay in sugar; anyway, the sugar was all out of his hands and it was the "broker" who was sending up the price.

In other words, the grower of sugar beets is not competent to use his product for gambling purposes. Speculative values which are created after the sugar is "out of the manufacturer's hands" are for the benefit of the "friends of the manufacturer."

BE REASONABLE

The monthly financial review of the federal reserve bank of San Francisco says: "Prospects for excellent crops in 1920 have been materially improved by recent rains." Generally the remainder of this report is hopeful. However, regarding the transfers of real estate, there is a hint in the following. The Cultivator has no advice to give:

"Transfers of real estate are in large volume. There is a tendency throughout the district to purchase farm lands at high prices for the purpose of reselling at still higher prices. There is also a tendency on the part of many holders of small Liberty bonds to dispose of them to purchase preferred stocks of industrial corporations which offer higher rates of interest."

A MAN WHO KNOWS

The man who knows and knows he knows will be in good form for the next month. The census man will come with request for all kinds of information. On this information will depend much of the future. Unfortunately, he will often hear "I don't know." But the income tax man is different, and he will say "But you are supposed to know."

PACKERS CAPITULATE

Recent dispatches from Washington announced that the "big" meat packers had capitulated to the government and that they have agreed to divorce themselves from certain lines of business, including the ownership of stockyards.

Since the announcement, much speculation has been indulged in as to how the new order of things would affect the cost of living and the profits of the producer. Time alone will answer the many questions, but regardless of what effect the new situation will have, this much is certain: The capitulation of the packers establishes a far reaching principle in our national development. It means that no one group of men will be permitted to gain a monopoly upon essential food products. If nothing more has been accomplished, that great principle is worth much.

O SUGAR!

The time having passed in which the grower of beets could be benefited, there is a neat marking up of sugar prices. We now pay (this is some two or three days before going to press) $3 the 20 pounds. What has become of that 11 cent price which was fixed not so long ago by the government? We don't know. Will we ever see the old familiar

"20 Pounds One Dollar"?

Nevermore.

CLAIM THE BONDS

The Cultivator has repeatedly urged its readers to hold their purchases of Liberty and Victory bonds. Notwithstanding, it appears there is an enormous number of them offered for sale. It had hardly deemed it necessary to suggest that we all claim the bonds that are due to us, but now comes the director of the Pacific Coast war loan organization and says: "More than $41,000 worth of First Liberty Loan bonds, with accrued interest amounting to nearly $3,600, is going begging for rightful owners in the federal reserve bank of San Francisco."

These bonds have been lying in the bank for over two years. The bank suggests that if holders have lost their original certificates the bank should be notified and the holder will be aided in securing proof which will secure to him his property.

FARMERS NOT STRIKERS

The ill advised effort to bring farmers and the Federation of Labor together appears to be succeeding little better than the effort to bring policemen and firemen under the domination of the walking delegate. The farmer has often had occasion to feel that he was discriminated against, but he does not propose to commit unlawful acts to correct the discrimination. He is, however, learning the power of cooperation and is conducting his business operations in a business like way.

Commenting on this matter of affiliation, a writer in the Dairy Farmer said:

"I fully agree that the farmers have many common interests with the toilers of the cities. But events of the last year, and particularly of the last few weeks, have in my opinion alienated much of the good will toward organized labor that was previously in the hearts of the farmers. For this condition you may not be responsible, nor sane and conservative members of the A. F. of L.

At this moment your team is running away. We as farmers would be glad to aid in stopping them, but not to ride in the wagon. We do want the right to collectively sell our farm products and the right to buy our necessities collectively—but we do not ask the right to impose our collective agent upon any purchaser, nor the right to tell any purchaser that if he does not want our collected products at the price we name, that he must arbitrate or that he must not supply his wants from any other source if he would avoid trouble.

"We do not through legal enactment, nor in the court of public sentiment, ask any such un-American advantage. There are some radical differences, I fear, and with roots reaching down too deep for affiliation at this time. 'Law and order' are words not yet erased from the vocabulary of the farmer and cannot be with ease. He believes in the open shop. He is not opposed to labor unions. He may be divided in sentiment upon the right to quit work, to strike, and under what circumstances. But the right to contract between men is to him a sacred one. Farmers do want some relief, but they will only ask such relief through channels provided by the constitution and laws of the country."

The farmer does not believe in class organization, neither does he wish to be lined up with any people who claim rights because of belonging to a class; his cooperative marketing operations are organized purely to secure competent handling of his products in the markets. The laborer is entitled to organize and dispose of his products in the same way, but unfortunately organized labor has not in the past taken this view.

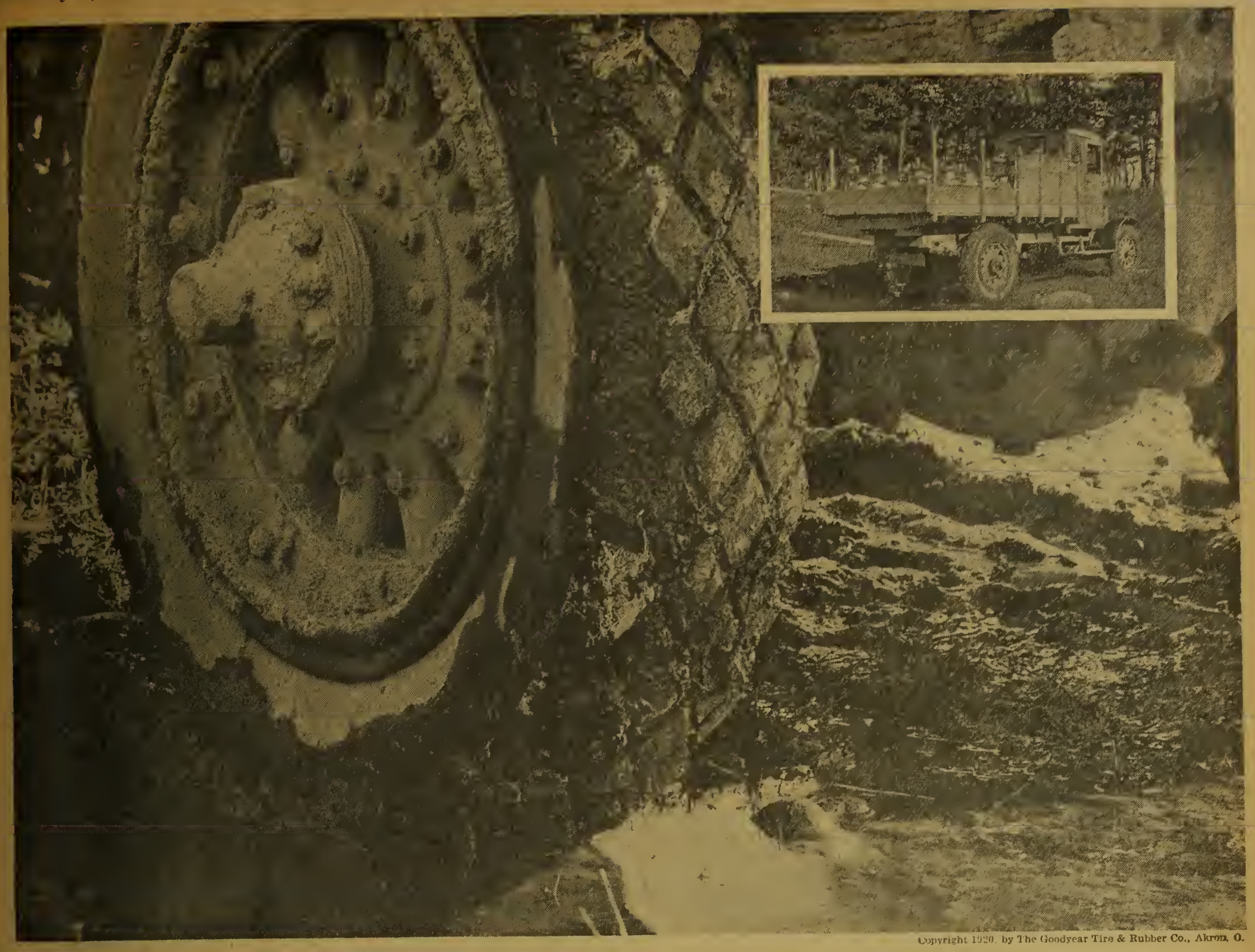
AARON AARONSOHN

Attendants at the state fruit growers convention held at Fresno in 1913 will recall one speaker who had come from Palestine to learn in the newest of agricultural sections what would give inspiration to one of the oldest agricultural sections of the world. Aaron Aaronsohn was engaged in reestablishing Jewish people in the Holy Land. One of the steps taken to advance this purpose, and which was being financed by wealthy Hebrews in America, was the building of an experiment station at Haifa. For that station he wanted the latest in agricultural information and the best in seeds and plants which might be used to restore to agriculture the barren hillsides of Mount Lebanon and the plains about the Sea of Gallilee. At that time Mr. Aaronsohn made comparison between conditions in the Holy Land and those in California. From that address we will quote in next week's Cultivator.

During the war Mr. Aaronsohn's family and all his helpers were massacred by the Turks. He escaped and at the close of the war was laying plans for continuing his work of encouraging the Hebrew people to return to the Holy Land. Having occasion to go from London to Paris, he took passage in an airship which is supposed to have been lost in the fog in the channel.

In a tribute to Mr. Aaronsohn and another explorer and seeker for plants, Frank N. Meyer, in the Journal of Heredity and reprinted in the Monthly Bulletin of the California department of agriculture, David Fairchild of the United States department writes:

"That, just as the war clouds are lifting and he was making plans to put in new crop plants and start a new agriculture on a quarter of a million acres of land in Palestine, and was hurrying through the air from London to Paris, he and his pilot should instantly drop through the fog into the sea and be lost, seems too hard to believe, for we had come to feel that there on the eastern, Oriental end of the Mediterranean there was coming into existence a type of experimental agriculture which would be epoch making and that Aaronsohn was the man destined to bring this about. When the war broke, a beginning in plant exchange had been made, and the plant breeders of America will find in Aaronsohn's bulletin on his agricultural explorations in Palestine a large number of valuable suggestions regarding the possibilities of new dry-land cereals, stocks for jujubes, oil producing grains, the carob fodder tree, and cover crops for citrus orchards. The date growers in the Salt River Valley have grown some of the date palms which Aaronsohn got for them in Egypt, and the desert hawthorn which he sent in is being tested as a stock for early pears."



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What Rootstocks Are We Using?

By W. L. Howard

THE rootstock problem is an old one but ever new to the fruit growers and nurserymen of California. Experience has taught that certain fruits may be adapted to adverse soil conditions by using the right kind of rootstock. While there is much that we do not know about rootstocks, we do have sufficient information on the subject to make it worth while to review the present status as regards the general or special use of the well known stocks we are using every year we continue to plant orchards.

Three years ago I made a survey of the nurseries of the state to find out just what stocks were then being used, assuming that the nurserymen were giving the people what they wanted. In other words, it seemed to be a safe assumption that the percentage of the different rootstocks being used by the nurserymen was a correct index of the extent to which such stocks were being planted. The interest in the results of this survey was so widespread that I have again canvassed the nurserymen in order to bring my figures up to date.

The results secured three years ago were as follows:

Stocks for almonds: Peach, 44 per cent; almond, 56.

For apricots: Apricot, 58 per cent; peach, 28; myrobalan, 13; almond, 1.

For cherries: Mazzard, 71 per cent; mahaleb, 26; miscellaneous, 3.

For peaches: Peach, 90 per cent; almond, apricot and myrobalan, 10.

For pears: Japanese, 63 per cent; French, 33; quince, 4.

For plums: Myrobalan, 60 per cent; peach, 37; almond, 3.

For prunes: Myrobalan, 64 per cent; peach, 24; almond, 11; apricot, 1.

For walnuts: Northern California black, 99 per cent; miscellaneous, 1.

The survey just completed, which of course includes the trees planted during the present season, shows results to be quite different in some particulars from what they were three years ago. At present a much larger percentage of almond root is being used as stock for almonds, and much less peach root for the same purpose.

The results for apricots show that apricot root is much less popular as a stock than formerly, that peach is about the same, and that myrobalan is used to a much greater extent than three years ago.

In the main, the results for cherries are about as they were, although about seven per cent more mazzard is being used than was previously reported, with a consequent decrease in the amount of mahaleb.

We are now using a much greater percentage of peach root as a stock for peaches than we were. Three years ago, almond, apricot and myrobalan made up ten per cent, whereas myrobalan was not reported at all as a stock for peaches during my recent survey.

The percentage of Japanese stock for pears has jumped from 63 to 76 per cent, and the French stock has decreased from 33 to 20 per cent.

The results for plums and prunes have not changed materially, except that we are now using more apricot as rootstock for plums and almond for prunes than we were.

By classifying the nurseries by regions some additional information is brought out regarding the preference for certain stocks in certain places. While we know, of course, that any given nursery doing a large business sells stock all over the state, it is assumed that it will be influenced by the desires of growers who may live near by under their particular set of climatic and soil conditions.

Three regions have been recognized, namely, the foothills, interior valleys and coastal valleys. It is interesting to compare or contrast the reports of rootstocks used by the nurseries in these different regions with the average for the whole state. It is also interesting to compare them with one another.

In the case of almonds, there are no great regional differences in the use of stocks, almond, the preferred root, being about the same in all districts. Apricot is a much more popular rootstock for apricot trees in the interior valleys than it is in either the foothills or the coastal region. Likewise, the peach is used much more as a stock in the same region than it is in either of the others. One striking feature is that myrobalan is so popular as a stock for apricots in the foothills and coastal valleys, while only a small percentage is used in the interior. Another interesting feature brought out is that mahaleb rootstock is so popular in the interior valleys and so unpopular in the foothills. Peach is a very popular stock for plums and prunes in the interior valleys and foothills but is not favored by the coastal valley nurseries. Almond is a very popular stock for prunes in the coastal region, but is used only in a small way in the foothills and interior valleys. Finally, a very large percentage of apricot is being used for stock for prunes in the interior valleys, while none is used in the foothills and less than two per cent in the coastal region.

Complete figures are presented below, and it is hoped that those who are interested will study them carefully. It might be added that for the first time one coastal valley nursery reports the use of a considerable percentage of Kieffer pear root as a stock for pears. The Kieffer, because the seeds can be procured from canneries, is often used in the East, especially when imported stock is scarce, but this is the first time I have met with this stock in California. There is no reason why Kieffer should not make a reasonably good stock, as it is probably more resistant to blight than French stock, although it is not as safe as the Japanese root.

Apparently the increased use of apricot as a stock for prunes is based on the belief that the apricot is more tolerant of a slightly alkaline soil than any of the other available stocks; at least this is the reason given for its use. In this case I should like to again call attention to the advisability of making larger use of Prunus davidiana as a rootstock for peaches, and perhaps for plums and prunes also where the soil is too alkaline for other stocks to thrive. I recently had an opportunity to visit an orchard near Yuba City, growing on davidiana stock and just now about four years old. Previous plantings of peaches on peach stock speedily died on account of the alkali.

ROOTSTOCKS USED FOR DECIDUOUS FRUITS IN CALIFORNIA, 1919

Fruit	Rootstock	Average Per Cent State	Average Per Cent Foothills	Average Per Cent Interior Valleys	Average Per Cent Coastal Valleys
Almond	Almond	67.3	75.0	75.0	75.5
	Peach	32.7	25.0	25.0	24.5
Apricot	Apricot	49.1	46.8	55.5	44.5
	Peach	27.2	13.2	37.8	20.2
	Myrobalan	23.7	40.0	6.7	35.3
Cherry	Mazzard	78.8	96.7	64.3	83.2
	Mahaleb	21.2	3.3	35.7	16.8
Peach	Peach	98.3	100.0	99.0	97.3
	Almond	1.3	....	1.0	1.8
	Apricot	0.4	....	....	0.9
Pear	Japanese	76.3	97.7	73.9	74.0
	French	20.2	8.3	25.0	19.6
	Quince	2.2	....	1.1	3.7*
Plum	Myrobalan	62.4	50.0	43.0	86.0
	Peach	31.6	46.7	44.5	14.0
	Apricot	4.4	....	10.0	....
	Almond	1.6	3.3	2.5	....
Prune	Myrobalan	63.3	75.0	41.5	71.8
	Peach	21.2	21.7	39.3	8.8
	Almond	10.4	3.3	5.0	17.8
	Apricot	5.1	....	14.2	1.6
Walnut	California Black	100.0	100.0	100.0	100.0

*Also Kieffer 2.7 per cent.

Orange County Citrus Institute

By Ernest Braunton

UNDER the auspices of the Orange County farm bureau a four day citrus institute was held at Fullerton, the evening sessions at the high school and the afternoon lectures and demonstrations at the ranch of S. W. McColloch, three miles northeast of Fullerton. One of the most instructive of the latter was given by Drs Barrett and Fawcett of the Riverside citrus experiment station, on diseases of citrus trees.

Dr. J. T. Barrett, at present acting director of the station, spoke on root diseases of citrus trees substantially as follows:

"We have gone astray in the treatment of citrus troubles in the past through lack of root investigations, and the two diseases I shall speak of have much the same effect upon the tree above as gopher injury to the roots. The first is best known as the oak tree root fungus, Armillaria mellea, really a toadstool, the mycelium or thread-like plant of which penetrates the tissue of the roots. As it travels underground its presence is unsuspected and with oak trees nothing is known of it in many cases until they suddenly die. It attacks eucalypts, peppers, sycamores, deciduous and evergreen fruit trees and many ornamental trees and shrubs.

"So far does it travel for victims that we have traced it from a sycamore across under a street and into an adjoining orchard. So persistent is it that eight years after removal of an oak, citrus trees were planted and some died in two years. As the mycelium has been traced six feet down into the soil it will be seen that it is hard to combat. The only surface manifestation will be clusters of large brown toadstools near the base of trees. It is not thought any new infections come through the spores, though these will quickly propagate in manure. The disease in most cases may be traced to native trees or shrubs. In one case a diseased sycamore was removed and navels planted and in four years some had died. Prof. Horne is controlling some trees in an area formerly affected by trenching around it and each year opening this trench to look for roots that may have entered. In removing diseased trees it is necessary to remove all the roots possible for they hold the armillaria in the soil for years. In 1914 one man built a concrete wall deep down in the soil, 400 feet long, to keep out this dreaded mycelium. The top of the wall is one foot below the surface to allow of cultivation. Every year the soil on top of the wall is dug up to look for menacing roots. This disease also attacks walnuts and they readily succumb. In fact, the citrus trees are the most resistant of any.

Dry Root Rot

"The dry root disease or rot is not a gum disease, and though the bark rots and will slough off, it later becomes dry if not forcibly removed. The affected part is at the crown just under the soil and does not extend far down, a distinctly crown disease. This is fusarium, of which there are several species often associated in one attack. It reaches clear through the wood to the very center, and very little can be done to stop its ravages. A sudden stoppage of water flow into the tree seems to be the immediate cause of death. In gum diseases the tree will recover, but this one is at present well nigh hopeless. We hope to learn something that may aid you and it may be that a close search may reveal the trouble in time to help. We have cut away roots and parts of trunk and still lost out. Do not despair, however, for while badly affected trees may as well be destroyed, where one root is affected it may be cut off or even a part of the trunk painted with asphalt and may be saved. The best disinfectant with which to treat the affected parts is corrosive sublimate in 50 per cent alcohol, or mercuric cyanide is good. The solution should be one to 500 of the alcohol. Allow it to dry thoroughly and then apply asphalt. In digging holes for young trees in affected areas do not replace the same soil in the holes; get it elsewhere. There is no evidence that this disease travels from one tree to another."

Gummosis

Dr. H. S. Fawcett in his opening remarks said: "Dr. Barrett has been telling you of two citrus troubles below the soil, and I will tell you something of two occurring above the soil. The first is gummosis, of which we know both cause and control, but of the second, or scaly bark, we know but little.

"Gummosis first appears as gum exuding from the bark at the surface of the soil though some bark has generally been killed before discovery and the amount of gum in evidence is no guage of damage but is dependent for supply upon season. Most infections come in the rainy season or after improper irrigation, but the trouble will not be apparent for two or three months. The bark will be killed through to the wood, due to a fungus which causes brown rot in the fruits of the lemon tree. Lemons hanging near the ground in infected soil areas will become infected by rain drops rebounding and touching the fruit. The mycelium is microscopic and grows into the bark, but if the bark be dry it will not be affected, so it is an easy disease to prevent.

"Lemon trees are more susceptible than oranges and sour orange is practically immune. To prevent infection it is only necessary to keep the soil away from the trunk down to the top of the main roots. This may expose the roots somewhat and make a little depression about the trunk, from which irrigating water should be kept, but no harm will result from exposure. The ounce of prevention is to bud high on sour orange stock. In light soils merely keep the crown clear, but in heavy soils it is well to paint the parts with Bordeaux paste or spray with a heavy Bordeaux mixture. In infected cases it is best to cut away affected parts and an inch or so of the good bark around the dead parts. Then treat with carbolineum, creolin, Bordeaux paste, and there are other materials equally good. If trees are completely girdled there remains nothing but bridge grafting or inarching, else will the trees die within nine months or a year. In one case of a 20 year old Valencia orange completely girdled I planted young seedlings around the trunk, grafted them in and the recovery of the tree was rapid.

Scaly Bark

"Scaly bark is a disease exclusively of the orange, not known on the lemon or even on the sour orange, and the Valencia is most susceptible. We cannot tell so much about this disease, its cause or prevention, as in the case of the gum disease. It starts through slight eruptions of the bark and scales

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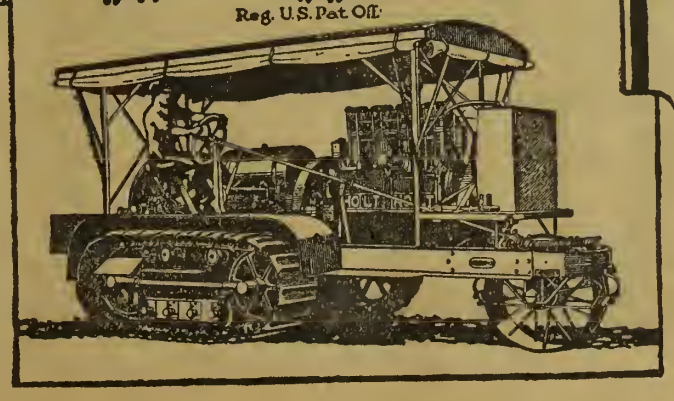

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of a half inch diameter peeling off. There is no gum at beginning but in six or 12 months gum will be found if diseased bark is cut or a few drops may ooze out. It may take six months or a year to affect a spot three inches square, and injury is not often noticed until one to three years has elapsed. We will speak of the disease in three stages or degrees of injury.

"The first stage may be said to occur one-fourth way around the trunk, and the treatment is to cut out the bark to solid wood and disinfect. But if the infected part is half or two-thirds the way round, or the second stage, it is suicide to cut it out. The better way is to scrape the bark, more especially around the edges, for in spite of the infection new bark will try to grow over the edges and should be aided in the effort. Do not neglect treatment, even if advance of disease is very slow, and keep at it. You may win. Preventive measures would be to treat the trunks two to five years before visible damage. Painting with all sorts of 'dope' has been tried to cure the affected parts but without avail, and in that line we have nothing to offer. In the last, or third, stage if the wood is cut into a strong bad odor will be noted. We do not know how nature spreads or transmits the disease, but trees may be inoculated with it."

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Soy Beans

What time of the year should I plant soy beans in the San Joaquin Valley? How should I plant them? Do they need much irrigation and cultivation? —A. J. S., Oakdale.

While soy beans are quite hardy it is better not to plant until danger of frost is past, April or the first of May. Rows are usually three and a half feet apart and plants are left from six to ten inches apart in the row. They do best on a light but rich soil. They should be covered about an inch deep, on slightly raised ridges if possible, if there is danger of heavy rains before beans are up, a condition seldom present in California. If on damp land irrigation will not be necessary. On the average soil one irrigation should do if applied at the right time. Watch the plants and if leaves commence to shrivel (not merely wilt) water at once and this should be sufficient to carry the crop through.

Blackeyes for Hog Feed

In your issue of November 22, Question and Answer page, I notice an inquiry from Subscriber, Fullerton, in re Blackeye beans for hog feed, and thought my experience might be helpful.

For several years I have been feeding Blackeyes in a mixture with other feeds to my brood sows and hogs that I grow out for brood stock. For two years I have planted Gyp corn or milo and planted Blackeye beans in the same row, letting the two crops grow together and when ripe hog them down. I have been highly pleased with this method, both with growing pigs and brood sows and gilts in breeding season. As regarding the value of beans for pork, I note Prof. Woll says they will produce soft pork. At the farm bureau auction sale of fat hogs at Modesto last May we had several lots of hogs fattened on beans. Some were fed on whole uncooked Blackeyes, some on other varieties cooked and some on cooked beans and stock molasses. We marked the different lots and had them killed separately and all killed out hard. A neighbor bought up a lot of cheap beans last spring and bought hogs and fed them the beans exclusively and had good hogs that made splendid gains with no other feeds. The Blackeye is the only bean that is palatable to the hog raw. All kinds of stock and poultry relishes the Blackeye. All other beans must be cooked to get the best results.—Elmer Lamb, Ceres.

Lemons Need Care

What treatment should be given to a lemon tree that has been neglected and allowed to dry out until the foliage is thin and yellow in color? It is a well shaped tree and is six feet high. —Subscriber, Santa Cruz.

The first step should be thorough tilth of soil, incorporating well rotted stable manure or any vegetable matter. Give it sufficient moisture. It might be well at first to give slight dressing of a complete fertilizer or nitrate of soda so as to give immediate start to the tree as soon as the warm weather comes.

Boys Stealing Honey

Some parties robbed my bee hives and in doing so destroyed many bees and did material damage. What relief have I?—Subscriber.

In case this is a bunch of live wire, high pressure American youngsters would suggest that you see their parents and ask the damage be made good. If they do not think best to do so then it would be a case for the courts. Boys will be boys but destroying property should be discouraged.

GRAIN LOADING STATIONS

Continued rfom Page 5.

the freedom acquired by the farmer to hold his grain for a favorable market and a time when his teams and trucks are not overdriven and cars are available.

That, in addition to all this, the farmer may secure a higher price for his crop by having all the processes of cleaning, storing and loading under his own control or that of an association of which he is a member, has not hitherto been realized. It may not be possible to secure a higher grading of wheat in this way but the amount of dockage for screenings and waste has always been a debatable matter, with a natural tendency on the part of the wholesalers to allow themselves a generous margin for safety. In other words, they always give themselves the benefit of the doubt. When the farmer cleans his own grain he does away with this and gets just what his product is worth in the market.

With barley the advantage to the farmer of his own loading station is much greater. Barley is usually bought by the lot, at a price agreed upon, which price is based largely upon the appearance of the grain, its content of chaff, waste, etc. With an elevator equipped like Mr. Kaiser's with both bearder and separator, the chaff, which is very light and very bulky and extremely damaging to the appearance of the grain, is removed at a trifling cost. Then the barley can be sold on its real merits. This difference has amounted to something over ten cents a hundred on Mr. Kaiser's most recent crop.

The Athlone elevator, with a capacity of 800 tons, was built three years ago by Cunningham and Hayes. They put through it in the first season about 1,500 tons and saved enough over the sack handling system to more than cover their entire expenditure for the elevator and the changes in harvesting equipment.

These changes in equipment have been a bugaboo to many farmers when they have discussed the change to the modern methods. The fact is that they are neither difficult nor expensive. Bulk handling attachments for the combined harvester, from which the grain is spouted into the wagons, can readily be applied, either locally or by the manufacturers. In Oklahoma and other portions of the Central West where the combined harvester is used they have been common for years. Grain tight wagon bodies for holding up to three tons are not very costly. When used as trailers with a truck or tractor they will get the grain from the fields or the farmers' metal bins to the loading station in quick time and with the least possible labor.

California farmers are fast concluding that the time has come to bring their grain handling methods in line with those of all other progressive sections. They are deciding that it is not necessary to scatter ten per cent of their crop about the fields, roads and warehouses, to feed the squirrels and the rats and mice, and to accept a lower rating on the remainder than that to which it is entitled in the market.—J. S.

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Use Nitrogen to Insure Lasting Fertility

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This Month in the Vegetable Garden

Southern California

By D. F. Reichard

How about the vegetable supply for this year? Now is the time to think and prepare for it. Plan the garden, draw a diagram of your garden to be and get the full pleasure and benefit of your garden work by spending a few evenings with the family planning and deciding how and what you are going to have. By way of assisting we would suggest that you select a piece of ground that is naturally rich, well watered and of a nature that drains nicely. Land with a southern exposure is to be preferred, but we cannot all have that. At any rate select land that has enough slope to irrigate well. The size should be considered, also, whether it is to be just a garden for this season or a permanent one. If it is to be an annual or seasonal garden it is only necessary to arrange space for such plants as tomatoes, peppers and egg plant; the rest can all be made up by planting seeds. With a permanent or perennial garden it will be more difficult to plan.

Now that the size and nature of the vegetable plot is decided get paper and pencil and make a list of what stuff you will grow; then draw a plan of the garden arranging plants in rows. You will want an asparagus bed, artichokes and different kinds of berries as well as the annuals. The perennials such as asparagus, rhubarb and berries should be planted at the side of the plot so as to give them special care as to fertilization, irrigation and cultivation without interfering with the care of the annual crops. It is preferable to have the bush berries arranged at the outer edge of the garden with the out growing ones outermost. Plant first the Rampant Himalaya, the upright growing standard black or the Mammoth blackberries; then logans, dew, phenomenal and raspberries. On the other side of the plot, or next to the berries, may be planted rhubarb and globe artichokes, the asparagus and herbs, including a plant or two each of sage, thyme, marjoram, savory, tarragon, parsley, chives, mint and horse radish. Then for the strawberries, if the family cares for them at all, 75 or 100 plants should be set out. Of the other plants, for a family of four or five, there should be set out six to 12 of the blackberry and loganberry types while there should be 18 to 24 raspberries, a half dozen each of rhubarb and artichokes and 50 to 100 asparagus. Chart such of these as you want on your plan, allowing the larger berry plants rows six feet apart, raspberries four to five feet, rhubarb, artichokes and asparagus, four feet, and strawberries two to three feet. All of these things should be set out as soon as possible so as to get them established before the growing season comes.

Next allow space for the plants of tomatoes, peppers and egg plants. Although these will not be planted for some time the space should be arranged. It may be used for a quick maturing crop like lettuce, spinach or radishes or as a seed bed for cabbage, etc., before the plants are set. February or March is plenty early for setting out these plants.

If your garden has to be a small one it is not advisable to plant potatoes because they require considerable space to produce enough to make them worth while, but most of us like potatoes and feel we should put in some anyway. In favorable situations potatoes may be planted most any time after the middle of January. An average yield amounts to about 12 times the weight of the seed planted. Plant potatoes, dropping one good piece every foot in rows about two feet apart, covering the seed three to four inches. In order of their earliness plant Bliss Triumph, Red Rose, White Rose, American Wonder, British Queen.

Plant a row or two of peas; Senators or Stratagem are the best, sowing at the rate of a pound to 150 feet, giving each row about two feet and covering the seed two or three inches, according to the nature of the ground; sow deeper in the lighter soils.

Plant carrots and parsnips. Be sure to have your ground deeply worked and pulverized so that their roots can properly develop. With these in the same drill may be strewn a few radish seed. These will come up quickly and break the surface for the more delicate carrot and parsnip plants. The radishes will be ready to use by the time the others are to be thinned out. Also plant turnips and beets. These will come up readily. An ounce of each of these will sow a row 100 to 150 feet long.

Put in some onion seed for dry onions, using Australian Brown for storing for next winter, White Globe for fall use and Crystal Wax or White Queen for early summer use and for pickling. An ounce of any one of these will plant a row 125 feet long and should produce about 75 pounds of ripe onions.

Set out plants of cabbage 15 to 20 inches apart in rows two to three feet apart. Cauliflower plants should be set about two feet apart in rows at least three feet apart and tall kale the same. Plant all of these in the bottom of a furrow at least six inches deep and gradually work the dirt in around them as they grow.

In the frostless spots Canadian Wonder and Ventura Wonder Wax beans may be planted, but for the most of us it is advisable to wait until next month to plant beans; the same may be said of sweet corn, melons and cucumbers. So, in planning the garden it is well to reserve some space for the appetizing crops that cannot be planted for a month or two.

For those with trees and bush berries already established this is the ideal month to prune and spray, giving them all a thorough cleaning. Cultivate among any growing crops and thoroughly work up all idle ground so that it will be in good condition when it is time to plant.

Northern California

By A. R. Gould

First and foremost the writer wishes to convey to all readers of these monthly notes his best wishes for the new year and hopes that it will be a year full of results. We shall endeavor to make this column even more helpful than before and where more details are needed be sure to write us care of the editor.

The raising of fresh vegetables is a healthful feature as it provides exercise and good food for the body which is essential to good living. It may be indulged in by all providing the land is available, and in this great country of ours there is enough for all and it does not take a thousand acre tract to supply the family with vegetables. Half an acre and less, properly cropped, will do it. There is nothing more interesting than to cultivate the soil, plant seeds and watch the returns from nature's storeroom. Of course it means a little hard exercise and close attention to keep up a succession but the results are well worth it. Those who cultivate their home garden plot are doing their share towards the work of crop production and supplying the world's need. Let one and all resolve to start in right now the first month of the year. Get a hoe, rake, digging fork, spade, shovel, pickaxe, grubaxe, trowel, garden line, wheelbarrow and one man wheel cultivator, and for the bugs insecticide and a pump sprayer. Some of the catalogs are now ready and you should select your seed from a reliable seed house. Cheap seed is to be avoided; it causes nothing but trouble and loss of time. Get it from those who know the business. After the recent rains the ground should be somewhat easier to trench. Soil which has

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become impoverished by continual cropping needs plant food and plenty of it and we would advise that farmyard manure be trenched in one to two feet deep, but where poultry or pig manure is used remember that a little of this will go a long way. It has a powerful effect. Artificial fertilizers are helpful such as bone meal, dried blood, sulphate of ammonia, etc., and wood ashes, lime and soot are also of great value worked lightly in the surface of the soil.

Lettuce

Sow on a warm border and afterwards transplant Los Angeles and Big Boston varieties. In the meantime prepare the plots for planting out by deep trenching with liberal applications of manure.

Kale and Cabbage

Where plants are obtainable it is advisable to plant these out in rows 18 to 20 inches apart and the rains will help them to become well established and provide green vegetables for late spring use.

Peas

Main crop peas should be now making good progress and early varieties will be coming into flower towards the end of the month. Keep the rows well cultivated. Sow for succession in rows 24 to 30 inches apart: Little Marvel, Stratagem, Blue Bantam and American Wonder. This last named is a heavy cropper.

Onions

This month main crop varieties may be sown and for this purpose we recommend Prizetaker, Australian Brown or Yellow Flat Danvers, all good keeping and desirable varieties. Have the ground well manured and the surface raked fine before the seed is sown and never try to work the soil when too moist. Apply soot or wood ashes where farmyard manure is not obtainable. Sow the seed very thinly in rows 18 to 20 inches apart and cover one-half inch deep. It will now be necessary to thin out the earlier varieties sown last month and the young plants may be left four inches apart in the rows. At the same time you may transplant those taken out to other well prepared plots.

Carrots

Sow in rows 18 inches apart in soil of a deep sandy loam richly manured such varieties as Early Shorthorn and Danvers Half-long.

Turnips

Sow Early Snowball and White Egg in rows 18 to 20 inches apart. They repay for a liberal dressing of manure some weeks before sowing.

Herbs

You should secure plants of the following: Mint, thyme, sage and sweet marjoram. They may be planted along the border of paths or in a special plot.

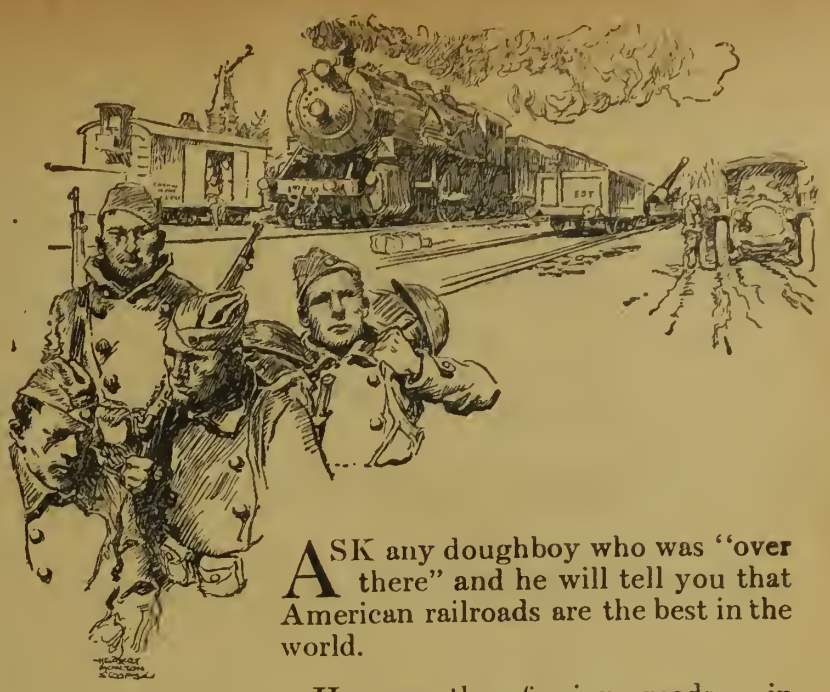
Strawberries

Clean through all existing plots and remove any young plants from between the rows, using these to plant other plots. Apply a good manure dressing to the older plots and cultivate between the rows. If you intend starting a new strawberry plot secure plants true to name of such varieties as Oregon Improved Everbearing, Gold Dollar and Malinda.

POTATO INSPECTION IN IDAHO

W. H. Wicks, director bureau plant industry of Idaho, advises that the state department is placing in all cars of potatoes a weevil-free certificate by official potato inspectors where the conditions justify a certificate. When potatoes are not in clean sacks or cars are found to contain alfalfa hay or cereal straw no certificate is issued.

This procedure is designed to facilitate the marketing of potatoes regardless of the requirements of the state in which they are shipped. Some cars are not billed directly to states requiring such a certificate, but market conditions may cause the car to be rebilled and diverted to states requiring such inspection. By inspection of all cars and the placing of a weevil free certificate in each one entitled to such certificate, much delay and inconvenience is avoided in case one of these cars is resent to states requiring such inspection.



The railways of the United States are more than one third, nearly one half, of all the railways of the world. They carry a yearly traffic so much greater than that of any other country that there is really no basis for comparison. Indeed, the traffic of any two nations may be combined and still it does not approach the commerce of America borne upon American railways.

—*United States Senator Cummins.*

ASK any doughboy who was "over there" and he will tell you that American railroads are the best in the world.

He saw the foreign roads — in England and France, the best in Europe — and in other Continental countries — and he knows.

The part railroads have played in the development of the United States is beyond measure.

American railroads have achieved high standards of public service by far-sighted and courageous investment of capital, and by the constant striving of managers and men for rewards for work well done.

We have the best railroads in the world — we must continue to have the best.

But they must grow.

To the $20,000,000,000 now invested in our railroads, there will have to be added in the next few years, to keep pace with the Nation's business, billions more for additional tracks, stations and terminals, cars and engines, electric power houses and trains, automatic signals, safety devices, the elimination of grade crossings — and for reconstruction and engineering economies that will reduce the cost of transportation.

To attract to the railroads in the future the investment funds of many thrifty citizens, the directing genius of the most capable builders and managers, and the skill and loyalty of the best workmen—in competition with other industries bidding for capital, managers and men — the railroad industry must hold out fair rewards to capital, to managers and to the men.

American railroads will continue to set world standards and adequately serve the Nation's needs if they continue to be built and operated on the American principle of rewards for work well done.

This advertisement is published by the Association of Railway Executives.

Those desiring information concerning the railroad situation may obtain literature by writing to The Association of Railway Executives, 61 Broadway, New York

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We Sell the Best 40 Sows That Ever Went Through the Sale Ring in the West.

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Write For Catalogue

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Southern California Sale Circuit — Diamond Bar Ranch, January 28, Spadra; Winsor Ranch, January 29, Exposition Park, Los Angeles; Creamer-Graham Sale, January 30, Owensmouth.

Special Notice to Duroc-Jersey Breeders

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W. V. BENNETT Nord, Cal.

GUESS WORK IS COSTLY

This is particularly true in selecting foundation animals. I have a number of carefully selected Duroc-Jersey sows and gilts of the most approved blood lines and bred to boars of equal caliber that are priced so you can make a profit. Write for particulars.

F. M. JOHNSON NAPA, CAL.

X--AV-I-A-TOR--X

MEANS AWAY UP HIGH

Quality Holsteins

Our herd is headed by a grandson of the world's greatest dairy cow, Tilly Alcartra,

Sir Aaggie Korndyke Alcartra

whose dam and sire's dam average:
Butter, one year..... 1096.58
Milk, one year.....27316.60
Females and bulls from A. R. O. dams for sale
All animals guaranteed

Leeman & Kilgore, Ripon, Calif.

Brighton Farm Herds

Registered Shorthorns and Berkshires---Both Sexes

H. L. & E. H. Murphy

Perkins, Cal.

Several Records Broken by Higdon Heifer

Ruby Pletertje of Forest Hill 2nd, the great Holstein heifer owned by W. J. Higdon, Tulare, still keeps up the production that placed her at the top of the Pacific Coast senior four year olds with her official record of 39.74 pounds butter from 667.5 pounds milk in seven days. In 30 days she made official production of 162.11 pounds butter from 3,134.9 pounds milk, which is the Pacific Coast record over all ages and the third highest in the world in class. It is also interesting to note that while around 50 cows of all ages have exceeded her seven day record, only 12 of all ages have exceeded her 30 day butter record. During her best seven consecutive days of milk production she made 797.4 pounds, milking over 118 pounds three days with a high day of 118.6 pounds. Her best 30 consecutive days of milk production totaled 3,301.4 pounds, an average of over 110 pounds per day. She will be carried on yearly test and bred to Mr. Higdon's great young sire King Korndyke Pontiac 20th. Harry L. Redd, herdsman at Mr. Higdon's Tulare Holstein farm, under whose care these records were made, rates this heifer as one of the greatest cows he has ever seen and is confident that she will make a yearly record fully in keeping with her short time production.

Ruby Pletertje of Forest Hill 2nd

Two Excellent Records at Kounias Stock Farms

It is not often that a breeder beginning yearly test work has the satisfaction of having the first two cows go above the 800 pound butter mark, but such is the case at Kounias Stock Farms, owned by S. G. Kounias, Modesto. No especial effort was made to secure the limit of production from either cow, as both were milked only two times for a long period of the records. The first to finish was the eight year old Dominita Colantha De Kol, who at the beginning of her lactation period made 26.42 pounds butter from 610 pounds milk in seven days, and 116.34 pounds butter from 2,358.9 pounds milk in 30 days. In 365 days she made 942.2 pounds butter from 24,351.6 pounds milk. The other record was made by Dominita Bonnie De Kol 4th, out of the same dam as Dominita Colantha De Kol. At the beginning of her lactation period she made 20.94 pounds butter from 580.7 pounds milk, and for the year made 839.3 pounds butter from 26,041 pounds milk. Both of these cows rank high as breeding cows as well as producers. Dominita Colantha De Kol has three daughters with official records of 27.48 for a senior three year old, 22.01 for a senior two year old, and 11.31 for a senior yearling. Dominita Bonnie De Kol 4th has one 24 pound daughter and another with 14 pounds as a senior yearling. An interesting newcomer at Kounias Stock Farms is a bull calf sired by Judge Segis, the famous bull at Hollywood Farm, Hollywood, Washington, out of Hollywood Ormsby Segis, a 20.09 pound three year old whose dam is the highest yearly record daughter of Sir Skylark Ormsby Hengerveld, with 1,127.27 pounds butter in one year, and 31.58 pounds in seven days.

Diamond Bar Sale Develops Wide Interest

It is doubtful if any Duroc-Jersey sale to be held in the West is attracting more attention than the sale scheduled by the Diamond Bar Ranch at Spadra for January 28. The principal interest is due to the fact that the offering to be sold contains so much of the blood that is most popular in the East and is the first time that California breeders will have an opportunity to appraise the blood of Pathfinder and the Sensations in local offering. The owners of the Diamond Bar herd believe that what is needed most for the livestock development of this state is to establish our own sources of supply near at home in order that the prospective buyer will be saved the otherwise necessary traveling and express charges, and they feel that their efforts to do just this by making it possible for local breeders to buy the most popular Eastern blood will be appreciated. All arrangements have been made to entertain a large crowd. The sale will be held rain or shine and the whole of the famous herd will be on exhibit, including the well known herd boars, Ace of Pathfinders, Mammoth Sensation Jr. and Great Sensation 2d. Ord L. Leachman will be the auctioneer but the management of the sale will be in charge of Walter T. Gatton who is superintendent of the swine department of the ranch.

COMMITTEE TO SELECT CATTLE FOR HOLSTEIN GUARANTY SALE

Last week H. V. Bridgford, president of California Holstein-Friesian Association, appointed a committee of four to select the registered Holsteins for the Guaranty Sale to be held at Sacramento on March 25, 1920. The committee is composed of Frank L. Morris, Woodland; A. J. Stalder, Riverside; W. J. Higdon, Tulare, and C. L. Hughes, Sacramento. The committee was instructed to complete its work as soon after January 1 as possible, and it is believed that from 60 to 70 head can be selected that will set a new high mark for Holstein quality in western sales. The sale will be managed by California Breeders Sales and Pedigree Company, Sacramento.

World's Grand Champion Duroc Herd
National Swine Show 1919

THE BLOOD of CHAMPIONS

at Public Sale
Wednesday, Jan. 28, 1920

Ace of Pathfinders

Grand Champion at Los Angeles, 1919, headed the World's Grand Champion Duroc Herd at the last National Swine Show. Many of the Sows in our sale will be bred to him for March farrow.

This will be the place to get your under-six-months show prospects and futurity pigs for 1920.

Headed by Ace of Pathfinders

40 - Sows and Gilts - 40

Every One an Exceptionally Good Animal, and Every One Sired by and bred to Prize Winners. An Offering Equaled by Few and Excelled by None.

Notice This Superb Breeding

We will sell Gano sows bred to Ace of Pathfinders and Mammoth Sensation Jr.; Creator sows bred to Ace of Pathfinders; Kings Col. sows bred to Ace of Pathfinders and Mammoth Sensation Jr.; California's Great Wonder gilts bred to Ace of Pathfinders, Mammoth Sensation Jr. and Great Sensation 2nd; Model Chief 2nd sows bred to Ace of Pathfinders, Mammoth Sensation Jr., California's Great Wonder, Sensation 2nd and Orion Reformer; Councillor and Model Triumph sows bred to the above great boars. Note that there is not a sow mentioned that is not sired by a champion boar.

Special Attractions

One sired by Big Pathfinder bred to Ace of Pathfinders; one sired by Kings Col. bred to Mammoth Sensation Jr.; two sired by Creator bred to Ace of Pathfinders. These last mentioned sows are out of our show herd of prize-winners at the 1919 fairs and livestock expositions and are bred to Grand Champions and National Swine Show winners.

Send for Your Catalog Today

Diamond Bar Ranch

Where Size is the Fashion and Quality Reigns Supreme

Spadra Los Angeles County **California**

Ord L. Leachman, *Auctioneer* **Walter T. Gatton,** *Supt. Swine Dept.*

Send Mail or Telegraph Bids to the Auctioneer or to Ralph P. Royce, or Bruce S. Bennett, representatives for California Cultivator. They will be given every consideration

-the GENUINE Germain's Proven Hairy Peruvian Alfalfa Seed is SEALED and STENCILED

Take no chances! Buy the genuine—the PROVEN strain! Buy DIRECT from the original introducers of Hairy Peruvian Alfalfa in California.

For the absolute protection of every buyer we have SEALED and STENCILED every sack. Look for these signs—they indicate the genuine article.

W. E. Alexander of Anaheim, Calif., writes: "Germain's Hairy Peruvian has produced nearly double the yield of the old variety of alfalfa. It has more leaves and less stem."

Write for booklet containing 30 signed letters of endorsement.

Germain Established 1871
Seed & Plant Co.
N. E. Corner
Sixth & Main Sts.
Opp. P. E. Depot
Los Angeles, Cal.

PURE HAWAIIAN CANE
MOLASSES

By actual test it will increase pork production half a pound daily over a barley and tankage feed yet it sells for less than half the price.

By actual test it will increase milk production 15 per cent.

Seventy-five per cent of the Blue Ribbon Winners at the Livestock Show were owned by people who are feeding molasses.

If you want increased production at lower costs feed molasses.

Write us at once for prices and interesting booklet telling how to reduce feeding costs.

W. H. Young Company
58 Sutter Street San Francisco

Is a Calf Worth 23 Cents?

For 23 cents you can insure your calves against death from Blackleg by having them vaccinated with PURITY BLACKLEG AGGRESSIN. (The Kansas Germ Free Blackleg Vaccine.) One treatment immunises for life and there is no danger in introducing Blackleg into healthy herds of cattle. We also manufacture and sell PURITY ANTI-HOG CHOLERA SERUM, PURITY MIXED VACCINE for swine, and PURITY HEMORRAGHIC SEPTICEMIA VACCINES for cattle and sheep. Stop your losses and increase your profits—it's good business. For service that counts, and does not end by selling, write, wire or phone

PURITY SERUM CO., J. L. Thatcher, Manager (Successor to Thatcher Serum Co.)
Riverside, Cal. Sacramento, Cal.

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

January 30. C. F. Mohnike, Angiola.
Thursday, March 25, Guaranty Sale, Sacramento.
April 8. Breeders Sale, Tulare.
Wednesday, April 21, A. M. Bibens, Modesto.
Wednesday, May 12, Leeman & Kligore, Dispersal, Ripon.

Herefords

During last week of February, Pacific Coast Hereford Cattle Breeders' Association.

Shorthorns

April 17, Butte City Ranch, Butte City.

Berkshire Swine

February 14. J. Francis O'Connor, Santa Rosa.
February 15. F. J. Sandercock, Sacramento.
February 16. Muddux & Son, Sacramento.
February 18. Western Berkshire Congress, Davis.
April 17. Butte City Ranch, Butte City.

Duroc-Jerseys

January 14. State Duroc-Jersey Breeders Association consignment sale, Davis.
January 15. Harvey M. Bergiund, Dixon.
January 28, Diamond Bar Ranch, Spadra, Los Angeles County.
January 29, Winsor Ranch, Bonita, sale in Los Angeles.
January 30, Ireland Ranch, Owensmouth, Los Angeles County.
February 4. Fresno County Duroc-Jersey Breeders Association, Fresno.
February 10. Glenn County Duroc-Jersey Association Sale.
February 18. Tulare County Duroc-Jersey Association Sale.

Poland Chinas

January 10. Fred Gatewood, Fresno.
January 17. Bassett, Ross and Crawshaw, Hanford.
January 24. H. D. McCune, Hanford.
January 26. Chas. Gatewood, Fresno.
January 27. Geo. V. Beckman and Sons, Lodi.
January 28. Hale I. Marsh, Modesto.
February 6. Tulare Poland China Breeders Association, Tulare.
February 12. San Joaquin Poland China Breeders Association, Lodi.
January 13. Glenn County Poland China Breeders, Orland.
February 21. Merced County Poland China Breeders Association, Merced.
February 21. McSwain, Merced.
February 28. Kings County Poland China Breedrs Association, Hanford.
February 29. Les McCracken, Ripon.
March 13. Haag & Bernstein, Hanford.
April 17. Butte City Ranch, Butte City.

Shetland Ponies

April 17. Butte City Ranch, Butte City.

Shropshire Sheep

J. F. McSwain, the Poland China breeder of Merced, has recently added to his herd a young boar by Long Chief Again, grand champion of Indiana 1918 and whose dam is by Mc's Big Orange.

W. A. Young, Lodi, recently purchased the Poland China boar Young's Timm Jones from H. Fesenmeyer, Clarinda, Iowa. This boar is by Fessy's Timm, dam by F's Big Jones and described in the sale catalog by Mr. Fesenmeyer as being in the $5,000 class within a year. However, Mr. Young states that he has in "The Whizzer," a spring boar of his own breeding, by Long Big Bone Jr. and out of Black Beauty C., first prize junior yearling and reserve grand champion at this year's state fair, a boar that has been pronounced by both Eastern and Western judges a better boar than the one he secured in the East. He is practically sold out. Recent sales include a boar to Walter Cooms, Elk Grove, and one to John Peterson, Paso Robles.

The Ortega-Underhill Rancho, Santa Barbara, Thos. T. Dinsmore, manager, gives excellent report as to conditions in that great breeding herd of Hampshire swine. The herd is also strong in numbers, while blood lines and quality are A-1. The Santa Barbara herd is just now particularly strong in weanling pigs, both sexes, and there are likewise some excellent prospects in bred sows. Visitors are welcome at the ranch at all times. There is not a ranch with superior equipment for breeding purposes anywhere.

A. W. Morris & Sons, owners of the world famous herd of Holsteins, have announced the purchase of the well known H. E. Coil ranch located one mile northeast of Woodland. By this deal the Morrises come into possession of one of the best ranches in Yolo County and it is their intention to convert it into one of the most modern dairy plants in the country. Possession will be taken early in January and building operations will commence as soon as possible.

While attending the recent Morris sale at Sacramento, J. E. Phillips, who has established one of the select herds of Holsteins at his farm near Fresno, announced that he had sold his Fresno property and purchased a ranch near Dixon, Solano County. Phillips will begin the erection of modern dairy buildings at once and will transfer his herd to the new location as soon as possible. During the past year Phillips has brought from the East a very superior lot of Holsteins that are certain to add much strength to the industry of the state.

R. F. Guerin, Visalia, writes: "Have just completed seven day tests on the following two year old heifers: S. V. K. P. Claire of Sunnyside 24.64 pounds butter from 480.1 pounds milk; S. V. K. P. Oceola of Sunnyside 19.796 pounds butter from 368.4 pounds milk; Katie Hengerveld Butter Girl 16.54 pounds butter from 355.5 pounds milk. The first two are daughters of Sir Veeman Korndyke Pontiac, my senior herd sire now at the head of the Burr Farms at Los Angeles."

On Tuesday, January 27, 1920 Geo. V. Beckman and Sons will make their first offering of Poland Chinas at public sale. For years the Beckmans have been breeding Poland Chinas and have by careful selection and purchases built up a herd from which this offering has been selected. Forty sows and gilts will be sold, 20 of which will be bred to their two herd sires, Matchless Big Bob and Lakeside Defender. Mr. Beckman states that he believes this offering will be appreciated by those attending the sale and every animal sold will be a valuable investment for the purchaser.

The first public sale of H. D. McCune, breeder of big type Poland Chinas, will be held in Hanford, Saturday, January 24, 1920. At this time he will sell 60 head, 40 of which will be bred sows and gilts, the remainder being spring pigs of both sexes. Mr. McCune states that the animals to be sold are true to type, are representative of the most popular blood lines and have been well developed. The bred animals selling will be bred to King's Massive Orange, McCune's Buster and Col. Jack's Surprise.

Fred Gatewood will sell 55 Poland Chinas in Fresno January 10. Of this number 15 open gilts are by Giant Bob and 25 bred sows and gilts will be bred to Fresno Boy, first prize senior boar pig at 1919 state fair and first prize senior boar pig and junior champion at Fresno fair, meeting and defeating 22 boars at these two fairs.

Chas. Gatewood, who disperses his herd of Poland Chinas in Fresno, January 26, states that included in the sale are the two young boars Prospector by Long Prospect and Gatewood's Prospect by Wade's Prospect, which he believes have a wonderful future if they are properly developed from now on. He says he personally selected these two boars to retain in his own herd with the view of mating them with the daughters of Giant Bob.

Z. M. Dickey, Dinuba, who operates a large ranch near Travers and has been a large producer of pork, has decided that he can produce pork cheaper through the use of pure bred sows and boars than by grade sows even though a pure bred boar was used. At practically all the fall sales of Poland Chinas he has been a large and liberal buyer.

W. L. Choisser, Riverdale, recently sold his farm but has secured a part of the Van Cleef ranch and will continue the breeding of Poland Chinas. He has some promising fall litters by the Van Cleef herd boar, Vaughn's Jones, which he expects to develop, and a number will be shown at next year's shows.

Two years ago A. J. Van Cleef, Riverdale, began establishing a herd of pure bred Poland Chinas. At recent sales Mr. Van Cleef has been a liberal buyer, selecting sows of known big type breeding as well as strong individual merit. His present herd boar

Berglunds' Annual Duroc Sale

Dixon, Cal., Thursday, January 15

35 Big Tpye Bred Sows and Gilts — A Few boars

On the above date I will offer, what critics generally concede to be one of the most desirable lots of pure bred Durocs ever sold in California. Twenty-five bred sows and gilts, seven open gilts and three superior spring boars are included. The blood lines represented are as good as money can buy and are the lines of breeding responsible for many of the leading prize winners at recent California fairs as well as the larger Eastern shows.

Many of the offering are either sired by or bred to California Orion King, by a son of Orion Cherry King, that is the sire of two of the three National grand champions and out of a daughter of Joe Orion, the boar that sold for $5,000 when over eight years old. Others are by Chief Defender whose sire was junior and reserve champion at the 1918 state fair and whose dam was grand champion at the same show. Such breeding is a sure source of quality Durocs.

Plan to attend this sale and the state association sale at Davis the day before. You will not be disappointed. Write now for the catalog.

HARVEY M. BERGLUND — **DIXON, CAL.**

Ord L. Leachman, Auctioneer

First Annual Bred Sow Sale

California Duroc-Jersey Breeders' Association

University Farm, Davis, Cal, Wednesday, January 14

40 Hand Picked, Bred Sows and Gilts

What We Offer

In this, the initial sale of the official state organization, for the promotion of the Duroc-Jersey, it is but natural that the character of the offering be such as to reflect the greatest credit upon the breed. Accordingly, the leading herds of the state have been drawn upon to furnish a quality such as has never before been offered California buyers.

The offering includes bred sows and gilts carrying the demonstrated blood lines, and every animal is bred to or is sired by a boar that stands in the front rank.

In the pure bred livestock industry nothing is more certain than this fact: The best can only be produced from the best and the fact that the California Duroc-Jersey Breeders' Association stands back of this offering is proof that the entire lot is right and reliable.

Pure Bred Durocs Efficient

Regardless of the price of feed or market prices, no man who is raising hogs on any scale can afford to raise other than pure bred Durocs. Pure bred Durocs have proven themselves in every state in the Union. They outnumber any other breed because they are profitable. In other words, they will make larger and more economical gains than hogs of indifferent breeding. Therefore they mark the way to cheaper pork production costs. Remember this: Pure bred Durocs are not **fancy stock**—they are downright practical money makers.

An Opportunity

This sale furnishes an exceptional opportunity to buy a foundation herd of sows that will not only increase your pork profits but will add to the pleasure of your feeding operations.

Naturally, You Want the Best. Then Breed Durocs Because

1. Durocs fill every demand of the practical hog raiser.
2. Durocs are prolific.
3. Durocs mature rapidly.
4. Durocs breed uniformity in size, type, conformation and color.
5. Durocs are vigorous, hardy, good rustlers and good mothers.
6. Durocs are profitable.
7. Durocs outnumber any other breed.

You can attend this Sale

with the greatest confidence and feel certain that the offering represents the best to be found in California. Come to the University Farm; meet the men who are producing Durocs and make a start on the road to greater pork profits. You'll be welcome.

Every Animal Guaranteed a Breeder. Write for Catalog

Ord L. Leachman, Auctioneer

California Duroc-Jersey Breeders' Association

Harvey M. Berglund, Dixon
Sales Manager

S. E. Whiting, Sacramento
Secretary

LES McCRACKEN SAYS:

King's Big Bone Leader

is the greatest Poland China sire on the Pacific Coast. His get, both boars and sows, have the arched back, plenty of stretch, size and bone. In practically every sale where his get is offered it sells away above the average.

50---Bred Sows and Gilts---50

BRED TO

King's Big Bone Leader and Giant Bob 2nd

Will be sold in my sale to be held in

Ripon, Cal.

Thursday, Jan. 29th

1920

THEY ARE BY SUCH SIRES AS

Blue Valley Tecumseh
King's Big Bone Leader
Young Jumbo---Giant Bob
Joe's King---Model Major
I B A Wonder
Caldwell's Big Bob

This offering should command the interest of breeders and farmers generally and a litter by either of these boars from one of these top sows should prove an exceedingly profitable investment.

The sale will be held on the farm one mile north of Ripon. Ample protection against bad weather.

A hot lunch will be served at noon

Geo. W. Bell, Tulare, Auctioneer

Send immediately for catalog and acquaint yourself with the breeding of the animals offered in this great sale.

LES McCRACKEN, RIPON, CAL.

is Vaughn's Jones, by Giant Jones, a boar he secured from C. A. Vaughn, Hanford, who purchased him while in the East last spring making purchases for his own herd. Mr. Van Cleef is lending his efforts towards establishing new breeders in his vicinity and recently sold three gilts and a boar by Vaughn's Jones to Silva Leoni, Burrel.

Fifty bred Poland China sows and gilts will be the offering of Les McCracken in his sale that will be held on his farm near Ripon, January 29. They will be bred to King's Big Bone Leader, one of the most popular sires on the coast, and Giant Bob 2nd, a son of the 1919 grand champion Giant Bob. The blood lines of the offering have been varied sufficiently to afford the buyer ample opportunity to select according to his needs, and no doubt Mr. McCracken will receive ample support from breeders and farmers alike.

A. A. Jenkins of Tulare reports demand for Jerseys very brisk. He has recently sold three young Jersey bulls. The first two were sons of Gertie's Son's Victor, to S. Hershberger of Tulare, Gertie's S. V. Eminent, whose dam made 625 pounds with second calf; to A. J. Waite of Earlimart, Gertie's S. V. Exile King who won first in his class at the Fresno and Tulare fairs. (His full sister is on test as junior two year old and has made 464 pounds in ten months.) The third bull sold to H. D. Beckwith of Tulare, Gertie's Olga Melia Lad, a son of the R. of M. bull Olga Melia Pogis, a grandson of Raleigh's Merridale Mattie on his dam's side.

Burr Farm, Los Angeles, announces that the farm is offering several pure bred bulls from some of the best producing cows in the dairy. This dairy has been built up through careful selection and through cow testing so that the animals offered are exceptionally choice. Regarding these young bulls Burr Farm writes: "They are of service age and are certainly a

GUERNSEYS

QUALITY distinguishes Guernsey Products

The highest natural golden yellow color, delicious individual flavor, and high content of butter fat combine to make Guernsey milk in greatest demand by discriminating consumers. Write for our free booklets.

THE AMERICAN GUERNSEY CATTLE CLUB
Box C 39 Peterboro, N. H.

QUALITY ECONOMY QUANTITY

Some of the finest
GUERNSEYS
in the West are at
Hollow-Hill Farm
Colton, Cal.
Only Bull Calves For Sale

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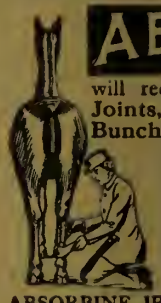


will reduce inflamed, swollen Joints, Sprains, Bruises, Soft Bunches; Heals Boils, Poll Evil, Quittor, Fistula and infected sores quickly as it is a positive antiseptic and germicide. Pleasant to use; does not blister or remove the hair, and you can work the horse. $2.50 per bottle, delivered.
Book 7 R free.

ABSORBINE, JR., the antiseptic liniment for mankind, reduces Painful, Swollen Veins, Wens, Strains, Bruises; stops pain and inflammation. Price $1.25 per bottle at dealers or delivered. Will tell you more if you write. Liberal Trial Bottle for 10c in stamps.
W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

Dispersal Sale

45 Registered Holstein Cows, Heifers and Bulls **45**

20 High Grade Holstein Cows and Heifers **20**

Dixie Ranch, Angiola, Cal.
Friday, January 30, 1920

Mr. Chas. F. Mohnike, present owner of Dixie Ranch, has decided to close out the dairy department, and has instructed us to make a complete dispersal of his good herd. This is an unusually attractive herd of cattle, bred in very substantial lines, and including many individuals of extra good type. The herd is also in excellent physical condition, and we regard the herd as a whole as one of the most promising that we have ever sold. The herd is headed by

Creamcup Fidessa Cornucopia Lad

who is by a son of the 33.35 pound cow Fidessa Bloom and out of Anselogess of Sleepy Hollow who made 32.68 pounds butter in 7 days and 897.08 pounds butter from 22,751.7 pounds milk in one year. Eleven of his young daughters will be in the sale and all bred females are in calf to him.

THE GRADE COWS AND HEIFERS are high class in every way and should prove attractive to dairymen wanting the good ones.

We will also sell 30 Poland China feeder hogs, two teams of good mares, and one new No. 17 De Laval Separator with one horse power motor.

Catalog Free on Request. Management

California Breeders Sales and Pedigree Co.

J. M. Henderson, Jr., President C. L. Hughes, Sales Manager
Sacramento, California
Auctioneers—Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare

The Highest Priced SIRE and SON

KING KORNDYKE PONTIAC 20th

and HIS SON

KARLRAY PONTIAC TOLA

King Korndyke Pontiac 20th, our junior herd sire, at $6500, is the highest priced Holstein bull ever sold at public sale in California.

Karlray Pontiac Tola, a three months old son of King Korndyke Pontiac 20th, and the great heifer K. P. Tola Joe, has been sold by Gotshall and Magruder, Ripon, to A. B. Spooner, San Luis Obispo, at a price never exceeded in California for a bull calf at private sale.

In these instances price is a true measure of quality.
Why not put a son of this sire at the head of your herd?

OUR ENTIRE HERD IS TUBERCULIN TESTED

Tulare Holstein Farm

W. J. HIGDON, Owner TULARE, CALIF. H. L. REDD, Herdsman

very fine lot, both from the standpoint of breeding and individuality. We will have an official record for the dam of every calf sold and as they are sired by such bulls as Sir Veeman Korndyke Pontiac, Sir Manuel Hengerveld, Prince Juliana De Kol Walker and King Pontiac Netherland Segis 3rd, buyers can be certain that they are going to get bulls that will increase production in their herds. As a result of one of the recent sales from this bunch of bull calves one went to T. C. Wood of Maricopa. This calf is out of Stratford Segis Blanche De Kol 2nd, the cow we purchased at the guarantee sale last spring. She made as a three year old 22.93 pounds of butter, and in five months and ten days she has given on year record 9,989 pounds of milk. Another good bull calf went to Boardman Bros. at Delano. This calf is sired by Sir Veeman Korndyke Pontiac, our herd sire, and its dam is Anatolia, who is a sister to Boweda, the 37 pound cow. Another bull calf went to Joe Telford at Hynes. The dam of this calf is Hodra, a cow that weighs 1,700 pounds, who made on her first month's test 1,700 pounds of milk and 73 pounds of fat."

STATE DUROC ASSOCIATION TO HOLD FIRST SALE

The plans made at the meeting of the Duroc-Jersey breeders at the state fair last September are about to materialize in a sale of 40 head of bred sows and gilts to be sold at the University Farm, Davis, Wednesday, January 14. This is the first sale sponsored by that association and it has been planned as part of the program for the promotion of the breed in this state. So anxious were the members of the association that their initial sale be a source of satisfaction to all that they limited the number to be sold to 40 head selected from the leading herds of the state. It therefore goes without saying that the offering will do much to present the many good qualities of the breed and should furnish an excellent opportunity for the selection of valuable foundation stock. The sale will be the first of a series of similar events to be held throughout the state and the officers expect a large attendance of breeders. Harvey M. Berglund, the sales manager, says that the sows and gilts to be sold will represent the best blood lines available on this coast.

BERGLUND TO SELL DUROCS

Harvey M. Berglund of Dixon, who is managing the state association sale to be held at the University Farm, Davis, January 14, will sell 35 head of Durocs at his farm just west of Davis, the following day. This will be Berglund's first sale and he plans to offer but 25 bred sows and gilts, seven open gilts and three herd boar prospects. The offering is particularly well bred and the sows and gilts will be bred to either California Orion King by a son of Orion Cherry King and out of a daughter of Joe Orion 2d, or to Chief Defender, a son of Johnson's Defender. California Orion King was shown successfully at the state fair and at San Francisco and Chief Defender is a littermate to the first prize junior yearling at the last state fair. His sire it will be recalled was the junior and reserve grand champion at the 1918 state fair and his dam was grand champion at the same show. This sale following so closely the association sale will make it possible for breeders to attend both. Ord L. Leachman will be the auctioneer in each sale.

AMERICAN WAREHOUSES IN PANAMA

Several months ago the first bonded warehouse was erected in Colon, Panama, for the exclusive use of one of the largest rubber manufacturing companies in the United States. Contracts have now been let for a very large bonded warehouse in which American capital has an interest. Space may be rented therein by anyone and it will be large enough to accommodate all.

Auction Sale at Burr Farm Tuesday, January 27th

15 Purebred, Registered Holstein Bulls, From High Record Dams
100 High Grade Holstein Cows (50 of them 2 and 3 yr. olds.)

All cows bred to high record, prize winning Holstein bulls.

This herd has been in COW TESTING ASSOCIATION nearly two years.

Records of production furnished with every cow. Exact breeding dates furnished.

An absolute guarantee that every animal sold is exactly as represented.

We now have 150 pure breds and must reduce our grade herd as we are going into the pure breds exclusively.

Sale will be held at

BURR FARM East 26th and Downey Road Los Angeles

Sale Under Cover—Rain or Shine. Rhoades & Rhoades, Auctioneers

The Fresno Boy

Fresno Boy at 10 Months

Bred Sow and Gilt SALE

Twenty-five bred to him—30 sold open, one herd boar, Fresno Sampson, sells, every animal strictly Big Type.

Sale will be held in

FRESNO, SATURDAY, JAN. 10th, 1920

Sale at Noon Lunch at 11 A. M.

GEO. W. BELL, TULARE, AUCTIONEER

FRED GATEWOOD, FRESNO, CALIF.

Make Sure of Your DE LAVAL Cream Separator Early in 1920

There's no happier or better way of starting the New Year right than by making sure of a new DE LAVAL, if you are either without a cream separator or are using an inferior or half-worn-out machine that should be replaced.

For three years now, thousands of those who wanted a DE LAVAL have had to wait weeks for it and many have had to buy a second grade separator. The demand has simply exceeded the possible supply, though more DE LAVALS have been made each year than ever before.

More and better DE LAVALS will be made this year than ever before — as many as available plant additions and skilled workmen can produce—but the demand gives every indication of being even greater still.

Order your DE LAVAL now. Make sure of getting it. Let it save half its cost by Spring.

See the nearest De Laval local agent at once, or write the nearest De Laval office below for any information desired.

The De Laval Separator Co.

165 Broadway NEW YORK | 29 East Madison Street CHICAGO | 61 Beale Street SAN FRANCISCO

50,000 Branches and Local Agencies the World Over

WE ARE GOING TO SELL

IN LODI, CAL.

Tuesday, January 27th, 1920

40 Poland China Sows and Gilts

20 Bred to our two herd boars, MATCHLESS BIG BOB and LAKESIDE DEFENDER

These two boars represent the most popular Poland China blood lines, that of Big Bob, Big Orange and Chief Defender's Choice. Experienced breeders will tell you that this is the breeding to retain in your herd.

We have selected these sows and gilts with the view of giving you real value. We believe they are as good as will be offered in any sale this year.

Lunch Served. Sale at 12.30 P. M.

Ord L. Leachman, Sacramento, Auctioneer

Geo. V. Beckman & Sons **Lodi, Cal.**

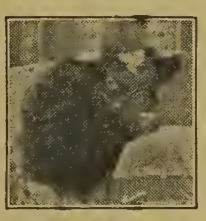
Better Calves

AN-FO Calf Meal contains a higher percentage of digestible fat. Add some AN-FO Calf Meal to bring skim milk closer to whole milk in food value. Feed Dealers or

ANIMAL FOOD CO.,
Oakland, Supply

CALF AN-FO BRAND MEAL

Shorthorn Registration Fee Increased



Beginning January 10, 1920, the registration fee in the American Shorthorn Herd Book will be $2.50 instead of $1.25 as heretofore. The increase is necessary to meet the present cost of operation and provide Shorthorn prize money and extension service.

American Shorthorn Breeders Association
13 Dexter Park Ave., Chicago, Ill.
Ask for "The Shorthorn in America."

Top Sale of the Season

Bassett, Crawshaw & Ross

Big Type Poland-China

BRED SOW AND BOAR SALE

60 Head 60

These sows are carefully selected from among the tops and include some of the best prospects we have ever sold bred to Big Timm, Kings Gerstdale Jones, Some Price, Kings Timm, Model Fellow, Jr.

Public Sale

Saturday, January 17th, 1920

at Kings County Fair Grounds

Col. Ord L. Leachman, Auctioneer

For Catalog or information write to F. D. Ross

M. & A. L. Bassett J. A. Crawshaw Fred Ross

Hanford, Cal.

Monday, January, 26th, Fresno, Cal.

I WILL SELL

35 Poland China Sows and Gilts bred to Giant Bob.

10 Bred to Prospector and Gatewood's Prospect.

6 young boars, including Prospector by Long Prospect, dam by Big Bob, and Gatewood's Prospect by Wade's Prospect, dam by Long Prospect.

These two young boars are wonderful prospects. 15 young gilts will be sold open. And don't forget

Giant Bob

the 1919 grand champion boar, sells.

Sale at 10.30 A.M. *Lunch at Noon*

Geo. W. Bell, Tulare, Auctioneer

Catalog on Request

Chas. Gatewood Fresno, Cal.

When Writing Advertisers, Mention the Cultivator.

California Guernsey Sells for $20,000

Leander F. Herrick, Worcester, Massachusetts, has just purchased from W. H. Dupee, Santee, California, for Anderson Tiffin Herd of Herdlea Stock Farms, New Hope, Pennsylvania, the bull Itchen Daisy's May King of Langwater 17349. This bull was bred by F. Lathrop Ames of Langwater Farms, North Easton, Massachusetts, and was sold a couple of years ago by Joseph L. Hope, Florham Farms, Madison, New Jersey, for $8,000, the then record price for the breed, to B. E. Nixon, Yountville, California. Later he was purchased by W. H. Dupee for use in his Edgemoor Farm herd, where he has been bred to some of his greatest cows. Mr. Dupee reluctantly parted with him but reserved the privilege of having three of his females brought to him for service.

The dam of Itchen Daisy's May King of Langwater is Imp. Itchen Daisy 3d, National Dairy Show winner and Advanced Register cow with a record of 714.10 pounds of fat in Class B. She was sold some years ago for $4,000, an extremely high price at the time. She is dam of the following noted animals: Florham Daisy 18115, 747.08 pounds of butter fat Langwater Dairymaid 26377 with 812.66 pounds of butter fat, sold for $6,150, the then record price for a female; Ne Plus Ultra 15265, noted Advanced Register sire and sire of the record priced bull Florham Leader 55682, sold at two months old at the 1919 Combination Sale by Mr. Herd for $25,000; and Imp. King of the May 9001, Advanced Register sire of 29 Advanced Register daughters whose records average 12,365.3 pounds of milk and 619.80 pounds of butter fat, a large number of records being made as two year olds.

The sire of Itchen Daisy's May King of Langwater 17349 is Dolly Dimple's May King of Langwater 12997 that has a splendid list of tested daughters, including Langwater Nancy 27943, one of the five 1,000 pound cows of the breed, with a record of 18,783.5 pounds of milk, 1,011.66 pounds of butter fat. She was purchased privately by Mr. Herd from Mr. Hope for $7,500 and at the Combination Sale Mr. Herd purchased her daughter, Follyland Nancy 52457 for $12,500, the record price for a Guernsey cow. Langwater Nancy 27943 is also dam of the $25,000 bull calf. In addition to his Advanced Register daughters, Dolly Dimple's May King of Langwater 12997 sired Ne Plus Ultra 15265, thus making Itchen Daisy's May King of Langwater 17349 a full brother to Ne Plus Ultra 15265. Ne Plus Ultra 15265 was a remarkable bull and has some splendid progeny; his tested daughters are all credited with large records, many of them testing over 600 pounds of butter fat, one of them having a record of 712.70 pounds of butter fat. His daughters and sons are highly appreciated, as shown by the valuation put upon them both privately and at public auction, 22 of his daughters having sold at public sales within the past four years for $42,100.

Itchen Daisy's May King of Langwater 17349 has seven tested daughters whose eight records average 536.90 pounds of butter fat at an average age of less than three years. The largest record is 16,350.3 pounds of milk and 727.68 pounds of butter fat, made by May King's Golden Lenore 45587, in Class B.

Fall and Winter Management of Breeding Ewes

Experience has shown that ewes should always be healthy, have good teeth and be strong and vigorous. They should carry a moderate amount of flesh and it is essential that they be so cared for that they will not lose weight during the winter. Well fed ewes are most likely to give birth to strong, vigorous lambs. Ewes that are in good condition will be more liberal milkers and thus better mothers. It is during the suckling period that the greatest demands are made on the ewes, and in order to have the ewes in condition to stand this drain on their systems it is necessary for us to see to it that they are in good condition of flesh prior to lambing. To be sure, to have them in proper condition we must begin in the fall and feed them properly throughout the winter, according to D. A. Spencer of the University of Missouri college of agriculture. This cannot be accomplished in just a few days or even a month.

When the ewes are in thin condition it will be advisable to begin feeding grain along with roughage soon after the first of December. Unless the ewes are very thin in flesh it is not necessary to feed more than a half pound a head daily for ewes weighing 150 pounds. A good ration consists of equal parts of oats and bran or two parts of oats, two parts bran and one part of corn. Where available, it may be economical to feed one-half to two pounds of good clean corn silage per ewe per day and about the same weight of alfalfa hay. Where a good legume, such as clover, alfalfa or soybean hay makes up the major portion of the roughage, it will probably not be necessary to give the ewes that are in good condition any grain until about six weeks before lambing. At this time it may be well to feed the ewes a little grain, about one-quarter pound a head daily of equal parts of corn and oats. In any event in compounding rations the farmer must realize that economy and efficiency should be the watchwords and feed enough to have the ewes gain from 15 to 25 pounds each during the winter.

Sunflower Silage

The overenthusiastic should not be inadvertently misled by the numerous articles appearing from time to time in newspapers and farm journals, exploiting in extravagant terms the feeding value, etc., of sunflower "silage."

It is not my intention to underestimate this product, for be it known the sunflower has great food value as silage, but as in the case of other products its value in a given locality may depend upon climatic conditions, upon soil, upon the method of curing, etc., and it should be made the subject of careful experimentation before decisive reports are spread broadcast.

The sunflower is almost as valuable as the fabled coconut, which produces butter fat, milk, food, fiber, etc., for its tropical owner. The sunflower seed will produce an oil unexcelled for culinary purposes, almost as bland and pure as olive oil. It requires the minimum of culture, it thrives under adverse conditions of soil and climate. In China sunflower seeds, like pumpkin seeds, have medicinal value; in Russia the moujik eats his roasted sunflower seeds as the boys do peanuts. Some day we may have them "salted" as part of the menu, or sold as a confection.

But few insects claim the sunflower as a host plant and birds are the worst enemies, stealing the seeds as fast as they ripen.

About two years ago, W. A. Groom of Boulder, Colorado, cured a quantity of tops of so-called "Jerusalem artichoke," closely related to the sunflower, both belonging to the genus Helianthus, but found the cattle did not relish it. Much would seem to be learned concerning the time for cutting and manner of curing in affecting the palatability of the sunflower as silage.

TEMPERATURE OF WATER FOR SCALDING HOGS

If the scalding water is too hot it sets the bristles. Dr. P. F. Trowbridge, director of the North Dakota agricultural college experiment station, states that 155 degrees Fahrenheit is a good temperature for a barrel scald and that 165 or higher is dangerously high, as it will set the hair if the carcass is left in half a minute too long. The lowest temperature for a slow scald is 140 degrees, but this is too low for out of doors farm practice. A thermometer should be used by the beginner to deter

SANTA ANITA RANCHO

Anoakia Breeding Farm

Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion and Don Castano, five gaited saddle stallion, winner in many prominent shows.

Mammoth Jacks

We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

Poland China and Berkshire Boars

Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited

Anita M. Baldwin

Santa Anita Cal.

W. H. Taylor, Supt.

Bunting's Mission Herefords Are Profitable

They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.

JOHN A. BUNTING

Mission San Jose Calif.

DIAMOND G HEREFORDS

are the kind that make good under all conditions. They have the size, bone and constitution that the range operator wants. Herd headed by Don Perfect 2d, one of the best bulls in the West. Correspondence invited and visitors welcome.

H. H. Gable Esparto, Calif.

The Leading Live Stock Auctioneers

Col. Ben A. Rhoades
Harold B. Rhoades

Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References. The leading breeders in the state. Write or wire for dates and terms.

Rhoades & Rhoades

1501-3-5 South Main St.
Los Angeles, Calif.

Beef Cattle Specialis

For 30 years I have been devoting my entire time to pure bred beef cattle. I know the kind of cattle California needs and where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited. R. M. DUNLAP, Hotel Land, Sacramento, Cal.

Do You Want a Herdsman?

J. E. Miller late of Sidney, Iowa, the heart of Poland Chinadom, is open for position as herdsman in California.

J. E. MILLER

R.F.D. 2, Box 84, Long Beach, Cal.

--Vaughn's Jones--

By Giant Jones out of the $1,400 Daisy A. A Poland China boar of the right type. His pigs show quality and recognized breeders pronounce them the correct type.

Poland Chinas of the Right Type

A. J. Van Cleef Riverdale, Cal.

JERSEYS

3 BULLS | No. 1 born Mar. 1, 1919. Sire, Our Noble Mayfair Hero. | 3 BULLS

No. 2 born Oct. 1, 1919. Sire Our Kathie's Eminent. | All from high record cows in Arden herd. | No. 3 born Dec. 20, 1918. Sire same as No. 2.

ARDEN DAIRY CERTIFIED, EL MONTE, CALIF.

When Writing Advertisers, Mention The Cultivator.

mine the temperature. It will save work, as the right temperature will make the removing of the bristles easy, while too hot a temperature will set them. A tablespoon of lye or a shovelful of wood ashes or a pound of quicklime put in the scalding water will help loosen the scurf.

Dr. Trowhridge further adds: "Cut a gambrel slit in one hind foot for the hog hook. Make a deep lengthwise slit from hock to toe so as to expose both tendons. Scald the head end first, keep the carcass moving so the scald will be even. If the side of the hog rests firmly against the side of the barrel, that portion will not scald, so keep turning it. With very hot water bring the carcass to the air two or three times a minute to cool an instant to prevent setting of the hair. As soon as the hair slips easily reverse the hog, hook in the lower jaw and complete the scald.

DISEASES UNDER CONTROL

Dr. J. P. Iverson of the division of animal industry of the state department of agriculture reports that the anthrax epidemic which has prevailed in the Sacramento Valley is over. This is due partly to weather conditions, but perhaps more to protective measures which have been employed hy the state.

In the control work on sheep scab, about 220,000 sheep were inspected and 71,740 dipped.

The value of control in glanders is shown by the fact that during the past six or eight years not a single case of this insidious disease has been reported. Kings and Tulare Counties are still quarantined for Texas or splenetic fever, where regular inspections and dippings are made for the Texas fever tick (Margaropus annulatus). During October 3,515 head of cattle were inspected and 3,442 dipped. With the cattle protection office charges have been filed against parties slaughtering cattle in violation of the law and the offenders tried and fined.

The work of this office is seriously handicapped by lack of legal advice and service which it is hoped will be remedied in the near future.

ANTITOXIN FROM HORSES PRODUCED BY UNIVERSITY OF CALIFORNIA

Antitoxin has been produced from horses on the Pacific Coast for the first time. Dr. George H. Hart, associate professor of veterinary science in the University of California, today announced that a limited amount of this material is now on hand for distribution at cost of production for use against the botulinus toxin responsible in many instances for forage poisoning in horses.

During the past six months Professor Hart has been developing an antitoxin against the disease by growing the bacillus botulinus in special media under anaerobic conditions. It is then injected into horses in gradually increasing amounts until their serum contains marked antitoxic properties. This serum is then drawn from the hyperimmunized animals under aseptic conditions, filtered through bacteria-proof filters. This constitutes the botulinus antitoxin. Botulinus toxin is responsible for some cases of food poisoning from the consumption of improperly canned foods.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Pig Has Fits

We have a pig about four months old that eats all right and looks well but every once in a while has a fit and starts to roll over. When he comes to himself he starts to run all over the corral. What can be done for him?—Subscriber, Fresno.

These conditions are hard to explain. Some say it is due to glands in the skin on the back of the front legs getting clogged. Usually when such pigs are thoroughly scrubbed with soap and warm water, taking special care to scrub the legs, they get over it. Also get half an ounce of bromide of potash and dissolve it in four ounces of water. Put a teaspoon of it in the feed twice a day.

I Am Confident You Will Appreciate

The Poland Chinas I Will Offer in

Hanford, Cal., Saturday, Jan. 24th, 1920

My First Public Sale of BIG TYPE Poland Chinas

will consist of 40 bred sows and gilts and 20 spring pigs of hoth sexes. Herd boar in service, King's Massive Orange—you all know him—Col. Jack's Suprise by Suprise Prospect and McCune's Buster by Giant Buster. Animals to be sold are hy such noted boars as King's Massive Orange. The Californian, The Jankee, Jr., Lendorris Liberty Bond, King's Big Bone Leader, Young Jumbo and McCune's Buster. Special—a boar and gilt by Suprise Prospect sells.

I believe you will appreciate the class of animals in this sale as they are true to type, representative as to blood lines and have been well grown out.

Lunch Served—Sale at 12:30 P. M.

Geo. W. Bell, Tulare, Auctioneer

H. D. McCUNE LEMOORE, CAL.

Catalog Sent on Request

Participate in the Opportunity

of securing what is eagerly sought by practicaily ever breeder of Poland Chinas, desiring size, type, blood lines. Real type sows bred to such boars as Lendorris Liberty Bond, Young Jumbo and Liberator, offers you the opportunity of genuine herd improvement. Inquiries cheerfully answered.

Lendorris Ranch

W. L. Haag & Son Hanford, Cal.

Bred Sow Sale, March 13th, 1920

TAKE NOTICE! THE HIGHEST PRICE paid for a car load of fat hogs at the California International Livestock Show came from the

BASSETT

Herd of Advance Type Poland Chinas

Many firsts, seconds, senior champion sow and GRAND CHAMPION SOW were won in the open classes, proving without a single doubt we are breeding the kind the packer wants and the farmer should raise. Animals of all ages, high class young boars, bred sows and gilts for sale at reasonable prices.

M. Bassett & Son Hanford, Cal.

YOU ARE RIGHT

in demanding when you buy Poland Chinas, that they are correct in type—grow fast and are bred for prolificacy| Having bred this kind for years I could sell you no other kind. You invest for profit when you buy from me. Write for price and description.

J. H. Cook Paradise, Cal.

CALIBUSTER

Combining the blood of the two Greatest Poland China Boars Giant Buster and Big Bob

We are breeding some of our best sows to him—a few we will sell

McCARTY & STARKWEATHER Route C, Box 384, Modesto, Cal.

Smooth King

is a real Poland China boar—his name signifies just what he is, smooth—and a king. When I can't breed, raise and sell the right kind of Poland Chinas I will quit the business. This is one reason for my success. Pleased customers keep me in. Write me when you want good Poland Chinas.

Eugene Miner Lodi, Cal.

DON'T BE TOO LATE

Just a few of the prize winning Poland Chinas, that have been the sensations at this year's shows, remain unsold. I am not pricing them unreasonable and much less than you would pay in the east for animals not so good. Write me today what you want and I will send you full particuars.

J. F. LEHMAN LODI, CAL.

GEORGE W. BELL

A BUSINESS AUCTIONEER

When in need of high class auctioneering service I would be glad to have breeders and farmers correspond with me. I have had years of experience, know values and know pedigrees. I am selling for many of the leading breeders of California and am prepared to deliver the same results that have attracted this custom. Terms reasonable. Write, wire or phone.

GEORGE W. BELL Tulare, California

Just off the Press

Germain's FREE 1920 Garden Book

Positively the biggest and most complete book of its kind ever published by this house. Contains exhaustive and reliable information on the following subjects:

When and what to plant—and HOW to plant it. Flowers, plants, shrubs, trees.

Foods, remedies and complete supplies for poultry, pigeons, rabbits, dogs, cats, birds, fancy fish, etc.

Incubators, fertilizers, weatherproof roofing, wire fencing, gardening tools and implements, lawn mowers and hose, insecticides, spray pumps and materials, and a score of other special features.

Don't wait! Call personally, phone or write for YOUR copy of Germain's big FREE 1920 Catalog TODAY!

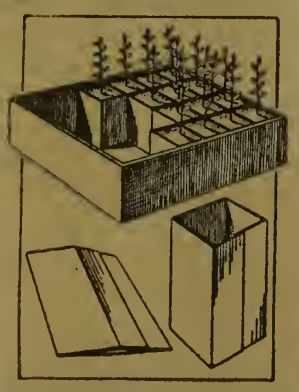
Germain
Established 1871
Seed & Plant Co.
N.E. Corner
Sixth & Main Sts.
Opp. P.E. Depot
Los Angeles, Cal.

Perforated Tree Protector

that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour. For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus, Olive Cuttings. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.



THE EXPAN CO
935 East Central Ave. Redlands, California

When Writing Advertisers, Mention the Cultivator.

This Month in the Ornamental Garden

Northern California

By Albert R. Gould

TO OUR readers in this department the writer wishes to convey his best wishes for a successful New Year and hopes that all will spend many happy hours amongst the flowers which not only bring joy to those who grow them but as gifts convey a message of peace and love. The owner of a flower garden can share its pleasures with others and gain experience from nature's own fountain of knowledge. The gardener has never finished learning and may at any moment discover something new. The field is wide and full of interest. Gardening is really the most ancient occupation of the human race and it is one which should be pursued by all who love the beautiful in nature. One can construct a small rock garden, a charming pool, or make a lovely lawn to provide a quiet spot near the residence. Flowers for the table direct from the garden may be secured from a well arranged border planted for succession with annuals and perennials, and the latter once established are useful for many years. What more fragrant flowers would you need than the violet and rose to say nothing of the sweet old fashioned lavender? Plant this last named subject as a border for your winding walks, your violets under the trees and they will form a natural carpet. Choose such roses at Maman Cochet, Hoosier Beauty, Ophelia, Hugh Dickson, Rayon d'Or, Paul Neyron, Cecile Brunner, Lady Hillingdon, Mrs. Chas. Russell, La France and White American Beauty, all good bush roses, and for climbers select from the following: Silver Moon, Merechal Niel, Beauty of Glazenwood, Cherokee, yellow Banksia, and Gloire de Dijon. When preparing the ground for these have it deeply trenched with well decayed manure. Roses of the new varieties are rather scarce this year. We would therefore advise that you place your order at once.

Fuchsias

These plants are very satisfactory and there are now some splendid named varieties which your nurseryman can supply. The following are all good: Phenomenal, Emile Laurent, Storm King and Torpilleur. These are double. Plant in rich soil. They will thrive in shady places under trees or on the shady side of a house. Cuttings of these may also be started now in sand.

"The Yellow Heliotrope"

Many people are fond of the fragrant blue heliotrope. The "yellow" Streptosolon Jamesoni is not quite so well known but it is usually very free flowering and must be planted in a warm unexposed position to thrive as it belongs to the tender class.

A Useful Border Plant

Sea pink (Armeria) is an evergreen dwarf plant having rose pink flowers. Plant small tufts of these six inches apart as they soon spread. It is perennial. Another charming old fashioned plant for the border is the clove scented pink having fringed flowers white and pink, etc.

Cannas

Of recent years this perennial and easily grown plant has been much improved. It is splendid planted in groups of solid color and has long stems for cutting. Some of the best varieties offered now are the following giant flowered in various shades: King Humbert, Richard Wallace, Venus, Mrs. Alfred Conrad, and Wyoming.

Annuals

Sow blue cornflower, candytuft, stocks, snapdragon, Shirley poppy, pansy, godetia, and clarkia, sowing the poppy where it is to flower; the others may be transplanted.

Southern California

By Ernest Braunton

LET us begin gardening operations of the new year with a full realization that we may sow and plant every month of the year. Let us dismiss the notion so many of us brought from Eastern states that spring is the only planting time, for we may sow and plant continuously. There is no colder time, in the average year, than the first week in January, and the weather will constantly grow better for gardening every day thereafter.

This is a time for soil stirring and stirring deeply. The bean growers of Ventura County have stated that deep tillage for three years is necessary before the maximum yield is obtained. It is generally so with all gardening operations. Soil has been tramped upon while wet and beaten down to an air excluding compactness by the winter's rains. Air and weathering is badly needed. Turn it up deeply and leave it in a rough state so alternating rain and sunshine will help pulverize and purify it. If it is turned over several times before seeding and planting better results will follow. If sowing or planting is to be done soon, work in fertilizer now, but if this can be deferred the garden will gain, for much plant food will percolate deeply or wash away if heavy rains follow the application.

Seed Sowing

Every kind of poppy may now be sown and the list is a glorious one, not forgetting our own California bevy of brilliant colors. Time was when we said "California poppy" and sowed seeds of the orange-yellow. But a few days ago the writer saw two girls in a seed store putting up packages of California poppies in each of which there were nine varieties, ranging from white to crimson, with several odd shades outside this line of color transition. Shirley and other poppies are annually undergoing some improvement. Last year the writer grew double Shirleys. But all poppies are good.

Plant also cockscomb, coreopsis, salvia, stock, and all hardy annuals, of which there are a hundred sorts. The outlook now is for a late wet spring so that all native wild flower seeds may be sown with good chance for an abundant flower crop. Sweet peas will prove at their best if planted now for their needs are cool soil for the roots and sunshine for the plant.

Bulbs, Roots and Tubers

For two or even three months now one may plant summer flowering bulbs. With the writer's own hobby, gladiolus, best results year after year have come from January planting. Other timely bulbs are anemone, calla, dahlia (in warm sections), hyacinth, ixia, narcissus, sparaxis and tulips. Some lilies should be planted in every garden and the money for them should be salvaged by cutting hyacinths out of the list. For the money they cost hyacinths provide less than any bulbous plant the writer grows. Water and watch old clumps of 'mums now and take cuttings for new plants if you have a box of sand to put them in. If not, divide the large roots into small pieces about the last of the month and plant out where you wish them to flower. If you are in a warm section you may divide and replant cannas, elephants ears and the like, but it will be weeks before they will start, and a long cold wet spring may rot them unless soil conditions are excellent, so if in doubt postpone until February.

Trees, Shrubs, Plants

There is no better time than now for planting roses, and get them in bare root dormant plants rather than in pots or cans. Roses may also be pruned and fertilizer dug in about

them at any time this month. Such treatment is the necessary forerunner of good spring flowers. All sorts of deciduous and hardy evergreen trees and shrubs are best planted this month, any part of it unless in the very coldest sections of the state. There is a host of summer bedding flowering plants that should be planted for early summer flowers, and you may learn of these by watching the supply of small plants in trays at seed stores and plant depots. Those ordering by mail will find pansy, pink, sweet william, penstemon, phlox, stock and verbena for sale by all.

REQUIREMENTS IN EXPORT OF CITRUS

Frederick Maskew, in charge of state quarantine, suggests that state quarantine guardians in the citrus producing counties should anticipate the requirements on export shipments of citrus fruits, and provide themselves with the necessary certificates. A supply can be obtained from Office of Standardization, Department of Agriculture, Sacramento.

Upon the correctness with which the information demanded in these certificates is supplied and vouched for hinges the continuance of our export trade in citrus fruits to Australia. Australia has based its exemption of citrus fruits grown in California from the provisions of its quarantine regulations on citrus canker, upon certain conditions of certification; in return it naturally expects such officially signed statements to be virtually an affidavit of known facts and not merely a supposition. It would be a farce to make the affirmation required upon an export shipment when the same arrives at tidewater, all wrapped, packed and boxed, and the plant quarantine officers stationed at the maritime ports will not jeopardize this export trade by stating and vouching for conditions of which they have no positive knowledge. Australia is dealing with California in this matter, and the required certificates have been drawn up in a manner to show that the person signing the same is a properly appointed state officer, located at the point of origin of the shipment.

TEACHERS ON ALIEN OWNERSHIP

The Southwestern Order for the Advancement of Agricultural Education, composed of about 100 teachers of agriculture in Southern California, in regular session in Los Angeles city, December 18, 1919, earnestly discussed the seriousness of the rapidly growing alien occupation and ownership of agricultural lands within our state. After careful consideration the undersigned committee was delegated to prepare suitable resolutions and to send copies to the governor, to our agricultural papers and to the chairman of the Better Farming meeting, held in Los Angeles, Saturday, December 20.

Following are the resolutions:

Whereas, more and more of the best agricultural lands of our state are going into the possession of groups and individuals of alien races which are not assimilable and whose people cannot become citizens of this country, and whereas such movement is resulting in a rapid transformation of many sections of the state from American to alien occupation, by practically forcing American farmers to sell to such aliens, and whereas since this movement is based upon alleged illegal practices, it should be halted at once, and whereas our international obligations demand a full and frank adjustment that shall be fair to all aliens concerned, therefore be it resolved that we, teachers of agriculculture of Southern California, do hereby desire to express our concern regarding this unfortunate state of affairs and assert our conviction that those in authority should give the matter prompt and effective attention to the end that justice be given both to American farmers and the aliens concerned.

We further desire to express it as our opinion that no land within our state should be held by any aliens who are ineligible to citizenship or who do not take steps to become naturalized within a reasonable time after entering the country.—Eric E. Nies, Chas. J. Booth, Clayton F. Palmer, Committee.

The first orange trees in Lindsay, Tulare County, were seedlings planted in 1885.

FULLERTON-PLACENTIA WALNUTS

Through the courtesy of Arthur Staley, secretary-treasurer of the Fullerton-Placentia Walnut Growers Association, a representative of the Cultivator made an inspection of the packing house at Fullerton and gleaned a few interesting facts regarding walnuts in that section.

The 1918 crop was 700 tons and the early estimate for 1919 was 800 tons and everybody was satisfied, but as the harvest ended the crop proved to be the largest ever grown, or 1,100 tons. Of these 13 per cent was number two and the remainder number one, though smaller than usual. The budded nuts ran about 68 tons, of which 6,900 pounds were Eurekas. There was also a carload sent down from San Jose to grade and bleach.

The October rains brought over half the crop to the ground and in some orchards the nuts were hard to gather by reason of the mud. This sudden drop taxed the capacity of the packing house and a few growers took their nuts to chili pepper drying houses to dry out and then to the packing house, which will be sufficiently enlarged at once to care for all emergencies of the future. The only by-product shipped is the light nuts and empty shells that are culled out by the vacuum cleaner. These are crushed by the buyer, the half meats and quarters taken out for the confectioner and the shells go to the burner to furnish charcoal for the manufacture of gunpowder.

The old Oakdale tract of 780 acres, south of Oakdale, Stanislaus County, has just been sold and will largely be planted to almonds.

Have You Seen the
INTERNATIONAL DEHYDRATOR?
You are invited to inspect a Real Working Dehydrating Machine.
GET YOUR ORDER IN
We are now booking orders for next season's deliveries. Save all of your fruit and vegetables and get Dehydrated prices for them.
MAKE MORE DOLLARS.
Write for demonstration appointment.
The International Dehydrator
506 Chamber of Commerce Bldg., Los Angeles, Calif.

Ask the Man Who Uses It

whether or not Nitrate of Soda makes good. Why speculate with "Non-Nitrated" forms of Nitrogen, when, by using Nitrate of Soda, you can insure your crops against adverse conditions?

With the rational use of Acid or Super Phosphate—always recommended by us—there will be no disturbance of normal soil conditions, either in one year or in one hundred years.

CHILEAN NITRATE COMMITTEE
231 Douglas Building
Los Angeles, Cal.

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ESSEX MOTORS DETROIT USA

Do You Know Hudson

But Through Sheer Merit Alone Essex Made Its Thirty Million Dollar Sales Record

Builds the Essex?

Essex success has not been accidental. No one doubts its right to the position it holds.

But how many know why Essex in its first year revealed qualities more mature, more evident of the influence of long experience, than is commonly found in cars even in their third and fourth year.

You will recall the Essex was announced one year ago without one word as to the identity of its builders. Not a claim was made for its performance.

You were asked to go look at it, take a ride and form your own opinion. The Essex, we said, would have to speak for itself.

Now that it has established itself, we reveal why Essex has all the qualities of cars of long development.

Was Designed by Hudson Engineers

They conceived it as they developed the Super-Six. All they learned about endurance, they incorporated in the Essex.

They gave to the Essex the power that has made it famous in all quarters. Its speed is the result of what had been learned in making the Super-Six winner of all worth while speed records.

The Essex can never be all that the Super-Six is for they are totally different types.

But the Essex does bring quality and performance to a class field that was unknown.

The former owners of large, costly cars that have adopted the Essex have not been Hudson users. They have come from other cars, cars that fall short of the Super-Six in all particulars save size and cost.

The Essex appeals to such users because of its nimbleness. They like the way its performance compares with that of the Super-Six. You can see this on every hand. The two cars in any community that are most prominent because of their performance ability are the Hudson Super-Six and the Essex.

Essex Did Not Need Hudson's Endorsement

Think of the advantages Essex has had. What ordinarily would have required years to perfect was made possible in the very first model.

That is why 20,000 are now running, why more than $30,000,000.00 was paid for Essex cars in ten months.

You have not needed the Hudson endorsement to understand Essex performance.

Essex has won its own way. Hudson gave it full benefit of the experience of its engineers and the ability of its manufacturing organization. Its name was not needed.

Now Hudson takes the same pride in acknowledging its kinship to Essex that a father might in speaking of his son who on his own account had made good.

(115)

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Try COULSON'S EGG FOOD
FOR GREATER EGG PRODUCTION
FULL PARTICULARS IN FREE BOOK
"CHICKENS FROM SHELL TO MARKET"
Coulson Co.
PETALUMA, CAL.

Hen or Incubator, Which?

By Jean A. Koethen

THE respective merits of the hen and the incubator as hatchers are, for the most part, relative. Under certain circumstances a hen does the most satisfactory work. Under others the incubator is the only hatcher to be thought of for a moment. Between the two there is a wide range of "ifs" and "buts."

From tests made at various times at different experiment stations it seems quite certain, that the hen, is she is the right sort of hen and is properly managed, will hatch a larger proportion of fertile eggs than will an incubator. In tests made at the Oregon station in April, May and June results were decidedly in favor of the hens.

1. From 879 eggs set, incubators hatched 533 chicks, or 60.6 per cent.

2. From 279 eggs set, hens hatched 219 chicks, or 78.8 per cent.

3. Eliminating eggs broken in nests the hen hatched 88.2 per cent of eggs set.

4. The incubators hatched 78.5 per cent of fertile eggs, and the hens hatched 96.5 per cent.

5. Eggs incubated artificially tested 22.7 per cent as infertile while those incubated by hens tested out 11.8 per cent.

6. The incubators showed 16.6 per cent of chicks "dead in the shell" and the hens 2.8.

7. Chicks hatched by hens weighed heavier than chicks hatched in incubators.

At the Ontario agricultural college experiments gave the following results: Nine hundred and fifty-eight eggs were set in the machines and 436 chicks were hatched, or 45.5 per cent of the eggs set. Three hundred and thirty-five were set under hens and 196 chicks were hatched, or 58.5 per cent of the eggs set. The same eggs were used in both tests.

Of the above figures the most significant are those in 3, 4, 5 and 6 of the Oregon station results.

We notice, first, that when eggs broken in the nest were eliminated the hens hatched 88,2 per cent. What per cent would they have hatched if the broken eggs had all been counted? This depends on the hen. As a rule, the heavier the hen the more eggs she breaks. When I was hatching with Orpingtons I rarely failed to lose three or four eggs out of the hatch. Some were broken early in incubation, and these big hens rarely failed to trample to death one or more of the first chicks that hatched or tried to hatch. They did not seem to realize what was going on until hatching was well under way. Light Brahmas are as clumsy, but Rocks and Reds are much less inclined to break the eggs or crush the chicks.

Notice also that the hens hatched 18 per cent more of the fertile eggs than did the incubators. It is a mystery, and yet a well known fact, that a germ which is too weak to develop in the incubator will sometimes develop under a hen. Some of the germs in 5 were evidently of this kind—too weak to even make a beginning of development in the incubator and yet strong enough to develop under hens.

Eight times as many chicks died in the shell under incubator conditions as under hens. It is a question if there is much significance in these figures. The death of chicks in the shell seems to depend more on the weather or on conditions peculiar to the season than on method of hatching. In some seasons many of the chicks incubated by hens die in the shell. Moisture seems to have something to do with these untimely deaths. Ventilation or the lack of it has undoubtedly some influence. Such deaths often occur under a hen that stays too closely on the nest. When all is said and done we really know very little of the cause of these deaths. Lack of vigor may be quite as much to blame as faulty incubation, and keeping the eggs too long more to blame than either.

A Question of Expediency

But our choice of a method of incubation is determined less by the actual quality of the method than by necessity or convenience. When only a few chicks are to be hatched, a hundred or so, say, it is hardly worth while to invest in an incubator. This is a lesson hundreds of backlot poultry keepers have learned by bitter experience. There is something so fascinating in the idea of hatching chicks by the wholesale, and the sight of 50 or 100 fluffy-ruffles coming out of the shell at the same time is so alluring that we have to have our fling and perhaps it is worth while for the sake of experience and for the fun there is in it at first.

If every backlotter who attempts to use an incubator had a suitable place in which to run it, the story might be different. Last year I heard of a woman who bought an incubator and actually ran it on the back porch. Not a chick hatched, of course, and she was terribly disgusted as well as disappointed. The number of women who have tried to run incubators in the kitchen or a shed or an unused bedroom is tragically long, I fear, if all were known. The incubator must have an even temperature, hence most experts run them in cellars or in rooms which are partly underground. If the incubator room is above ground it must be built with openings that can be covered when necessary so that the temperature of the room will not vary much between noon and midnight. A certain amount of change the thermostat can control, but not too much.

But if expediency requires that the hatching in small flocks be done by hens, it is equally imperative that incubators be used in large flocks. Probably 95 per cent of the chicks hatched in California are hatched in incubators, and well hatched, too. A hen under the most favorable conditions may hatch a few more chicks from 100 eggs than will an incubator, but she is not so easy to control. The incubator may fail now and then to develop a germ, but neither does it trample the chicks to death. It may not always provide the exact amount of moisture required, but neither does the hen. Human intelligence, in our climate, must regulate the moisture for both.

The Human Factor

After all the question of choosing a method of incubation simmers down very largely to the question of the human factor involved. Which would you rather run, an incubator or a hen? I have seen men and women whose yards were full of broodies hatch with a machine because they "couldn't bother with a hen." On the other hand I know at least one person who would rather sit up nights with sitting hens than attempt to run any kind of machine. Our gifts are not all alike. The hen is a trial to those who do not understand her, and I suspect there are several folks in the world who haven't it in them to run an incubator. Fortunately it is not absolutely necessary to do either.

In these days of specialization two other courses are open. There are so many good hatcheries, large and small, so many breeders selling chicks by the hundred or by the thousand, that one who does not care to hatch can always buy chicks. Many large commercial plants have not a male bird on the place. They buy their chicks in lots of 500 or 1,000, brood them around the large brooder stoves, sell off the cockerels when they reach broiler size, and fill their houses with pullets only.

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Gives Greatest Value for Least Money
It Makes Them Fat
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You can't afford to have them in your engines. You need all the power your motors can develop. McQuay-Norris LEAK-PROOF Piston Rings increase motor power. Not in any mysterious way—but because their equal action all around the cylinder wall prevents fuel from escaping. This insures full compression and consequent power. Their design is exclusive—can be had in no other ring.

These rings have increased power, saved fuel and decreased carbon for more than nine years. They are made in every size and over-size to fit every make and model of motor, tractor, truck or passenger car. Your dealer has them or can get you proper sizes promptly from his jobber's complete stock.

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To Control Excess Oil
A special ring for motors that pump oil. Use in top grooves of each piston. In the lower grooves use McQuay-Norris LEAK-PROOF Piston Rings for complete compression—power.

Custom Hatching

The poultry keeper who wishes to breed from his own stock may, if he does not care to do his own hatching, find someone in his neighborhood who will hatch his eggs for him. Custom hatching is a comparatively new thing in California but it has come to stay. It is a great convenience for those who do not like to hatch with hens and are not so situated that the use of an incubator is practicable, to be able to take their eggs to someone who will hatch them for three or four cents apiece. An incubator run by an expert is more efficient than a hen that is not tactfully managed. If you are not getting good results, better take your eggs to an expert and save yourself disappointment, worry and loss.

Letting the other fellow do your hatching is especially to be recommended early in the season when broodies are hard to find. Many fanciers use the small incubators in order to secure early chicks, and this is an excellent plan if one has a suitable place to run it in. If one has but a few settings of eggs to incubate and no incubator cellar, he is fortunate indeed if he can get his eggs into a big incubator under the care of an expert. I visited a woman recently who is running a dozen big incubators filled with eggs from her own flock and those of her neighbors, and finding the venture profitable and satisfactory to all parties. Almost every community in California could support such a hatchery as this, and the day is not far distant when we shall turn the greater part of our hatching over to such specialists.

All Under 50 Per Cent

While individual records were very high, the average yearly production for the various breeds was less than an egg every other day, except for R. I. Whites, a fact which indicates that the 200 egg strain is still in the distant future. White Leghorns averaged 179 eggs for the year; R. I. Reds, 143.9; R. I. Whites, 180.4; Barred Rocks, 149.19; Wyandottes, 158; Black Minorcas, 162.8.

The average per cent production for the 35 days from October 1 to November 4 was 19.9 for Leghorns, 23.1 for R. I. Reds, 31.1 for R. I. Whites, 31.9 for Barred Rocks, 35.7 for Wyandottes and 12.5 for Minorcas. It is because of their cold weather production, doubtless, that the heavier breeds make as good a showing as they do beside Leghorns.—J. A. K.

HATCHING WITH HENS

Sitting hens should be confined to slightly darkened nests at hatching time and not disturbed unless they step on or pick their chickens when hatching, in which case the chickens should be removed as soon as dry, in a basket lined with flannel or some other warm material, and kept near a fire until all the eggs are hatched; or the eggs may be removed and placed under a quieter hen whose eggs are hatching at the same time.

An incubator may also be used to keep the earliest hatched chickens warm, in case they are removed from the nest. If the eggs hatch unevenly, those which are slow in hatching may be placed under other hens, as hens often get restless after a part of the chickens are out, allowing the remaining eggs to become cooled at the very time when steady heat is necessary. Remove the egg shells and any eggs which have not hatched as soon as the hatching is over. Hens should be fed as soon as possible after the eggs are hatched, as feeding tends to keep them quiet; otherwise many hens will leave the nest. In most cases it is best that the hen remain on the nest and brood the chickens for at least 24 hours after the hatching is over.

POULTRYMAN'S CALENDAR—JANUARY, BEGINNING INCUBATION

Many incubators were started and some hens set in December this year, for the "Hatch Early" bee is in everyone's bonnet. In January the one thought in the poultryman's mind is hatching. Every broody hen available should be set this month. If you have no hen, take your eggs to a custom hatcher. There is pretty sure to be some one within reach who will hatch your eggs for you. If you have a cellar or plastered room for it, you might try one of the small incubators. The farmer or small poultry man who wants a few hundred Leghorn chicks will do well to buy them from a reasonable breeder or hatchery, and save himself the trouble and expense of hatching.

However you do it, make a start this month toward getting out the chicks to raise into fall producers.

THE MOST PROFITABLE BREED

A correspondent recently asked for comparative figures as to feed cost and relative profit of different breeds. The final report of the All Northwest Egg Laying Contest for 1918-1919 had not then come in. The figures it gives are extremely interesting.

The feed cost of the various breeds for the 35 days from October 1, 1919, to November 4 was as follows: White Leghorns, 31.79 cents; R. I. Reds, 40.18 cents; R. I. Whites, 38.61 cents; Barred Rocks, 39.81 cents; Wyandottes, 32.09 cents; Black Minorcas, 31.51 cents. This is a little less than a cent a day for Leghorns, Wyandottes and Minorcas, and a little more than a cent a day for R. I. Reds, R. I. Whites and Barred Rocks. These figures correspond quite closely with those given for the month of January, 1919, and are doubtless substantially correct for all seasons with feed at present prices.

The return above feed cost for the same period was 10.1 cents for Leghorns, 8.4 cents for R. I. Reds, 26.7 cents for R. I. Whites, 27.3 cents for Barred Rocks, 42.9 cents for Wyandottes and 5.1 cents for Black Minorcas. Just why Leghorns should have given a return so much smaller than that of Wyandottes is a question not easy to answer. Possibly the Leghorns were molting or the weather was cold and rainy. From other figures given during the contest it appears also that the Wyandottes entered were unusually productive. The high pen for the year was a pen of White Wyandottes which made a record of 1,211 eggs—an average of over 200 eggs—with a sales value for eggs of $54.45, nearly $11 per hen. The high hen in the contest, however, was a White Leghorn, which made a record of 290 eggs. The second hen was a Leghorn with a record of 278 eggs, and the third a Rhode Island White, which made a record of 271 eggs.

KEEP BROOD COOP CLEAN

The brood coop should be cleaned at least once a week and kept free from mites. If mites are found in the coop it should be thoroughly cleaned and sprayed with kerosene oil or crude petroleum. From one to two inches of sand or dry dirt or a thin layer of straw or fine hay should be spread on the floor of the coop. Brood coops should be moved weekly to fresh ground, preferably where there is new grass. Shade is very essential in rearing chickens, especially during warm weather; therefore, the coops should be placed in the shade whenever possible. A corn field makes fine range for young chickens, as owing to cultivation of the ground, they get many bugs and worms and have fresh soil to run on most of the time and enjoy abundant shade.

Mark the New Chicks

All the chickens should be toe-punched or marked before they are transferred to the brooder or brood coop, so that their ages and breeding readily can be determined after they are matured. Farmers frequently keep old hens on their farms and kill the younger hens and pullets, because they are unable to distinguish between them after the pullets have matured.

More than 3,000 applications of pumping plants for electrical service are on file in the office of a power company at Fresno.

The Reliable Blue Flame Wickless Oil Heated Hover

This Hover Represents Our 30-Inch 42-Inch and 52-Inch Sizes.

THE MODERN HOVER

This hover has the same chick capacity as the coal burning brooder. They are made in four sizes, 18 inch, 30 inch, 42 inch and 52 inch hover. A few of the special points on this oil heated hover are as follows:

Burns Coal Oil
Steady Blue Flame
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Six cows, poultry, manure spreader, corn, potato planters, threshing machine, mowing machine, gasoline engine, harness, wagons, harrows, plows, long list complete implements. On main road, only 4 miles to big RR. town, productive loam tillage, brook-watered pasture, estimated 500 cords wood, 75,000 timber; fruit; 6-room house, two barns, silo, carriage, poultry houses, etc. Owner to retire now sacrifices everything $4,000, easy terms. Details page 8 Strout's Farm Bargains 23 States; copy free. E. A. STROUT FARM AGENCY, 831 AG, N. Y. Life Bldg., Kansas City, Missouri.

For Sale—Orange Cove, Tulare County. This grove is 5 years old, 40 acres and planted so that all fruits do not mature at the same time; 22 acres navels, 5 Valenclas, 3 lemons, 10 olives. Good well and pumping plant. All underground 8 inch cement pipe line and 12 inch 4 gate valve stand pipes for every tree row. On paved boulevard and 1 mile to town, school, RR. station and packing houses. Orange Cove is a live, young town and the safest place in California for oranges. Not frostless but safe for all citrus fruits. Can divide this 40 if necessary as each 20 has its own pumping plant. For price and information see M. S. ROBERTSON, 313 Story Bldg., Los Angeles.

Snohomish County, Washington — 6,000 acres of the finest dairy, berry or general high grade farm lands in the northwest; rapidly improving section; no drouths, bumper crops; tracts, 1 to 80 acres; ten yearly payments. This is your opportunity. Send for literature. Brownell Land Co., Birmingham, Washington.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685. Willows, California.

For Sale—240 Acres good alfalfa and orchard land; good climate; 58 miles from Los Angeles. All fenced and cross fenced. Also have some improved land nearby. John Rouff, Palmdale, California.

TREES

Nursery Stock. Apples, pears, peaches, cherries, prunes, plums, berries, etc. OURS IS MAIL ORDER SYSTEM. IT SAVES YOU MONEY. Write us now for Planters' list. 20 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale—Valencia and Washington Navel Orange, Eureka and Villa Franca lemon and Marsh's grape fruit trees. One year old on sour root. J. S. Ogawa. R. A. Box 114a, Sanger, California.

Wanted—Black Walnut seedling nursery. Will buy or graft on shares. Have my own scions, Eureka and Placentia Perfection. The Walnut Nursery, W. A. Litten. Prop., Whittier, California. Phone 6294.

For Sale—Unrooted Grape Cuttings; also a limited supply of rooted Tokay and Cornichon grapevines, and several thousand almond trees. Burke's Nursery, Lodi, California.

For Sale—Orange seedlings, sour and sweet. Budded valencias, lemons, navels. Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena, California.

For Sale—French prune, 4x6 and 3x4 on almond, peach and Myrobalan root. Write at once for price. Box 43, Porterville, California.

You Want To Plant GOOD olive, persimmon, and citrus trees; thornless blackberries, etc. Bishop's Nursery, Highland.

For Sale—One year old Valencia Oranges and Eureka Lemon trees. Very fine trees. Ketscher's Nursery, Santa Ana, California.

For Sale—3,000 select orange trees. Also 3,000 lemon trees; first class trees; 20,000 seedbed stock. A. R. Rideout, Whittier.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

POLAND-CHINAS

Wondergerst, California's leading Poland China sire—big himself, bred big and his pigs show the same qualities. His dam was Giantess Wonder, his sire Big Jones—both big, both winners—a combination of the greatest blood of the breed. Breed big type Polands. Start right by using this blood. Write for special offer. A liberal consignment made to the Tulare Poland China Associated Breeders' sale held Tulare, October 21st. OXBONE Herd Poland Chinas, Tipton, California.

The Best in the West—California Gertsdale and President's Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Two Big Long March Boars $50.00 each. Crated and transferred. F. O. B. Gridley, California. N. M. Lester.

Pure Bred Poland-China pigs for sale J. R. Carhart, Fullerton, California.

GEESE

If you wish to be sure of having your orders for eggs from our wonderful imported prize geese, filled in the spring, order now, giving us a 25 per cent deposit. Eggs $1 each. Paradise Valley Poultry Ranch, National City, California.

CATTLE

For Sale—Two Registered Jersey Bull Calves, 4 and 7 months of age. Both fine show calves, one already has a first prize to his credit. Dams big rich producers and prize winners. If you wish type and production here is your chance. Write and find out particulars. D. T. Willand. Valley Home. Box 21, Stanislaus County, California.

The Lewis Company Baywood herd of registered Holsteins. Herd sire Ormsby Segis Marie Lad, whose dam has produced in two years, beginning as a three year old, 57,481 lbs. of milk and 2,243 lbs. of butter. First National Bank Building, San Jose, California.

Two Holstein Bull Calves out of extra good sires and dams. Will please you if you want an especially good calf, priced very reasonable, herd free of tuberculosis. E. M. Morrow, Modesto, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—20 Head Registered Holsteins bred to King Riverside Mead, 1003 lb. bull. A. B. Comfort (owner), Guernsey, California

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California

LIVE STOCK

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Third sale at the Ranch—all breeds—April 17, 1920. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale: Goats—Son of Gen. Joffre No. 2774. Extra fine animal, born May 17th; and Nubian doe ready to breed. 551 17th Street, San Pedro.

C. P. Bailey & Sons, San Jose, California. Importers and Breeders of Thoroughbred Angora Goats and Persian Sheep for fifty years.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

MACHINERY

Tanks, Pumps, Windmills, Ranch Tools Rebuilt, guaranteed do same work as new, save half. No profiteering. Compare prices and material. Make new galv. tanks, 100 to 2000 gals., save 20 per cent. Why pay more? See bargain prices ads L. A. Sunday papers. DEMMITT CO., upstairs, 120 N. Main, Los Angeles.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

For Sale—2 de Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

Ventura Bean Planter, 4 row, cheap for quick sale. Dr. J. H. Budau, Huntley Apartments, Los Angeles.

For Sale or Exchange, Holt Caterpillar Tractor, 60 H. P., $2,500. 922 W. 6th Street, Los Angeles.

Sacrifice—Scarcely used orchard TRACTOR, A-1 condition. Box 143, Thermal.

GOVERNMENT LAND

300 Million Acres of "Free" land in U. S. "The New Homeseeker" a 100-page book describing millions of acres of vacant public homesteads, timber, mines or grazing lands contains township plats and illustrations. Founded on historical facts. DOES NOT MISLEAD. Read warnings "official," eliminates crooked land agents. Tells the whereabouts of government land in Arizona, New Mexico, Nevada, California, Idaho, Oregon, Montana, Washington, Utah and Old Mexico. Describes water, soil and climatic conditions, all the principal U. S. land laws. A marvelous publication just off the press. Mailed anywhere, $2. Address "THE HOMESEEKER," Dept. M., 3rd Floor Grant Bldg., Los Angeles, California.

RABBITS

Beat the Butcher—Raise your own rabbit meat and know it is healthy. Our magazine tells you how. One year for 12 one-cent stamps. After January 1st 25c so get it now. SANDERSON, Eagle Rock, California. Dept. CC.

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beechling, 1578 W 46th Street, Los Angeles

Choice Registered Rufus Red Belgian Hares. Prices reasonable. C. W. Clark, 4848 Erskine St., Omaha, Neb.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES
Orland, California.
BRED GILTS FOR SALE.

"ACHIEVER" the BOAR

An outstanding son of ONWARD 4th, a son of the famous "EPOCHAL." His dam, Escalon Fashion Princess, one of the best sows ever owned by A. B. Humphrey, was a Grand Champion and sold for $500.00.

CASTLEVIEW RANCH,
Santa Rosa, Cal.

Home of big boned, good footed Berkshires.

BARON DUKE 201ST PIGS
are in demand. They have consistently won during 1919 the highest honors in the show ring. Baron Duke 201st is a Grand National Champion. He is the sire of champions. His 15 months old son was Grand Champion at Sacramento and San Francisco. The San Francisco judge said he was the best boar of his age that he had ever seen. I have 3 of his spring boar pigs for sale. SANDERCOCK LAND COMPANY, 401 Market Street, San Francisco. In charge of Natomas Land Sales.

BERKSHIRES
are bred on the Lark Meadow Ranch for big bone, strong backs and the right type to produce profit for the purchaser. Bred and open gilts from most popular strains for sale now..

GEO. A. STINGLE, El Monte, California

Grape Wild Farm Berkshires—Guernseys—spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. R. Humphrey, Prop., Escalon, California.

Solano Berkshires. Choice stock for sale, service boars of varying ages, bred gilts, unrelated pairs and trios. Reasonable prices. Write for information. R. C. Gruhlke, Dixon, Solano County, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

DUROC-JERSEYS

Duroc-Jersey Swine for Sale. Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Duroc-Jersey Pigs, the big kind, have 3 top boar and sow weanlings, from big sows, litter 11, Sired by Jr. Champion Golden Cherry 5th. Fit for the best herds, Improve your blood. First check for $25 gets choice, guaranteed. R. A. Chapman, 413 Owl Block, San Diego, California.

I Will Offer a dozen first class young Duroc sows bred for spring litters to my crack yearling boar Nutmeg Gana 292547. Worth investigating. L. R. Hitchcock, Van Nuys, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

For Sale—One Yearling Boar, Duroc-Jersey. Wonder Model No. 265707. Big Type, satisfaction guaranteed. Address A. R. Bardrick, P. O. Box No. 5, Oceano, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

Weanlings—Gilts open or bred to a son of Great Wonder I Am. Service boars. Derryfield Farm, Capital National Bank Building, Sacramento, California.

Pure Bred Duroc-Jersey pigs of both sexes. Also one yearling boar, best blood lines in state. Address: J. A. Culp, R. F. D. No. 1, Fillmore, California.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For High Class Durocs write Leest & Mounier, Van Nuys. Blood of Orion King Gano

WANTED

Wanted—Holstein bull, would prefer used animal. Give name, number and price. Would sell or exchange son of King Mead of Riverside. Mrs. G. U. Clark, Hanford, California.

Wanted—To purchase 1,000 or more Seedling Peach or Apricot trees, one year old. State size and price. J. C. Thompson, Moorpark, California.

Wanted—Everybody to read SPECIAL NOTICE in Cultivator of December 6th, 1919. Page 770 under heading—Cattle.

Wanted—175 Placentia Perfection Walnut Trees. C. D. Hubbard, Carpinteria, California

Wanted—Hot water incubator. R. L. Freeman, R. A., Box 210, Redlands, California.

SORGHUM SYRUP

Pure unadulterated sorghum syrup $1.50 per gallon, 5 gallon $8.00 including can. Cooking syrup 10 per cent cheaper. Ray C. Robinson, Mfgr., 930 West Fifth Avenue, Pomona, California.

SEEDS AND PLANTS

The Garden Beautiful in California by Ernest Braunton; a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant; also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

Cut Old H. C. of L.—Buy now, tomato seed Improved Stone or San Jose Canner, $2 pound Post Paid Mail Orders only. Send money order or check. Address Growers' Clearing House, 299 Wholesale Terminal, Los Angeles, Calif.

RYE GRASS
Domestic Rye Grass, Italian special, 10c per. lb. f. o. b. Stockton. Also Burr Clover Burrs. Aurora Seed Mill, Stockton, California.

Cory's Thornless Mammoth Blackberry—Ripens early, large berry, small seeds delicious flavor. Extra good plants now ready. Write for price list. Wm. Mortenson, R. A., Box 209, Lodi, California.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc. Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

Write the Amount and kind of Seeds wanted. Four kinds alfalfa. Orders filled promptly. Wanted, Sudan in carloads. Box 501, Fowler, California.

Rhubarb Roots—1 year old roots, $3.00 per hundred; 50c per dozen. Two year old roots $1.00 per dozen. Currier Bulb Company, Santa Cruz, California.

Avocado Seed Wanted—Mather's Avocado Nursery, P. O. Box 585, Pasadena, California

For Sale — Rooted poinsettias and poinsettia cuttings. Milo Hunt, Whittier.

TURKEYS

For Sale—Mammoth Bronze Turkey Eggs. To our old Customers and lots of new ones GREETINGS. Here we are again with 110 fine Hens weighing from 11 to 15 lbs., and 5 fine young Toms weighing from 18 to 25 lbs. We expect to have 5000 eggs for sale March 1st to June 1st. You can have them F. O. B. Gardena at $20.00 per 100 or 25 cents each for smaller quantities. We guarantee 80 per cent fertility on incubator lots. No guarantee on eggs set under hens. Some hens set good and some don't. Safe delivery guaranteed. Send money with order. The Cultivator is behind us. This won't appear again this year. C. P. Emerson, Gardena, California.

For Sale: Turkey Eggs, from Wild-Domestic crosses. Raise more turkeys. Introduce wild blood into your flock. Get hardy, vigorous poults. Mammoth Bronze eggs also. Write for circular with directions how to raise 90 per cent of all you hatch. Orders booked now for future delivery. The Wild-Domestic Turkey Home, R. D. Box 26-A, Hemet, California.

$25.00 each — Age 8 months — weight 25 pounds. 3 Thoroughbred Mammoth Bronze Cockerel Turkeys. Orders booked now for Bronze, also Mammoth Bronze turkey eggs and shipped in laying season. ROBINSON TURKEY RANCH, San Dimas, California.

For Sale—Turkey Breeders Take Notice. Thoroughbred Mammoth Bronze, Buy Eastern Toms. You run no risk. Every bird guaranteed to be as represented. If not, return at once. C. O. D. R. M. Dodge, R. D. 2, Bakersfield, California.

We advise our customers wanting turkey eggs from utility or prize stock to place their orders now. Eggs 50c to $3 each; 25 per cent deposit required. Paradise Valley Poultry Ranch, National City, California.

Mammoth Bronze Turkeys, Embden Geese and Collie Dogs for herding purposes. John G. Mee, St. Helena, California.

MISCELLANEOUS

Insyde Tires Inner Armor for automobile tires. Doubles mileage, prevents punctures and blowouts. Agents wanted. Liberal profits. Details free. American Accessories Co., Department 102, Cincinnati, Ohio.

Leaf Tobacco—We are growers of Tennessee Red Leaf Chewing and Smoking, aged in bulk, limited supply, order quick. 3 lbs., $1.80; 6 lbs., $3.30; 10 lbs., $5; Postpaid. Address Murphy Company, Martin, Tennessee. Reference, Peoples Bank.

Tobacco, Selected Natural Red Leaf; grower to consumer. Ideal for smoking and chewing. 60c pound, ten pounds over 55c pound POSTPAID. Reference Bank Sharon, C. D. MITCHELL, Sharon, Tennessee.

For Sale: Rare books and papers on silk culture. Choice mulberry seeds from Europe. Drawings for the filature. Mrs. S. R. Bellamy, 256 5th Ave., San Francisco, California.

Beautiful Fumed Oak Diamond Disc Edison cabinet phonograph, $75.00. Taken in trade. Demmitt Tank Company, 120 N. Main, Los Angeles.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Beautiful Mahogany Cabinet Victrola, 25 selections, sonic red seal, $95.00. Demmitt Tank Company, 120 N. Main, Los Angeles.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

If You Want to sell or exchange your property write me. John J. Black, 116 St., Chippewa Falls, Wis.

Rag Rugs—Handsome and durable, made from your old rags. W. F. Yockey, 1220 K Street, Bakersfield, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents

DUCKS

For Sale—4 ducks. 1 drake from 280 egg stock and 108 egg Jubilee Incubator, used once. 551 17th Street, San Pedro.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS

We have 128 females with records from 10 to 296 eggs during 12 months pullet ear. Place your egg order now. All or- ers booked and filled in rotation. We ave three grades, as follows, from which nly one setting per week will be sold: 15 to 284 egg record $15.00 per 15; 220 235 egg record $10.00 per 15; 200 to 220 g record $5.00 per 15. We guarantee per cent fertility and suggest they be atched by hens. Each egg will be mark- d with number of hen and number of ggs laid during pullet year. All these ens are mated to cockerels, sons of hens ith records from 278 to 296 eggs. Baby hicks all sold. ENGLAND'S EGG ANCH, the home of "ACTUALLY" rap nested S. C. White Leghorns every ay in the year since 1912. Box B-337, nglewood, California.

BROODERS

We are offering to the California public, he Reliable Blue Flame Brooder. It has capacity of one thousand chicks. Burns ne gallon of common kerosene oil in wenty-four hours, without gas, soot or dor. The most perfect brooding device et placed on the market. In use, and ndorsed by the Oregon Agricultural Col- ege, and the Western Washington Ex- eriment Station, and two hundred other atisfied users in, and around Seattle. We are western distributors. Have some ood territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

We Are Specialists in production of high grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strain f America's choicest Leghorns fill our sns, and my personal attention is given o all details, assured each customer of ighest grade stock. All baby chicks uaranteed and only healthy baby chicks hipped; if not satisfactory on arrival our money returned. Catalogue free. . C. Rhode, Vineburg Hatchery & Poul- ry Yards, Vineburg, California.

Try Us for an Early Order of White or Brown Leghorns, Black Minorcas, Barred Rocks or R. I. Reds, in January. Baby chicks hatched in January or Feb- ruary are money makers, if brooded prop- erly. We can take care of "hurry" or- ders in above breeds if you are prompt. First class breeding stock used. Chicks are hatched right, and priced right. THE MISSION HATCHERY, Box 27, Campbell, California.

White Leghorns, chix and hatching eggs, also a few cockerels from Curtis' heavy layers. We spare no expense to produce heavy layers with strong vitality. Any chick is good enough for some but the progressive poultryman demands the best. Spring orders are being booked now. All our chicks are hatched from eggs laid in our own yards. O. B. Curtis and Son, Gardena, California. Route 1, Box 29.

Ever Increasing Trade finds us better prepared than ever before to take care of our Day Old Chick business. New concrete building—100 Jubilee machines hatching eight breeds. We sell Hyde's W. L. Cockerels from trapnested stock. Great stuff—shipped on approval; $5.00 to $7.50. Some Buff Orpingtons also. In- teresting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

For Sale—Baby Chicks from my thorough- bred carefully selected flock of S. C. White Leghorns. Orders accepted now for spring delivery, at $15.00 for 100 chicks, $140.00 per 1,000. Every order re- ceives my personal and most careful at- tention. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Quality Barred Plymouth Rocks and White Leghorns—A Western strain that won in the Utility and Exhibition world's competition. None are better bred. Guar- anteed hatching eggs and sturdy Barred Rock breeding males for sale. Free cir- cular. GOLDEN RULE POULTRY FARM, Porterville, California, Care of White River Stage.

Thoroughbred Barred P. Rocks—Egg rec- ords 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 5599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

Mahajo Farm, P. O. Box 597, Sacramento, California, offers highest class, stan- dard bred, breeding stock in White Leg- horns, Light Brown Leghorns, Dark Brown Leghorns, White Plymouth Rocks. Prices: Leghorns, males $5.00; females $3.00; Rocks, males $7.50; females $5.00 and upwards.

Thoroughbred S. C. White Leghorn Chicks —In 100 and 1000 lots from our Hogan- ized and Trapnested Stock. Order now for spring delivery. Inventors and Distribu- tors of "Forbros" Senarator and Trap- nest combined. Write for circular. For- ster Brothers, 2918 Otis Street, Berkeley, California.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Baby Chicks—Order now for 1920 and get what you want when you want them. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Write for free circular. Stubbe Poultry Ranch and Hatchery, Box 67, Palo Alto.

Chicks—Eggs—Hoganized White Leg- horn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Min- orcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

For Sale—Buff Leghorn cockerels and cock birds. A few hens and pullets. Mated if desired. The best stock in the West. W. L. Bartholomew, Chino, Cali- fornia.

White Leghorn Baby Chix—Heavy laying, hoganized stock. March $15.00 per 100; April and May $13.50 per 100. Safe ar- rival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Peta- luma, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

POULTRY

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Min- orcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

"Eastman's Bred-to-Lay." Hoganized and trapnested Barred Plymouth Rocks. Eggs, Cockerels. JANUARY CHICKS. Fairmead Poultry Farm, Fairmead, Cali- fornia.

For Sale—Thoroughbred S. C. R. I. Red cockerels. Extra fine stock. Extras $7.50, Choice $5.00. L. M. Kniffen, Wasco, California.

Barred Plymouth Rocks—"Nothing better in poultry." Prize winners and wonder- ful layers. Stock for sale. Charles H. Vodden, Los Gatos, California.

White Guineas—Cockerels from Eastern eggs, large and hardy, $5. The FER- RIS RANCH, S. Reservoir, Pomona, Cal.

Pit Games the Kind That Win. Cocks, Stags, Hens and Pullets. Prices reason- able. R. H. Crane, Route 3, Santa Rosa

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C. Ceres, California.

Plant Rice

If you would start right consult us.
For clean seed of the right variety see us.
Our seed is free from wild rice.
For further information consult us.
It is important that you do so now.

Aggeler & Musser Seed Co.
620 S. Spring Street
Los Angeles, Cal.

Big Farm Auction Sale

OVER

$30,000.00

Farm Implements and Stock

30 mules, 27 horses, 2 75-hp. caterpillars, 2 20-foot harvesters — auto truck, 6 wagons, gas engine, 1 to 20 hp., road grader, silage cutter, cultivators and discs, plows and harrows. Dairy equipment complete; 100 small tools indispensible on the farm. All in A-1 condition —like new, and used only on the ranch.

SALE

Saturday, Jan. 10, 1920-10AM

at Galland & Lowe Ranch

8 miles northeast of Willows, Glenn County

Inspection Invited. Don't miss this opportunity.

THE JAPANESE PERSIMMON

(Continued from Page 3.)

It is now grown more widely than any other variety.

The Tanenashi is also a favorite but is rapidly losing ground to other varieties. It is large and of fine flavor, with rather mealy flesh, but an unfortunate tendency in some localities to crack at the calyx end. Other varieties commonly found are the Maru, the Tsuru and the Tamopan, the latter being one of the non-astringent varietles of a very peculiar shape, having a characteristic construction which makes it look like two fruits joined together.

Of High Nutritive Value

The persimmon is a fruit high in nutritive value, running much higher in sugar content than such fruits as the apple, peach, apricot and nectarine. It is rather to be classed with the fig and prune in this respect, containing nearly 20 per cent of sugar.

Yields and Returns

A good persimmon tree may be expected to yield some 400 pounds of salable fruit. With 100 trees to the acre this would give a yield of 20 tons, which will be recognized as a very heavy yield. However, as mentioned above, in California the persimmon is notoriously prolific, and such a yield is not improbable. The writer knows an orchard of four year old trees that this season produced a ton of fruit to the acre. Prices usually average somewhere in the neighborhood of six cents per pound, which one can readily see makes persimmon growing a very profitable industry at the present time. Even if prices dropped to four cents, which they might do with a big increase in acreage, there would still be big money in the industry, for with a yield of 15 tons a grower's gross returns would be some $1,200 per acre, a figure that almost seems fabulous. It is the writer's firm belief that 25 years from now California will have a thriving and growing persimmon industry of very respectable proportions.

LITTLE SWEETHEART IS HOME AGAIN

Little Sweetheart has won many hearts and all kinds of honors and is again back at Hillcrest Farm. Her best lover, T. S. Glide, owner of Hill crest, writes:

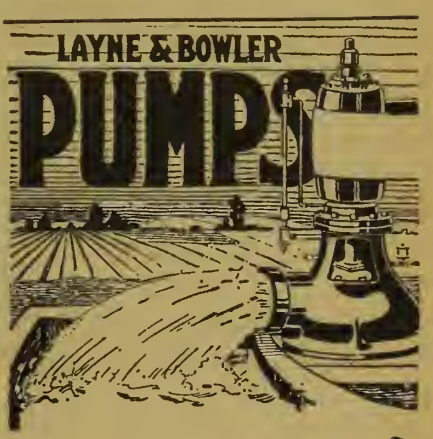
"I wish to announce that Little Sweetheart arrived home last Saturday after being on the road for two weeks from Chicago. As near as I know she is the only cow to win the high honor at Chicago from the Pacific Coast and has won more grand championships on the coast than any other cow ever won in one year, quite different to her showing in 1918 when I showed her at the state fair and there were eight in her class and she stood eighth. This makes two championships from Chicago for this herd; junior and reserve champion bull 1904 (King Edward) and grand champion cow 1919. In figuring up her winnings for this year I find that she won a little more than twice what I paid for her in 1918. I bought her back after the sale in Portland and she is now on Hillcrest Farm where I shall be pleased to show her to any who wish to call and see her. With best wishes for the new year."

SALE OF DUROCS

On Thursday, January 29, at Exposition Park, Los Angeles, one of California's finest herds of Duroc-Jersey hogs will hold its first public sale. The Winsor Ranch herd, located at Bonita, San Diego County, and in charge of R. K. Walker, formerly of Peters, Lamson & Walker, and Morris C. Allen, is the oldest established high class herd of Durocs in Southern California. In this Los Angeles sale the Winsor Ranch is offering to the public a class of animal on which they expect their whole herd to be judged. Nothing will be put in the sale that they do not consider would be a valuable producing sow if left in their own herd.

The 40 sows and gilts that make up the offering are the equal in both individuality and breeding of the hogs that are going through the big sales in the corn belt today. They are sired by the greatest boars of the breed, including Great Orion Sensation, the present world grand champion; Great Wonder, the largest Duroc that ever lived; Great Wonder, his sire and a grand champion at Iowa; Orion Sensation, the first prize senior yearling at Iowa this year and a littermate to Great Orion Sensation; Grand Model, an Iowa grand champion; Great Model, the wonderful breeding boar owned by the Winsor Ranch; Top Sensation; Orion Fancy King, a son of the $20,000 Fancy King Orion; Grand Model Again, the sire of the seven times grand champion sow Model Defender Lady, and Grand Model 8th, the 1,060 pound first prize aged boar at the Iowa state fair.

Winsor's Giant Orion is the largest boar that ever saw the Pacific Ocean. He measures just two inches less than seven feet from between his eyes to the root of his tail, is 40 inches high and welghs 965 pounds. He is sired by the world's grand champion of 1916, Orion Cherry King Jr., and is the largest boar of the Orion Cherry King family. Great Sensation 3rd is sired by the king of all big type sires, Great Sensation, and out of Uneeda Lady, the $5,000 sow. Five of this sow's six months pigs recently sold for $8,000 and two resold for $8,500.



Produce Cheapest Water

More than 30 years' experience in pump building is reflected in Layne & Bowler Turbine Centrifugal Pumps. They embody many exclusive features, protected by patents.

Ask for Folder No. 30

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900 Santa Fe Ave.
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618 So. Spring St.
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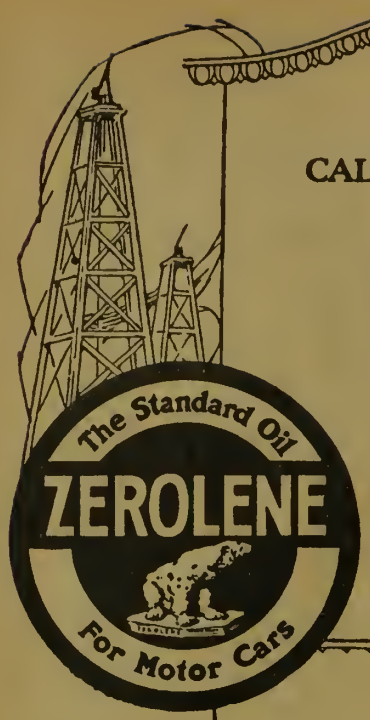
Duroc-Jersey
Registered Big Type Bred Gilts
California George Junior Republic
Chino, Cal. P.O. Box 157

Strawberry Plants
Big orders a specialty, small orders appreciated. Varieties that do well on the Western Coast. Ask for prices.
V. R. ALLEN Seaford, Del.



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CALIFORNIA CRUDE

Zerolene is correctly refined from selected California crude oil. It meets with scientific accuracy the lubrication needs of all types of automobile engines. Get a Correct Lubrication Chart for your car.

STANDARD OIL COMPANY
(California)

The Wonderful Attractions of BRITISH COLUMBIA

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When he is young, for joy it can impart
To all his life and others who know him;
It is a simple gift—a sunny heart!"

IN SPITE OF TERROR

By Gardner Hunting, in Youth's Companion

THE little motor boat, The Chip, had obtained her supply of gasoline from the tank boat, Hippo, anchored off the club's mooring ground in the lower bay of New York. As she turned away, the sharp putt! putt! of her exhaust sounded positively cheered and refreshed, and her green nose pushed its way saucily across the inlet toward her red buoy, just as if she were a conscious little being who was feeling very pert and happy after a long, cool drink.

Billy Hanscombe threw in the high-speed clutch and grinned at Claude Inness, who sat on the forward seat with his hand on the wheel. Billy nodded toward the red peak of his anchor mark to be sure that Claude understood. It was a matter of pride with Billy to pick up the buoy always at the first try. Duly warned, Claude swung The Chip a little farther to port, and grasped the boat hook with his free hand.

The last rays of the afternoon sun were staining the whole surface of the lower bay a brilliant orange. The spreading wake of the motor boat slashed the water with gold and purple ripples. As the little craft neared her mooring place and Billy shut off the engine, the shining expanse of water took on a bronze sheen.

"I wouldn't mind sleeping out here in the boat on a night like this," said Claude, as they made fast to the buoy.

"Seems as if it would be safe, doesn't it?" responded Billy.

"Of course! What's likely to be dangerous about it?"

"Oh, nothing, I suppose. I guess father would hardly think we ought to take the chance, though."

"What is there to be afraid of, here in this anchorage, with the cottages within hail and a hundred boats round us? Doesn't anybody ever sleep out on the boats?"

"Oh, yes; some of the fellows bunk quite often on the larger sailboats. But they always have a tender tied up astern."

"How about the family that's on the gasoline boat?" said Claude. "They live there all summer, don't they?"

"Yes, but the Hippo's about seventeen times as large as The Chip."

Claude looked back at the graceless bulk of the tank boat. "It must take nerve to live with a couple of thousand gallons of gasoline."

Billy glanced toward the club. He and Claude must wait where they were for a dinghy to put off from the landing there. Usually the man on the dock was watching for the last boat to anchor; he seldom needed to be hailed. Tonight he was slow. Billy looked about at the little anchored fleet. Apparently all the usual boats were in early; every buoy had its craft, lying at the end of a slack line until the tide should begin to ebb. And apparently every boat was tenantless. Billy stood up to hail the shore.

"What would happen if all that gasoline should explode at once?" asked Claude.

Billy had heard that question discussed. "Father said once that if such a thing should happen, it would probably destroy every boat on the anchorage."

"I'd hate to take the risk that man and his wife and baby take," said Claude, more seriously. "I didn't even see a tender there."

"The club boat takes care of them, as it does of us," said Billy.

The two boys looked again at the red-and-black tank boat. The orange color was fading swiftly from the water now. The tide was beginning its outward flow; boats were straightening their mooring lines to its pull. The sun dropped to the horizon; New York lay under an evening haze; a faint boom came rolling across the water from distant Staten Island. Then a succession of heavy discharges shattered the peace of the day, as club after club fired its sunset gun and hauled down its flag. Lights popped up here and there. Billy looked again toward the club dock.

Suddenly Claude uttered an exclamation. "Billy!" he ried. "Looks as if they had a fire there now!"

"Where?"

"The tank boat!"

Billy's eyes turned to the squat, fat heavy-ended craft. Her red tanks and black hull looked like a dull dun shadow now, but the boy's heart gave a great leap of apprehension when he saw a rose-yellow point of flame dart up just beside the low deck house.

He stared, unwilling to believe his eyes. Many times he had heard people remark after sudden accidents, "Why we were just talking about it when it actually happened?" For an instant he felt a direct connection between his idle talk with Claude and this alarming danger.

The boys could see well enough to be quite certain that no one was moving about on the open deck. If the red tongue of fire that leaped and dropped and leaped again, like a wig-wagging flag, was an uncontrolled blaze, no one aboard seemed to know it.

The whole inlet was quiet, the club dock still vacant. Billy gasped when suddenly the rose flame raised its smoking head high and shook it, like a great, hideous snake of fire about to strike.

"Hippo, ahoy!" he shouted with all his might.

There was no answer and no movement on the threatened craft. There was a sudden puff of black smoke, spangled with sparks, from the deck of the tank boat, and a mushroom of thick cloud rose over the vessel. A dull, blowing noise, like the quick draft of big bellows, came to them. Then a black figure ran out from the deck house, and a woman's wild scream rang across the water.

The two boys looked at each other. Claude was pale, and Billy knew that his face, too, must be white. He and Claude, on board The Chip, were the persons who could most surely and promptly bear the desperately needed aid. Yet those huge tanks of gasoline might explode at any moment.

Billy threw back the hood of his engine and turned the gasoline cock With his hand on the crank, he looked up, and saw Claude casting off.

"Go to—her—stern!" he gasped, as he tugged at the flywheel in order to start his engine. Then, as the little machine buzzed, he waved his hand.

In a moment The Chip was turning in a short circle. Billy thought only of the tiny, helpless baby he had seen on the tank boat and the running black figure that had screamed. The woman was still screaming; her husband was now beside her at the rail of the boat, with the baby in his arms. The whole end of the deck house toward them seemed already ablaze. The big gasoline tanks occupied the other end of the boat, and were yet untouched, but the fire spread as if everything aboard were oil-soaked. To Billy, it seemed as if the distance between the Hippo and The Chip's buoy had stretched out into a terribly long space. He set his teeth and jammed the engine lever into the high speed

Claude looked once over his shoulder. Billy felt a vague surprise that his chum's face was streaked with sweat. Then he put his hand to his own face, and found that it, too, was wet. He looked again at the tank boat. If they could get to it and away to the shore before the fire reached the gasoline, they would all live. If not, nothing on earth could save any of them!

In a few moments they were turning in under the overhanging end of the large craft. Billy stopped the engine and caught the line that the woman flung out to him.

The woman, tall and slender and frail looking, let down a side ladder that lay flat against the tank boat's hull. Billy drew The Chip in close The woman stepped down and over the gunwale into the boat.

"He's broken his ankle!" she gasped out to Billy. "The waste took fire, and he was trying to get us out." She reached up for the wailing baby, which her husband was already lowering, by

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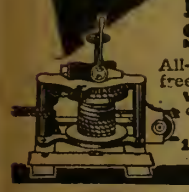

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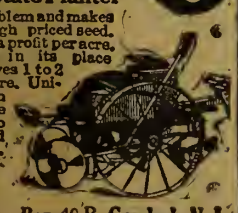

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its long, loose clothing, into her arms.

"Say," the man shouted, hoarsely, "somebody ought to open the tanks at the top! If that gasoline explodes, there won't be enough left of this here fleet to write your name on! I fell through the companionway and broke my foot. Can you do it?"

Billy's heart stopped. He understood. Gasoline, confined, would explode at the touch of fire; with the tanks open at the top, it might not. The whole bow of the boat seemed sheathed in flame now, but he ran up the ladder to the deck of the boat.

The tank boat man quickly told him how to raise the iron tank covers; then he let himself painfully over the side.

(Continued next week.)

"SPECIAL" LAMB RECIPES

In the Cultivator of December 20 notice was given of a beautiful booklet issued by the National Wool Growers Association, with headquarters at Salt Lake City. The booklet was entitled "Whetting Uncle Sam's Appetite for Lamb" and contained some very attractive and appetite provoking recipes. Here are some of them:

Roast Shoulder of Lamb

Remove the bone and fill the space with a moist stuffing made with grated stale bread crumbs, highly seasoned with butter, salt, pepper and thyme. Add the yolk of one or two eggs and enough warm water to soften the bread thoroughly. Put the bones and scraps of meat in a kettle with barley water enough to cover, lay the stuffed shoulder on them and let the whole simmer gently for an hour or more to make it tender. Lift onto the rack in a roasting pan, dredge with salt, pepper and flour and bake an hour or till tender. Use the water in the kettle for basting and for gravy, with a little butter and flour at the last to froth the surface. Garnish with forcemeat balls made from its own trimmings.

Breast of Lamb

Put the breast in a pan containing just enough water to cover it, salt and simmer it until the bones break from the flesh. Draw the bones out and spread a forcemeat of crumbs, egg, thyme, sage and butter over the breast. Season with tomato catsup or sauce. Place in oven until brown and serve on a bed of steamed spinach, or, if you use onions, with a garnish of them.

Curried Lamb

One and one-half pounds lean meat from middle neck or leg of lamb, one tablespoon curry powder, salt, one tablespoon tomato sauce, one teaspoon curry paste, one and one-half ounce butter or drippings, three-fourths ounce flour, juice of one-half lemon, two small onions, one-half sour apple, one teaspoon chutney, six ounces Patna Rice, three-fourths pint stock or water.

Finely mince the onion and apple. Heat the dripping and fry the onion, remove it, reheat the fat and brown the pieces of meat. Return the onion to the pan. Mix together the flour, curry paste and curry powder and sprinkle them with the lemon juice over the meat. Cover the pan and cook the curry very gently for ten minutes to develop the flavors. Shake the pan from time to time to keep from burning. Add the stock gradually, mixing it smoothly. Put in the apple, tomato, chutney and salt, and simmer gently two to two and one-half hours, covering the pan closely Shortly before the curry is to be dished, boil the rice and arrange in a border around the curry.

Ragout of Lamb

Cut into dice one pint of cold roasted or boiled lamb. If boiled, dredge with flour and brown in butter. Add one small onion cut fine, half a cup of diced turnip, and one-fourth cup of grated carrot. Salt and pepper to taste. Cover with boiling water and simmer till tender. Put the bones and trimmings into another saucepan, cover with cold water and let them simmer until the liquor is reduced one-half, then strain it and add the liquor to the ragout. When the meat is tender remove the fat, add a tablespoon of brown sauce and a teaspoon of Worcestershire sauce or two tablespoons of wine or half a cup of currant jelly.

Scotch Broth

Two pounds lamb, one and one-half quarts of water, two onions, one turnip, two tablespoons flour, four stalks of celery, one carrot, two tablespoons butter, salt.

Remove the meat from the bone and cut into small pieces. Tie the bones in a small bag and cook in the same water in which the meat is cooked. Cut the vegetables into small pieces, cook slowly in the stock for two hours. Rub the flour and butter together and add to them a little of the hot broth. Stir until smooth, then add to the broth.

Fricassee of Lamb

Cut two pounds of lean lamb into small cubes, dredge with flour and brown in a frying pan, using a little suet to keep it from burning. Place in kettle and add just water enough to cover. Boil for ten minutes and place in cooker for six hours. Thicken with one-half cupful of browned flour mixed with cold water, season to taste and serve on toast.

Lamb Croquettes

Four pounds of cold cooked lamb and two cupfuls of cooked rice (fresh boiled and still hot when mixed with the lamb), one teacupful of suet chopped fine; two sprigs of parsley, chopped, one nutmeg grated, an even tablespoon of onion, after it is chopped as fine as possible the juice and grated rind of one lemon, salt and black and red pepper to taste. Chop the meat very fine; mix all well toegther; add cream until it is quite moist, or just right for molding. Mold them in the form of pears; dip them into beaten egg and roll them in pounded cracker or bread crumbs; fry in boiling hot lard. A little stem of parsley may be stuck into each pear after it is cooked, to represent the stem.

Lamb Heart Smothered in Onions

Three lambs' hearts, bay leaf, two teaspoons salt, one-fourth, cup flour, three tablespoons drippings, one teaspoon celery salt, three cloves, one-eighth teaspoon pepper, water, eight medium sized onions.

Clean hearts thoroughly and cut crosswise in inch slices. Sprinkle with salt and pepper and roll in flour. Melt drippings, add onions sliced, and hearts, and brown. Add seasoning, rest of flour and boiling water to cover. Cover closely and simmer for one hour. Lift meat and onions carefully onto a hot platter, thicken gravy and pour over the meat. Keep meat half covered with water while it is cooking. Serve on rice border.

HABITS

By Mrs. D. C. Anderson

The old adage, "We are all creatures of habit," certainly is true with babies. Therefore do not start or allow things you do not expect to continue. I have twin girls 14 months old, nursed them until one year except one bottle each a day. Have had complete care since they were six weeks old. When one began to suck her thumb I let her do so, thinking I could break her later. It kept her quiet and I had my hands full. Now I have done everything to break the habit and still no success. She has acquired the appetite for bitter aloes, etc. Never again would I allow a child to suck its thumb.

If a breast fed baby has colic do not dope the child; be sure feet and bowels are very warm and take outdoor exercise yourself to prevent it again.

Be regular in feeding, sleep, nursery chair and bathing. It more than pays in time saved.

Do not start rocking baby; it takes valuable time and does no good. Any child is better off to be fed and put to bed than to be rocked to sleep. I put mine to bed at seven and they are asleep in a few minutes. I have a long evening to myself. If they cry in the night I get up, turn them over, straighten their bedding, and they are sleep before I can get back into bed. I never have a light for them after they are once tucked in.

I wish inquirer could see my 100 per cent babies with their brown eyes and rosy cheeks. I had them examined by the baby clinic at the state fair.

Wishing our Cultivator success in its baby column.

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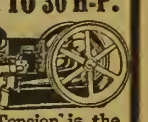

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Los Angeles Markets

Los Angeles, December 30, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 65 cents.

Dairy Exchange prices last week on extras:

Dec.	23	24	26	27	29
'19	68	..	67	..	65

CHEESE

Brokers' prices:
California, fresh, lb., 28; price to retail merchants, 28@30.

EGGS

Fresh extras, Produce Exchange closing price, 60 dozen; case count Produce Exchange closing price 58 dozen; pullets, Produce Exchange closing price 56 dozen. pewee pullets, 53.

Dairy Exchange prices last week on extras:

Dec.	23	24	26	27	29
'19	61	..	60	..	60

POULTRY

Prices to producers: Hens, lt. 33; heavy, 34; colored over 4 lbs., 35; broilers, 32 @38; fryers, 35; roasters, 35; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 40; dr., 43; old, live, 40; dr., 41; hen turkeys, live, 40; dr., 41; squabs, 45@47.

Belgian hares, 3 to 3½ lbs. live, 17.

LIVE STOCK

Los Angeles, Dec. 29.—Weighed and delivered off cars without food or water:

Hogs (hard-grain fed), 125 to 150 lbs., 13.50; 150 to 175 lbs., 14.00.

Cattle (on foot gross weight): Steers, good, 11.00@11.50; medium, 10.50@11.00; heifers, good, 8.50@9.00; fair, 8.00@8.50; bulls and stags, 6.00@6.50; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.00.

Sheep—Ewes, 8.00@8.50; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock December 29, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Five cars California, 6 cars Idaho arrived. New stock: Stockton, Burbanks, fancy, 5.00@5.25 per cwt. Salinas, 5.00@5.25; Russets, 4.90@5.00; bakers, 5.50@6.00. Local lug boxes, 1.65@1.75; local White Rose, 4.50@5.00.

Sweet potatoes: Market steady. Lugs, 1.00@1.35; cwt. 3.25@3.75; mostly 3.50@3.75.

Carlots: Demand and movement moderate, market firm, little change in prices. Per cwt. mostly 2.75; few in mixed cars 3.00@3.25.

Onions: Demand and movement moderate, market strong. Home grown and Stockton: White Globes, cwt., 5.00@5.50; Yellows and Browns, 5.50@6.00. Lug boxes, White Globes and Yellows, 1.60@1.75.

VEGETABLES

These are the actual prices obtained December 29, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Beans, green, lb., best, 15@17; other 8@9.

Beets, doz., 45@50; lb., 4@5; sk., 2.50@2.75.

Cabbage: Market weaker. Per lb., 2@3½; per cwt., best, 3.00@3.50; others, 2.00@2.25; sacks, 2.50@3.25.

Carlots: Demand and movement moderate, market dull, little change in prices, supplies limited. Winningstadt and Cannonball, mostly 50.00 per ton in straight cars, 55.00@60.00 in mixed cars, mostly 55.00.

Carrots, dozen, 35@40; lb., 3; sk., 1.50@1.85.

Cauliflower: Local stock, per dozen, best, 1.00@1.25; others 75@80; field crates, 1.75@2.50.

Carlots: Demand and movement slow, market weak, no change in prices, few sales. Crates Snowball and Pearl, mostly Pearl, straight cars, mostly 1.15; mixed cars 1.15@1.25, mostly 1.20@1.25.

Celery: Market steady. Local stock, per dozen bunches 1.00@1.35. Crates, wide range prices, 5.00@6.00; fancy shipping stock, 6.00@8.00, mostly 7.50@8.00.

Carlots: Demand and movement moderate, market stronger, little change in prices. Per dozen, straight cars, No. 1's, 85@90; No. 2's, mostly 75; No. 3's, mostly 65; mixed cars, best 90@95, mostly 95; very few, large sizes, high as 1.00.

Chicory, dozen, 45@50.

Eggplant, best, lb., 16@17.

Peas, local, lb., 15@18; poorer, 7@15.

Lettuce: Local stock: Market slightly firmer, prices slightly higher. Per dozen, 35@40; crates, best mostly 1.50; poorer 85@1.00; best shipping stock 1.75.

Carlots: Demand slow, movement moderate, market firm, little change in prices. Wide range in quality and condition, generally fair. California: Crates Los Angeles market (Iceberg), straight cars 1.90@2.00; mixed cars 2.00@2.25.

Peppers: Supplies very light, lug boxes, wide range. Bells, 16@17 per lb.; Chilis, best 15@16.

Pumpkins, 1½@2 lb.

Parsnips: Lugs, 85@1.00; sacks, 2.25@2.75; others, 1.65@2.00; per dozen, 50. Per lug, 1.00.

Rhubarb: Local stock scarce, bx., 1.15@1.75; few best, 1.50.

Squash: Hubbard, cwt., 2.75@3.00; lb., 2@3.

Spinach, doz., 35@40.

Tomatoes: Demand and movement moderate, supplies very light, market stronger. Lug boxes, ripes, best, 1.50@2.00; poorer, overripes, 50@1.00. Shipping stock, 2.25@2.50.

FRUITS

These are the actual prices obtained December 29, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: California: 4-tier, Bellefleur, 1.85@2.00, mostly 1.90@2.00; 3½-4½ tiers, 1.50@1.75; loose, 4@4½ lb.; Glen Seedlings, 2.25@2.75; White Pearmains and Yellow Newton Pippins, 2.00@2.35 box. Delicious, loose, 5@7 per lb.; Newtown Pippins, 5@6; Pearmains, 4@5; Winesaps, 6@6½. Northern: Jonathans, extra fancy, 3.40@3.50, fancy, 3.00@3.25; choice, 2.50@2.60; loose, 7@7½ per lb. Spitzenbergs, extra fancy, 3.25@3.40, fancy, 3.00@3.25; choice, 2.75@3.00; 6¼@7¼ per lb. Delicious, boxes, 4.00; Ben Davis, per lb., 5; Ganos, 6@7; Pippins, 6; Winter Bananas, extra fancy, box 4.25, fancy 3.50. Rhode Island Greenings, 2.50 box.

Bananas, 8@8½.

Coconut, doz., 2.75.

Cranberries: Barrels, 17.00; lb., 17@18; Oregon, boxes, 4.50@5.00.

Grapes: Supplies scarce. Demand and movement good, market stronger. Local and Northern, from storage, per pound: Tokays, 16@20; Black Cornichons, 18@20; Red Emperors, wide range, 15@16; cr., 3.25@3.50.

Pears: Northern Bartletts, No. 1, 11; No. 2's, 8@9 per lb.; poorer, 5@7; lug boxes, 2.00@2.50; best packed boxes, 3.25@3.50; Winter Nellis, 3.50.

Persimmons, lb., 8@15; mostly 12@14.

Pomegranates, lb., 6½@9; half boxes, 2.50.

Lemons: Valley stock, fancy, 3.25@3.75; loose, 3.00; juice, 2.50. Local: Packed, 2.50@3.00; loose, 2.00@2.50.

Oranges: Navels, 4.00@5.00 box. Local stock: Packed, 2.50@3.75; Tangerines, 8@10 lb.

Grapefruit: Arizona: Seedless, per box, 3.50@4.00; California: Porterville and Imperial Valley stock, per box, mostly 3.50@4.00. Local: 2.00@2.50 box.

HONEY

Demand and movement slow, market dull. Carlots f. o. b. usual terms, per lb.: White Orange Blossom, mostly 19; White Sage, supplies very light, mostly 20; Extra Light Amber Sage, 18½; Light Amber Sage, 18½; Light Amber Alfalfa, 16. Beeswax: Demand and movement moderate. L. c. l. lots, 43 per lb.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6: Limas, 14½; baby, 13.

GRAIN AND FEEDS

Price bid local grain exchange, December 2:

Traders refuse to buy either milo or barley in any quantity at present high prices, but the tone of the market very firm for all cereals. One hundred tons of barley for all December shipment brought $3.80, with all May barley selling for $3.67½.

Egyptian corn, 3.45.
Feterita, 3.30.
Hygeria, 3.15.
Wheat, 5.25@5.35.
Cotton seed meal, 6.00@7.50.
Eastern milo, 6.00@7.50.
Barley, 3.65@3.71¼.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	24.00@27.00
Barley	20.00@25.00
Alfalfa	23.00@28.00
Barley Straw	10.00@12.00

San Francisco Markets

San Francisco, December 29, 1919.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	66

CHEESE

Dairy Exchange quotations:

Cal. Flats	31½@33
Ore. Y. A.	37
Jack, full cream	33@34

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	71½
Extra, pullets	57½

POULTRY

Wholesale prices are:

Leghorn, 33@35; small, 33@35; large, 37@38; roosters, young, 35@37; old, 21@23; broilers, 35@37; fryers, 33@34; turkeys live, 40@44, dressed, young, 48@51.

Belgian hares, live, 18@20; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle—Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 10¾@11¼; do, 1,200 to 1,400 lbs., 10¼@10¾; do, second quality, 9@9½; do, thin, 7@8.

Cows and heifers—No. 1, 8½@9¼; second quality, 7½@8; common to thin, 4@6.

Calves—Light weight, 12½@13; medium, 11@12; heavy, 8@10.

Lambs—Yearling, 10@11; milk, 12@13.

Sheep—Wethers, 9@10; ewes, 6@6½.

Hogs: Weighing 100 to 225 lbs., 14½; 225 to 300 lbs., 14; 300 to 400 lbs., 13.

Moran & Co. quote:

Cattle: Good steers, 1,000 to 1,200 lbs., 10½@11½; good heifers, 1,000 lbs. and over, 8½@9¼; good cows, 1,000 lbs. and over, 8@9; canner cows, 5@6; good bulls 5½@6½. Calves, light, 12@13.

Hogs: Top packer, hard and well-finished, 150 to 225 lbs., 14½; 225 to 300 lbs., 14; over 300 lbs., 13½.

Usual dock and price discounts for other weights and kinds.

POTATOES

Wholesale selling price:

Potatoes: Per 100 lbs.: Rivers, White new, 4.00@4.50. Sweet, 4½@5 lb.

ONIONS

Wholesale selling price:

Onions: Yellow and White, 4.25@4.50; Australian Brown, 4.75@5.25. Garlic, lb., 22@24.

VEGETABLES

Wholesale selling price:

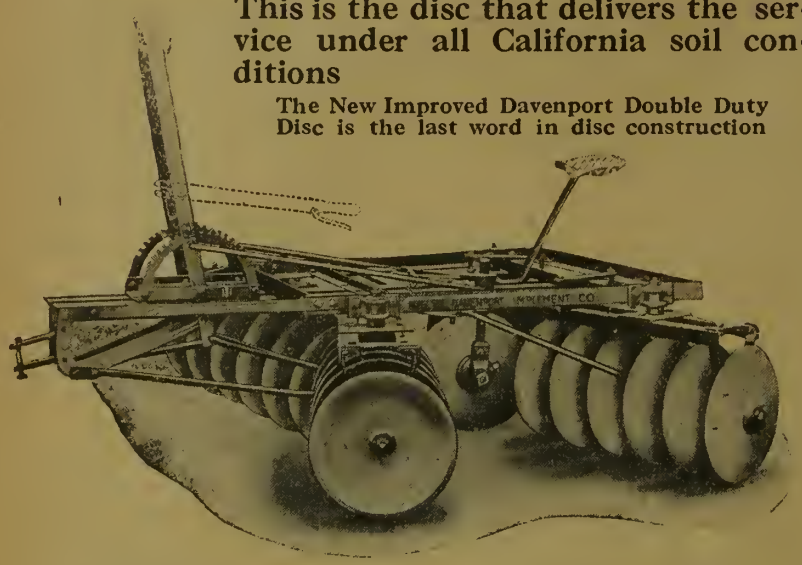
Beans: String, 15@17½; Lima, 10@15.
Brussels Sprouts, lb., 8@9.
Carrots, per sack, 1.00@1.25.
Cauliflower, doz., 1.25@1.50.
Cabbage, doz., 40@50.
Celery, cr., 3.00@6.50.
Cucumbers: L. A. lug, 1.50@2.00.
Eggplant, lb., 7@10.
Pumpkins, lb., 2@2½.
Radish, 7@9 doz. bunches.
Tomatoes: Southern, 1.00@1.75.
Squash: Cream, lug, 90@1.10; Hubbard, lb., 2½@3; Summer, lug, 1.25@1.75.
Spinach, lb., 2@3.

More Science: Less Draft---

MORE WORK IN LESS TIME

This is the disc that delivers the service under all California soil conditions

The New Improved Davenport Double Duty Disc is the last word in disc construction



If you are interested in Discs be sure to see the new Davenport Double Duty. It is built to deliver service under all conditions for every pound of weight and pull applied with NOTHING TO GET OUT OF ORDER. After setting the drop levers they STAY SET held RIGIDLY and POSITIVELY IN PLACE. No automatic features to break, slip or get out of order. The drop lever feature allows the levers to be laid down low and the seat is detachable permitting work under low hanging tree limbs. No implement you can use will conserve moisture that's in the ground like a Davenport Disc. Years of constructive effort and painstaking observations have enabled us to construct the Davenport Double Duty Disc so efficiently that it will do more work with less power and in less time than anything you can buy for the same money. Made in 6, 8 and 10 ft. sizes. Larger sizes made to order. A post card will bring an illustrated circular and price lists on any implement you may want.

Davenport Implement Co.

Manufacturers and Dealers in

Farm Implements for California Conditions

Permanent Location: 110 North Los Angeles St., Los Angeles

Dayton Airless

PIERS of LIVE RUBBER take the place of a TUBE

Puncture Proof AND Easy Riding

Put Dayton Airless Tires on your car now and forget punctures, blowouts, pumps and patches. Seven years of service has proven their success and reliability. Over 100,000 are in use today. They don't bounce like a tight pneumatic nor d-r-a-g like a loose pneumatic. They are easy riding—and wear till there's nothing left but shreds.

Equip Your Ford

or any other car using 30x3 or 30x3½ sizes. No spare tire needed. Thousands in use on light delivery cars. Send coupon for booklet and prices.

Excellent Territory Open

We have a splendid proposition to offer to business men in every county where we have no agent. Mail the coupon for the facts.

SALCH-COPPEL CO.

1426 Market St. San Francisco, Calif.

This Tells the Story

I have used a set of Dayton Airless Tires, getting 44,000 miles out of the front and 20,000 miles out of the rear tires, the difference in mileage being due to my overloading my Ford Touring Car by hauling three barrels of oil constantly. I used the tires constantly, nearly three years, and Dayton Airless Tires make no difference in the wear and tear of a car. I find the engine and steering apparatus as good or better than the average car of like age.

And the satisfaction of knowing that when a person starts he can get somewhere without distress of both body and mind by punctures, blowouts, and loss of time is a compensation in this age of progress for any difference in price. The fact is, in the long run, the cost of Dayton Airless is about half the pneumatic cost.

HAROLD T. SMITH, Asst. Treas. HUMBLE & GULF COAST OIL COMPANY

Mail this Coupon

SALCH-COPPEL CO.,
1426 Market St., San Francisco, Calif
Please send booklet and prices on Dayton Airless Tires as follows:

.....Passenger Cars
.....Light Delivery Cars
.....Dealer's Proposition

Name .....

Address .....

Lettuce, cr. of 3 doz., 2.00@2.25.
Peppers, Bell, lb., 10@12½; Chili, lb., @15.
Peas, lb., 12½@17½.

FRESH FRUITS

Wholesale selling price:
Apples: Bellflowers, 1.75@2.25; New- on Pippins, 1.75@2.25; Jonathans, 2.50 3.00; Spitzenburg, 2.25@2.75 ch.; fy., 00@3.50.
Bananas, 6½@7½.
Cranberries, 3.50@4.00 per standard ox; barrel, 13.00¾14.00.
Huckleberries, lb., 18@20.
Pears, box, 2.50@4.00; cooking, lug., 00@1.50.
Persimmons, box, 1.50@2.00.
Pineapples, doz., 4.00@6.00.
Pomegranates, 1.50@1.75.

CITRUS

Wholesale selling price:
Per box: Lemons, fancy, 5.00@5.50; oice, 4.50@5.00; standard, 2.50@3.00; monettes, fancy, 3.25@3.50; others, 2.00 2.50; grapefruit, fancy, 2.50@3.00; oice, 2.00@3.00; oranges, Valencias, 00@4.00; navel, 4.00@5.00; limes, 1.50@ 75 per crate; tangerines, 1.50@3.25 per ate.

ALMONDS

California Almond Growers Exchange ening prices:
Nonpareil @32½, IXL @31½, Ne Plus ltra @30½, Drake @23½.

HONEY

Jobbing prices: Extracted, Water hite and White, 18@20 lb.; Light Am- r, 17@18; Amber, 13@15; Comb, 25@ for White and Water White and 23@ Light Amber.

BEANS, PEAS

Jobbing price per cental:
Beans: Small white, 6.50@6.75; large hite, 6.50@6.60; cranberry, 7.50@8.00; d Mexican, 7.75@8.00; pink, 6.50@6.75; alifornia Bayou 9.25@9.75; Blackeye, 25@6.50; red kidney, 12.00@13.00; Lima, 1.50@13.75; Garvanza, 9.50@10.50; Ko- nashi (in bond), 5.35.
Dried Peas: California, 6.50@7.00 per ntal for green, recleaned.

GRAIN

Wheat: The prices are based upon ederal grades and standards at the ter- minals in San Francisco Bay and Los ngeles, and are as follows, per bushel f 60 pounds:

Hard White—	Per Bushel	Per Cental
No. 1	$2.20	$3.66 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.09	3.48½

The above are minimum prices.
For sacked grain add 4½ cents per ushel of 60 pounds to above prices. De- uctions of three-fourths of a pound ade for weight of standard grain bags. heat grading under No. 3 mixed or nutty wheat will be purchased accord- g to merit.
Oats: Red feed, 3.10@3.15; black, 3.00 3.15.
Corn: California yellow, 3.10@3.20 per ntal; Egyptian, 3.65@3.75; milo maize, Rye: 3.35@3.45.
Barley: Spot feed, per cental, 3.50@ 60; brewing, 3.65@3.75.

HAY

Under date of December 27, Scott-Mag- er & Miller says:
Receipts past week 1,357 tons. Rail ipments are mostly for the government hich is moving considerable of its de- rred contracts at the present time, ipping space being available for Ma- nila and Hawaii. Stock cars are being furnished by the railroad companies at various points for the loading of hay, which has relieved the car situation to a certain extent, the weather being all right at the moment and the cars ar- riving here in good order.

Considerable alfalfa hay is moving in from outside points and being placed at about same figures as California. Market firm throughout.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market — for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat hay (light 5 wire bales)	26.00@28.00
No. 1 Wheat or Wheat and Oat hay	23.00@27.00
No. 2 Wheat or Wheat and Oat hay	22.00@24.00
Choice Tame Oat hay	25.00@28.00
Other Tame Oat hay	22.00@25.00
Wild Oat hay	21.00@24.00
Barley hay	21.00@24.00
Alfalfa hay	23.00@28.00
Stock hay	18.00@21.00
No. 1 Barley straw, bale	50@80

Citrus Markets

Los Angeles, December 30, 1919.

Southern California packing houses are opening and before another week the season will be fairly on. Central and Northern California are reaching the end of their seasons. Navels are shipping in fine condition and commanding satisfactory prices. Valencias are practically all cleaned up.

Lemons in the dumps.

AT THE AUCTIONS

December 26
New York: 17 or. Val. 1.90-6.75, Nav. 3.95-6.40.
Boston: 11 or. Val. 3.40-4.10, Nav. 2.25-5.05.
Cleveland: 8 or., 1 lem. Val. 4.50-4.90, Nav. 3.25-6.55, lem. 2.10.

December 29
New York: 10 Val., 22 Nav., 2 lem. Val. 2.30-5.80, Nav. 2.30-7.05, lem. 1.90-4.00.
Boston: 19 or., 2 lem. Val. 2.20-4.10, Nav. 4.15-5.55, lem. 1.15-4.50.
St. Louis: 6 or., 1 lem. Val. 3.10-3.50, Nav. 2.90-4.60, lem. 2.15-3.50.

THE MILKING PROBLEM

Getting all the milk from 300 cows twice every day is some job. The problem that confronted Manager E. H. Fox of the Fox Ranch at Oakley became seriously complicated during the past year, due to the high wages demanded by the milkers and the inability to secure adequate, reliable help at any price. Mr. Fox took a review of the situation and a survey of the mechanical milkers in the field. He knew it was the one answer to the labor problem. To make a long story short he installed a De Laval milker. It is a big installation, probably the largest individual outfit on the Pacific Coast, and covers every one of the 300 stalls in the big barn. An interesting catalog describing the new De Laval Milker can be obtained free of cost by writing to the offices of the De Laval Company, 61 Beale Street, San Francisco.

WEATHER REPORT

San Francisco, California, December 27, 1919

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.58	8.96	15.87	66	42
Red Bluff	.27	3.99	9.48	64	34
Sacramento	.08	3.00	6.69	64	40
San Francisco	.30	4.02	7.74	62	44
San Jose	.01	3.10	5.82	66	32
Fresno	.00	1.48	3.23	70	34
San Luis Obispo	.00	5.18	5.36	82	40
Los Angeles	.00	4.27	4.76	82	45
San Diego	.00	2.20	2.88	84	44

What Are You Raising On Your Trees?

An impertinent question you think? Maybe so! But when you consider that half of your crop may be eaten up or destroyed by Thrips, Red Spider or their thousand crawly brothers—little wonder the question!

Spray With

Universal Brand Crude Oil Emulsion

during this present dormant season and you will insure yourself a larger crop, a better crop, and bigger profits. Write today for quotations on spray materials.

For full information on insect control write for our special bulletin. It is a valuable handbook on sprays and spraying that should be in the hands of every orchardist. Write—now! It's free!

Balfour, Guthrie & Co.

350 California Street San Francisco

816 Higgins Building Los Angeles

UNIVERSAL BRAND ORCHARD SPRAY

Sanguinetti's Quality Brand
(1919 Crop)
Alfalfa Seeds

Grown on Certified Fields

Unexcelled for Germination, Purity, Color and Productiveness

VARIETIES:

Chilean (Common) Smooth Peruvian
Hairy Peruvian

Orders Shipped Same Day Received

It will be to your interest to ask for our prices and samples before placing your order elsewhere

E. F. SANGUINETTI - Yuma, Arizona
"THE HOME OF THE HAIRY PERUVIAN"

First Annual Guaranty Sale
Glenn County Poland China Breeders Association

Orland, Cal.
(Glenn County Fair Grounds)
Tuesday, January 13th

65 Selected Bred Sows, Gilts and Boars

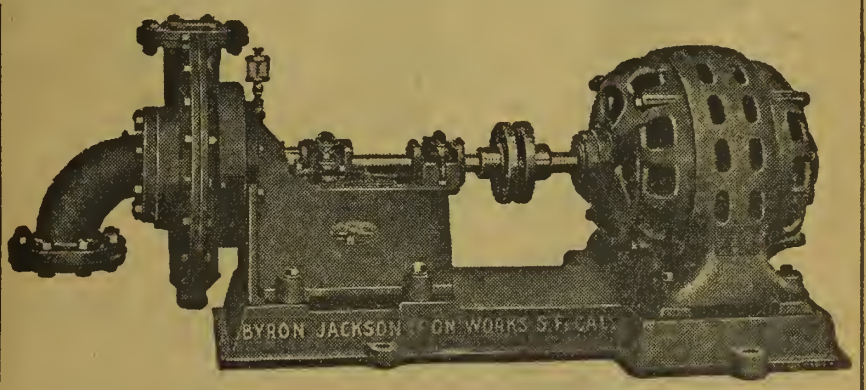
For the initial sale the following herds have been drawn upon to furnish an offering in keeping with the established quality of Glenn County Livestock:

R. J. Yates
R. M. Rankin
Penfield Bros.
V. H. Warnock
J. A. Miller
J. K. Burnett
M. H. Summers
Adam Lachenmeyer
J. E. Faltings
Ferguson & McKaig
Chas. Templeton
W. A. Ort
Mrs. C. J. Lathrop

Every animal listed represents the most popular and proven blood lines known to produce strictly big type Poland Chinas.

Watch this paper for further announcements. For catalogs address

Ord L. Leachman, Auctioneer and Sale Manager
1111 Seventh Street Sacramento, California



Have You a Producing Ranch?

IF NOT, WHY NOT?

The difference between a "live" and a "dead" Ranch is "Water" and "No Water."

"Byron Jackson" Pumps meet every water condition

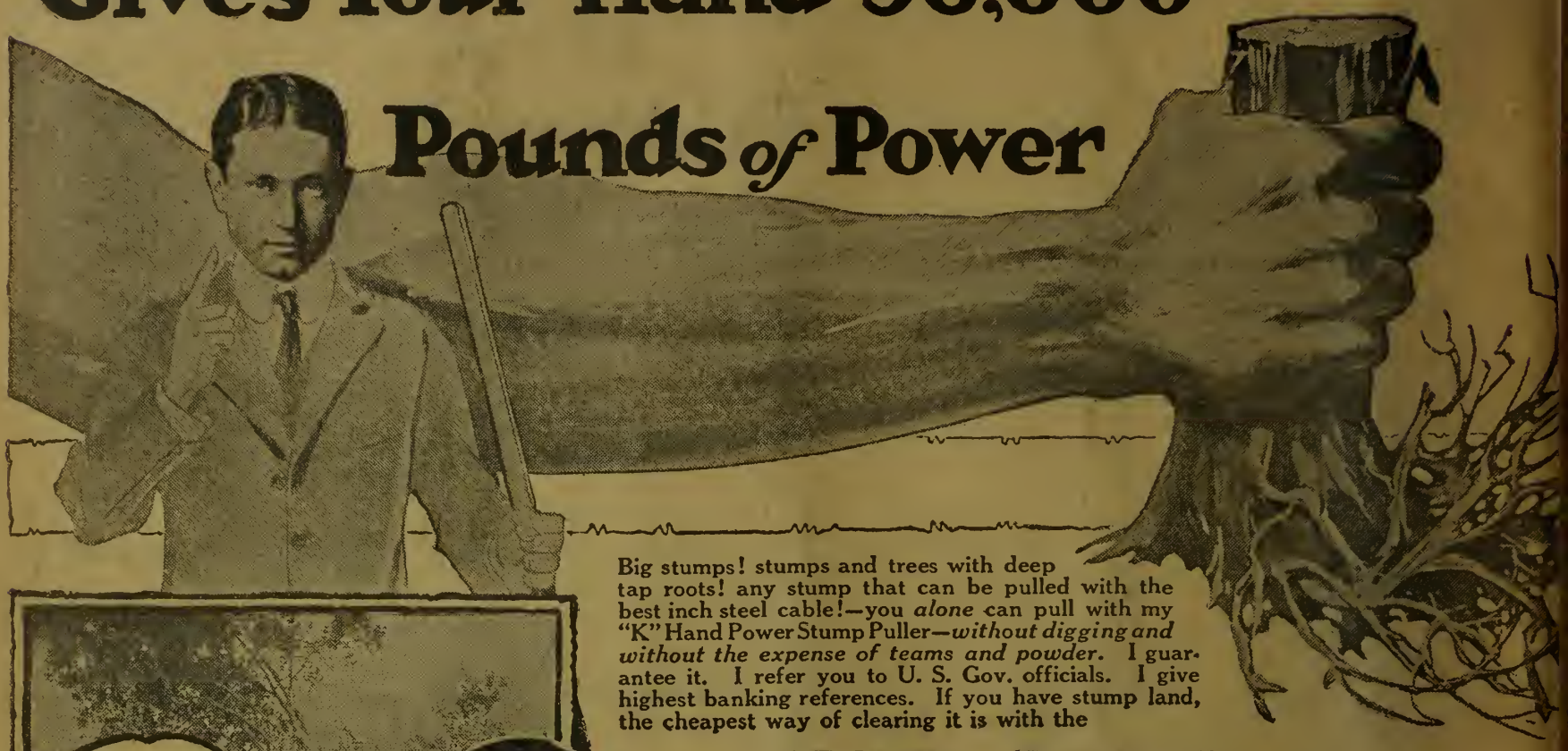
Write us giving your water conditions and requirements. Our New Catalog No. 60-B for the asking.

Byron Jackson Iron Works, Inc.

Los Angeles San Francisco Visalia
Portland Salt Lake

My K Hand Stump Puller

Gives Your Hand 96,000 Pounds of Power



Big stumps! stumps and trees with deep tap roots! any stump that can be pulled with the best inch steel cable!—you *alone* can pull with my "K" Hand Power Stump Puller—*without digging and without the expense of teams and powder.* I guarantee it. I refer you to U. S. Gov. officials. I give highest banking references. If you have stump land, the cheapest way of clearing it is with the

HAND POWER

K Stump Puller

Frank Hance, a *one-armed* farmer of Bowie, Md., pulling a double silver maple 3 ft. 8 in. in diameter at the ground, with deep tap roots. This is an easy pull for the "K," as the cable can be hitched high and the leverage is consequently greater.

How the "K" Pulls Biggest Stumps

The "K" works on the leverage principle of the ordinary lifting jack, except that the power is applied on a cog-wheel instead of a standard. 100 lbs. push on the lever develops a 48-ton pull on the stump—all an inch steel cable will hold. One man operates it alone—no teams to pay for—no walking.

A Mechanical Wonder

Made of finest steel—guaranteed against breakage. Weighs only 171 lbs.—easily carried or hauled about on its own truck wheels. Has two speeds—60 feet per minute for hauling in cable or for small stumps—slow speed for heavy pulls. *Works equally well on hillsides and marshes where horses can not* work.

Owners Praise It

H. Sinclair of the Dept. of the Interior, a U. S. Gov. official, writes: "The stump puller is a wonder."

Ernest Thompson Seton, author and naturalist, declares the "K" "a great success."

Hundreds of owners write in, telling of pulling six- and seven-foot stumps, of pulling faster and pulling bigger stumps than by any other machine.

Special Offer We are making a special offer to get a "K" Stump Puller introduced in every neighborhood. Write us today for full information and for free book on Land Clearing and about our Wonderful Drag Saw.

The Fitzpatrick Products Corp.
Box 17
99 John Street, New York
Pacific Coast Office 182 Fifth St., San Francisco

H. G. Hunzicker of Foster, Wash., pulling a 24-inch fir stump with deep tap roots out of hard ground, without using powder or cutting any roots.

Tear Out and Mail Today

The Fitzpatrick Products Corp.
Box 17 99 John St., New York
182 Fifth St., San Francisco

Send me full particulars on your special offer and your free booklet on Land Clearing.

Name_____

Address_____

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — January 10, 1920 — No. 2

Collective Action---Productive Cooperation

THERE has existed for years in this country collective action by merchants, by industrialists, by laborers and others, which has resulted in great benefit to those interested. Productive cooperation has been slower of realization. That it is coming effectively is proven by "The Greatest Story Ever Told" on the cover of last week's California Cultivator. That story did not touch upon the fact that cooperation had made such a showing of California's production possible, but had it not been for cooperation it would have been many years before a productive industry of such magnitude could have been chronicled for this state. But productive cooperation is now here and growing with greater rapidity, we believe, than cooperation in any other industry.

Of course we can go back to the time of George Washington and Benamin Franklin and learn where those seers into the future realized the necessity of cooperation and urged it upon producers. In fact, from that time until within the memories of some of us there have been log rolling bees, barn and house raising bees and other cooperative activities which proved most beneficial within limited bounds. Cooperative town meetings in New England and similar united effort in some southern states should have proven of sufficient educational value to have brought about a closer cooperation, but it took generations to educate, and education is necessary where cooperative effort is to be undertaken. The difficulties in this line of work were realized some 3,000 years ago when the prophet asked in all seriousness: "Can two walk together except they be agreed?" But the cooperation of pioneer days in the log rollings and barn raisings was only undertaken because of absolute necessity, and perhaps it must be admitted that cooperation today is only undertaken because of necessity equally as great. However, it has required a far broader education to bring about modern day productive cooperation. In any case, so far as cooperative organizations have been formed in California it has been because of necessity to organize to preserve an industry.

Questions concerning cooperation are all remarkably well answered in a publication of the University of Illinois, written by John W. Lloyd. Mr. Lloyd spent some two years in California informing himself in the state of most advanced cooperative movements, and "Cooperative and Other Mehods of Marketing California Horticultural Products" is the result. In his introduction he says:

"The permanence of horticultural industries depends primarily upon the successful marketing of the products. Many individual horticultural enterprises have failed, not because of inability of the operators to produce the crops, but for lack of efficient marketing facilities. When individual efforts at marketing have failed, growers have been obliged either to give up their horticultural pursuits or to cooperate with their fellows in the marketing of their products. The greater the distance of the grower from his market, the more helpless he has been as an individual in attemping to solve his marketing problems. It is not surprising, therefore, that California growers have been leaders in the development of cooperative marketing organizations in America."

"Three methods of marketing California horticultural products may be noted: (1) outright sale to speculative buyers, (2) consignment upon a commission basis, and (3) sale through a growers cooperative marketing organization. Each of these methods has characterized certain periods in the marketing of the various California products. In the early eighties of the last century, California fruit was usually purchased outright from the growers by speculative buyers who shipped it to a few of the larger markets. California fruit in the eastern markets was then looked upon as a luxury to be indulged in only by the wealthy, and the limited shipments were sold at exorbitant prices. During this period, the buyers paid good prices to the growers, and at the same time made large profits for themselves. Within a few years, however, with increased production, the markets seemed to be easily oversupplied, and the former buyers refused to purchase fruit from the growers, but were willing to handle it upon a commission basis in addition to a fixed charge for packing. This arrangement relieved the shipper of all risk and assured him a profit, but placed the grower at the mercy of an uncertain market, and finally resulted in such low returns that the entire fruit industry of the state was threatened with ruin. The crisis was reached during the financial panic of 1893."

Mr. Lloyd then lays down certain cooperative principles which are determined from the methods and transactions of California associations formed for marketing almonds, apples, berries, cantaloupes, citrus fruits, dates, deciduous fresh fruits, peaches, prunes and apricots, raisins, and walnuts.

California cooperative methods are sufficiently successful to enlighten the world.

Oakland

OAKLAND OWNERS REPORT RETURNS OF FROM 18 TO 25 MILES PER GALLON OF GASOLINE AND FROM 8,000 TO 12,000 MILES ON TIRES

THIS OAKLAND SENSIBLE SIX FOUR DOOR SEDAN IS POWERED WITH THE FAMOUS 44-HORSEPOWER, OVERHEAD-VALVE OAKLAND ENGINE

OAKLAND
SENSIBLE SIX

THE present remarkable value of the Oakland Sensible Six four door Sedan as an investment is evidenced in every field in which this competent automobile serves. Day after day, under the most strenuous conditions of service, it is not only delivering performance of the most satisfactory character, but is delivering it at extremely reasonable cost. This pronounced reliability of mechanical action, this economical discharge of every duty it may encounter, in the Oakland Sensible Six Sedan is joined with the unusual comfort that only complete equipment and appointment can give. The way the Oakland performs, the careful provision made in every detail of chassis and body construction for prolonged and capable service, makes the relative worth of this car unrivaled in the present automobile market.

MODEL 34-C; TOURING CAR, $1165; ROADSTER, $1165; FOUR DOOR SEDAN, $1825; COUPE, $1825: F. O. B. PONTIAC, MICH. ADDITIONAL FOR WIRE WHEEL EQUIPMENT, $85

OAKLAND MOTOR CAR COMPANY
Pontiac, Michigan

California Cultivator

Vol. LIV, No. 2 | Los Angeles, January 10, 1920 | One Dollar Yearly

America's Champion Cotton Grower

By M. E. Bemis

SECOND only in interest to the best pumpkin at the fair, the champion steer, or the best ear of corn, is the man who has been able to produce them. To grow something better than his neighbor, or more to the acre, is the pardonable ambition of many a good farmer and the incentive that has been the means of increasing production since fairs were invented—or discovered. To produce $365 worth of cotton to the acre is an achievement that I believe qualifies the grower for the title of champion cotton grower of America, although there may have been, and doubtless are, many who have produced more pounds of lint to the acre.

Sometimes the big yields are more or less accidents, and so when I was given the name of John Walthall of Scottsdale, in the edge of the famed Salt River Valley of Arizona, as one of those who had produced in the season of 1918 more than a bale of cotton to the acre, I did not become over enthusiastic. Presuming that his might be some semi-experimental plot of a gentleman farmer who had money to hire help when help was needed or to fertilize if deemed wise or to do any of those many things that the ordinary root-hog-or-die farmer cannot do, I did not arouse to any particular degree of ecstasy except as one cannot help but feel the invigorating influence of the ozone that flows over the fields that have sprung up where was once the desert, as one goes out along the beautiful Central Arizona drive and along the edge of the big canal that carries the life giving water, on through orange groves and farms to the little village of Scottsdale, the winter home of Vice-President Marshall.

On the edge of this village is the 40 acre farm of John M. Walthall. The modest home looks as though it might have been designed by one who would fain perpetuate the old ancestral Alabama home with a combination of the California bungalow. In response to my knock he came to the door, and in half embarrassed, half jesting manner explained that as he was a bachelor and must of necessity attend to his own housework, I would find the house upset and out of order, but curiously enough none of this was apparent, and despite the fact that he does the greater part of his farm work himself, the house was in as neat and tidy a condition as any woman would care to have her house. The spacious living room was not unlike the den of any studious, thoughtful man. Books, magazines, pictures and trophies of the hunter were apparent everywhere.

The same neatness extended to the farmyard and farm. Then I asked about the big yield of cotton that I had heard of. "Well, you see," he said, "I came here, like so many others, for my health." To look at him now, the picture of health, strong and muscular, bronzed with the sun and air, it is hard to believe that his one thought a few years ago was to recover his health, pecuniary gain from his farming operations being a secondary consideration, but I took his word for it. Continuing he said:

"This place was in alfalfa when I bought it. It was in alfalfa for about six years. This particular field, which measures slightly less than seven acres, was plowed up three years ago and has grown a crop of grain in the winter and a crop of corn or grain sorghum each summer, making two crops each season. In December it was plowed eight inches deep and disked at once with a double cut-a-way disk. In February it was again disked, dragged down and leveled and ridged with a lister in ridges four feet apart. Then came the irrigating. By carefully manipulating the water it was made to flow through the furrows between the ridges slowly so that the soil would become thoroughly saturated. The water was allowed to run for several hours. When dry enough, the ridges were dragged down flat. The 25th of March the seed was planted, 25 pounds to the acre, the best Pima seed of course. Cultivation began as soon as the plants were up enough to be seen in the rows. A disk cultivator was used, throwing the earth toward the plants. The first irrigation was about four weeks after planting. After the first cultivation the plants were thinned to 24 inches apart in the row. Cultivation was frequent throughout the season as long as it was possible to get teams through between the rows. I irrigated as often and whenever the appearance of the plant seemed to show that it needed more moisture."

"But about the yield," I asked. "Oh, yes," he said, "on the seven acres, or to be exact, a little less, I picked 11 bales that averaged full 500 pounds each."

Cotton last year was worth 65 cents a pound for the lint. As there is approximately 1,300 pounds of seed for each 500 pounds of lint and as this was worth $63 per ton, the gross value of the field was $4,016, or a little over $365 per acre.

This year he has increased his acreage, but the yield will be slightly more than last year, even with the larger acreage. As cotton this year is selling for 80 to 86 cents for lint and $75 for seed, his gross income per acre will probably run over $400.

As evidence that he is not merely producing weight without regard to quality of fiber, it might be mentioned that Walthall's cotton at the International Soil Products Exposition held at Kansas City in September, 1919, was awarded sweepstakes for American Egyptian cotton. At the Arizona state fair in November, 1919, he was again awarded sweepstakes for the best display of "nearest perfect plant," "best five pounds of seed cotton," and "best five pounds of lint cotton."

Walthall's success is not an accident. It is not the achievement of a rich farmer with money to burn in making a name by breaking a record, but it is the work of a man who works with both his head and his hands.

Here in the Salt River Valley where Egyptian cotton has been grown more successfully than anywhere else outside of Egypt, there are two questions that have bothered the growers, and about which there is some dispute. One of these is the type of plant that is nearest to ideal, and the other is how to plant (that is, distance apart) and how to irrigate so as to produce such a plant.

On these points Walthall says: "It seems plausible that a plant that is crowded is not as healthy as one that grows naturally; that is why I plant in rows four feet apart and thin to 24 inches in the row. In this way there are no so-called 'vegetative' branches, but all of them bear fruit. Irrigation is an important matter. Plants should never be allowed to suffer after they begin fruiting."

The largest farms in the Salt River Valley of Arizona are owned by the Southwest Cotton Company. This concern has about 17,000 acres under cultivation on its two big plantations—one at Goodyear south of Chandler, and one at Litchfield, 15 miles west of Phoenix. Only about 8,000 acres of this land is in cotton. The balance is in alfalfa, milo or other grain sorghums and in grain. All the feed produced on these farms, with the exception of that needed for the feeding of horses and mules required on the farms, has been sold to Babbitt & Doyle, cattle and sheep owners, with extensive range and livestock interests in the northern part of the state. They plan to bring cattle and sheep from the range country to be fattened through the winter on the feed produced on these big farms. The feed produced will be supplemented by cotton seed meal and hulls produced from the oil mills of the company. Slaughter houses will be built on the plantation to supply the two towns on these farms.

The lettuce crop of the Salt River Valley of Arizona, it is now announced, will be larger than ever before. The acreage this season is 1,150. Of this 500 acres is near Glendale and 150 near Mesa, 100 acres near Phoenix and the balance scattered throughout the valley. It is expected that the shipment will amount to at least 525 carloads.

Agricultural News Notes of the Pacific Coast

Northern California

The Western Fruit Jobbers Association meets in San Francisco, February 2 to 6.

The Sacramento Northern Railroad is completing a $50,000 depot in Marysville.

Modoc County seed potatoes are highly recommended for early planting in Southern California.

A new asparagus cannery is being built on the Sacramento River at Isleton, Sacramento County.

At Stanford University stables $25,000 worth of blooded stock was burned to death on December 31.

Douglas County, Oregon, has a new industry in the shape of a farm of pure bred Swiss milch goats.

Antioch, Contra Costa County, will ship 1,000 carloads of vegetables this season, including 170 cars of celery.

San Francisco dealers report that potatoes arriving from northern states are frost bitten and require sorting.

A recent tree census in Butte County shows a triple increase in prune planting in 1919 over the year 1918.

San Francisco has purchased the Sutro properties near the famous Cliff House for park purposes; price $250,000.

The improved varieties of jujubes at the experiment gardens at Chico are attracting the attention of Butte County orchardists.

The new rice mill at Chico is completed, machinery installed and warehouse storage provided for 150,000 sacks of rough rice.

The Pacific Rice Growers Association have decided to build warehouses in the counties of Butte, Colusa, Glenn and Sutter.

The dairymen of Sonoma County met and organized during Christmas week, with 75 per cent of the dairies represented.

Paradise, Butte County, shipped in 1919: Apples, 14 cars; pears, three cars; berries, 20,000 pounds, and olives, 160,000 pounds.

A Colusa County rice grower has refused $8.10 a sack for 3,000 sacks of rice in a warehouse, a ten cent price being expected in two weeks.

Seventeen students in the Oregon agricultural college are taking a course in commercial canning and manufacture of jams and jellies.

In Alameda County farm home meetings will be held at Dublin, Castro Valley and Orchard Avenue on January 12, 13 and 14 respectively.

Vacaville, Solano County, last year grew 3,500 tons of prunes (dried) and will now plant enough new acreage to ensure a packing house at that point.

The Home Industry League of San Francisco has sent warning to olive growers organizations to issue publicity matter to combat eastern stories of olive poisoning.

The United States forest service has a new camping ground open to the public on the shores of Lake Tahoe and will continue improvements throughout the year.

An apple grower from the Wenatchee Valley, Washington, visited Tuolumne County last week and says the apples grown there are as good as any in Washington or Oregon.

Central California

Fresno will soon build a $250,000 Y. W. C. A. building.

A large acreage of rice will be planted about Delano, Kern County.

Stanislaus County leads the state in production of butter and cheese.

Lockeford, San Joaquin County, shipped 105 cars of grapes in 1919.

Tulare County's 1,000 acres of cotton averaged more than a bale to the acre.

The three Tulare creameries paid out last month for butter fat $195,492.34.

Fresno County shipped this season 9,000 tons of Muscat and Malaga layer raisins.

Salinas, Monterey County, is waging an official war on rats through a poison squad.

A Pasadena packer will build a $100,000 jam factory at Ceres, Stanislaus County.

It is announced at Fresno that the 1919 raisin crop of California will net the growers $33,000,000.

The Tehachapi district pear crop shipped from Bakersfield brought the growers about $100,000.

Lindsay has shipped 1,440 cars of navels, 60 per cent of the total navel output of Tulare County.

The first carload of oranges ever shipped from Oakdale, Stanislaus County, went East Christmas week.

In Fresno more than 20 tons of old automobile tires were collected for the tuberculosis fund of the Red Cross.

Modesto produced 5,000,000 pounds of the 7,846,342 pounds of butter produced by Stanislaus County in 1919.

The Merchants Association of Fresno gave 800 Christmas trees to that number of the poorer families of the city.

San Joaquin County farm bureau will hold 12 important meetings during January, covering all parts of the county.

San Francisco capitalists have purchased a 4,000 acre tract of land in Tulare County, including the townsite of Angiola.

The Stanislaus County farm bureau has set 1,625 as the number of members it must have at the close of the present drive.

Members of the Bakersfield boys pig club have purchased two pedigreed Poland China gilts, paying $150 and $300 for them.

The Karakul sheep imported from Asia Minor are said to exist almost entirely on alkali weeds in the San Joaquin Valley.

Nine thousand acres of Miller & Lux lands near Dos Palos, Merced County, is to be at once subdivided and placed on the market.

While the Porterville district of Tulare County has shipped its orange crop, the Success Valley, to the east, has not commenced picking.

The Salinas, Monterey County, farm bureau voted 29 to one for Japanese exclusion from use of land and unanimously against the daylight saving act.

The Fresno chamber of commerce has invited all tobacco growers holding their crops to meet at an early date, pool the output and secure an option for its delivery.

Southern California

San Diego is to have a permanent naval station.

Recent heavy rains have raised the Salton Sea six inches.

Bean straw is selling at Oxnard, Ventura County, for $20 a ton.

Alfalfa hay is bringing $33.33 a ton f. o. b. at Hemet and San Jacinto.

The Arlington cannery in Riverside County will at once double its capacity.

The Imperial Valley expects to market 650 carloads of spinach this winter.

The two original navel orange trees at Riverside are said to be slowly dying.

The National Orange Show at San Bernardino is to be held February 13-23.

The total acreage of sugar beets in the San Fernando Valley this year was 3,597.

Work has been started on a federal post office bilding at El Centro, Imperial County.

Unusually warm weather has started cantaloupe planting around Brawley, Imperial County.

The pea acreage of San Diego County is about 600 with a crop estimate of about 75 carloads.

In the Moreno Valley, Riverside County, there are 360 acres of olives and 210 acres of apricots.

Members of the Whittier Walnut Growers Association have received $800,000 for their 1919 crop.

The supervisors of San Diego and Imperial Counties will build a highway from Julian to Brawley.

The paved highway from Mecca in Riverside County to Brawley, Imperial County, is nearly completed.

The West Riverside cannery will double its present capacity and build 75 additional cottages for employes.

The San Bernardino County farm bureau is setting out 200,000 eucalptus east of Chino, to act as windbreaks.

The Old Baldy Citrus Association is the name of a late incorporation of growers at Upland, San Bernardino County.

Ranchers about Perris, Riverside County, have signed for more than 3,000 acres that will be planted to cotton next year.

The assessor states that there are 7,000 Japanese in Imperial County, controlling tens of thousands of acres, but owning less than 1,000.

Soil testing demonstrations by Professor J. W. Nelson of the state college of agriculture will be held in Orange County, January 13-16.

The Imperial Valley shipped 60,000 pounds of turkeys from November 1 to January 1, one-fourth less than last year's output for the same months.

Three kinds of cotton are grown in the south end of the state: short staple; Durango, or medium staple; and Pima Egyptian, or long staple.

Volcanic tufa, a very light weight rock found in San Bernardino County, will be mixed with cement and made into fence posts and railroad sleepers.

An eight months old pig of 409 pounds recently killed at the government station in the Coachella Valley was fattened on dates that dropped from the trees and it is claimed made a superior pork.

The Coast and General

A cannery for berries will be built at Juneau, Alaska.

Ninety acres of the 1919 Washington potato crop was passed as certified seed.

A new fruit and vegetable cannery is being erected in Port Angeles, Washington.

Southern Nevada will for the first time plant several hundred acres of long staple cotton in 1920.

Linn County, Oregon, the "pure bred livestock county" of the state, is organizing a breeders association.

Three hundred ninety cars of shook are on the way to Imperial Valley, according to Southern Pacific officials.

The Western Washington Horticultural Association will hold its annual meeting at Puyallup, January 28-30.

Salt River Valley, Arizona, marketed cantaloupes from 4,000 acres in 1919 and from but 1,175 acres in 1918.

The United States forest service offers for sale 70,000,000 feet of lumber in the Santiam forest reserve in Oregon.

Florida shipped its first carload of tomatoes December 4 and the crop promises to be much larger than that of 1918.

At Corvallis, Oregon, the agricultural college announces their best hen laid 330 eggs in 1919, and two others laid 323 each.

A new apple of merit has been put out in Spokane, Washington, known as the Ranier, a cross between Delicious and Nonesuch.

Manila, Philippine Islands, has a population of 283,613, of which 3,134 are Americans, exclusive of the army and navy men.

Unusually heavy snowfalls are reported in the mountains forming the Colorado River watershed, an indication of spring floods.

Ninety-four permits for appropriation of water for irrigation from Oregon's rivers were issued during October and November, 1919.

Seattle reports a bad freeze in the Northwest that has advanced prices on all vegetables, $5 a ton on potatoes and $1.50 a hundred on onions.

A bridge across the Colorado River 80 miles north of Kingman, Arizona, will be built to open now inaccessible territory the size of Connecticut.

Every red cedar tree (Juniperus Virginiana) in the Southeastern United States is to be destroyed to save the apple orchards from "cedar rust."

Fifty per cent of the storage potatoes held in the Chehalis, Washington, district for late shipment were frozen by the coldest weather since 1881.

The Colorado Farmers Congress recently endorsed the payment scale for sugar beets adopted by the growers organization; when sugar wholesales at $7 a hundred, beets shall be $10 a ton.

Early snows and heavy rains throughout the range country have brightened the prospects for spring feed and supplied an abundance of water. Water supplies in some parts of Arizona have opened up ranges that for lack of water had not been grazed and have made possible the extension of the ranges for the time being. Cattle for the most part are reported to be in excellent condition

Some Livestock Thoughts for 1920

By R. P. Royce

THE year just closed must be reckoned a year of great importance to the livestock industry of California. It is not too much to say that during 1919 more real progress was registered by the various breeds of pure bred livestock in this state than in any previous two or three years. As a matter of fact 1919 saw the industry get under way to a real start, and there is every reason to believe that the development will continue to keep pace with the actual needs of this state.

A Classy Bunch

Best group five steers exhibited by University of California at Chicago International.

The interest manifested in better livestock in this state follows closely the marked interest noted in other states, but an investigation of local conditions would seem to indicate an even greater fundamental need existing in California than will be found in many of the more advanced states.

California today is conceded to be the most promising livestock field in the United States, and at the same time we stand under the indictment of having about as poor quality of livestock in general, and the best in many ways, to he found in any state. Such a situation has never heen entirely and satisfactorily explained, hut the very fact that such a situation does exist furnishes the basis for the statement that this state has a brilliant future.

If granted that a basis does exist for high hopes for the livestock development in California, and there is ample evidence to support the contention. The hig thing is for hreeders and livestock producers in general to get and hold a proper, sound and practical conception of the real reasons for better livestock and order their operations accordingly.

Offhand, it may seem that the value of hetter livestock is too generally admitted to need further argument, hut a trip through the more important producing centers of this state will impress one with the fact that hundreds and thousands of men have not reached that point of acceptance of the fact that they can increase their profits by the use of better hreeding material. Hence we may be pardoned if it appears that what is to he said is old.

First of all the livestock industry is a primary business and conditions exist in California that of necessity assure that livestock will always hold an important place as a source of revenue. Much of the land in this state can never be economically employed except to carry livestock. Our growing population, with the several large centers of population that exist, furnishes an ever increasing market, and because of our geographical location it is of first importance that our sources of supply he developed as near the point of consumption as possihle, and therefore, regardless of the market fluctuations that may occur from time to time, livestock will be produced in proportion to the demand.

In general, the climatic and feed conditions found in this state are such that livestock of all kinds can perhaps he produced here more economically than elsewhere.

With natural conditions that make certain the livestock business, with a growing market which assures a continually increasing demand for animal products, the big problem that faces the livestock producer of this state (as well as others, but particularly here, because we are more backward) is to meet that demand in the most economical way possible. In other words, the producer's profits, regardless of price, will depend upon his production costs, and the cheaper his production costs, the greater his profits. It is too much to expect that there will be any marked deflation of land value or labor costs. Such being the case, the one way open to the producer is to plan to cheapen his costs hy producing a class of livestock that will make the most economical growth and production on the feed investment involved. Such a class of livestock can only be produced through the use of better blood, represented by the leading pure breds. There is no other way, and it is as certain as daylight and dark that each year will see more producers turn to better livestock.

At the dawn of 1920, with its prospects so bright, the interests of all will he hest served if first of all producers in general recognize the fact that pure bred livestock is practical and efficient and offers the shortest and surest cut to greater profits hy the avenue of cheaper production. Education is needed, and lots of it, and every agency, the college of agriculture, the press, the various organizations, and the estahlished breeders should dedicate themselves to carrying out every line of practical propaganda calculated to aid in the movement.

Producers need to he educated up to the point where they will be willing to pay liberal values for hetter hlood. By liheral values it is not meant that they should be guaged to the occasional sensational prices reported. As a matter of fact the records will show that the average values registered hy the leading breeds are in no way out of line with the existing level of values obtaining for all other commodities. Indeed, a study of pure hred livestock prices can not fail to impress one with the fact that today a dollar will huy more real value in a pure hred sire or female than ever hefore. There never was a time when one could enter the pure bred market to hetter advantage than now, and this is particularly true in California. With the year just closed when nearly every agricultural product, save livestock, sold at record hreaking prices, the dollars so ohtained can be made to purchase more value in livestock today than at any previous time. Grain money, hay money, fruit money will do extra service if invested in livestock of the right kind.

As the breeding interests face a new year which promises much, it may be well to suggest to those who have not been long identified with the industry that as breeders they have certain responsibilities to the public and their breed. First, they should recognize the fact that the pure bred livestock industry is anchored on a solid foundation and that the general extension of the industry will be certain. They should not, however, regard the business of producing pure bred livestock as a quick and easy means to wealth. No man ever took from the business more than he put in unless he hrought to the industry talent, thought, courage, intelligence and a determination to stick to it. One cannot jump in and jump out without losing something. It takes time to become established; it takes time to gain the confidence of the public; and it takes a lot of downright hard work to succeed.

Established hreeders, heginners and those who plan to enter the industry can be certain of building a profitable and satisfactory business to just the extent that they give value received.

Young breeders, while fixing their sights on the high points, should he content wtih conservative values for their productions, and their entire operations should be hased on conservative returns, rather than the occasional sensational figures.

The most common sources of disappointment in this business are failure to succeed quickly, inability to measure one's own productions hy the same standard applied to fellow breeders, inahility to feed properly, and the false conception of the entire business, based on the supposition that the business is "a game" for the speculator.

If breeders will only catch the sound viewpoint, see the wide field ahead of them that affords a market for all the meritorious stock they can produce, be satisfied with reasonahle prices, learn how to feed and develop, enter the business with a mind made up to stay with it, keep their business and their breed free from speculation, conduct their transactions on a high, clean, dignified basis, cooperate with each other, and encourage and help beginners, then will they do their part toward putting California livestock before the nation as it should be. Let our livestock interests profit hy the mistakes of the older sections—and 1920 will record a year of satisfactory progress, built on a foundation of permanency that will mean much in all years to come.

Best Pen of Five College Wethers at Chicago International
Exhibited by University Farm, Davis.

Wherever labor can be saved on the farm and results accomplished just as satisfactorily, by all means save the lahor. Results of experiments at the University of Missouri college of agriculture with self feeders for fattening hogs show that those eating from a self feeder gain more rapidly than those depending on the hand feeding methods. The amount of feed necessary to produce a pound of pork remains practically the same, hut the amount of labor is usually reduced. It is this decrease in lahor which enters as a factor in cheapening the cost of producing pork.

Chicago International Winners
Pen of five California Durocs.

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We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

CALIFORNIA LEADS

America prides itself on its genius for organization. Its industrial accomplishments have been vastly greater than could have been possible had not this organization been permitted. In productive fields we have been much slower to gather ourselves together. California is leading the way.

HEAVY PRUNING

The department of agriculture has been making investigation of citrus pruning methods in California and reports that clear cut demonstration is made that heavy pruning is detrimental to the citrus trees. This is especially true of trees which have been propagated from those having high yielding records—that is, they require much less pruning than do trees of low producing habit.

CATALOGS

Nursery and seed catalogs are now coming out, and they have their usual winning way which creates a desire to make a garden and plant everything listed. They are about the most optimistic publications on the face of the earth, and we are glad they are. They contain a fund of information and inspiration to grow things which aid the housewife in many a meal and save the food administrator on the farm many a penny. Write for the sced catalog, for the garden should have a place on every well regulated farm.

STANISLAUS STILL LEADS

The report of the department of agriculture as to butter production during the year ending September 30 shows that Stanislaus is still the banner dairy county of the state. She produced over 8,000,000 pounds during 1918, for the past year dropped slightly but produced 7,846,382 pounds. Her closest competitor is Humboldt County with nearly 6,000,000 pounds. Imperial is a close third with 5,196,000. Other strong dairy counties are Fresno, Kings, Marin, Merced, San Luis Obispo, Sonoma and Tulare.

TRADE WHERE YOU LIVE

How about your own town? Is it a live one? If so, are you a factor in its being thoroughly up to date? As one hint, do you trade at home?

A farm near a live commercial community has greater value, finds better markets for its produce, and has better social and educational advantages for its young people than does a farm near a dead town.

Be a patriot, be a true Californian, be loyal to your community.

PUT OUT THE FIRE

In Idaho and Montana alone timber worth $3,500,000 was destroyed by fire last summer. California and every other section suffered greatly from forest, field and building fires. No country in the world is as wasteful as the United States in permitting ravages of fire. The best way of preventing these awful losses is by putting out the fire before it starts. It is possible some great uplift or benefit may be shown because of the cigarette, but, be that as it may, when it is carelessly thrown it becomes a menace to public welfare. Then the lighted match, the camp fire and carelessness with firearms causes many a serious loss. A little precaution may aid in saving millions.

MORE ROADS

By July, 1920 the department of agriculture has estimated that there will be in this country at least one billion dollars available for road construction, to be used during the following fiscal year. Of this amount the federal government alone has appropriated $680,000,000. Various states have authorized a total of $224,800,000, and these and other states have under consideration other proposals for $314,000,000 additional. The 12 months exenditure is expected to be at least four times greater than any preceding year. About the only limit on the year's accomplishment appears to be the securing of sufficient rail transportation for materials and the adequacy of constructive organization and supply of labor.

OLD CLOTHES

We may become members of old clothes clubs and in order to beat the profiteer and help in subduing the H. C. of L. wear our clothes until they show the threads and until the trousers are frayed about the shoe tops and until last year's bonnet becomes the talk of the spendthrifts, but we all refuse to wear rubber collars. But why not? The linen collar trust has hit us as hard as any, and the manufacturer claims that rubber collars are simply linen covered with pyroxylin instead of starch.

But why not go without either? It's a whole lot more comfortable. John P. Irish has gone through life without a tie, and he is proving fairly long lived.

BIGGER AND BETTER MEN

We sometimes become restive over sanitation requirements or regulations where great masses of people are gathered together. But should we? Isn't there reason for giving as great care to conditions surrounding men and women as to conditions surrounding our livestock? We recently noted:

"The size and strength of men and women are about the same, but our cattle are steadily becoming larger, our horses stronger, our chickens handsomer and more productive of eggs. And the advance is not due to natural evolution but to artificial aids to nature."

Perhaps our immediate surroundings may be made comfortable and such that we humans have at least an equal show with our livestock in developing the best that is in us physically.

TONS OF SEED

We have told of the wonderful production of some of California's staples, and it was indeed a great story. But there are thousands of tons of products sent over the Rockies from California, products that are out of the ordinary. For example, an item recently appearing in the publications of the United States department of agriculture calls attention to a shipment of 60 tons of sesbania seed produced in the Coachella Valley of California.

In 1904 this plant was growing by the roadside as a weed, but an investigation by the United States department of agriculture revealed its big possibilities because of its leguminous character. Since that year it has been widely cultivated, a principal use being for planting by onion growers immediately after the harvesting of onions in the late spring, thus enriching the soil preparatory to planting in the fall.

WS. S.

We do not see the magic initials so much as during the war. However, the war loan organization is being maintained and war savings stamps are still being sold, and it is asserted that the war savings stamp habit is to be encouraged for all time to come. At one time the savings bank people looked with som disfavor on the plan, that is, after the war should be over and no war need pressing, but it is now asserted that savings accounts are even increasing by savings which have been started in thrift and savings stamps because of the habits which these little slips of paper have encouraged.

During the year 1919 about $24,000,000 worth of these stamps were sold. The leading Pacific Coast state in per capita purchase of stamps is Oregon, according to report of the 12th federal reserve district organization. Oregon stands fifth among all the states of the Union in this regard. Ohio is first, with a per capita investment of $3.20.

PEDIGREED TREES

While it is not strictly correct to refer to the bud selection movement as a means of securing "pedigreed" stock, yet that term perhaps comes closest to expressing what we mean in referring to the action now being taken by the nurserymen of California. At the recent convention at Chico, the state organization, following suggestions which had been made by Mr. Kirkman at former conventions, discussed seriously a step which will, we believe, mean much to the California fruit industry. They not only discussed and passed resolutions, but took definite action in the appointing of live committeemen, and later in meeting in San Francisco and perfecting an organization. The new organization is a corporate body; it is proceeding to purchase lands which will be used to produce and to supply to nurserymen dependable buds and stocks. It may be that the time will come when the term "pedigreed" will be used—and correctly so. The new organization proposes to select buds only from trees of known productivity and to have them selected by men thoroughly qualified and of known integrity. Ultimately "pedigreed" trees and buds may become a factor of great importance to the California fruit industry. The importance of this step is fully recognized by the orchardist who has purchased trees, sometimes not true to name, possibly true to name but of a type that refuses to produce in large quantity fruit of highest quality. While it is possible that 100 per cent production may not be secured in our nursery stock there is no reason why this stock may not for all practical purposes be absolutely dependable.

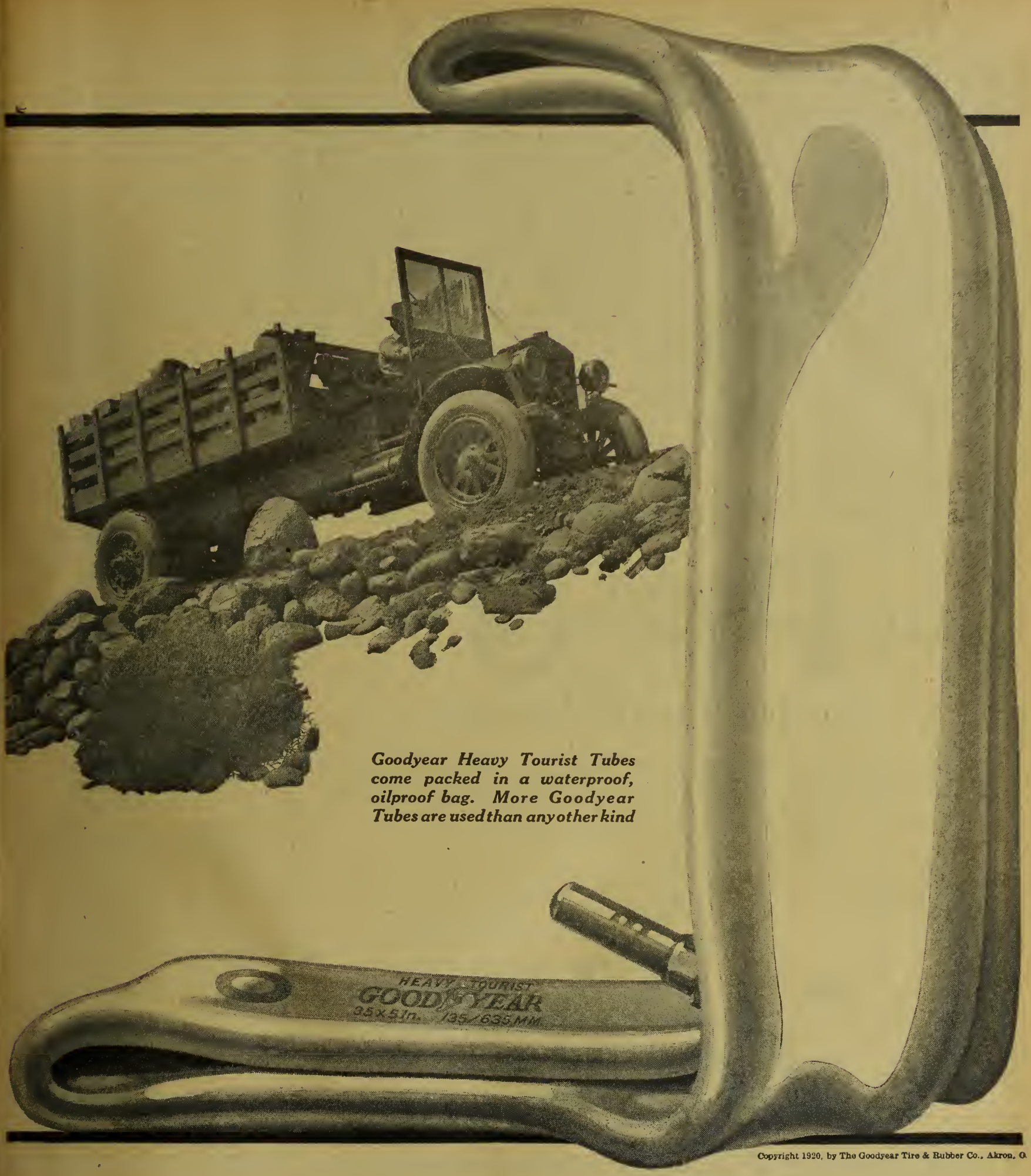
California's nursery interests are greater than those of any other state, and it is entirely fitting that the pioneering of such an organization should find its birth in this state. All honor to the directors and all the nurserymen who are joining in getting this organization into working trim.

WE ARE CENSUSED

The fourteenth decennial census is requiring 90,000 enumerators and clerks, and the enumeration is to be done in about two weeks. The first census, taken in 1790 under the administration of George Washintgon, required 650 people only and they were some 18 months in completing their work. That census had to do simply with counting the number of people in the United States. The census is taken every ten years and is required by the constitution of the United States. The number of representatives in congress is determined by the census. It is to be presumed that the number will be greatly increased because of the 1920 census, but owing to the great number of representatives, at present 431, an effort will be made to make the representation on a greater population basis. Th first census in which agricultural statistics were gathered was the sixth, taken in 1840. The last decennial census showed that the number of farms in the United States was 6,361,502 and that their valuation exceeded 40 billions. It is expected that the present census will show more than 7,000,000 farms. One new feature will be a gathering of statistics as to forestry and forest products. The department of agriculture aids in preparation of the list of questions and makes extended use of the facts gathered.

The bureau of the census is a part of the department of commerce which was established in 1902. Prior to that time the census work was done by a temporary organization known as the census office. At the beginning the enumeration was made by United States marshals and their deputies.

Of greatest aid in classifying and bringing the mass of material together and making it available to the people are ingenious machines which have been made especially for census work. These machines are almost human in their power, perhaps, more correctly superhuman, in that they are absolutely accurate in their conclusions. Within three months the department expects to be able to give final figures as to population.



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Three Goodyear tubes traveled on their original air all the way from Boston to San Francisco with the Goodyear Transcontinental Motor Express. What tribute to their reliability and staunchness! Goodyear Heavy Tourist Tubes for passenger cars, like the larger tubes for trucks, are made of pure gum strips, *built up layer-upon-layer*. They cost but little more (an average of sixty cents) than tubes of less merit. Surely it is false economy to risk, for so small a sum, a costly casing.

GOODYEAR

Better Nursery Trees

THE nursery and seed trade of California has drawn to itself a remarkably high class and efficient personnel. No other state excels in this line of work. In no other state does the industry reach the magnitude it has in California, and the efficient and educated care devoted to it is responsible in large part for the quality of fruit and the quantity of fruit sent from this greatest of all fruit states.

We feel justified in making this statement, first, because it is true, and, second, because an occasional mistake, such as is possible at all times in all businesses, sometimes gives an orchardist opportunity to call attention to the fact that he has purchased trees which have not all proved true to name. But when one considers the millions of trees and vines which have been the output of California's nurseries, the proportion of mistakes shown is remarkably low. The nurseryman handling his millions of individual plants and trees is confronted by a great difficulty in securing competent and sufficient labor.

Now he is taking another step to safeguard his interests and those of the tree planter. He has joined himself to other nurserymen of the state; lands are to be purchased and these lands used in producing carefully selected foundation stocks for the future orchards of California. It is a long step and will take some years to bring into fullest usefulness. However, the organization is proceeding rapidly, and some of the enthusiastic members are giving of their valuable time in the very busiest of seasons to complete its working force as soon as possible. We have asked one of the most enthusiastic members, J. E. Bergtholdt, vice-president of the new organization, for a statement as to the hopes of the organizers. Mr. Bergtholdt says:

"It has long been realized by those interested in horticulture that an organized effort should be made towards the elimination of undesirable sorts and undesirable types of common fruit varieties, and, most important of all, towards the selection by observation and experimentation of the best types of the standard commercial fruit varieties and the adoption only of those new varieties offered by propagation which have merit. No factor has entered so largely into the success of dairying, poultry farming, stock raising and cereal farming in recent years as the intelligent practice of these principles.

"Yet, in California we have had an industry that in recent years has been productive of many times more wealth annually than the production of gold during the years that the fame of California became world-wide for its production of the precious metal, and during all these years the California fruit grower has wasted an enormous amount of labor and capital in the cultivation of undesirable and second rate fruit varieties and of poor types even of the best standard commercial varieties without any scientific effort towards a selection of the best.

"The tree you plant is the most vital factor in your success as an orchardist. And the fact that fruit growing in California has been so profitable was due in large part to the favorable natural surroundings and climatic conditions of the Pacific slope.

"Many millions have been lost and many millions could have been added to the wealth of California if an organization had been fostered whose energies would have been directed towards carrying out this principle of elimination and selection."

The formal organization was perfected in San Francisco December 20. It has the heartiest approval of Wm. T. Kirkman, Jr., of Fresno. In fact, Mr. Kirkman has for several years urged some such organization as is now perfected. It is to be known as the Nurserymen's Bud Selection Association of California and has been incorporated with a capital stock of $150,000. The active direction of the association is vested with the following directors: President, Wm. T. Kirkman, Jr., Fresno; vice-president, J. E. Bergtholdt, Newcastle; H. A. Hyde, Watsonville; J. S. Armstrong, Ontario; J. W. Barnicott, Newcastle; Geo. C. Roeding, Fresno. Max J. Crow of Gilroy is secretary and treasurer.

"It will be the object of the directors to engage the best experts to manage and superintend the machinery that will be created towards carrying on this enormously important work of the association. The intensive efforts of this expert machinery will be directed toward selecting for propagation by observation and experimentation only the best types of the standard commercial fruit varieties; to discard and eliminate unprofitable sorts and inferior types.

"A permanent experimental orchard and bud wood farm will be immediately established. Every effort will be made to cooperate, not alone with the federal, state and university horticultural authorities, but to cooperate with the expert knowledge and experience of every branch of the commercial fruit growing and fruit marketing industry.

"Every nurseryman participating in the benefits of this organization has pledged himself not to employ for propagation any bud wood or scions excepting such as bear the seal and approval of this bud selection organization and has pledged himself not to offer for sale any tree that has not been propagated from buds or scions furnished by the association. By this means only will the planter be given absolute assurance and an absolute safeguard that the trees offered to him have been propagated from parent trees scientifically selected for the purpose by the experts not alone of the association, but of the best horticultural talent of the state.

"The object of this association is to deliver to the planter of California the highest type of fruit tree that horticultural science can produce. The doors of this organization are wide open to every legitimate nurseryman within the state of California to become a shareholder and to participate in its benefits. The nurserymen have set out to make California produce the best fruit that can be grown."

1842 P&O 1920

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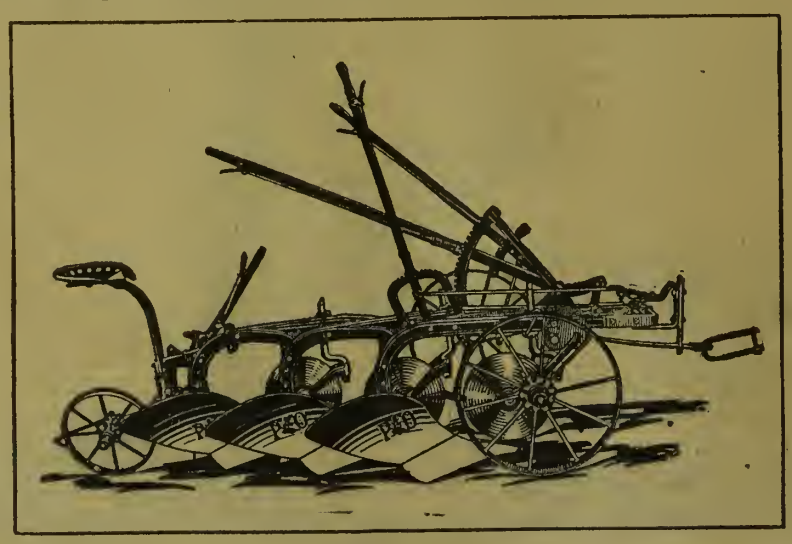

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NITROGEN AND NITRATE OF SODA

By R. R. Snowden

IT IS conceded that, considered from all angles, nitrogen is the most important of the plant food elements. In the arid and semi-arid regions much dependence for it is placed on the cover crops. Though nitrogen may in that way be added to the soil, the cover crop is, even disregarding this, of first consideration, because so decidedly contributive to the efficiency of all the plant foods. But regarded as a source of nitrogen I wish to point out that it is in practice found irregular and for this reason not altogether reliable.

For instance, in a practically uniform soil receiving identical treatment in every way, including cover crop, the nitrogen content varied from .019 per cent to .069 per cent.

In my practice, even with large nitrogen content, I have found it quite necessary to supplement the soil supply with early applications of immediately available nitrogen, and nothing has been found to equal nitrate of soda for this purpose; for the plants and trees are in need of this element earlier in the season than the soil bacteria are able to work actively in making the soil supply available; and further, because of the fact that before the soil is warmed the rootlets are not so active in absorbing plant foods as they become later.

While valuable because of its immediate availability and its being the cheapest source of nitrogen, nitrate of soda has a number of other characters which recommend its use.

In the process of absorption there is less loss of nitrogen than in any other commercial source. Voorhees in America and Wagner in Germany have found quite independently of each other that the following losses occur with nitrogen from different sources: Nitrogen from blood, 60 per cent; nitrogen from ammonia salts, 56 per cent; while but 38 per cent of that from nitrate of soda is lost. The above figures considered in connection with the cost of nitrogen from the several sources show that the nitrogen

actually used by plants costs one and three-sevenths times as much in ammonia salts, and nearly two and one-half times as much in blood as in nitrate of soda.

While potash is so high priced it is important to farmers that nitrate of soda is active in releasing the native potash of the soil and making it available for plant use. This action of nitrate of soda is especially useful to the farmers of California where many of the soils contain sufficient potash to last for years to come.

The writer proved experimentally in the laboratory that this action does take place, but the practical proof of it is given by A. D. Hall of the Rothamsted experiment station. Mr. Hall writes, "Fertilizers and Manures":

"As a manure nitrate of soda is of course treated as a source of nitrogen. It is not sufficiently realized how valuable the soda may be. This is not because the soda is necessary to the nutrition of the plant, but because of the action of any soluble salt upon the insoluble potash compounds of the soil. The potash in the soil is due to the weathering of various double silicates. Any soluble salt, and particularly a soluble soda salt, will react with these silicates, bringing potash into solution. To such an extent does this action take place that in practice a dressing of nitrate of soda on any but the lightest soils will dispense with the necessity of a specific potash manuring even for potash loving crops."

Writing of the effect of nitrate of soda in experiments with mangolds over a series of 25 years, Mr. Hall says that the plots receiving potash all gave the same yield, whatever the source of the nitrogen, but on plots without potash the yield is only maintained on the plot receiving nitrate of soda. Those plots receiving nitrogen in other forms declined in yield to less than half of the yield from the plot receiving nitrate. For 25 years theu the use of nitrate of soda alone has enabled the soil to supply mangold crop with the large amount of potash it wants, though the store of potash in the soil apparently soon becomes exhausted when a fertilizer is used which cannot bring it into solution.

The newer agriculture recognizes that for plant use solutions must be balanced; that is, contain the various elements in certain relative proportions. In this connection it is discovered tbat where there is a deficiency of soda and not of potash soda must be added in order to protect the plants from potash.

It is a fact that for every one and one-half pounds of potash so made available one pound of soda is locked up in silicate combination. So that this soda, practically taken from the soil, and that which is needed to balance the solution against the potash put into solution will usually account for the soda added in nitrate of soda.

A marked property of nitrate of soda is that of increasing the efficiency of soil moisture. In dry years under its influence profitable crops have been produced, while on the adjoining lands receiving no nitrate, the crops were complete failures.

By increasing capillary action and aiding oxidation processes in the deeper soil layers it encourages deep rooting to a marked extent.

The United States department of argiculture has made an exhaustive investigation of the relative efficiency of fertilizer materials and published the results of 186 experiments with their conclusions as Bulletin No. 48 of the bureau of soils, under the title, "Fertility of Soils as Affected by Manures." On Page 46 of this bulletin will be found their first conclusion, which I quote: "In comparing the relative efficiency of the fertilizer ingredients, it is found that in the vast majority of instances nitrate of soda ranks first." Thus we have a thoroughly competent and disinterested testimony to the superiority of nitrate of soda over other fertilizers.

In so many ways does nitrate of soda exert a beneficial effect that it rarely fails to increase production, and frequently greatly promotes it. For instance, at Woburg, England, it was found that in 1899 where minerals alone were used the wheat crop was 9.8 bushels, but where nitrate of soda was also used the crop jumped to 41 bushels per acre. And also in 1900 nitrate of soda raised the crop from 5.9, 6.8 and 16.2 bushels to 27.7 bushels per acre. But to bring the matter

Illustration shows Case 10-18 Kerosene Tractor pulling 2-bottom Grand Detour Plow.

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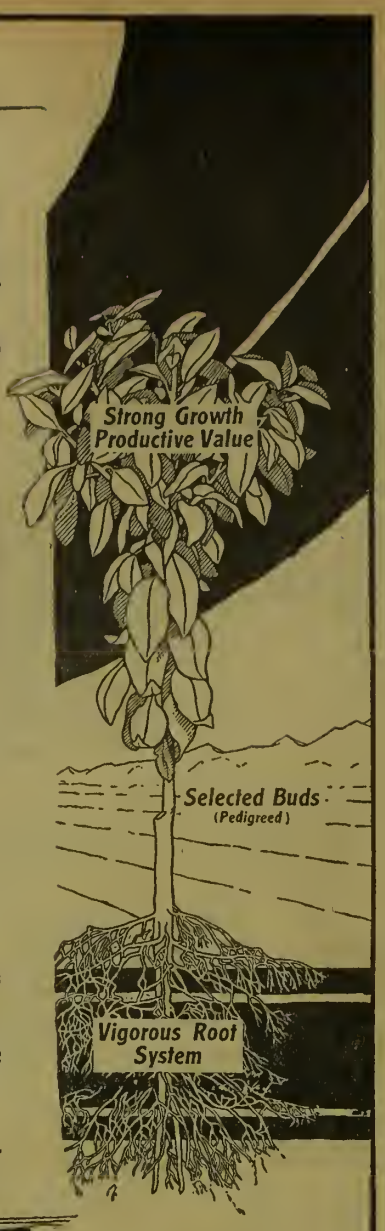

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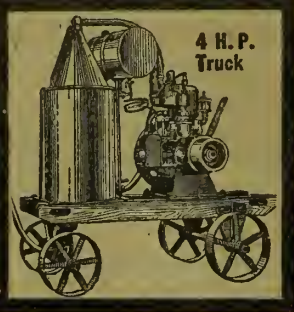

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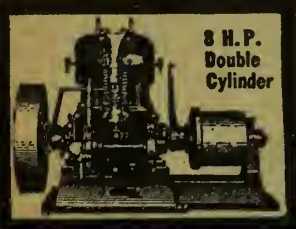

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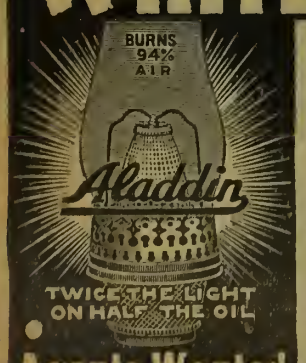

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to the California farmer, let us review a few California experiences: The Clarchen Packing Company of Los Gatos in 1909 raised one and one-half tons of hay per acre, but in 1910 by the use of 200 pounds of nitrate of soda per acre raised the crop on the same acreage to six tons per acre. R. P. Keeble of San Jose more than doubled his crop of wheat, oats, and barley on 50 acres by the use of 150 pounds of nitrate of soda per acre.

A series of experiments conducted at the Riverside citrus experiment station, covering six years, including four years of fruitage, resulted in the production of the following average number of fruit per tree per year on the various plots, there being 20 of them: Unfertilized, 54.8; general average of all fertilized plots, 95.1; fertilized with nitrate of soda alone, 135.67.

Winter Injury

By W. T. Horne

A GROUP of troubles that can not be remedied next summer—act now.

The past year has seen loss of fruit trees from troubles which are due to climate and not to some insect or fungus against which the fruit growers can act directly. The methods of studying climatic injury have not been simplified as have some other phases of plant pathology. Nevertheless, certain diseases are known to be due to climate and something is known of the conditions within the plant which make them possible and some measures for reducing the danger can be taken.

Sour sap, meaning certain sudden dying of trees or branches in spring, is a result of cold shock on trees in exceedingly active new growth. Protecting the trees against high temperatures within the trunk and branches and so avoiding the stimulation to excessively active growth early in spring is the main preventive measure. A good coat of whitewash will reflect a considerable part of the heat from the sun on bright winter days and prevent much of the rise in temperature within the limbs and twigs which starts growth unseasonably, that is the rest period is preserved for a longer time without interruption. A tree properly nourished and coming normally into its winter rest period in the fall will be less liable to injury than one weakened by lack or excess of water, red spiders, injudicious late summer pruning, or other cause.

Water logging of the soil at any season may cause symptoms like sour sap. Whitewash is not recommended in this case.

Winter die-back in walnuts, figs and many other trees, affecting especially young and vigorous plants growing under very favorable conditions, is a drying out of imperfectly ripened wood under conditions of exposure to low temperature and excessive atmospheric drying. Lack of soil moisture in winter may accentuate the trouble. Many young walnut trees have been observed to lose their leaves by freezing and not by natural ripening this fall. The ends of the shoots and their buds are not fully matured, that is, they have not accumulated a proper store of reserve plant food, and with leaves gone no more can be elaborated this fall. This is shown by a soft green succulent texture and much flattened or angular outline, as opposed to a stiff woody texture, round outline and brown color. What these trees need to bring them through as well as possible is adequate moisture in the soil and protection against excessive atmospheric drying and against warming up by the winter sun. A good coat of whitewash is the most practical measure for protecting the top. Where the immaturity is noticeable clipping off the most immature parts of the shoots will doubtless be beneficial by reducing evaporation.

In recent years many young vigorous trees have shown serious injury to the trunks, especially at the surface of the soil. Trees up to several years of age may be affected, but it is especially the younger ones which are liable to suffer. The inner bark and wood in the vicinity of the cambium are affected and often the tree is girdled. Early in the season nothing is visible unless the trunk is cut into. Oranges, prunes and various trees have suffered and often under most favorable conditions in the best lands. The injuries do not become apparent until the following summer, when the trees suddenly fail and the most intelligent and observant growers have suspected fungous or other infectious diseases. More or less gummosis may accompany the trouble and probably there is often complication with various infections. Low temperature affecting trees which are imperfectly ripened because of excess vigor is the cause of this trouble. The condition when discovered should be treated by cleaning the wounds and disinfecting with Bordeaux paste, but much may be done in the way of prevention by coating the trees in winter with whitewash and protecting the crowns either with loose earth or by wrapping with cornstalks or similar material to prevent warming up by the winter sun. When frost danger is completely over the coverings should be removed, since they may harbor pests or by the moisture occasion brown rot or other infections.

Every year many nursery trees come to the agricultural college—some before, some long after setting—which have had the roots dried or frozen, or both. When the bark of the roots is cut into it is found to be rather dry and has dead brown specks or spots. Such trees fail to grow and become a source of serious loss. Professor J. C. Whitten has given us unpublished data showing that the roots of even hardy trees are very tender to cold and are easily injured by even slight freezing. The roots of all nursery stock should be protected from drying and from the slightest frost. It appears that there is danger of injury, both by cold and drying, where the digger is run under the trees and they are allowed to stand before lifting.

Many trees from nursery shipments show a dark, water logged condition in the sapwood, the bark being normal. Such a condition has been traced in many cases to winter flooding or other water injury in the nursery, often combined with freezing. Such trees should not be sold as first class, but if they are set under favorable conditions and get a good start, will often make good trees.

Deciduous nursery trees have sometimes been infected with the brown rot fungus of citrus trees or a very similar one when healed in a wet situation, causing the bark to rot. Nursery stock on receipt by the orchardist, or at latest on planting, should be whitewashed and given most careful attention to prevent freezing of roots or drying.

Black heart of apricots appears from study by approved pathological methods to be caused by a fungus. However, since only young and succulent trees are affected, winter injury may be a predisposing condition and winter whitewashing should help to prevent this.

Certain plants, like young citrus trees, avocados, or young figs, in very frosty localities may not be sufficiently protected by whitewashing, and should have covers of burlap, cornstalks, tules or some other convenient material with the soil mounded up about the crowns of the trees. Some plants like tomato gradually lose vitality and die in a continuous low temperature without actual freezing.

Measures for preventing winter injury consist, then, in securing as favorable moisture conditions in the soil as possible with irrigation or provision for drainage where needed, and in whitewashing the trees in early winter. Carefully conducted experiments by Dr. J. C. Whitten, now professor of pomology, University of California, have shown that a good coat of whitewash reflects the heat of the sun from the limb or twig instead of allowing it to be absorbed, so that a twig that is not whitewashed warms up much more than one which is well coated. This rise in temperature

greatly accelerates evaporation from the twig, causing it to dry out. It also tends to break the rest period, causing a slight start to growth prematurely. This invisible starting to growth greatly weakens the resistance of the buds and tree generally. A whitewashed branch may not be visibly different from another in spring, but actually may be in much better condition, as shown by resistance to winter injury and subsequent success in setting and maturing a crop.

A good whitewash should stick until spring. Bodies, main limbs and as far as practicable the whole tree should be covered for most complete results. The following formula is suggested: Quicklime five pounds, salt one-half pound, sulphur one-fourth pound. Slake the lime slowly with water and add the salt and sulphur while it is boiling. Add enough more water to make a good wash. This is good for whitewashing the bodies of trees in the fall.

This whitewash should also have considerable fungicidal value and help in preventing certain serious winter infections. It may be applied with a brush or strained and applied with a sprayer. We have no intimation that whitewashing can ever injure a tree in any way or in the least measure.

FIGS FROM CUTTINGS

Now is the golden time to make fig cuttings, and none need be backward in the attempt, for with reasonable care every cutting should grow. The writer has rooted small numbers, 50 or thereabouts, and all would live. In these lots both tips and secondary growths were used and no difference between the two was noted. It may be that a tip cutting will make a quicker and less robust growth than the heavier wood, for experience shows this to be the case by a small margin. Tip or terminal cuttings may be allowed to stick above the soil, but in heavier wood it may be as well to bury the cutting complete and get a new leader. Cuttings usually range from eight inches for a short jointed sturdy secondary to 12 inches for terminals. If the soil is light or free and contains no decaying organic matter nearly every cutting will root.

If soil is pasty, drainage poor, or fertilizer present, it is as well to wax or paint the cut ends. This will insure a greater measure of success. Above all, make all the cuts with very sharp knife or shears; the knife is best but for large amounts it will be found more economical to use pruning shears. If care is taken, in a light soil the cuttings may be tied in bundles and planted upside down. This places the top in the cool dark soil where tops cannot start and leaves the butt ends near light, air and warmth where they will more quickly callous. Four inches of soil should be above the cuttings and this must not be allowed to dry.—E. B.

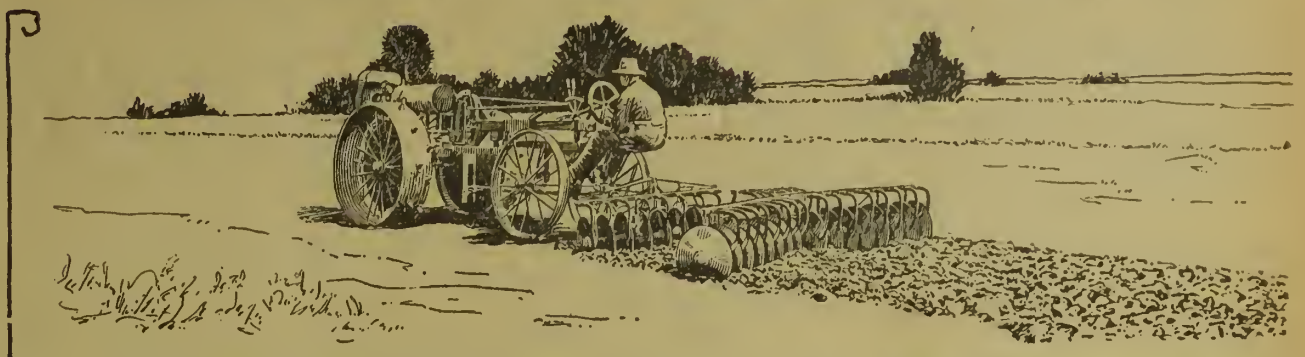
EXTENSIVE GOPHER DRIVE

F. E. Garlough, of the board of biological survey, United States department of agriculture, is due to arrive in Los Angeles January 24, and on that date County Commissioner Ryan intends to begin an extensive concerted drive on gophers in the Antelope Valley and a few lesser areas. This will be the largest movement looking to gopher extermination ever undertaken in Southern California. Mr. Garlough will give a number of field demonstrations and Mr. Ryan hopes to detain him for a week or ten days. At present the county force is working on ground squirrels.

GRAPE SEED OIL

We may soon be using raisin seeds to paint our houses, through the discovery of the United States department of agriculture, which has recently found a method of extracting a fine quality of drying oil from the waste seeds. In addition to this oil, the pulp clinging to the seeds can be made into an excellent fruit syrup to be used as a flavoring in carbonated drinks, and the interior of the seed yields an excellent grade of cream of tartar. More than 4,000 tons of seed have been wasted annually heretofore. It is now estimated that the by-products have a value of more than $50,000.

RELY ON MOLINE
For a Good Seed Bed



Use a Moline Disc Harrow and you will get a good seed-bed—one that is mellow, fine, deep and clean. No matter what your requirements, for horse or tractor use, there is a Moline Disc Harrow suited for you.

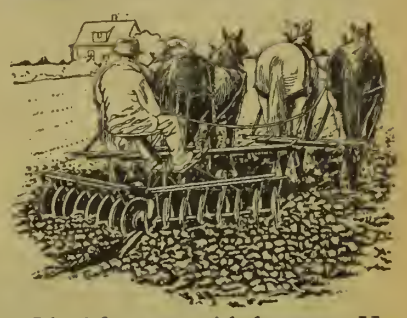
Moline Leverless Disc Harrow

For All Makes of Tractors

This is the handiest and best disc harrow for tractor use ever made. There are no levers to bother with. To angle the discs, release a latch and drive the tractor forward. To straighten the discs just reverse the tractor. The tractor does all the hard work. It is built extra strong and durable, has great flexibility and penetrates well. Built in 6, 7, 8, 9 and 10-foot sizes, double or single cut, and can be used with any tractor.

See your Moline Dealer or write nearest Moline Branch for full information.

Moline Three Lever Disc Harrow



Ideal for use with horses. Has great flexibility and end thrust is taken up by the frame. Gangs cannot bump or ride, making very light draft. Third lever regulates depths of gangs and can be instantly adjusted. Very strong and durable. Made in a variety of sizes —single or double cut.

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Plows (steel and chilled)
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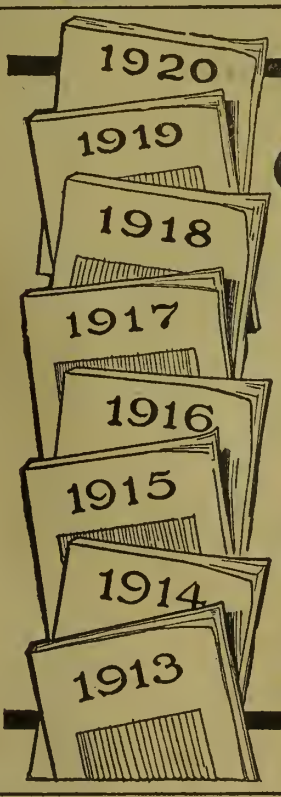
SINCE 1865 "MOLINE" ON A FARM IMPLEMENT HAS BEEN A MARK OF QUALITY



OUR Catalogues

For more than 35 years we have been issuing a fruit and ornamental tree catalogue. Horticulturists everywhere have come to look upon these annual books as real practical planters' guides, for they contain a lot of good information that is invaluable for the grower to have.

Our new 1920 Catalogue and Price List is now ready. It will be mailed to you free on request.

We grow about everything that grows in the way of trees, shrubs, vines, roses, berries, etc.

We pack our nursery stock so it will reach its destination in perfect condition.

We are always glad to hear from prospective planters.

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Easily Sawed By One Man.

Easy to move from cut to cut. Make big profits cutting wood. Cheap and easy to operate.

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Does 10 men's work at one-tenth the cost. Makes work easy. Engine can also be used for running pumps and other machinery. Saw blade easily removed. Write for our low price. Cash or Easy Payments.

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Raise Guinea Pigs

FOR US

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PIPE—Practically all sizes from ⅛ to 15 inches.
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All pipe and casings have good threads and couplings on each joint.
RIVETED PIPE — 4 to 12 inches, as good as new.
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DEPARTMENT B

ANGLO-CALIFORNIA TRUST COMPANY BANK

SAN FRANCISCO

TRACTOR SHORT COURSE AT RIVERSIDE

A feature of the gas tractor short course, which is to be held at the citrus experiment station, Riverside, February 23-28, is the compendium of lectures given to each student. This booklet contains in condensed form all the lecture material and directions for performing many of the operations involved in the repairing of tractors. Aside from relieving the student from taking notes during the lectures this allows him to give undivided attention to the charts, models and tractor parts which are used throughout the course.

The course is divided between lectures, demonstration and practice work. Two one-hour lectures are given daily to the entire school. During the other six hours students working in groups of approximately 18 either operate tractors or attend demonstrations of motor repairing, magneto timing and trouble finding, carburetor adjusting, etc. Twelve makes of tractors will be used in the course.

For further information concerning this course write Director, Citrus Experiment Station, Riverside, California. The course is limited to 180. The students muts be over 18 years of age and ether own, operate or be directly interested in tractors. Enroll now if you wish to attend. Application should be accompanied by registration fee of $1, which is the only charge connected with the course. Rooming accommodations should be engaged in advance.

STAMPING INDIVIDUAL FRUITS

The offer of the Walnut Growers Association of a $10,000 prize for a machine which would stamp a trademark on each walnut shipped by the association has started several things. In the first place Mr. Wysong entered in the competition a most attractive machine for the purpose desired. This was only one of several entries. However, Mr. Wysong carried away the laurels, and if he has not yet carried away the $10,000 he will within a short time. In addition he has invented a machine for stamping oranges. It is quite probable it would be effective for using on apples or other fruits. Instead of impressing the trademark design by a die it is done by a vacuum process. Specimens of the trademarked oranges brought to the Cultivator office show trademarks impressed which seemed absolutely indelible and which were perfect from a mechanical standpoint and, we understand, economical of handling.

The protection given to the marketer of a high grade fruit by a trademark is well worth the slight cost which these machines involve. We believe it will give an impetus to the movement encouraging production of higher grade fruits and other products.

It has been pointed out that the labeling of such fruit as oranges, lemons and grapefruit would give especial protection in Eastern markets. Californians generaliy are more or less familiar with the fact that their citrus crops have different grades of quality. They are therefore able to judge more intelligently as to quality. However, the general public outside the citrus belt is not so well posted. This labeling device will enable the outside public to choose the quality of the fruit with certainty by selling the "brand" on the fruit itself.

HAVE A HEAD AND USE IT

We find your paper very useful as it is now printed, but we would like to hear more from practical farmers. We get so much advice from advisers. This does not refer to farmer county advisers, but to would-be advisers that are continually advising the farmer and broadly hinting that he ought to use his head as well as his hands. We find that class willing to use their heads, but offer them a job at so much per day—they leave you quickly. Would you change your method of pruning if you had found this method to be profitable for a new, unproven method? I believe we ought to try a few trees in the new style, but not a whole orchard. Orchardists, open up and show that we sometimes use our heads.—Alex McGregor, Newhall.

Mr. McGregor gives some excellent suggestions. Best of all, we take it, the tone of his note indicates the advisability of the farmer having a head and then using it. It has been the custom of the Cultivator to encourage these practical suggestions from the practical worker. We want, however, all the advice the adviser can give us, whether he be the county farm agent, who is an official employed to give us the best and latest information, or any other whose lifework has been given to investigation and to determining basic facts. There are still long questions and unsolved questions which the agriculturist has to answer, and the more help he can secure from the keen observer the quicker will come the larger profits. But here is where it is up to the farmer to sift out, and perhaps the best way to sift out is to try out many of these suggestions, but if a pruner or a sprayer or a soil specialist offers plans which are contrary to those which have proven satisfactory in the hands of the farmer, there should be no immediate change in procedure until careful testing has proven the suggestions to be good or otherwise.

SET NURSERY STOCK CAREFULLY

Nursery stock which is worth buying is worth proper planting and care. Even if the nurseryman has guaranteed to replace stock which does not grow the first year, it is to the advantage of every planter to care properly for the plants. Even if the plants are replaced the grower is out the time spent in planting, and the greater loss—one year's growth and development in the plant.

Get the stock as soon as possible after it arrives at your station. Don't wait until it is convenient if plants in the best condition are desired. Open the package at once and determine the condition of the plants or trees. If planting is to be delayed several days, heel in the stock to prevent the roots drying out. If already dry, soak the roots in water for 15 to 20 minutes before heeling in.

Most planters send their orders early to the nurseryman so as to get better service and better stock. Bear in mind that the nurseryman should have your order well in advance of the shipping date.

AN INTERESTING CATALOG

Few seedmen's catalogs contain so much of interest outside plant descriptions as the 1920 issue of Aggeler & Musser Seed Co. For 27 years this catalog has been steadily built up to its present high standard by including answers to the more common questions asked in store or correspondence, until it has become, in part, an agricultural almanac.

Many novelties may be found in these pages, one of which is a branching corn, strongly recommended for ensilage, and a picture is shown of one stalk with two main ears and five branches each bearing an ear. Large space is given to grasses suitable to dry hillsides, desert soils or those too strongly alkaline for other crops.

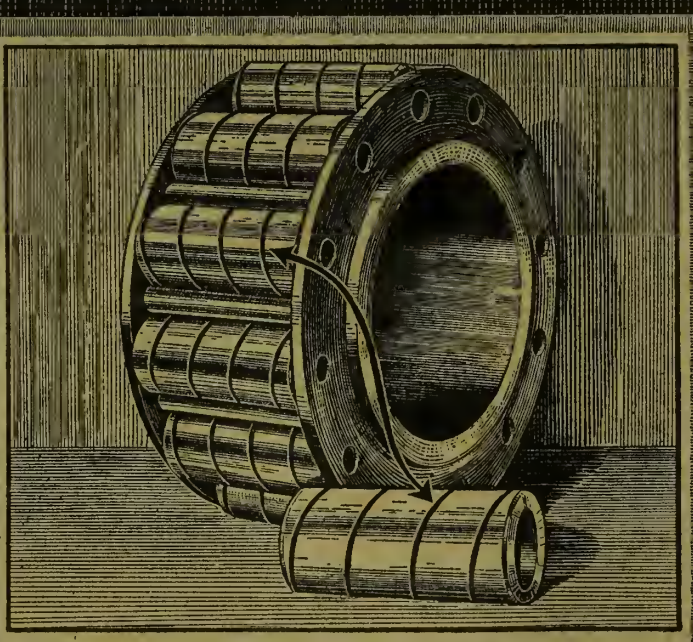
A HALF CENTURY RECORD

The fiftieth annual edition of the catalog of the Germain Seed and Plant Company is out as "Germain's Garden Cyclopedia for 1920." It is 48 pages larger than last year's book and has many interesting features not before included. One of these is three pages of recipes for the best handling of vegetables and other garden produce in the kitchen; and tables of useful information to the farmer have been enlarged. The most noticeable of the 1920 novelties is the "Big Jim Corn" named for James J. Jeffries, the famous heavyweight among men as this novelty is among corn. The firm will present a silver loving cup, valued at $60, to the person sending in the three biggest ears of Big Jim Corn, to be judged November, 1920.

TEHAMA FARM BUREAU MEETING

Oak Park, January 9; Antelope, 13; Dairyville, 14; Bend, 16; Richfield, 19; Corning, 21; Los Molinos, 26; Proberta, 28; organization meeting at Liberal school, 30. Directors' meeting on January 23 at 10:30 a. m. A meeting date for a new center at Capay Ranch will be set during the month.

HYATT
ROLLER BEARINGS



There's No Bearing Like Hyatt

THE Hyatt Bearing stands alone because it is the only bearing having a Hollow Spiral Roller.

This construction gives to the Hyatt Bearing all of the desirable advantages found in any other type of bearing—plus the additional advantages of the Hyatt Spiral Roller.

Because this hollow Spiral Roller is less affected by vibration and shock than a mere piece of solid steel Hyatt Bearings provide against wear most effectively. They give a *permanent* protection that lasts as long as the shafts themselves.

Hyatt Bearings never need adjustment.

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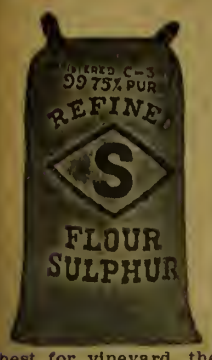

It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards SIX times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphur that money can buy; the best for vineyard, the best for bleaching purposes, LEAVING NO ASH.

VENTILATED sublimed Sulphur—Impalpable Powder, 100 per cent pure, in double sacks, for Dry Dusting and making Paste Sulphur.

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food, drill into the soil 100 to 400 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR 100 per cent pure. This has increased various crops up to 500 per cent.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 DEGREES BE., Fungicides and Insecticides.

Carried in stock and mixed to order.

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We are equipped to make immediate shipments. Send for "ILLUSTRATED BOOKLET," also booklet "NEW USES FOR SULPHUR." Price List, and Samples.

Please state for what purpose you use the sulphur, quantity needed, and date of shipment preferred.

Place Your Order NOW for Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or steamer, January, 1920.

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Pacific Coast and Hawaiian Islands
311 California St., San Francisco

IRON AGE GARDEN TOOLS

Answer the farmer's big questions: How can I have a good garden with least expense? How can the wife have plenty of fresh vegetables for the home table with least labor?

This Hill or Drill Seeder and Wheel Hoe Combined

solves the garden labor problem. Takes the place of many tools—stored in small space. Sows, covers, cultivates, weeds, ridges, etc., better than old-time tools. A woman, boy or girl can push it and do a day's hand-work in 60 minutes. Many combinations and prices. Write for free booklet today.

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STATE DEPARTMENT OF AGRICULTURE SUBMITS STATISTICS

Director Hecke in presenting the following figures compiled by the division of animal industry, calls especial attention to the need for increased cattle and livestock production as a necessary part of well balanced and successful agriculture,

The office of dairy inspection has recently completed the figures representing the growth of the dairy industry in this state for the past year. Detailed tables by counties, with other information and results, will be published in January. At this time only a preliminary statement is given. It can be seen by this that the volume of production has trebled any yearly increase in the past six years.

With 501,000 producing dairy cows the sales of products for the year 1919 reached the enormous sum of $74,515,381, which, compared with last year is over $20,000,000 increase. But it must not be concluded that the dairymen of California have this amount on deposit in the banks; this sum represents the gross receipts and from it must be deducted the operating expenses, which for the past year have almost doubled, while the increase in price of milk and other products has not been proportionate.

$10 AN ACRE

An old time subscriber of the Cultivator, B. M. Hampton, now living in Florida, writes of the good old times in California in 1872 when he first came to this state. At that time he negotiated for a piece of fine level land, on which a part of the city of Los Angeles now stands, for $10 per acre. The town then had a population of 5,000, only 1,500 of whom were Americans. He had no sooner begun his negotiations for the land when "along came the knockers and scared me out of it. I've been down on knockers ever since. Yes, it was a desert town O. K., and none too healthy, either, for there were too many 'skeets,' fleas and bedbugs and poor water. Somehow I think Los Angeles about the most wonderful town or city in the United States." Connection with the outside world was then secured by stage to Bakersfield, where the Southern Pacific ended, or by stage to Santa Barbara, where a vessel could be taken to San Francisco.

RINGING FRUIT TREES

The practice of ringing vigorous but unfruitful branches of orchard trees is still quite common and a very effective method of changing the character of strong but sterile limbs. It is much in vogue by possessors of large avocados and tropical fruit trees that have not fruited, and the practice has met with success. With dooryard trees of apples and pears it has been successful, but with stone fruits it usually causes gumming without added fruit production. Grapes and tomatoes have also been ringed with good results. On deciduous trees a quarter inch ring should be taken out in April, down near the base of the branch. The ringing arrests the upward flow of thin crude sap and stops the downward sap which is used to force fruit buds.

THE ACRE RANCH

Examples are not uncommon where one person is making a living from one acre of ground. One suburbanite has six pure bred goats and a small patch of Napier grass to feed them that is cut every ten days from June 1 to November 1. The goat shed and chicken houses are covered with chayotes and the fences with cane berries. Some of the trees, shrubs and plants are in fruit each month of the year. No garden space is allowed to lie idle. Everything the owner consumes except meat and bread is raised on the place and the chickens and eggs sold buy both these essentials. The owner claims his bank account is slowly growing.

A Miller & Lux tract of 32,000 acres in Madera County is being sold in small parcels.

Orchardists of Sutter and Yolo Counties pay but one dollar a ton for barnyard manure.

Agri GYPSUM

Time was when crop producers plowed, planted and harvested. Seed was seed and ground was ground. Some still "farm in the ground." Many others, however, farm partly in the ground and do the most valuable work in their heads. Such farmers find AGRI GYPSUM, applied to land for crops of alfalfa, beans, beets, cotton, citrus and deciduous crops and truck gardens, releases bound up elements in the soil that are essential as plant foods. AGRI GYPSUM causes chemical changes in the soil that liberate nitrogen, potash, phosphorus, etc.

Potatoes are greatly benefited by an application of gypsum to the soil.

As a fertilizer AGRI GYPSUM contains about 44 per cent sulphur, a very much needed element in the growth of alfalfa and similar crops.

ARGI GYPSUM applied on alkali soil will neutralize the alkali, rendering it harmless to the growth of vegetation. This is officially recommended. Considering costs of nitrates, phosphates and other crop producing elements, you can save money by alternating fertilizers with ARGI GYPSUM and obtain equally good if not better results.

Gypsum applied to beet land produces a vigorous growth.

Ask your dealer for AGRI GYPSUM made by the largest manufacturers of gypsum in the world. And you will be sure of the product, ground fine to do the most good with the least amount used. If your dealer cannot supply you write

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Mr. Farmer!

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HESSE TRAILERS

designed and Constructed to Answer Your Requirements
32 Models

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By buying fertilizers on a unit basis and not a cost per box basis, you are losing a money making, labor saving, crop increasing advantage.

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Unexcelled for Germination, Purity, Color and Productiveness

VARIETIES:

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It will be to your interest to ask for our prices and samples before placing your order elsewhere

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have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

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When Writing Advertisers, Mention the Cultivator.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Money in Rabbits

Can I make money raising meat rabbits only or must I raise fancy stock also?—Subscriber.

You can make money raising rabbits for meat purposes only, but why raise stock which you can sell for meat purposes only when by raising better stock you can supply both the demand for meat stock and good breeding stock, and if by good line breeding one can produce prize winners, better still. Even Wall Street has put the seal of approval on this for none other than Thomas Lawson, the famous king of the copper market, has taken up rabbit raising. He has stocked up his estate with 1,000 rabbits of high standard and he affirms that raising rabbits is a safer bet than dabbling in the stock markets. We must get away from the old idea that rabbits are children's pets and only the demand for food has brought them into prominence. The truth of the matter is that rabbits for meat purposes rank higher than pigs and cattle and that we in the United States have overlooked this fact while foreign countries have known it and raised them for this purpose for years. The writer had for lunch today a piece of Himalayan rabbit, and not only did it furnish meat but a good hide for fur. One has only to ask any of the ladies of the Coney Fur Club of Los Angeles to find out the profits of raising rabbits for fur as well as meat. The writer raises the best rabbits he can of four varieties and supplies as best he can the demand for meat, fur and fancy. Not all raised are fancy nor are all raised good breeding stock, so those that fall below make good meat stock. If one will use the same laws of common sense and application, in short make a business of it, he will make a success of rabbit raising for meat purposes and better still for meat, fur and fancy.—W. D. W.

Walnut Irrigation

Herewith walnuts, blackened and dried hulls clinging to the shells. They have no marketable meats. A large proportion of the nuts on the trees are thus affected. The trees have been irrigated practically every week but have not had cultivation.—Subscriber, Los Angeles.

This looks like a case of improper irrigation method, though sufficient water may have been applied to the surface and at frequent intervals. Soil that is at all inclined to run together will become almost impervious to water after a few irrigations if it is not cultivated after each irrigation. Then, too, if a small amount of water is applied under such conditions, it would practically all evaporate before the next application, without going deep enough to reach the principal part of the tree roots. The evaporation from land which has not been cultivated is about the same as from a pool of standing water, and when there is a warm wind moving this may be half an inch of water a day from the surface. We would not like to irrigate any land as often as once a week. If the soil was porous at the top and of a heavier nature a foot or two lower we would expect the soil to become saturated and cause the tree roots to decay and in that way kill the trees. If the soil was porous down ten feet we would expect to leach out all the soluble fertility though the trees would live for a few years. It is very likely that frequent deep cultivation, with irrigation water applied in such quantities as will keep the soil always damp to a depth of five feet, is the remedy.—J. B. N.

Almonds

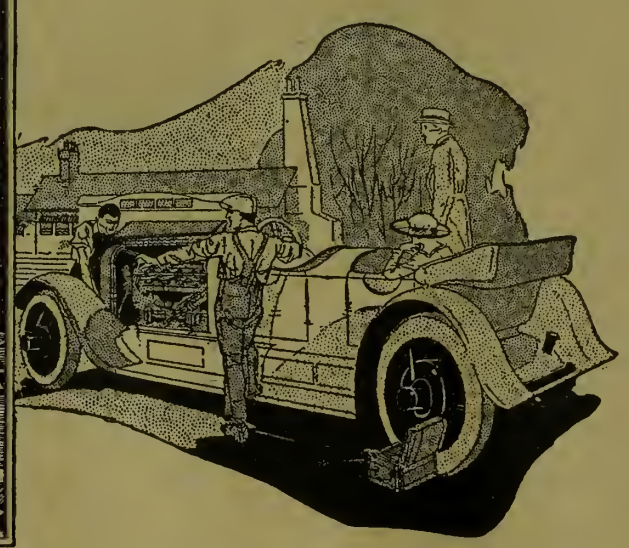
In the Cultivator of November 29 I notice an article on almond culture and as I am interested in the nut industry I would like some additional information along this line. I am just recently from the East and would like to know as to the best almond section, distance apart to plant almond trees, and at what age they will begin to bear.—Subscriber, Santa Cruz.

It would perhaps be impossible for anyone to say which is the best almond section of the state but one may get an idea by noting where the greater portion of the nuts of the state are produced. The three counties which produced above 1,000,000 pounds each in 1918 are Yolo, San Joaquin and Contra Costa. However, other large producing counties are Butte, Colusa, Merced, Riverside, Sacramento, Solano, Stanislaus and Sutter. San Luis Obispo County is becoming a large producer also. Requirements are: Mild or hot climate, combined with freedom from high humidity (fogs) and frosts at time of blossoming, which in the case of almonds is early; loose, warm, light soil, sandy loams, of good depths (12 feet) with sufficient slope to provide good air and water drainage; no alkali; ample moisture and moisture retaining soils are chosen; little irrigation is given. Distance apart is 28 by 28 feet, which makes a total of 55 trees per acre. Distance apart, however, depends upon soil conditions. They will give self-sustaining crop at six to eight years and perhaps full crop at ten years of age.

Begonia Leaves

Please give me names of plants from which I enclose leaves. Also tell me why these leaves die at edges, as you will see, and then fall off. There are no insects on them.—Subscriber, St. Helena.

The leaf with the small silver spots is from Begonia argentea guttata. The other begonia is hard to determine for



Carbon
a real danger to your engine

WHEN your car isn't pulling right—when the spark plugs start to miss fire and the engine knocks on the hills—when the water boils after a short run—then you know the engine is full of carbon again.

Carbon is the worst enemy of the gasoline or kerosene engine.

Ordinary Oil after use *Veedol after use*
Showing sediment formed after 500 miles of running

The causes of carbon and how to prevent its formation

You need not permit your engine to be fouled and damaged by excessive carbon deposits. There are but two natural causes of this rapid accumulation: 1. Inferior oil that forms sediment, or oil that is too heavy or too light in body. 2. Too rich a gasoline mixture. (This can be improved by a slight carburetor adjustment.)

Carbon is formed by ordinary lubricating oil which breaks down under the terrific heat of the engine—200°F. to 1000°F. Large quantities of black sediment are formed. The oil is left thin and watery. This thin oil fails to hold the piston seal. It permits the broken-down oil and sediment to pass the pistons. In the firing chamber, it rapidly forms great plates of carbon.

The striking superiority of Veedol over ordinary oil is clearly illustrated by the two bottles. Veedol reduces sediment 86%.

With the correct grade of Veedol in the crankcase and with a proper fuel mixture, *carbon does not form rapidly.*

Buy Veedol today

Leading dealers have Veedol in stock. Ask for it today. The new 100-page Veedol book will save you many dollars and help you keep your engine running at minimum cost. Send 10 cents for copy.

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Sales Corporation
1571 **Bowling Green Building, New York**
Branches or distributors in all principal cities of the United States and Canada

"My, what a relief!"

THAT *rheumatic-twinge* doesn't bother you long after you've had the aching part bathed with the old standby—Sloan's Liniment. You just put a little on—it doesn't stain the skin—gently pat it, and it penetrates, sending a *warm, soothing glow through the tortured part.*

It stands alone in promoting quick relief from *after-effects of exposure, lumbago, sciatica, muscle* and *joint strains, pain strains,* and *stiffness, neuralgia, bruises.* There's a successful record of 38 years back of Sloan's Liniment.

Keep a big bottle ready for use—it may be any minute. The big bottle holds six times as much as the small one. 35c., 70c., $1.40.

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JERSEYS

Put a Greater Value on Your Cows — Register Them!

"SCRUBS" cost more in the long run, no matter how little you worry or care about them. A pure-bred cow that is registered pays many times over.

If you have Jerseys now that are pure bred, or if you contemplate getting Jerseys, let us mail full information and application blanks for registering. The registering cost is a trifle when you consider how it adds to the value of the cow or calf.

Write today for Jersey facts and registrating information

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324-C West 23rd Street
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Venadera Herd
Register of Merit Jerseys
Senior herd sire Altama Interest sire of 12 cows in Register of Merit.
Junior herd sire Jap's Perfection Owl, a line bred Spermfield Owl bull.
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All My Records
Are made under ordinary dairy conditions
The Farmer's Cow is
The Jersey
YOUNG BULLS FOR SALE
C. D. Hayworth
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Young Jersey Bulls
For Sale
One at the head of your herd will pay big dividends on his cost. Write to
W. J. Hackett
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Jersey Bull
FOR SALE
A fine straight one, bred right, priced right.
S. F. Williams
Chico, Cal.
Member Orland Jersey Cattle Club

JERSEYS

3 BULLS	No. 1 born Mar. 1. 1919. Sire. Our Noble Maystr Hero.	3 BULLS
No. 2 born Oct 1. 1919. Sire Our Kathie's Eminent.	All from nigh record cows in Arden herd	No. 3 born Dec 20, 1918. Sire same as No. 2

ARDEN DAIRY CERTIFIED. EL MONTE. CALIF

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it has no marked characters to distinguish it from a score of closely allied hybrids. It resembles B. Thurston. The cause of the leaf-drop may be any one of many, lack of food, of water, of drainage, or improper soil. No one could tell you without examination of plants, soil, and exposure, for it may even be due to sunburn.

Apricot Pits for Planting

Please give me general directions for starting apricot pits for nursery. Can I follow the same directions which you give in your issue of December 13 in answer to question regarding peach pit planting?—Subscriber.

See Peach Pits for Planting on page 795 of the issue of December 13. Put apricot pits in moist sand at once and handle in same way as advised for peaches.

Ants Killing Pigs

Am troubled with infestation of ants in breeding pens. Young pigs are hardly farrowed before they are covered with a swarm of ants which sting them to death. The entire litter may be killed within a few hours after farrowing. What can I do to prevent this?—Subscriber, Calipatria.

This is a novel situation to most of us, though a leter from Horticultural Commissioner Waite shows piggeries in the Imperial Valley have been confronted by it for some time. Mr. Waite writes: "In answer to your letter of December 17 will say that this has been going on for years. Some seasons the ants are worse than others. The best remedy is to pour a saturated solution of potassium cyanide in their holes at noon or during the hot time of day when the ants are in the ground. A few applications will usually get them all."

FLOUR AND FLOUR PRICES

The United States Grain Corporation made no purchases of flour during the last two weeks on the Atlantic seaboard, although offers by the mills were fairly liberal, because the enormous flour stocks already on hand and the resulting congested condition of storage facilities for package goods at seaboard points continue to make purchases inadvisable at this time.

On the Pacific Coast purchases of flour are being made from the mills, but the amounts taken are less than the average of former months. The San Francisco office has accepted offers for about 100,000 barrels for January delivery at $9.90 per barrel f. a. s. and $9.75 per barrel f. o. b. track, packed in 140 lb. jutes. Three Shipping Board steamers, carrying about 250,000 barrels of flour, will be loaded and cleared from San Francisco Bay during the next ten days by the San Francisco office of the Grain Corporation, destined to the Atlantic seaboard for orders.

The Grain Corporation will continue to sell its standard pure wheat flour to the domestic trade during January at the same prices advertised for December.

Carload lots are offered by the Grain Corporation delivered to any main line rail point in the United States at $10.60 to $11.75 per bbl. Less than carload lots will be furnished at 75 cents per barrel additional to all points not able to buy flour of equal quality direct from the mills at similar prices.

The mills in California are now selling fair quantities of this flour to retailers in practically all the principal towns and cities. The maximum prices to be charged to the consumer by retailers are: ¼'s (49 lbs.), $3.15; ⅛'s (24½ lbs.), $1.60; 10 lb. packages, 69 cents.

ASHES KILL

A dispatch from Tokio, Japan, states that ashes from a volcano in Kyushu, falling upon grass, have caused the death of much livestock and also of plants. This is not usual, so far as killing of plants is concerned. While in the foothills some miles east of Los Angeles recently the writer saw bignonias and other vines on roofs apparently killed quite recently. Inquiry developed the fact that ashes from recent forest fires were blown down by a stiff wind and settled on the plants while the latter were damp with dew, destroying the life of at least the foliage. The vines were doubtless not seriously injured.—E. B.

STOP!

GET THIS BIG GARDEN BOOK NOW!

Send for this big, valuable book filled with interesting and reliable information on planting, gardening, poultry raising, feeding and care of pet stock; spraying and many other subjects of vital interest to both the city dweller and the farmer.

Our 1920 Catalog is the most complete book of its kind ever published.

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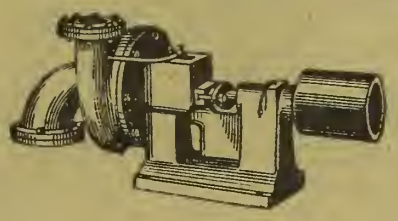

After 20 years

A PUMP developed out of a 20-year experience in building pumps is one from which to expect the highest efficiency.

Such is our BEAN UNIVERSAL PUMP—BELTED.

It's the pump we have selected out of a full line because it embodies all of the strong features found in all of the others.

Practically all centrifugal pump troubles, when they do occur, are stuffing box troubles. To prevent them we provide a generous water sealing bowl. Filled with water, the shaft is completely surrounded where it enters the case. As a result, danger of loss of priming is minimized, nor is it necessary to cinch the packing down so tight that the shaft is injured. It is not difficult to see the advantage of this feature.

This Bean Universal Pump

is provided with an automatic water balance and an extra heavy, oversize outboard bearing. This bearing provides almost unnecessary insurance against excessive vibration and makes belt changes easy and simple. An extra web of metal between the sealing bowl and the outboard bearing standard provides against strain and vibration. It's a liberally braced, sturdy pump. Both suction and discharge adjustable at any angle.

Let us tell you the kind of equipment to install to insure the largest head of water at the least cost.

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Distance to water below surface of ground.....
Probable distance to water when pumping.....
If water is to be raised above surface of ground, how high? (Length and size of pipe line).....
Volume of water desired (Gals. per min.).....
(Inches) .....
If you have pit, give width..... length.....
depth .....
H.P. of motor or engine if you have that equipment .....
Give total depth of well.....
Inside diameter of well.....
Is well straight and true?.....
Is electric power available?.....
Name .....
Address .....
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421 Box .....

Bean Spray Pump Co.
421 W. Julian St., San Jose, Cal.
Branches: Fresno Los Angeles

Kill the Squirrels

THE squirrel campaign, inaugurated a few years ago as a public health measure, has increased in efficiency and become more largely an economic measure. California has spent millions in feeding ground squirrels and it has been found too expensive a luxury to continue. Horticultural Commissioner Ryan of Los Angeles starts the new year with an intensive campaign. He has just issued a circular giving methods for using carbon bisnlphide. He is ordering this material in carlots, and is prepared to supply campaigners at cost. It is distributed in five gallon cans at $5.00 per can but no future deliveries are guaranteed at any price. Jute waste balls, 800 to the sack, are supplied at $3 per sack. In circular just prepared Mr. Ryan gives explicit procedure. From it we quote:

"Put as many waste balls as convenient into a common bucket or other receptacle handy to carry, pour carbon bisulphide over until covered, pour a small quantity of water or kerosene over this to form a thin film (one-fourth inch) which will float on top and prevent evaporation and waste of material. It will require about one gallon of carbon bisulphide to 60 of the commercial waste balls. The waste balls should be of some absorbent material that when saturated will retain about two ounces of the carbon bisulphide. This amount of liquid when vaporized and mixed with air forms a gas of sufficient strength to kill a squirrel in the ordinary burrow.

"In treating an area infested with squirrels, place one saturated waste ball as far down each squirrel burrow as possible, then cover the entrance to the burrow with earth and tamp it well to prevent any of the gas from escaping. Waste balls can be taken from the liquid by means of a hook, forceps or the bare hands. No injury to the skin will result from handling this material as it is harmless as gasoline to the touch. The above method of squirrel control in many instances has proven on one application to be 100 per cent efficient.

"Due to some of the squirrel burrows being very extensive and so constructed that there are pockets formed by elevations in the burrow, the following method is given.

"After introducing the waste ball a period of time should be allowed to elapse to insure proper vaporization of the liquid, this depending on the weather. For instance, a warm day would require four or five minutes, a cold damp day as long as ten minutes. This period can be utilized by placing balls in other burrows. Following the waiting period, a match or torch can be applied to explode the gas formed. This explosion will tend to force the gas to the more distant recesses of the burrow. The exploding of the gas also increases the volume. Immediately following the explosion of the gas, the burrow should be tightly closed to prevent escape of gas.

"A suitable torch can be made by attaching a waste ball saturated with kerosene to a wire about two or three feet long. Care should be taken to stand at one side of the burrow while igniting the gas as in many cases the flame will shoot several feet out of the entrance.

"Exceptional precautions must be taken to keep fire away from containers holding carbon bisulphide in view of extremely inflammable nature of the material.

"In using carbon bisulphide as a follow-up method, i. e., where poison grain has reduced the squirrels to a minimum, or in cases where the number of burrows greatly exceeds the number of squirrels present, it would be advisable to go over the territory and close all open burrows and after waiting a week or ten days, treat all burrows that have been reopened."

More Wheat

By Norman F. D'Evelyn

The days of gold in California are not so far gone but that the oldest inhabitant of every town, and many of the younger inhabitants, can remember the thrilling days when countless thousands braved the long trail that led across sun baked deserts and snow capped mountains and countless other thousands preferred the terrors of the sea voyage crowded on board unseaworthy vessels to the possibility of being massacred by the Indians, just to "go West."

Those were the days when California justly earned her title of "the golden state"; not because of the vast wealth being taken from her soil in ore—Alaska has given far more gold to the world yet has never been called "golden" — but because of the great fields of golden grain, becanse of the wealth being taken from her soil in wheat. She was truly a golden state in those days.

The wheat growing industry came to California with the Spanish padres. Small fields about the missions were cultivated, and from this humble start the industry grew until in 1896 the wheat production of the state was 53,000,000 bushels.

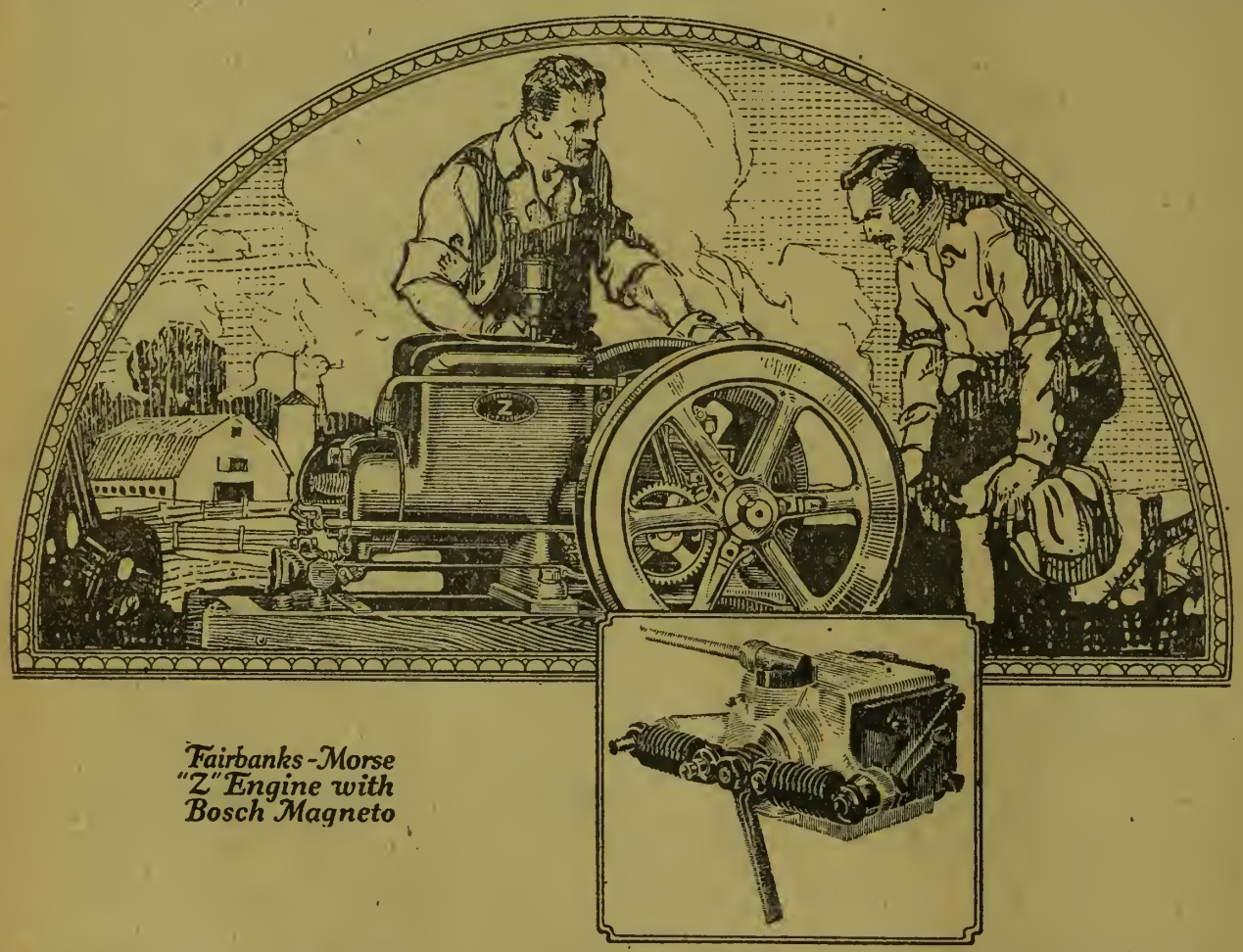
In the early days the wheat was cut by hand and taken to the nearest grist mill where it was ground into flour between two great fluted stones. Such was the early mill of Austin Sperry, established in 1852 at Stockton. In 1882 tne original mill was completely destroyed by fire, but a new one was immediately built and equipped with the most modern roller type machinery. The local demand for wheat has increased, many milling companies have sprung into existence, but the crops have dropped off annually—in 1918 there were but 7,000,000 bushels produced in the entire state.

The "Plant More and Better Wheat" campaign launched by the Sperry Flour Company is an earnest endeavor to raise California to her former and rightful place among the leading wheat producing states of the country, and comes as the culmination of four years of experiments with wheat and s ils.

In 1915, at the close of the Panama-Pacific International Exposition, this firm secured 23 varieties of wheat from the Australian exhibit, and with these as a foundation determined to develop an early maturing wheat adaptable to California conditions. Five farms have been leased and devoted to experimental work. The latest acquirement was the J. O. Robinson ranch of 680 acres, about 11 miles east of Stockton. On these farms the various varieties were planted and cared for under the direction of George B. McLeod, and it was finally found that the Early Baart and the Bunyip varieties wonld thrive in California soil.

All further efforts of the company were devoted to perfecting true-to-type seed of these two varieties, and the purpose of the present campaign is to release to the farmer the information gained through their investigations. Wheat experts visit the farmers at their farms, telling them of the problems which are apt to arise and of their solutions; and a series of bulletins has been issued containing information regarding the treatment of the soil, the market for wheat and barley throughout the world, and all other data that is of interest to the farmer about to put in his crops.

This year the early maturing wheats, Early Baart and Bunyip, have an excellent opportunity to prove their true worth. Though it is an adverse season—fully 30 days late—they can be planted with tho assurance of a good yield, whereas the later maturing standard varieties of the past might not come through. The acreage sowed in wheat this year is 22 per cent less



Fairbanks-Morse "Z" Engine with Bosch Magneto

Farm Engine Supremacy

THE famous "Z" Engine and the Bosch high tension, oscillating magneto combine to make the one SUPREME farm engine. ¶ The dependability of the Bosch in delivering a steady succession of hot, intensive sparks is well known and adds the one possible betterment to the "Z"—always recognized as America's foremost farm engine. ¶ Call on your "Z" Engine dealer and see the result of this newest combination—FAIRBANKS-MORSE "Z" WITH BOSCH MAGNETO. ¶ Over 200 Bosch Service Stations assist our dealers in delivering maximum engine service. ¶ Prices—1½ H. P., $75.00—3 H. P., $125.00—6 H. P., $200.00—all F. O. B. Factory.

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Pomona
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Pumps

One Pump Will Do Your Work

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

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PRICES RIGHT—QUALITY RIGHT
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Have You Seen the
INTERNATIONAL
DEHYDRATOR?

You are invited to inspect a Real Working Dehydrating Machine.

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We are now booking orders for next season's deliveries. Save all of your fruit and vegetables and get Dehydrated prices for them.

MAKE MORE DOLLARS.

Write for demonstration appointment.

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than last year at this time. According to government figures last year's crop was 95 per cent normal and this year's prospective crop but 89 per cent normal, which gives promise of high prices.

"RECOMMENDED GRADE" POTATOES

Owing to the small quantity of California certified seed potatoes now being produced and the demand for a better grade than can be found in the general market, it has been found advisable to make a somewhat lower grade of inspected seed potatoes. A committee to formulate the standards for such a grade was appointed by the California Certified Seed Potato Growers Association at its meeting in Los Angeles, December 10. The certified seed potato inspector of the state department of agriculture was a member of this committee. Upon the recommendation of this committee the department has established the following standards for what will be known as "Recommended Grade" seed potatoes. These potatoes will be inspected by the state seed potato inspector and every sack passing such inspection will bear a tag stating they have been so inspected and bear the name "Recommended Grade." "Recommended Grade" seed potatoes shall pass the same rigid field inspection as does certified seed stock. The only difference is in the grading of the potatoes after they are harvested. After grading they shall come up to the following standards:

Freedom from dirt, frost injury, cracks, cuts, damages by insects, exclusive of tuber moth; an allowance of six per cent by weight will be permitted.

Damage by forks in harvesting, two per cent permitted.

Second growth, two per cent permitted.

Variation below 1½ ounces and above 14 ounces for round varieties, five per cent permitted.

Variation below 1½ ounces and above 16 ounces for long varieties, five per cent permitted.

No potatoes shall be included that show by inspection on vine or tuber the presence of the diseases known as black wart (Chrysophlyctis endobiotica Schilb), powdery scab (Spongospara subterranea (Wallr. Johns), and violet rhizoctonia (Rhizoctonia crocorum (Pers. D. C.), and the pest, eelworm (Heterodera radicicola (Greef. Mul.).

Tuber Moth: Slight injury by tuber moth shall be permitted up to five per cent by weight. No tubers seriously injured by this insect shall be included.

Scab: No tubers having over 20 per cent of the surface affected by scab shall be included. Twenty per cent by weight of tubers with less than 20 per cent surface infection of scab may be permitted.

Rhizoctonia: No tubers with more than 25 per cent of surface infection shall be included. Five per cent by weight of less than 25 per cent surface infection of rhizoctonia may be permitted.

Vascular infection: Not to exceed five per cent of the tubers, as determined by transverse sections of stem end of tuber in the final tuber inspection, shall be permitted. Vascular infection shall be interpreted as meaning wilt diseases such as Fusarium oxysporum (Schlecht), Verticillium albo-atrum (Reinke and Berth).

Late blight (Phytophthora infestans (Mont. de Bary): Not to exceed two per cent of the tubers infected with late blight rot spots, and no spot to exceed one-half of an inch.

The potatoes shall be true to name, practically free from mixtures of varieties and practically true to type.

BUY POTATO SEED

The next season will prove a big one in potato planting. This is proven by the fact tbat hundreds of growers have already laid in their supply of seed, and the entire certified sweet supply has been practically exhausted. Some growers have the habit of waiting until the seed is wanted and then taking whatever the market offers. This means indifferent results and sometimes material loss because of the higher prices.

Potato growers are getting themselves organized and are in a position to make some profits for the industry.

TOP DRESSING TALKS
No. 6

Don't Waste Time and Labor!

Can you afford to be bothered by a wet lumpy fertilizer that must be crushed and screened before it can be applied?

There is a better fertilizer—one which will greatly reduce your labor of hauling and application—

ARCADIAN
Sulphate of Ammonia

Arcadian Sulphate of Ammonia has proved itself to be the most economical fertilizer on the market.

Its crop-producing power per pound nitrogen is equal to any other nitrogenous fertilizer.

It contains one-third more nitrogen than any other top dressing material. Ammonia 25¼ per cent guaranteed.

It is all soluble and quickly available but is not readily leached from the soil. Being a by-product of the American coke ovens it is the lowest priced ammoniate obtainable.

It is the fertilizer for your orchard, meadows, grain and for your truck crops. Write for our free instructive booklet.

Ask your local dealer to secure stock or order direct from the larger dealers.

FOR SALE BY

CALIFORNIA: San Francisco: Hawaiian Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Pacific Guano & Fertilizer Co., Western Meat Co., California Fertilizer Works, Los Angeles; Pacific Guano & Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Agricultural Chemical Works, Hauser Packing Co., Hawaiian Fertilizer Co., Ltd., Southern California Fertilizer Co. OREGON: Portland; Swift & Co.

For information as to application, write The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.

A Tractor That Will Not Last Will Not Pay

Long life and low upkeep expense are two outstanding features of the Rumely OilPull.

A 30-60 OilPull near Bakersfield, Calif., purchased in 1914, has covered over 10,000 acres in drawbar work, and has worked in the belt over 300 days. And, up to date, less than $400 has been expended for repairs.

The OilPull is built in four sizes—12-20, 16-30, 20-40 and 30-60 H. P. Send for catalog.

ADVANCE-RUMELY THRESHER CO., *Inc.*
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BULL DOG
a new and better
STUMP PULLER

All steel machine. New design. Stronger, easier, quicker. Pulls any stump which can be pulled with best ⅞ inch steel cable. Frame one solid casting. No joints or bolts. Tubular construction. Steel drum. Specially hardened teeth. High and low speed pawls. Reverse safety pawl. Cables, blocks and take-up extra strong. High wheels. Handle for easy moving. Guaranteed for three years.

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Pick the machine that suits your needs. Hand machine developes 30 or 60 tons. Horse machine, 60 or 90 tons. Hand machine weighs 175 lbs. Horse machine, 350 lbs.

Sold on a straight cash basis. No agent's discounts, no special offers. Every dollar of price represents a dollar's worth of value.

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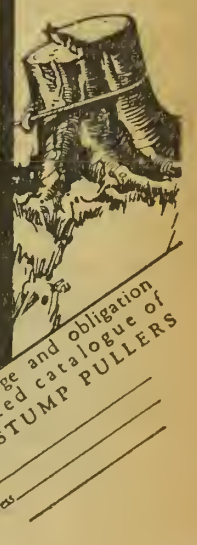

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Address _____

J. T. Sullivan of Meadow Gold Dairy, says: "I challenge anyone to produce a finer field of alfalfa than I raised from Germain's Proven Hairy Peruvian Alfalfa Seed. This variety cannot be praised too highly. It does all you claim for it—and then some." Read the rest of Mr. Sullivan's letter in our free booklet. It contains 30 signed letters from farmers and dairymen who have tested this wonderful alfalfa seed.

PURE HAWAIIAN CANE

MOLASSES

By actual test it will increase pork production half a pound daily over a barley and tankage feed yet it sells for less than half the price.

By actual test it will increase milk production 15 per cent.

Seventy-five per cent of the Blue Ribbon Winners at the Livestock Show were owned by people who are feeding molasses.

If you want increased production at lower costs feed molasses.

Write us at once for prices and interesting booklet telling how to reduce feeding costs.

W. H. Young Company

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Live Stock Trailers

1 and 2 head **$110** to **$195**

and other trailers of all kinds, **$35** to **$300**

Auto Wreckers

1450 Central Ave. Los Angeles

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Pure Bred Hog Industry Offers Big Opportunity to Young Men

In a recent issue of the Poland China Journal, Ray Moore, a representative of that journal, makes some practical observations on the opportunities offered the young man who engages in the business of producing pure bred hogs. Moore's observations are based on his personal experiences and what he says may be applied to any of the breeds of pure bred swine. Moore writes in part as follows:

"This seems primarily an age of young men. Perhaps we are discounting too heavily the experience and wisdom of maturity in all the industries and professions, but the fact remains that youth has a share in the management of the affairs of the world, never accorded it in any previous era in history. America, particularly, accords the young man special opportunities to 'make good,' and here he finds hearty cooperation, even in many cases, from the aged incumbents who are to be supplanted by successful youthful contestants. The breeding, improvement and selling of purebred hogs offers unexcelled opportunities to the live young farmer of today, and in no business will he meet with more gentlemanly competition; in no other business will he be accorded so much genuine assistance in the way of thoughtful advice, careful guidance and even financial assistance to the limit of his desserts.

"The breeding of pedigreed livestock of any kind is peculiarly a business of stability. By rights it should be begun by a young man with his faculties all clear, his ability to learn and absorb unimpaired, and should be passed from him to his sons, to whom he has imparted the knowledge gained during his lifetime in the business. The successful conduct of a herd calls for permanent improvements on the farm that are more or less useless to other farm endeavors. A breeder who devotes a lifetime to the successful conduct of a breeding herd acquires a standing in the community—a sort of conservative, broad-minded outlook on life and its complexities, which makes him one of the valued members of a community's social life.

"Indeed, there is probably no business which exerts a stronger influence upon the character of its members than does this business of growing improved livestock. The possibilities of the business are so infinite, the rewards so liberal, that perhaps the dominant influence is one of optimism. Ordinary effort is rewarded so generously that pessimism becomes almost impossible. A breeder, by the very nature of his business, by watching his animals improve from year to year, and the slow but sure improvement of the breed, comes to have a farsighted faith in the future of the race, to expect a gradual development of the human family commensurate with the improvement of his own specialty.

"Few citizens are better respected by their neighbors than the breeders of purebred swine. The consciousness of this acts as a wonderful tonic to the self respect of any man, and in the very nature of things makes him try harder to deserve such respect as his friends accord. Surely these are strong arguments for any young man to ponder before he decides against entering such a field of highclass endeavor.

"The material rewards offered are no less real than the pleasures of achievement. The future of purebred livestock improvement is destined to reach such undreamed volume, to result in such financial rewards to men who are in the game early, that no promise is too optimistic. Any young man can enter this business expecting greater rewards than his father obtained pioneering the virgin fields of the Cornbelt. The business calls for the best any man is capable of putting into it, and the rewards, both in a material way, and in the higher sense of duty well done, are such as to tempt the best men who have capacity for success in any line of endeavor.

"As I see it, we are entering upon a great transition period in American livestock production. We are passing from scrub stock, which still constitutes practically an overwhelming proportion of our present livestock population to purebred and crossbred stock. and the change is much nearer than many imagine. It is preeminently an economic change, one forced upon us by changed standards of living and changed relative values. Mounting values preclude all thought of profit under the old haphazard system of grain farming, or combination of inferior grain crops and inferior livestock. We must have increased grain production, through better seed and more intensive farming methods, and we must market this grain in its most concentrated, most valuable form, viz., highest class livestock. My 'sum up' of the outlook is that the situation justifies confidence on the part of any young man who enters the business determined to make it his profession, that he will obtain greater financial rewards, and more of that superior satisfaction which comes from a realization of good work, well done, than will come to him in any other line of endeavor. I count it my good fortune to be associated with a publication, backed by a fraternity of breeders, which will have a part in the progress which is certain to come to the breed."

Eastern Publisher Pays Tribute to Bassett & Son

C. W. Walker of Kansas City, Missouri, publisher of the Poland China Journal, visited the Poland China breeders of this state last November and in a recent issue of his paper had the following to say about the veteran breeding firm, M. & A. L. Bassett of Hanford:

"The firm of M. & A. L. Bassett, Hanford, California, stands mighty high in Poland China affairs in California—and they have a right to. Probably the oldest established herd in the state, they have a quarter of a century of square dealing and fine breeding accomplishments to their credit. The records of the county and state Poland China shows of California show this firm to be consistent and heavy winners of the best prizes. Maintaining one of the largest herds on the coast, they show a full herd each year and as a result of their winnings and methods of doing business have built up a large and loyal clientelle. For a great many years their herd was strictly of the medium type, but they are gradually changing to the bigger Polands and it is predicted it will not be long until the herd will be made up exclusively of this kind. They maintain two ranches of 160 acres each—large farms out there—and raise on an average of 500 head of hogs a year. A feature of their showing each year is the high class lot of barrows brought out by them. They cleaned up in California this year and the same barrows shown at the recent International by the University of California won fourth and fifth in the under-a-year class and were second on pen. And the International barrow show was some strong competition—if anybody happens to ask."

The Bassetts will hold a sale in conjunction with Fred D. Ross and Dr. J. A. Crawshaw, January 17, at which time the three herds will contribute 60 head of bred sows and gilts that will be the equal of any ever sold from those herds.

It will be remembered that last spring announcement was made of the organization of an association by the Fresno district Duroc-Jersey breeders at which time J. W. Schmitz, Madera, was made president and H. H. Bereton, Sanger, secretary. They will hold their first public sale in Fresno, February 4, at which time they will offer 40 selected bred sows and gilts.

Epoch Making Duroc Sale

Sows Bred to Grand Champion Boars

ACE OF PATHFINDERS

Grand Champion 1919

This great boar was the sensation of the Los Angeles Livestock Show, 1919, winning the Grand Championship. Besides, he stood second only to the world's champion, Great Orion Sensation, at the 1919 National Swine Show. Sows and gilts bred to this wonderful son of Pathfinder will strengthen any herd.

MAMMOTH SENSATION JR.

Grand Champion 1919

The largest junior yearling shown at the California State Fair in 1919, winning first in his class and Reserve Grand Championship. He is the greatest son of Mammoth Sensation, the largest two-year-old boar that ever lived. Sows bred to this boar will insure you the big-type Durocs that everybody is clamoring for.

DIAMOND

DIAMOND

PLAN TO ATTEND

Here is the opportunity of a lifetime to secure big, roomy, motherly sows and gilts sired by the breed's most noted boars and bred to our super-sires. They are safe with pig for spring litters and all ready to go on and make a fortune for you.

Public Sale

40 SOWS AND GILTS

Wednesday, January 28

At this great sale you will find the utmost in Durocs—sows and gilts with strong backs, great stretch, well-sprung ribs, heavy bone and good feet. They are the fast-growing, easy-feeding kind with worlds of quality. Buy them and reap a golden harvest.

CHOLERA IMMUNE

DIAMOND

DIAMOND

California Great Wonder Grand Champion 1918

This undisputed Champion of 1918 stands today without doubt the greatest wonder sire on the Pacific Coast. He has sired some of the largest pigs for their age we have ever seen. At the Los Angeles Show his six-months' pigs averaged 226 lbs. If you want fast-growing qualities get sows bred to him.

Great Sensation 2d Winner in Class 1919

Here is a wonderful pig for his age, and a future champion. He won wherever shown and was defeated only by much older boars. He is a grandson of Great Wonder I Am, the largest boar that ever lived. We consider him one of our most valuable boars, and are breeding only a few sows to him.

BAR

Diamond Bar Ranch

Where Size is the Fashion and Quality Reigns Supreme

Spadra Los Angeles County **California**

Ord L. Leachman, Auctioneer **Walter T. Gatton,** Supt. Swine Dept.

Ranch is located 28 miles east of Los Angeles and four miles west of Pomona on the Valley Boulevard. Several auto stage lines pass the gate. See next week's advertisement for complete directions.

Delco-Light Life Plant
Started March 15 1917
Torn down October 31 - 1917
Number hours run 5,370
Cost to put plant in first class condition including labor and parts $28.90
12,000 hours service March 12 1919
Cost of overhauling at this time $25.80
July 15 1919 necessary repairs $8.50
TOTALS $63.20
Number hours run up to October 18 - 1919 — 13,875
Figuring on the basis that 10 hours per week represents average use of plant the total number hours represents better than 26 years, actual service.

This is an actual photograph, taken in the final test department at the Delco-Light factory.

Home Dealers

Anderson & Doyle, Salinas, Calif.
J. E. Bartlett, Yreka, Calif.
Howard Bovries, Santa Maria, Calif.
G. C. Hopkins, 405 East Main St., Visalia.
W. H. Starbuck, 456 B Str., Santa Rosa.
Geo. T. Plummer, 6 Oakville Ave., Berkeley, Calif.
C. L. Anderson, Care Julian Hotel, Woodland, Calif.
M. B. Charles, 39 E. San Antonio St., San Jose, Calif.
Harry Dolan, Yerrington, Nevada.
G. C. Egelston, 715 Eye St., Fresno, Calif.
Roy LeMasters, Care Hughson Hotel, Modesto, Calif.
Richard Eaton, Sacramento, Calif.
R. D. Pelton, Willows, Calif.
Brennan & Son, Loomis, Calif.
H. M. Hall, 129 East 6th St., Los Angeles, Calif.
H. E. Montague, 4261 Arista St., San Diego, Calif.
T. L. Laereman, 645 Main St., El Centro, Calif.
W. R. Dodge, Chico, Calif.
C. C. Norris, 1344 W. 4th St., Riverside, Calif.
MacRostie Brothers, Bishop, Calif.
Paul R. Sprague, Quincy, Calif.
Electric Service Co., Ukiah, Calif.
H. H. Powell, P. O. Box No. 421, Stockton, Calif
David Erkid, Fallon, Nevada.
H. A. Talley, P. O. Box No. 46, Elko, Nevada.
Lincoln Highway Garage Co., Ely, Nevada.
Harris Brothers, 141 North First St., Phoenix, Arizona.
C. L. Uriarte, P. O. Box No. 127, Nogales, Arizona.
The Hawaiian Electric Co., Honolulu, T. H.
Macondray & Co., Inc., Manila, P. I.
T. W. Smith, 426 F St., Eureka, Calif.

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Los Angeles
129 E. Sixth S

DELCO

THERE'S A SATISF

than 26 years
al farm service

917, a standard Delco-Light plant was started on
." It was chosen at random from stock, a plant
thousands of others produced each year.

part of October, 1919, this plant had run 13,875
equivalent of over 26 years of actual farm

t mean?
elco-Light it means that
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e been justified; that the
lants already in use are
and satisfactory service;
electricity for the farm
ver by Delco-Light.
hat Delco-Light offers a
rvice for your farm, a
, ***dependable*** and ***effi-***

Year after year ***your*** Delco-Light plant will go on lighting the house and barns, pumping water, helping with the washing and ironing.

The distinctive features of design and workmanship found only in the Delco-Light plant are the things which made possible the record of the Delco-Light "Life Plant."

These things will bring to you the same satisfaction and comfort that they have already brought to over 80,000 Delco-Light users.

NGH & COCHRAN

DISTRIBUTORS:

Fresno
715 Eye Street

San Francisco
880 Mission Street

-LIGHT

USER NEAR YOU

The Outstanding Personality

of the sows maintained in our herd is based on more than rich breeding, excellence of quality and character. It goes even further than the great accuracy of type—there is a distinctiveness that amounts to personality.

Hanford, Cal.

Saturday, January 24

We Sell

Poland China Bred Sows of Outstanding Quality

Among Them You'll Find

Rosebud Quality 1st., a real sow bred to Col. Jack's Surprise by Surprise Prospect; **Long Belle** by Long Nelson 2d., and bred to King's Massive Orange; **Massive Lady**, bred to McCune's Buster and three by King's Big Bone Leader, bred to Col. Jack's Surprise and King's Massive Orange.

EXTRA A May boar and gilt sired by Surprise Prospect and out of Edith Rose. They are litter mates to the $1250 gilt in the October Hanford sale.

Your attendance at this sale will be justified by the offering.

Sale at 12:30 P. M. **Lunch at Noon**

Write for the catalog and any further information.

H. D. McCune, Lemoore, Cal.

Geo. W. Bell, Auctioneer

Gatewood's Grand Champion Poland-China Dispersal Sale

A Sale of Opportunities

Fresno, Cal., Monday, January 26, 1920

75 Big Type Bred Sows and Gilts

In this offering 35 head of sows and gilts will be sold bred to Giant Bob, the 1919 grand champion, and among them will be a number of choice daughters of Big Bone Leader, the 1918 grand champion; 10 will sell bred to PROSPECTOR and to GATEWOOD'S PROSPECT; 30 gilts will sell open. I am also offering six high class boars including GIANT BOB. If you want a real boar here is your opportunity.

I feel sure that this sale offering will measure up to any ever sold on the Pacific Coast. Write at once for the catalog and study the blood lines.

Sale Starts at 10:30 A. M. Lunch at Noon

Geo. W. Bell, Auctioneer

Chas. Gatewood, R-J. Box 358 **Fresno, Cal.**

First Annual Guaranty Sale

Glenn County Poland China Breeders Association

Orland, Cal., Tuesday, January 13th. (Glenn County Fair Grounds)
65 Selected Bred Sows, Gilts and Boars

For the initial sale the following herds have been drawn upon to funish an offering in keeping with the established quality of Glenn County Livestock:

R. J. Yates	J. A. Miller	Ferguson & McKaig
R. M. Rankin	J. K. Burnett	Chas. Templeton
Penfield Bros.	M. H. Summers	W. A. Ort
V. H. Warnock	Adam Lachenmeyer	Mrs. C. J. Lathrop
	J. E. Faltings	

Every animal listed represents the most popular and proven blood lines known to produce strictly big type Poland Chinas.

Watch this paper for further announcements. For catalogs address

Ord L. Leachman, Auctioneer and Sale Manager
1111 Seventh Street **Sacramento, California**

TREAT Your Own Herd for **Abortion**

Stop Losing Calves! You can *wipe abortion out* of your herd and *keep it out.*

Send for Free copy of the *Cattle Specialist* with questions and answers pertaining to Abortion in Cows. Answers every question. Tells how to treat your own cattle at small expense. Write

Dr. David Roberts Veterinary Co. 212 Grand Ave. Waukesha, Wis.

TWO DUROC-JERSEY SALES NEXT WEEK

The spring series of Duroc-Jersey sales will be started next week when the California Duroc-Jersey Breeders Association will hold their first annual sale at the university farm, Davis, January 14. The following day Harvey M. Berglund of Dixon will hold his first sale. The two sales will afford an opportunity for those interested in Durocs to make selections from a number of varied lines of breeding that have proven sources of desirable stock. In the association sale 40 bred sows and gilts will be representative of the leading herds of this state. Many of them are sired by prize winning boars and not a few of them have been seen in California show rings themselves. The Berglund sale will consist of around 35 head and will include 25 bred sows and gilts, seven open gilts and three young boars. Few spring sales will contain any boars.

Men interested in the breed are urged by the breeders to attend the two sales and get acquainted with the men who are promoting the breed in this state. The members of the association feel that the extension of the breed on this coast is largely a matter of cooperation and that cooperation is dependent upon all breeders working together.

GATEWOOD TO RETIRE FROM POLAND RANKS

Poland China breeders in general are expressing keen regret over the fact that Chas. Gatewood of Fresno has found it necessary to retire from the breeding business. Mr. Gatewood is one of the pioneer breeders of this state and his herd has been responsible for the production of many of the best Polands brought out in recent years. At the 1919 state fair Giant Bob, a junior yearling son of the noted National Swine Show champion, Caldwell's Big Bob, developed and shown by Mr. Gatewood was made grand champion. Giant Bob is easily one of the best Poland China boars developed in this state. In a recent issue of 'the Poland China Journal, C. W. Walker, the publisher, commented as follows on Giant Bob. "This junior yearling son of the 1917 world's champion is unquestionably one of the best junior yearling boars brought out this year. He would have been a strong contender in the more hotly contested shows of the Cornbelt." This boar, along with the complete herd of sows will be sold at public auction at Fresno, January 26. Geo. W. Bell of Tulare will be the auctioneer.

DAIRY DIVISION OF SONOMA COUNTY FARM BUREAU

The organization of the dairy division of the Sonoma County farm bureau was perfected with the selection of the following officers: Director, J. R. Gallagher, Bodega; vice director, Arthur Purvine, Two Rock; executive committee, E. Seinbach, Two Rock; M. A. Luce, Santa Rosa; S. Gambonini, Lakeville, and Arthur Le Baron, Valley Ford.

Mr. Greene is kept busy with such meetings as these in the work of the California dairy council. Calls for his services are coming into the office of the council at 268 Market Street, San Francisco, faster than he can attend to them.

CALIFORNIA LIVESTOCK FOR GUAM

Glenn Briggs, agronomist for the agricultural experiment station, department of agriculture, Island of Guam, recently visited California breeders and selected a number of Berkshire boars and Ayrshire bulls for distribution among the native farmers of that island. Included in the shipment were six young boars selected from the Castleview herd, Santa Rosa, and 12 from the herd of Frank B. Anderson, Sacramento. E. B. McFarland of the Steybrae Farm, San Mateo, furnished two young Ayrshire bulls. According to Briggs this initial shipment is by way of an experiment but if the venture proves satisfactory it is expected that further shipments of the various breeds will be made from time to time, and of course California breeders will be called upon to supply the trade.

Last Call

Private Dispersal Sale of Billiken Chester Whites

Two tested sows; bred for late April farrow.

Young Service Boars.

Every one a real Herd Leader.

One March boar; weight 300 lbs.

This boar was the Grand Champion at the San Francisco Fair.

Six April Boars; weight from 235 to 250.

Three May Boars; weight 225.

Every one cholera immune and at practically butcher prices.

The Selected Tops retained from over fifty animals.

Ten fall sow pigs. Immediate delivery.

Take advantage of this offering.

You will never again have the opportunity to secure these blood lines at such low values.

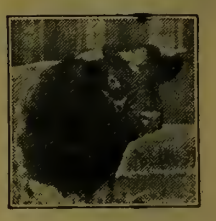
Free registration with every animal.

C. B. Cunningham
Mills, Cal.

PUBLIC SALE

OF

Shorthorn Cattle



At the Western Stock Show, Denver, Colo., Wed., forenoon, Jan. 21, in the show arena. Thirty bulls and 20 females selected from leading western herds will be sold under the auspices of the

American Shorthorn Breeders' Association

13 Dexter Park Ave. **Chicago, Ill.**

Shorthorn steers topped all of the leading beef markets. It pays to grow Shorthorn beef.

GUERNSEYS

Butter Fat at Lower Cost per lb.

No other breed can produce rich golden butter fat as cheaply as the Guernsey. Official yearly records show—one cow has given 24,608 lbs. milk and 1,098 lbs. butter fat. Write for our free booklets.

The American Guernsey Cattle Club,
Box C 40, Peterboro, N. H.

QUALITY ECONOMY QUANTITY

Some of the finest
GUERNSEYS
in the West are at
Hollow-Hill Farm
Colton, Cal.
Only Bull Calves For Sale

A Prosperous Future

Awaits the buyers at our big

Sale of Poland China Sows and Gilts

which will be held in

Lodi, Cal.

Tuesday, Jan. 27, 1920

20 Bred Sows and Gilts---20 Open Gilts

The offering bred to

Matchless Big Bob and **Lakeside Defender**

(By Big Bob Orange by Big Bob) **(By Chief Defender's Choice)**

One of the gilts to sell is by Square Jumbo out of a Chief Defender's Choice dam and a half sister to Nobility, the senior pig for which Meharry (Illinois) paid $6000. She is also a half sister to the grand champion sow at 1919 Illinois State fair.

Sale at 12.30 P. M. **Lunch at 11 A.M.**

Ord L. Leachman, Sacramento, Auctioneer

Geo. V. Beckman & Sons **Lodi, Cal.**

A Business Proposition, Mr Hog Raiser!

First Annual Bred Sow Sale

California Duroc-Jersey Breeder's Association

University Farm, Davis, Calif., Wednesday, Jan. 14.

40 High Class Bred Sows and Gilts 40

What We Offer In this, the initial sale of the official state organization, for the promotion of the Duroc-Jersey, it is but natural that the character of the offering be such as to reflect the greatest credit upon the breed. Accordingly, the leading herds of the state have been drawn upon to furnish a quality such as has never before been offered California buyers.

The offering includes bred sows and gilts carrying the demonstrated blood lines, and every animal is bred to or is sired by a boar that stands in the front rank.

In the pure bred livestock industry nothing is more certain than this fact: The best can only be produced from the best and the fact that the California Duroc-Jersey Breeders' Association stands back of this offering is proof that the entire lot is right and reliable.

The Test The practical test of the value of any farm animal is—"Does it pay to produce that animal on the farm? Is that animal profitable?" Whatever may be its good qualities or uses, the animal must make profit before the farmer will accept it.

The Proof The great American Farmer has placed his stamp of approval on Duroc-Jerseys and made them the most popular of all breeds of swine. Duroc-Jerseys could not have gained and held secure this enviable position if they did not produce pork at a profit. The profit in breeding Duroc-Jerseys is the basis of this universal popularity.

The Reason Durocs are prolific—Durocs mature rapidly—Durocs feed economically—Durocs breed uniformity in size, type, conformation and color—Durocs outnumber any other breed.

Grow Durocs - - - Grow Independent

An Opportunity. This sale furnishes an opportunity to buy a foundation herd of sows that will not only increase your pork profits, but will add to the pleasure of your feeding operations.

You can attend this sale with the greatest confidence and feel certain that the offering represents the best to be found in California. Come to the university farm and meet the men who are producing Durocs.

EVERY ANIMAL GUARANTEED TO BE A BREEDER

Ord L. Leachman, Auctioneer

Calif. Duroc-Jersey Breeder's Association

HARVEY M. BERGLUND, Dixon, SALES MANAGER — S. E. WHITING, Sacramento, SECRETARY

AV-I-A-TOR

NEXT WEEK YOU'LL KNOW ALL ABOUT ?

When Writing Advertisers, Mention the Cultivator.

SIZE WILL PREDOMINATE

When Hale I. Marsh Sells

40 Big Type

Poland China Sows and Gilts

They are mostly young proven sows by such boars as Major Hadley Wonder, Young Jumbo, Big Knox, Big Bone Bob, Long Model, Blue Valley Tecumseh and Cantrall's Ideal. Bred to Big Model, Modesto King and Blue Valley Big Bone.

Sale held on farm six miles north of

Modesto, Wednesday, Jan. 28, 1920

Sale Circuit: McCune, Hanford, Jan. 24; Gatewood, Fresno, Jan. 26; Beckman, Lodi, Jan. 27; McCracken, Ripon, Jan. 29. Attend all these sales.

Geo. W. Bell, Tulare, Auctioneer

Send for Catalog

Hale I. Marsh, Modesto, Cal.

The Poplars---Hampshire Headquarters

Our reserve grand champion sow Wavelet at the big Los Angeles show is the mother of 8 little Wavelets—a flourishing family. We won 1st on boar and 3 sows bred by exhibitor, also 3 other herd prizes. We were in the money on aged boar, twice on junior yearling boar, and once next the top on junior boar pig. All young stock the get of our great boar, The Harvester Again. Write us your wants.

C. J. Gilbert **Lancaster, Cal.**

If you are interested in this very great breed you will find it worth your while to visit the

Ortega-Underhill-Rancho

O. U. R.

Registered Hampshires

Thos. T. Dinsmore, Manager **Santa Barbara, Cal.**

You will find there some of the best blood in the country and a truly great herd in course of construction.

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows.

HARVEY'S CHOICE
Grand Champion Boar at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair
SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

A. E. Harvey, Manager **Redlands, Cal.**

California Cultivator

Costs $1 per Year

Top Sale of the Season

Bassett, Crawshaw & Ross

Big Type Poland-China

BRED SOW AND BOAR SALE

60 Head 60

These sows are carefully selected from among the tops and include some of the best prospects we have ever sold bred to Big Timm, Kings Gerstdale Jones, Some Price, Kings Timm, Model Fellow, Jr.

Public Sale

Saturday, January 17th, 1920

at Kings County Fair Grounds

Col. Ord L. Leachman, Auctioneer

For Catalog or information write to F. D. Ross

M. & A. L. Bassett J. A. Crawshaw Fred Ross

Hanford, Cal.

What Counts with You Hog Raisers?

Are you raising hogs for profit or show ring records—I raise Poland China hogs that mature quick and make a profit—I sell the same kind for breeding purposes. My herd boar

BIG MODEL FELLOW

was reserve grand champion at the State Fair—proof I can win in the hottest competition. Write me or attend my bred sow sale, February 21, 1920, if you want this kind.

J. F. McSwain Merced, Cal.

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

January 30. C. F. Mohnike, Angiola.
Thursday, March 25, Guaranty Sale, Sacramento.
April 8. Breeders Sale, Tulare.
Wednesday, April 21, A. M. Bibens, Modesto.
Wednesday, May 12, Leeman & Kilgore, Dispersal, Ripon.

Herefords

During last week of February, Pacific Coast Hereford Cattle Breeders' Association.

Shorthorns

April 17, Butte City Ranch, Butte City.

Berkshire Swine

February 14. J. Francis O'Connor, Santa Rosa.
February 15. F. J. Sandercock, Sacramento.
February 16. Muddux & Son, Sacramento.
February 18. Western Berkshire Congress, Davis.
April 17. Butte City Ranch, Butte City.

Duroc-Jerseys

January 14. State Duroc-Jersey Breeders Association consignment sale, Davis.
January 15. Harvey M. Berglund, Dixon.
January 28, Diamond Bar Ranch, Spadra, Los Angeles County.
January 29, Winsor Ranch, Bonita, sale in Los Angeles.
January 30, Ireland Ranch, Owensmouth, Los Angeles County.
February 4. Fresno County Duroc-Jersey Breeders Association, Fresno.
February 10. Glenn County Duroc-Jersey Association Sale.
February 18. Tulare County Duroc-Jersey Association Sale.

Poland Chinas

January 10. Fred Gatewood, Fresno.
January 17. Bassett, Ross and Crawshaw, Hanford.
January 24. H. D. McCune, Hanford.
January 26. Chas. Gatewood, Fresno.
January 27. Geo. V. Beckman and Sons, Lodi.
January 28. Hale I. Marsh, Modesto.
February 6. Tulare Poland China Breeders Association, Tulare.
February 12. San Joaquin Poland China Breeders Association, Lodi.
January 13. Glenn County Poland China Breeders, Orland.
February 21. Merced County Poland China Breeders Association, Merced.
February 21. McSwain, Merced.
February 28. Kings County Poland China Breedrs Association, Hanford.
February 29. Les McCracken, Ripon.
March 13. Haag & Bernstein, Hanford.
April 17. Butte City Ranch, Butte City.

Shetland Ponies

April 17. Butte City Ranch, Butte City.

Shropshire Sheep

Geo. A. Stingle, Berkshire breeder of El Monte, has just purchased a young boar from E. J. Barker's herd at Thorntown, Indiana. This boar is sired by Real Type, one of the largest, if not the largest boar of the breed. Mr. Stingle has sold his senior herd boar, Master Gabriel, a grandson of Masterpiece to J. C. Biedebach of Pasadena and a young boar sired by Master Gabriel to J. H. L. Vogt of San Diego.

Dr. M. Creamer, owner of Ireland Ranch, will, in conjunction with Donald Graham and E. Avery Newton, hold a sale of Duroc-Jerseys on Ireland Ranch near Owensmouth, January 30. The sale will consist of 40 bred sows and gilts including four daughters of Reformer, a sire well known to all Duroc-Jersey breeders. Mr. Graham will sell four daughters of Orion King Gano while Mr. Newton sells six daughters of Crimson Col. Dr. Creamer in speaking of the sale states that for the past eight months he has had this sale in mind and has been reserving the animals to be sold, which will include several sows by Reformer.

Saturday, January 17, in Hanford, Bassett, Crawshaw and Ross will hold their next sale of Poland Chinas. Sixty head will be sold, mostly bred sows and gilts, and these will be bred to such boars as Big Timm, King's Gerstdale Jones, Some Price, King's Timm and Model Fellow Jr. In the past these sales have attracted buyers over a wide range and no doubt this sale will have ample support.

The next sale of Hale I. Marsh, Modesto, breeder of big type Poland Chinas, will be held on his farm six miles north of Modesto, January 28. Mr. Marsh is building a new circular farrowing house and the sale will be held in this, which assumes comfort in case the day should prove disagreeable. He will sell 30 young sows that have had their first litter and about ten proven sows mostly senior yearlings. Mr. Marsh states that they are all well grown out and will have plenty of size for age.

Developments on Diamond Bar Ranch, Spadra, will afford considerable interest to those attending their sale of Duroc-Jerseys, January 28. Some 800 hogs are fed twice daily and the automatic feeding system will probably be in operation by that time. That the blood lines of the animals to be sold in the sale are popular is shown by the requests for catalog over a wide range of territory. As this is their initial sale care has been used in making the selections and the matings have been made along the lines of individual merit and type. Arrangements have been made for housing a large crowd, so regardless of weather conditions those in attendance will be comfortable.

Tulare County has a new Poland China breeder in Z. M. Dickey whose ranch is near Dinuba. He has recently added a Poland China boar sired by Blue Valley Big Bone and his dam is Miss Big Bone Bob. The youngster has good stretch, big bone and straight legs. Mr. Dickey has also acquired a gilt by the 1918 world's champion Black Price.

Frank B. Anderson, Berkshire breeder of Sacramento, has recently established a small herd of registered Holsteins and the herd will be conducted under the name of Anderson & Fogarty. Fogarty was formerly connected with the dairy division of the university farm, Davis, and is an experienced dairy cattle and hog man.

W. S. Guilford of the Butte City Ranch has returned from an extended trip through the East where he visited many of the leading herds and flocks. Guilford made numerous purchases of Shropshire sheep from the leading flocks but says that he visited very few establishments that were producing a better quality of stock than will be found on the ranches of this state. It is the opinion of Guilford that the time is not distant when Eastern breeders will come to this state for breeding material. Guilford found that there is a general demand for size in breeding stock and he believes that because of the favorable growing climate of this state that more size for age can be produced in coast herds than in any other section.

Wm. Bond, Shorthorn breeder of Newark, calls attention to the fact that Roan Duchess H, grand champion milking Shorthorn female, shown by Thos. Harrison of Santa Rosa at the recent Pacific International Livestock Exposition, Portland, was bred at the Bond farm. Roan Duchess H was sired by Pacheco Lad 46th, a son of the Pacheco herd bull, True Dale, and her dam was Duchess Knight, a granddaughter of March Knight.

In a report just issued by H. E. Allen of the American Hereford Breeders' Association it is stated that 1,070 new members were added to the association, making a total membership of more than 11,000 breeders. Registrations for the year reached the total of 96,873 and 85,384 transfers were made on the books of the association. During the 11 months ending December 1, 1919, the cattle offered at public sales sold for more than $8,000,000 and averaged over $490 per lot.

The California Shorthorn Breeders Association will hold their annual spring sale February 26, during the proposed Livestock Week at the university farm, Davis. The offering will include a choice lot of females and a particularly desirable lot of young bulls of a quality to meet the needs of the breeder or the range operator. These association sales have served a highly useful purpose by making it possible for purchasers to select carefully chosen stock from the leading herds of this state and it is anticipated that the forthcoming sale will present an offering the superior of any yet sponsored by the association.

The California State Poland China Breeders Association plans a sale to be held at the university farm, Davis the morning of February 26. Secre

LES McCRACKENS

POLAND CHINA SALE

King's Big Bone Leader

I consider King's Big Bone Leader one of the greatest Poland China sires of the breed today. A champion and grand champion he has plenty of length and depth, a strong arched back and big bone. He imparts all these good qualities to his get. Go into any herd and you will usually find some of the outstanding animals are by King's Big Bone Leader. At the sales where anything by him has been sold it usually sells away above the average. This in itself should be convincing proof to the careful buyer that a litter by King's Big Bone Leader will give entire satisfaction and return a nice profit.

His Running Mate

I have selected, as a mate for King's Big Bone Leader, Giant Bob 2d, by Giant Bob, the 1919 grand champion boar. In Giant Bob 2nd I have a boar with a future that no one discounts. He is just such a boar as you would like to have in your own herd. I believe this young boar has a great future and will mate well with the daughters of King's Big Bone Leader.

My Herd

My herd now contains eighty-five sows and gilts of breeding age. Part of these I bred and part have been selected from a number of the good herds to be found in the state. They have been selected not only because of their blood lines but on account of their individual merit as well. I am putting into this sale a choice selection from the herd and I believe, after you have seen them, that you will agree with me that I am offering you a grand lot from which to choose.

The Date of the Sale:

The sale will be held on the farm, one mile north of

Ripon, Cal., Thursday, Jan. 29, 1920

Ample protection afforded against bad weather

Lunch at 11 A.M. *Sale Starts Promptly at 12.30 P.M.*

The Offering:

50 Poland China Sows and Gilts Bred to King's Big Bone Leader and Giant Bob 2nd

A Study of the Breeding
of the animals in the sale will be of interest. The sows and gilts are by such noted boars as: Blue Valley Tecumseh, Young Jumbo, King's Big Bone Leader, Giant Bob, Joe's King, Model Major, I B A Wonder, California Wonder, Caldwell's Big Bob.

Of Special Interest
will be the sale of a Caldwell's Big Bob sow bred to King's Big Bone Leader. This sow was first prize senior yearling at the last state fair. A first prize winner bred to a grand champion boar.

? What Will the Litter Be Worth ?
Write immediately for the catalog and study the breeding of the animals listed to sell. It will be interesting reading.

I Want the Farmer to Attend

I extend to every farmer and dairyman a special invitation to attend my sale. I think you will be pleased with my offering and I want your friendship in building up a great herd of Poland Chinas. I want you to come whether you buy or not as I want you to see what kind of hogs I am raising.

Everybody Come *Write for Catalog*

Les McCracken, Ripon, Cal.

Col. Geo. W. Bell, Auctioneer

This is the final sale in the Northern San Joaquin Poland China Sale circuit. Beckman & Sons sell at Lodi, Jan. 27, and Hale I. Marsh sells at Modesto, Jan. 28th. Attend all three.

IRELAND RANCH

in conjunction with

Donald Graham and E. Avery Newton

Will Offer at Public Sale

40 Duroc-Jersey Bred Sows and Gilts

10 Service Boars

Sale on Ranch

Owensmouth,

Friday, Jan. 30th, 1920

This offering will not only reflect great credit to the breed but will contain the blood lines of what has proven the most profitable to breed.

Ireland sells four daughters of Reformer
Graham sells four daughters of Orion King Gano

Write for Catalog to
1219 Brockman Bldg., Los Angeles

Other Southern California sales: Diamond Bar Ranch, Jan. 28, Spadra; Winsor Ranch, Jan. 29, Los Angeles.

Ord L. Leachman, Auctioneer

Last Call!

Berglund's Duroc-Jersey Sale

Gilts bred and open, bred sows and spring boars that will be just what you want. They are of true, big-type breeding and grow that way. Seven open gilts that will attract every one. Three spring boars that will be fit and right to head your herd. Any breeder needing females that are right attend this sale. Sale at

Dixon, Calif., 1 P. M., January 15th

For Catalogue write

Col. Ord L. Leachman, Sacramento
Auctioneer

H. M. BERGLUND, Owner
Dixon, Calif.

WE WILL CONSIGN

To the California Duroc-Jersey Breeders Association Sale at Davis, January 14:

1—A daughter of Johnson's Defender Jr., bred to Sensation Wonder 1st, the State Fair Grand Champion.

2—A daughter of Uneeda Model Col., litter mate to the 1918 California Grand Champion sow. This gilt is bred to Johnson's Defender, Jr.

Get your bid in on one of these and you will get a money maker.

Greenwood Farm

H. C. Witherow, Mgr. Live Oak, Sutter Co., Cal., Route C.

200 Bred Duroc-Jersey

sows and gilts bred for spring litters. All carefully selected from Glenn County herds. They are the kind that will make a profit on any farm. All are priced at exceedingly low prices. Bargains for car lot buyers. Get busy and write or come and see us immediately as they won't last long at the price.

H. P. Slocum and Son
Willows, California

Breeders of Duroc-Jerseys. The Key Herd of the Pacific Coast.

tary McCarty says that the offering is not only planned to present the merits of the breed but the sale will furnish an outlet for the smaller breeders who are not producing stock on a scale that will permit them to hold their own sale. The members of the state association have mapped out a constructive campaign for the welfare of the breed, and the sale is but one way that the established breeders propose to make the business attractive. About 50 head of high class sows and gilts will be sold.

V. F. Dolcini, proprietor of the June Acres Stock Farm, Davis, has sold his young Holstein bull, Sir Aaggie Korndyke Mead, to C. L. Goodin, Derby, Kansas, for $3,500. Sir Aaggie Korndyke Mead was bred by A. W. Morris & Sons, Woodland, and was sired by Sir Aaggie De Kol Acme and is out of Lady Mead Salambo, a daughter of King Mead of Riverside, with a record of 950.01 pounds butter. She in turn is a daughter of Pet Salambo of Riverside, a 1,003.28 pound cow. Five of the seven nearest dams of Sir Aaggie Korndyke Mead have an average yearly production of 1,096.28 pounds butter in a year. Through the sire the Dolcini bull is a half brother to Sir Aaggie Mead De Kol, sold last summer in the Philadelphia sale for $11,000. These two bulls are the first to be sold by California breeders to Eastern buyers and their sale is evidence of the keen interest that the East is manifesting in California livestock of all kinds.

A. W. Morris & Sons, Woodland, have just made a notable sale of a two months old bull calf to Elmer Axelson of Mt. Vernon, Washington. The youngster was sired by Sir Aaggie De Kol Mead and is out of a daughter of Sir Aaggie De Kol Acme that has just completed a junior two year old record of over 21 pounds butter in seven days. The price received is said to be the highest ever paid in this state for a calf of that age.

Edward Cebrian, proprietor of the Caledonia herd of Shorthorns maintained near West Sacramento, has announced the purchase in England of the famous thoroughbred stallion, Troutdeck. Troutdeck was secured from the Duke of Westminster for $30,000. Cebrian maintains his thoroughbred establishment, Mira Monte, near San Jose.

A fire which destroyed the calf barn at the Palo Alto Stock Farm, Palo Alto, caused the loss of 53 head of Holstein and Guernsey calves valued at $25,000. The origin of the fire is not known.

H. M. Elberg, Woodland, owner of the Roselawn herd of Shorthorns, has returned from the East where, accompanied by his herdsman, Carl Johnson, he selected 11 head of high class females, all of Scotch breeding. One was secured in the International Sale and the balance come from the Hopley herd at Alantic, Iowa. From the latter herd come seven head bred to the great bull, Village Beau, counted one of the best sons of Villager.

Butte City Ranch, Butte City, reports the arrival of the Shetland stallion, General Boggs, purchased from J. C. Thompson of Jamaica, Iowa. General Boggs, a winner at the Iowa state fair, was sired by Grandee, the famous son of Prince of Wales—the two greatest ponies ever developed in the breed.

In the opinion of a great many Poland China breeders in no sale this year will there be offered a better lot than will be found in the sale of H. D. McCune which will be held in Hanford, January 24. Mr. McCune has an established reputation for properly growing out and developing his animals before offering them for sale and his consignments to past sales of the Kings County Poland China Breeders Association verify these facts. This will be his first public sale and as a special attraction he is offering a young boar and a gilt by Surprise Prospect and out of Edith Rose that are litter mates to the gilt that sold for $1,250 in the last consignment sale.

THE BEST LINIMENT

OR PAIN KILLER FOR THE HUMAN BODY

Gombault's

Caustic Balsam

IT HAS NO EQUAL

For the Human Body — It is penetrating, soothing and healing, and for all Old Sores. Bruises, or Wounds, Felons, Boils, Corns and Bunions CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

A Perfectly Safe and Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Strains, Lumbago, Sore Lungs, Rheumatism and all Stiff Joints

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $130.00 paid in doctor's bills." OTTO A. BEYER.

Price $1.75 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet L.

The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

The Leading
Live Stock
Auctioneers

Col. Ben A. Rhoades
Harold B. Rhoades

Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References. The leading breeders in the state. Write or wire for dates and terms.

Rhoades & Rhoades
1501-3-5 South Main St.
Los Angeles, Calif.

Duroc-Jerseys

Bred and raised under right conditions. Correct as to type and size.

D. C. Cummins & Son
VISALIA, CALIF.

Duroc-Jersey

Registered Big Type Bred Gilts

California George Junior Republic
Chino, Cal. P.O. Box 157

Size and Type

Are combined in the unusual lot of Poland Chinas I am now offering. Both sexes and all ages. I readily refund the money to any dissatisfied purchaser. Write me what you want—I have it—priced reasonable.

R. J. Yates, Orland, Cal.

Brighton Farm Herds

Registered Shorthorns
and
Berkshires---Both Sexes

H. L. & E. H. Murphy

Perkins, Cal.

Do You Want a Herdsman?

J. E. Miller late of Sidney, Iowa, the heart of Poland Chinadom, is open for position as herdsman in California.

J. E. MILLER
R.F.D. 2, Box 84, Long Beach, Cal.

PLANS for POULTRY HOUSES
All Styles, 150 ILLUSTRATIONS Send 10 cents Inland Poultry Journal, Dept 53, Indianapolis, Ind

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Complete Dispersal Sale

Tuberculin Tested

125 HEAD 125

Pure Bred Registered Jerseys

At the Arden Dairy, one mile north of

EL MONTE

Friday, January 23rd at 10 A. M.

The Arden Dairy is offering on this date an exceptionally good herd of pure bred, registered Jerseys. They are young, in first class condition and combine type and production. Practically all of the females are sired by either Noble's Mayfair Hero 122139 by a son of Noble of Oaklands 95700 or Kathie's Eminent 115265 whose dam Eminent Kathie 271870 was a wonderful show cow. First prize at Murfresboro Fair, 1915, her sire being Eminent's Stockwell 79785, a show bull never defeated and he being out of an imported cow and by Imp. Stockwell 75264 who sold for $11,500 and sired 5 R. O. M. daughters. The two above mentioned bulls together with ten others from calves up to bulls old enough for service will also be sold.

This is a large sale of high class registered Jerseys, tuberculin tested and the kind that will make money for the buyers. It will pay you to attend.

Write for full information.

Col. Ben A. Rhoades
Harold B. Rhoades **Auctioneers**

1501-3-5 South Main Street Los Angeles, Calif.

Prince Walker Cornucopia

The Highest Record Son of Prince Gelsche Walker

His dam ALBA SADIE CORNUCOPIA CREETA has just completed official records of 36.26 pounds butter from 516.7 pounds milk in seven days. Her previoue records were as follows:

At seven years—
Milk 338 days 13,849.40
Butter 866.23
At six years—
Butter seven days 34.13
Milk 532.40
At five years—
Butter seven days 28.35

She is a daughter of Sir Sadie Cornucopia, son of the first 30 pound cow, Sadie Vale Concordia.

Over 60 of our best females are bred to PRINCE WALKER CORNUCOPIA, and he will be given the fullest opportunity in this herd. Put one of his young sons at the head of your herd.

Santa Anita Rancho
Anoakia Breeding Farm
Santa Anita, California
Anita M. Baldwin, Owner W. H. Taylor, Supt.

Recent Sales

both public and private have demonstrated the value of animals bred on Sunnyside Farm. Our experience in breeding Holsteins and Poland Chinas might assist you in making the right selection.

R. F. Guerin Visalia, Cal.

The Fresno District Duroc-Jersey BREEDERS

WILL OFFER AT PUBLIC SALE

Fresno, Cal. Wednesday, February 4, 1920

40 Select Bred Sows and Gilts 40

This offering will, in every way, be consistent with the quality established by the Duroc-Jersey breeders of this state.

Prospective purchasers are urged to keep this sale in mind—it will be good judgment to do so.

Watch the Cultivator for further particulars.

For any information address the Secretary

H. H. BERETON, Sanger, Calif.

Dispersal of Choice Holsteins

Owned by

C. F. Mohnike, Angiola, Tulare, Cal.

(on the old DIXIE RANCH)

Friday, January 30, 1920

This is one of the most attractive looking herds we have ever sold. While no official testing has been done in the herd the blood lines are substantial, and buyers should secure excellent values on sale day. The herd contains

45 --- Registered Holstein Cows, Heifers and Bulls --- 45

20 --- High Grade Holstein Cows and Heifers ---20

The herd sire is CREAMCUP FIDESSA CORNUCOPIA LAD, who is by a son of the 33.53 pound cow Fidessa Bloom. His dam is Anselogess of Sleepy Hollow, 32.68 pounds butter in 7 days, 897.08 pounds butter from 22751.7 pounds milk in one year. His dam and sire's dam average 33.10 pounds butter in 7 days. He is a high class individual in every respect, his calves are of high quality, and he merits consideration from owners of good registered herds. He will be sold, together with 11 of his young daughters, and all bred females in the sale are in calf to him.

A daughter of Juliana King of Riverside, two grand daughters of Ignaro De Kol, a daughter of Anselmo, and a grand daughter of De Kol 2nd's Butter Boy 3d are among the females to be sold.

Besides the herd sire there are a number of young bulls that should find places at the head of high class dairy herds.

This herd as a whole is above the average in type, and the cattle are in good physical condition.

Every animal guaranteed to be a breeder; no animal tuberculin tested.

We will also sell 30 Poland China feeder hogs, two teams of good mares, and one new No. 17 De Laval separator with 1 h. p. motor.

CATALOG FREE ON REQUEST

The place of sale, the old Dixie Ranch, is one half mile east of Angiola, nine miles south of Corcoran. on main line of Santa Fe.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, California.
Auctioneers—Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare.

Bull Buyers Opportunity

Tuesday, January 27th, 1920

Public Sale of

20 Registered Holstein Bulls

From One Month to 1 Year of Age

Twelve sired by Sir Veeman Korndyke Pontiac with 7 A. R. O. daughters all two years old. Among the bulls to sell is Veemoom, born February 9, 1918, the first prize senior bull calf at Riverside and third prize at Los Angeles stock show, 1919. Dam is Doremoon, a 26 pound cow and sister to Boweda the 37 pound cow.

Also a son of the 23 pound first prize cow at L. A. Show. Another is a grandson of King Mead of Riverside, out of a three year old, now producing 85 pounds milk a day. Every bull in the sale is from a high producing cow and the dams can all be seen on the farm at any time.

100 High Grade Dairy Cows

All young cows, 50 two and three year olds. Cow testing association records furnished with each cow. Every cow bred.

Many of these cows have made better than 300 pounds of fat in a year.

Sale on farm, East 26th St., one and one-half miles east of Santa Fe Ave., Los Angeles. Telephone Boyle 3196.

Rhoades and Rhoades, Auctioneers

BURR FARM

Owners

LOS ANGELES

NEW COAST RECORD IN HOLLYWOOD HERD

A new Pacific Coast record for seven day butter production was lately made at Hollywood Farm, Hollywood, Washington, by the registered Holstein cow Hollywood Lilith Mercena, who at last report has 49.88 pounds butter from 726.4 pounds milk to her credit. This is also the third highest in the world according to the present status of seven day records. This cow has been a consistent producer from her first freshening, making 19.76 pounds butter in seven days as a junior two year old, 33.44 pounds in seven days as a junior three year old, and 49.88 pounds as a five year old. She is out of the 28 pound cow Hollywood Mercena, and is sired by Hollywood Lilith Palmyra, who is by King Palmyra Fayne, a son of King Fayne Segis, and out of a 32 pound dam that made 1,077.21 pounds butter from 26,135 pounds milk in one year. Mr. Fred S. Stimson, owner of Hollywood Farm, should derive a large measure of satisfaction from the fact that Hollywood Lilith Mercena, her sire, and her dam, were all bred at Hollywood Farm. It is reported that the great record maker and her son by Judge Segis will sell in the National Sale at St. Paul next June. A half sister to Hollywood Lilith Mercena, by the same sire but out of a granddaughter of Pontiac Korndyke, is owned by W. J. Higdon, Tulare.

SHORTHORN REGISTRATION FEE INCREASED

The board of directors of the American Shorthorn Breeders' Association, at the December 4th meeting, voted to increase the registration fee to $2.50 after January 10, 1920. This increase is necessary to meet the present cost of operations and in order to provide for the appropriations for Shorthorn prizes and meet the demand for extension work. The Shorthorn Association has been progressive and discreet. A broad foundation has been laid and is being laid for the growth of the breed in the future. Immediate results are in evidence in all sections. A greater demand exists today for Shorthorn cattle than ever in the history of the breed. The campaign of education which the Shorthorn Association has conducted has played no small part in the development of this demand. These are great days for Shorthorn breeders yet the prospect is that greater days lie just ahead. The policy of the association to use the income in the interests of the breeders generally in the expanding of Shorthorn influence and in the creating of Shorthorn sentiment based on practical utility has been an effective and useful one. Certainly any plan that will enable a more energetic and decisive effort along these lines will further stimulate the trade and encourage the industry.

ASSOCIATION HEREFORD BOOKLET

A most attractive booklet that should be of great benefit to the breed is one recently published by the American Hereford Cattle Breeders' Association, Kansas City, Missouri. The purpose of the publication, as set forth in the introduction, is to furnish information to interested parties, particularly farmers and prospective breeders.

On the front cover is a head cut in colors, a Hereford bull, and the back cover is a study in contrast showing an old time Texas longhorn and a purebred Hereford bull of the approved type. Illustrations throughout the book are designed to give the breeder the right idea of Hereford type and the possibilities in breeding Whitefaces. Data is given concerning the beef cattle situation and the purebred Hereford business, and to this is added advice and suggestions from some of the foremost Hereford breeders. It is a booklet that will be of great value to the man just starting in the breeding business as well as to the breeder of wide experience. The association will be glad to send copies upon application.

COW TESTING FORETELLS PROFITS IN DAIRYING

Tests conducted at the Ohio experiment station show that only about three hours time a year is required to determine the amount of milk and fat production of a cow.

The station points out that many tests of a cow's ability are required, for there are variations of both quality and quantity of the cow's milk from time to time. The weighing and testing of a single milking gives no reliable idea of the cow's productive ability, so that monthly records are required to determine the correct data.

Weighing scales and a common milk tester, which costs from $10 to $15, are practically the only materials needed to determine the data.

It is pointed out that the tests are also of value as a guide to proper feeding as well as locating low producing cows in the herd. This makes it possible to give extra feed to a heavy producer during the early part of the milking period, while a small producer would require less feed.

The old idea that high producers are unprofitable because of more exacting requirements in food and care is causing a loss to many dairy farmers, it is said.

Where a farmer determines the cow's ability to consume and make proper use of food beyond the maintenance requirements, it is quite possible to determine the exact value of the cow for dairy purposes.

AIDING THE SMALL BREEDER

There are many men in this state who would undoubtedly like to enter the pure bred livestock business but who feel that owing to their small capital they can not operate on a scale sufficient to provide a market for their surplus. Such men have the idea that the small breeder is shut off from the good markets and that only the man who is producing enough animals to hold his own sale or to justify considerable advertising can make the business pay.

The above condition has been recognized by the promoters of the various breeds and with few exceptions each breed now has the benefit of a state association organized for the furtherance of the breed and to assist the beginner and the small operator in disposing of his sale stuff.

For example the Holstein, Shorthorn, Hereford and several breeds of swine are backed by live organizations whose members and officers sponsor consignment sales.

During the past year there have been held a number of consignment sales for the different breeds, and for the most part these sales have been among the most successful. No breeder is operating on too small a scale to avail himself of the benefits of such sales. If he has well bred stock and has developed it properly he can consign with as great assurance that his offering will bring full value as the older established breeders. The buying public looks for merit and is willing to pay for it and values are established on the basis of worth rather than on the reputation of the man. Very often the top prices registered in association sales are secured by small breeders. It is quite possible that the man with but a few head is in a position to present his offering in better condition than the larger breeder for the reason that he is able to give his small herd more attention and care. And if when starting he has been careful to select the right type backed by proven blood lines there is no real reason why he can not attract the best custom.

Nearly all of the national breed associations have adopted broad and constructive plans for aiding the beginner and the small breeder in finding a market for his surplus for the reason that it is recognized that the strength of a breed depends largely upon the number of men engaged in the business and that if men are to be attracted to the business it is necessary that the business be made profitable through an active demand.

There never was a time in history when pure bred livestock of all kinds received more attention than now. The efficiency of pure bred livestock has been conclusively proven. There is no danger of an oversupply, and with a constantly widening market and national, state and local organiza-

Her Health Was Not Left to Chance

The cows that make the big milk records are well fed and well bred, to be sure. But, above all, they are in the pink of condition. The constant strain of heavy milk production will wear down the vitality of the digestive and genital organs of the best of cows, and the result is such ailments as Abortion, Retained Afterbirth, Barrenness, Scouring, Bunches and Milk Fever. Any of these diseases can be successfully treated and eliminated with KOW-KURE, the great cow medicine. The medicinal properties of this famous remedy act directly on the organs of production and reproduction, putting the cow's system back to normal, healthy action. A decided increase in the milk yield is sure to follow. Feed dealers and druggists sell KOW-KURE; 60c and $1.20 packages.

Consider cow-health first, and your dairy will be a leader, and a money-maker. Our free treatise,

"THE HOME COW DOCTOR,"

will give you valuable pointers on how to treat and prevent cow diseases. Ask for your copy,

Dairy Association Co.,
Lyndonville, Vermont

KOW-KURE

Health Pays!

This perfect three-year-old Jersey has a yearly milk record of 17,793 lbs. Nothing short of 100% health would make such a record possible.

tions lending every aid, any man can enter the business with confidence that he can dispose of his surplus at sound values in keeping with the quality he is producing.—R. P. R.

UNIVERSITY TESTS SHOW HIGH RECORD FOR COWS

High monthly records of pure bred cows on semi official tests were today made known by the University of California college of agriculture supervisor of advance registry tests.

Fairy's Last, Cretesia M. A.'s Frankie and Lily of S. B., Jerseys, owned by F. W. Elleby, aged nine years five months, nine years four months and ten years 11 months, produced respectively 66.09, 93.38 and 59.46 pounds butter fat, and 1,201.7, 1,083.5 and 1,152.3 pounds milk.

Flossie De Kol of Nevada, Miss Aaggie Acme Burke, owner by A. W. Morris & Sons, and K. P. Tola Joe, Holsteins, owned by Gotshall & Magruder, five years two months, two years four months and five years one month, produced respectively 88.981, 77.981 and 73.51 pounds butter fat and 2,704.6, 2,217.5 and 2,070.7 pounds milk.

Imp. Dosia of Sarnia, owned by A. B. Humphrey, and Little Beauty 2nd and Silvia of Frankland, Guernseys, owned by Elliott-Brant Rancho, all three years, produced respectively 61.86, 58.65 and 47.06 pounds butter fat and 1,212.9, 1,339 and 980.5 pounds milk.

LICE ARE EXPENSIVE

Lice on hogs are extremely expensive. Lousy hogs not only consume more food and make less meat but are uneasy and restless, a condition that lessens their pork producing abilities. When not eating the lice ridden swine spend most of their time rubbing themselves or running around.

In one experiment it cost exactly $1 a hundred pounds of pork more to feed hogs with lice than it did to feed clean animals. In another, it cost $1.50 more, and in the third, $2.94 more. But the lice ridden hogs can not make up for the blood sucked by their parasites. For instance, at the beginning of one experiment 15 hogs with lice weighed a total of 1,167 pounds, and 15 hogs without lice weighed 1,025 pounds. At the end of the experiment the lousy hogs weighed 2,872 pounds and the clean hogs weighed 3,150 pounds, although the total feed consumed by the clean hogs weighed only 203 pounds more than that eaten by the animals with lice.

THE ART OF JUDGING STOCK

The art of judging is the foundation of all beef cattle shows and is also largely the means of determining the value of cattle offered in public sales, says Farmers' Bulletin No. 1068, "Judging Beef Cattle," recently issued by the United States department of agriculture. Each breeder, therefore, to attain success in his line must be a good judge so that he can select and mate individuals to get the best possible offspring. A thorough knowledg of judging feeders, for example, is important since profit in cattle feeding usually depends upon buying animals of the right type. Without definite standards stock judging can not be successful.

The Bulletin mentioned takes up in detail various phases of judging, together with an easily understood discussion of the various types of animals and the method of scoring them. It may be had free on application.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal. Unsigned communications receive no attention.

Chronic Lymphangitis

We have a large work mule on our place that has a big hind leg. It is as big as a six inch stove pipe way up to the gambrel joint and when worked hard it swells clear up to the body. Would you advise using caustic balsam or a rowel to cure him? We bought him very recently in a six mule team and have no idea how he came by the big leg. Would like to treat him if you think it will do any good. —Subscriber, Coachella.

The lymphatic glands have become inflamed and are not carrying off the worn out material so it is left in the tissues to swell out the skin. Those old chronic cases are slow to yield to treatment and you will have to have some patience and not give it up when you see that the first few doses do not make much change. By carefully following these directions you may be able to reduce it nearly to its normal size. Laxative feed will help. Feed very little grain although he must have enough to keep him up while working. Give him a feed of carrots once a day if you can get them. Give him a tablespoon of nitrate of potash in the feed once a day for ten days. Then have your druggist dissolve two ounces of iodide of potash in a pint of water. Give a tablespoon of the solution on the feed once a day while it lasts, which will be about a month. Do not apply the strong liniment that you suggest nor any other strong medicine to the leg. Brush the leg with a good stiff brush morning and evening and every evening apply the following lotion: Dissolve one ounce of the chloride of zinc in a gallon of soft water. Use rain water and boil and strain it. Use a gallon bottle for the solution. Every evening warm about a quart of the solution in a granite or earthen dish and after brushing the leg clean apply the lotion, rubbing it in well with the hands. This treatment may seem too mild to suit you but if you keep it up for some time you will probably feel paid for the trouble. Better get several one ounce bottles of the chloride of zinc. It is not expensive.

Dog with Skin Disease

We have a female Pekinese poodle that has something wrong with the skin. She rubs and scratches constantly and the irritation seems to be on the back near the tail. Have had her at a dog hospital for a week and have tried resinol ointment but she is no better. Please advise us what to do.—Subscriber, Los Angeles.

We take it for granted that the little dog is kept free from mites but even with the best of care they will sometimes get a start so would advise thorough scrubbing with tar soap. (Never use carbolic acid about a dog; it is more poisonous to dogs than any other animals.) When the skin is dry anoint it with oxide of zinc ointment which you can get from your druggist. The real trouble is probably caused by overfeeding of meat and sweetmeats. Dogs should not have cooked meat nor sweets of any kind. The dog's natural food is raw meat. Feed a little raw liver once a day or give her beef bones with a very little meat on so she will have to earn what she gets. A small dish of milk once a day is also good. A physic of salt will be good to start with but the bowels should be kept free by feeding lightly and of such food as suggested. Would also advise giving Fowler's solution of arsenic. Give two drops on the tongue or in a little milk once a day. It is good for skin troubles.

Make Your Milkers Pay

Good Health—Good Appetite—and Good Digestion are the essentials of a good milker.

Dr. Hess Stock Tonic promotes health—makes cows hungry. Remember, it takes a healthy, hungry cow to convert a big mess into pails of milk day after day.

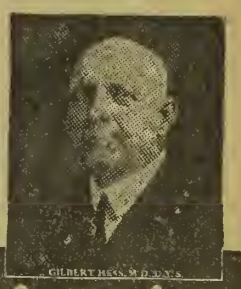
Dr. Hess Stock Tonic produces appetite, aids digestion, conditions a cow to stand the stuffing, cramming process necessary for heavy milking. Dr. Hess Stock Tonic contains the salts of Iron that supply rich red blood so necessary to cows in milk. It contains Laxatives and Diuretics that assist the kidneys and bowels to throw off and carry off the poisonous waste materials that so often clog up the system during heavy feeding.

Dr. Hess Stock Tonic

Ever notice a cow slack up on her milk—not quite so keen for her mess—apparently not sick? Her system is clogged. This never occurs where Dr. Hess Stock Tonic is fed. Start right—by conditioning your cows for calving with a course of Dr. Hess Stock Tonic before freshing.

There is not a day during lactation that Dr. Hess Stock Tonic cannot be fed to cows at a profit. This is especially true where heavy feeding is the practice. Dr. Hess Stock Tonic is good alike for cattle, horses, hogs and sheep. It makes the ailing animals healthy, the whole herd thrifty. It expels worms.

IMPORTANT: Always buy Dr. Hess Stock Tonic according to the size of your herd—five pounds for each cow to start with. Get it from the responsible dealer in your town. Feed as directed and note the results in the milk pail.



25-lb. Pail, $2.50; 100-lb. Drum, $8.00

Except in Canada.

Smaller packages in proportion.

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Keeps the Dairy and Stables Healthful and Clean Smelling

Classfied Liners

The direct selling method from producer to consumer, and a clearing house for over 35,000 readers, weekly.
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POULTRY

BROODERS
We are offering to the California public, the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in, and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

We Are Specialists in production of high grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strain of America's choicest Leghorns fill our pens, and my personal attention is given to all details, assured each customer of highest grade stock. All baby chicks guaranteed and only healthy baby chicks shipped; if not satisfactory on arrival your money returned. Catalogue free. F. C. Rhode, Vineburg Hatchery & Poultry Yards, Vineburg, California.

Try Us for an Early Order of White or Brown Leghorns, Black Minorcas, Barred Rocks or R. I. Reds, in January. Baby chicks hatched in January or February are money makers, if brooded properly. We can take care of "hurry" orders in above breeds if you are prompt. First class breeding stock used. Chicks are hatched right, and priced right. THE MISSION HATCHERY, Box 27, Campbell, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY (Electric), Box 122, Artesia, California.

Ever Increasing Trade finds us better prepared than ever before to take care of our Day Old Chick business. New concrete building—100 Jubilee machines hatching eight breeds. We sell Hyde's W. L. Cockerels from trapnested stock. Great stuff—shipped on approval; $5.00 to $7.50. Some Buff Orpingtons also. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

For Sale—Baby Chicks from my thoroughbred carefully selected flock of S. C. White Leghorns. Orders accepted now for spring delivery, at $15.00 for 100 chicks, $140.00 per 1,000. Every order receives my personal and most careful attention. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Thoroughbred Barred P. Rocks—Egg records 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 5599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

Mahajo Farm, P. O. Box 597, Sacramento, California, offers highest class, standard bred, breeding stock in White Leghorns, Light Brown Leghorns, Dark Brown Leghorns, White Plymouth Rocks. Prices: Leghorns, males $5.00; females $3.00; Rocks, males $7.50; females $5.00 and upwards.

Thoroughbred S. C. White Leghorn Chicks—In 100 and 1000 lots from our Hoganized and Trapnested Stock. Order now for spring delivery. Inventors and Distributors of "Forbros" Separator and Trapnest combined. Write for circular. Forster Brothers, 2918 Otis Street, Berkeley, California.

Quality Barred Ply. Rocks and White Leghorns. A western bred strain of utility merit and demonstrated world's winning strength. Guaranteed hatching eggs and vigorous breeders for sale. GOLDEN RULE POULTRY FARM, Penn and Stamelen, Porterville, California.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Just Rite Chicks from selected eggs. Barred Rocks, R. I. Reds, Black Minorcas, Brown-White Leghorns. Prices just rite, shipped just rite. We deliver free. Willow Glen Poultry Yard, 582 So. 9th Street, San Jose.

Newton Poultry Farm — White Leghorn Baby Chicks from our well known, carefully selected stock. Best strain. Big plant. Order now, any number, and get them when you want them. Los Gatos, California, Dept. 2.

Baby Chicks—Order now for 1920 and get what you want when you want them. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Write for free circular. Stubbe Poultry Ranch and Hatchery, Box 67, Palo Alto.

"Watch Us Grow" Baby Chicks. Booking orders now for January and February deliveries. Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

Heavy Laying Strain S. C. Red and 223 to 279 egg strain White Leghorn cockerels of good exhibition quality, $10.00. I guarantee satisfaction or money back and pay all expressage. W. M. MARQUAM, Bishop, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

White Leghorn Baby Chix—Heavy laying, hoganized stock. March $15.00 per 100; April and May $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

For Sale—Pure bred Buff Orpington Cockerels, $5, $7.50 and $10 each. Pure bred Bronze Turkeys, toms $12, hens $7. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

Reds for Sale—Large R. I. Red Cockerels, ready for mating; famous winter-laying strain. W. LLOYD COATES, Cedarville, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

"Eastman's Bred-to-Lay," Hoganized and trapnested Barred Plymouth Rocks, Eggs, Cockerels. JANUARY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Barred Plymouth Rocks—"Nothing better in poultry." Prize winners and wonderful layers. Stock for sale. Charles H. Vodden, Los Gatos, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C, Ceres, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

For Sale — 500 laying Pullets for sale, $20.00 per dozen. H. R. Barney, Fairfield, California.

For Sale—Guaranteed Day Old Pullets, S. C. White Leghorns. We tell the sexes. Eureka Hatchery, Petaluma, California.

CATTLE

For Sale—Two Registered Jersey Bull Calves, 4 and 7 months of age. Both fine show calves, one already has a first prize to his credit. Dams big rich producers and prize winners. If you wish type and production here is your chance. Write and find out particulars. D. T. Willand, Valley Home, Box 21, Stanislaus County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—20 Head Registered Holsteins bred to King Riverside Mead, 1003 lb. bull. A. B. Comfort (owner), Guernsey, California.

For Sale—40 head of grade Jersey dairy cows. This is your opportunity to buy a built-up dairy herd. L. F. Hicok, Colusa, California.

For Sale—Young Registered Jersey Bull, ready for service, of best breeding in state. Tribble Bros., Lodi, California.

Sunshine Farm Jerseys—No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Staider, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

LIVE STOCK

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Third sale at the Ranch—all breeds—April 17, 1920. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale—Registered Nubian Goats, buck and several does, beauties, excellent milk stock, rich in cream. Miss B. Stocker, R. 4, Sebastopol, California.

C. P. Bailey & Sons, San Jose, California. Importers and Breeders of Thoroughbred Angora Goats and Persian Sheep for fifty years.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES
Orland, California.
BRED GILTS FOR SALE.

"ACHIEVER" the BOAR
An outstanding son of ONWARD 4th, a son of the famous "EPOCHAL." His dam, Escalon Fashion Princess, one of the best sows ever owned by A. B. Humphrey, was a Grand Champion and sold for $500.00.

CASTLEVIEW RANCH,
Santa Rosa, Cal.
Home of big boned, good footed Berkshires.

BARON DUKE 201ST PIGS
are in demand. They have consistently won during 1919 the highest honors in the show ring. Baron Duke 201st is a Grand National Champion. He is the sire of champions. His 15 months old son was Grand Champion at Sacramento and San Francisco. The San Francisco judge said he was the best boar of his age that he had ever seen. I have 3 of his spring boar pigs for sale. SANDERCOCK LAND COMPANY, 401 Market Street, San Francisco. In charge of Natomas Land Sales.

BERKSHIRES
are bred on the Lark Meadow Ranch for big bone, strong backs and the right type to produce profit for the purchaser. Bred and open gilts from most popular strains for sale now.
GEO. A. STINGLE, El Monte, California

Grape Wild Farm Berkshires—Guernseys—spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. R. Humphrey, Prop., Escalon, California.

Registered Large Berkshires (Boar) Atlantic Wonder, sow Apple Blossom Pride 2nd, 8 months old. They are not related. Fine animals, reasonable. Frederick Leissler, Jr., R. 6, Box 429, Seattle, Washington.

Solano Berkshires. Choice stock for sale, service boars of varying ages, bred gilts, unrelated pairs and trios. Reasonable prices. Write for information. R. C. Gruhlke, Dixon, Solano County, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

DUROC-JERSEYS

Duroc-Jersey Swine for Sale. Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Registered Duroc-Jersey Hogs for Sale—Spring gilts at pork prices, open or bred to prize boar of Grand Champion stock. Also a fine lot of weaned pigs and a few bred sows. For further particulars write to Green Canyon Ranch, Fallbrook, California.

I Will Offer a dozen first class young Duroc sows bred for spring litters to my crack yearling boar Nutmeg Gana 292547. Worth investigating. L. R. Hitchcock, Van Nuys, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

For Sale—One Yearling Boar, Duroc-Jersey. Wonder Model No. 265707. Big Type, satisfaction guaranteed. Address A. R. Bardrick, P. O. Box No. 5, Oceano, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

Weanlings—Gilts open or bred to a son of Great Wonder I Am. Service boars. Derryfield Farm, Capital National Bank Building, Sacramento, California.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For High Class Durocs write Leest & Mounier, Van Nuys. Blood of Orion King Gano

RABBITS

Beat the Butcher—Raise your own rabbit meat and know it is healthy. Our magazine tells you how. One year for 12 one-cent stamps. After January 1st 25c so get it now. SANDERSON, Eagle Rock, California. Dept. CC.

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beeching, 1578 W. 46th Street, Los Angeles.

Choice Registered Rufus Red Belgian Hares. Prices reasonable. C. W. Clark, 4848 Erskine St., Omaha, Neb.

WANTED

Wanted—Holstein bull, would prefer used animal. Give name, number and price. Would sell or exchange son of King Mead of Riverside. Mrs. G. U. Clark, Hanford, California.

Wanted—To purchase 1,000 or more Seedling Peach or Apricot trees, one year old. State size and price. J. C. Thompson, Moorpark, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

SEEDS AND PLANTS

The Garden Beautiful in California by Ernest Braunton; a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant; also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

Cut Old H. C. of L.—Buy now, tomato seed Improved Stone or San Jose Canner, $2 pound Post Paid Mail Orders only. Send money order or check. Address Growers' Clearing House, 294 Wholesale Terminal, Los Angeles, Calif.

For Sale—A few hundred sacks of White Rose Seed Potatoes grown from Hill Selected Seed. Clean and high production per hill. A. J. Mueller, Saticoy and Saugus Avenues, Van Nuys, or Van Nuys Hotel.

RYE GRASS
Domestic Rye Grass, Italian special 10c per. lb. f. o. b. Stockton. Also Burr Clover Burrs. Aurora Seed Mill, Stockton, California.

Everbearing Strawberries, Superb, Progressive, Americus; St. Regis Everbearing Red Raspberries. Write for catalogue. Fred Leissler, R. 6, Box 429, Seattle, Washington.

Get Cory Thornless Mammoth Blackberry plants direct from Cory's Mt. Pass Ranch, $3.00 per dozen, postpaid. G. S. Wills, Jamestown, California.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc. Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

Write the Amount and kind of Seeds wanted. Four kinds alfalfa. Orders filled promptly. Wanted, Sudan in carloads. Box 501, Fowler, California.

Rhubarb Roots—1 year old roots, $3.00 per hundred; 50c per dozen. Two year old roots $1.00 per dozen. Currier Bulb Company, Santa Cruz, California.

Avocado Seed Wanted—Mather's Avocado Nursery, P. O. Box 585, Pasadena, California.

For Sale — Rooted poinsettias and poinsettia cuttings. Milo Hunt, Whittier.

TURKEYS

For Sale — Turkey Eggs, from Wild-Domestic crosses. Raise more turkeys. Introduce wild blood into your flock. Get hardy, vigorous poults. Mammoth Bronze eggs also. Write for circular with directions how to raise 90 per cent of all you hatch. Orders booked now for February eggs and 5 day old poults. The Wild-Domestic Turkey Home, R. D. Box 26-A, Hemet, California.

For Sale — Breeding Toms. Pure Bred White Holland Beauties $12.00 each. Orders booked for White Holland Eggs, shipped in laying season. 50 cents each. Order early, supply limited. Mrs. L. A. Robinson, Hemet, California.

$25.00 Each — Age 8 months, weight 25 pounds. 3 THOROUGHBRED Mammoth Bronze Cockerel Turkeys. Orders booked now for Bronze, also Mammoth Bronze turkey eggs and shipped in laying season. ROBINSON TURKEY RANCH, San Dimas, California.

For Sale—Turkey Breeders Take Notice. Thoroughbred Mammoth Bronze, Buy Eastern Toms. You run no risk. Every bird guaranteed to be as represented. If not, return at once. C. O. D. R. M. Dodge, R. D. 2, Bakersfield, California.

We advise our customers wanting turkey eggs from utility or prize stock to place their orders now. Eggs 50c to $3 each; 25 per cent deposit required. Paradise Valley Poultry Ranch, National City, California.

MISCELLANEOUS

My Loss Your Gain—Fire destroyed tops and stacks of 600 Sheu Orchard Heaters. Will sell bowls which are practically new. Bowls 18 inch diameter and 5 gal. capacity. Your only chance to replace your rusted and burnt out bowls as manufacturer advises that parts for heaters cannot be obtained for at least a year or more. S. B. Mosher, Rivera, California.

For Sale—About 5,000 ft. of 8-in. and 10-in. surface irrigation pipe, $38.75 and $45 hundred feet. Don't wait month and expect order filled—very little new pipe in country. DEMMITT CO., 120 N. Main St., Los Angeles.

Red Leaf Tobacco—Homespun aged in bulk. Chewing or Smoking—6 pounds $3.30; 10 pounds $5.00. Postpaid. Murphy Company, Martin, Tennessee. REFERENCE, People's Bank.

Beautiful Mahogany Cabinet Victrola, 25 selections, some red seal, $95.00. Demmitt Tank Co., 120 N. Main, Los Angeles.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

Beautiful Fumed Oak Diamond Disc Edison cabinet phonograph, $75. Taken in trade. Demmitt Tank Company, 120 N. Main, Los Angeles.

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300 Million Acres of "Free" land in U. S. "The New Homeseeker" a 100-page book describing millions of acres of vacant public homesteads, timber, mines or grazing lands contains township plats and illustrations. Founded on historical facts. DOES NOT MISLEAD. Read warnings "official," eliminates crooked land agents. Tells the whereabouts of government land in Arizano, New Mexico, Nevada, California, Idaho, Oregon, Montana, Washington, Utah and Old Mexico. Describes water, soil and climatic conditions, all the principal U. S. land laws. A marvelous publication just off the press. Mailed anywhere, $2. Address "THE HOMESEEKER," Dept. M., 3rd Floor Grant Bldg., Los Angeles, California.

GEESE

If you wish to be sure of having your orders for eggs from our wonderful imported prize geese, filled in the spring, order now, giving us a 25 per cent deposit. Eggs $1 each. Paradise Valley Poultry Ranch, National City, California.

FOR EXCHANGE

City Income Apartments, flats, houses, San Francisco, Oakland, Berkeley bay section, for exchange for good ranches. Satisfaction assured. Incomes certified. Quick results. HORACE G. HAMILTON, 703 Market Street, San Francisco.

FARM LANDS FOR SALE

For Sale—Orange Cove, Tulare County. This grove is 5 years old, 40 acres and planted so that all fruits do not mature at the same time; 22 acres navels, 5 Valencias, 3 lemons, 10 olives. Good well and pumping plant. All underground 8 inch cement pipe line and 12 inch 4 gate valve stand pipes for every tree row. On paved boulevard and 1 mile to town, school, R.R. station and packing houses. Orange Cove is a live, young town and the safest place in California for oranges. Not frostless but safe for all citrus fruits. Can divide this 40 if necessary as each 20 has its own pumping plant. For price and information see M. S. ROBERTSON, 313 Story Bldg., Los Angeles.

80 Acre Big Midwest Money-Maker, $5,400
This Farm has yielded 300 bu. potatoes per acre, 30 bu. wheat, 60 bu. oats, other crops in proportion; on improved road, near fine R. R. town. Bumper crops from 55 acres machine-worked loam soil tillage, clay subsoil; 25 acres wire-fenced pasture; home-use wood, great variety fruit; 2-story 6-room house, basement barn, poultry, hog, corn houses, etc. $5400 gets all, part cash. Details page 75 Strout's Catalog Farm Bargains 23 States; copy free. E. A. STROUT FARM AGENCY, 831 A. G., N. Y. Life Bldg., Kansas City, Missouri.

Snohomish County, Washington — 6,000 acres of the finest dairy, berry or general high grade farm lands in the northwest; rapidly improving section; no drouths, bumper crops; tracts, 1 to 80 acres; ten yearly payments. This is your opportunity. Send for literature. Browneil Land Co., Birmingham, Washington.

For Sale or Trade—A ranch near Hemet of 160 acres, well improved; 80 acres in wheat, 20 barley, 20 in oats, balance for corn and alfalfa. All good fruit land. Price $36,000—part cash, balance mortgage, or would trade for stock and lease on large dairy or for small dairy with stock. Address Owner: C. C. Jorgensen, Hemet, California.

For Sale or Exchange—6 acres Washington navels, 4 miles east of Porterville. In frostless area. Never has been damaged by frost. 2¼ acres 12 years old; 2½ acres 8 years old; 1 acre 4 years old. Ideal home place. Reason for selling, living outside of state. Write Chas. Wentworth, 1721 Faraon Street, St. Joseph, Mo.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

For Sale—240 Acres good alfalfa and orchard land; good climate; 58 miles from Los Angeles. All fenced and cross fenced. Also have some improved land nearby. John Rouff, Palmdale, California.

Fine Alfalfa Land Northern Los Angeles County, easy water lift; $55 an acre, one-fifth down. Write for our alfalfa circular. Lippincott Company, Fay Bldg., Los Angeles.

Manteca Soil and climate produce paying crops. Farms all kinds and sizes. State what you want. Walter Buchanan, Ripon, California.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

TREES

Nursery Stock. Apples, pears, peaches, cherries, prunes, plums, berries, etc. OURS IS MAIL ORDER SYSTEM. IT SAVES YOU MONEY. Write us now for Planters' list. 20 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale—Valencia and Washington Navel Orange, Eureka and Villa Franca lemon and Marsh's grape fruit trees. One year old on sour root. J. S. Ogawa, R. A. Box 114a, Sanger, California.

TREES

Wanted—Black Walnut seedling nursery. Will buy or graft on shares. Have my own scions, Eureka and Placentia Perfection. The Walnut Nursery, W. A. Litten, Prop., Whittier, California. Phone 6294.

For Sale—Unrooted Grape Cuttings; also a limited supply of rooted Tokay and Cornichon grapevines, and several thousand almond trees. Burke's Nursery, Lodi, California.

For Sale — Seed Bed Stock, sour and sweet. Budded Valencias, navels, lemons. Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena, California.

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Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Citrus Seed Bed Stock, 1, 2 and 3 yr. Valencias, navels, grape fruit, lemons. R. No. 2, Box 404, Pasadena.

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The Best in the West—California Gertsdale and President's Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

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Pure Bred Poland-China pigs for sale J. R. Carhart, Fullerton, California.

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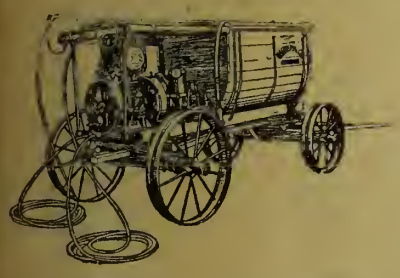

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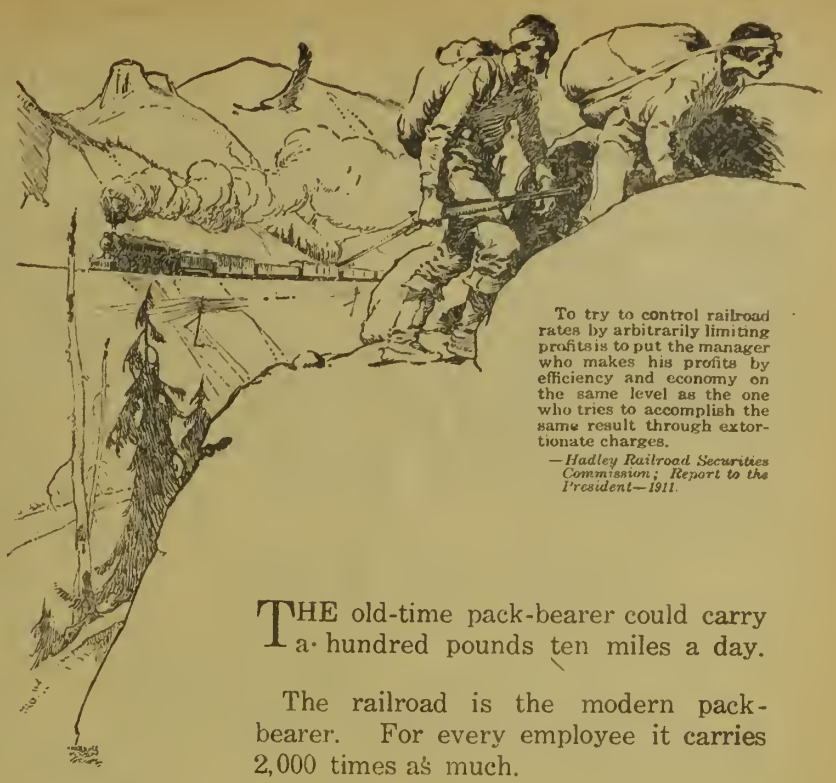
The HARDIE MANUFACTURING COMPANY

224 N. Los Angeles St. Los Angeles, Calif.



To try to control railroad rates by arbitrarily limiting profits is to put the manager who makes his profits by efficiency and economy on the same level as the one who tries to accomplish the same result through extortionate charges.

—*Hadley Railroad Securities Commission; Report to the President—1911.*

THE old-time pack-bearer could carry a hundred pounds ten miles a day.

The railroad is the modern pack-bearer. For every employee it carries 2,000 times as much.

Back of each railroad worker there is a $10,000 investment in tracks and trains and terminals, with steam and electricity harnessed like a great beast of burden.

Without this mighty transportation machine the railroad worker could do no more than the old-time packer. But with it he is enabled to earn the highest railroad wages paid in the world, while the country gains the lowest-cost transportation in the world.

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Under wise public regulation the growth of railroads will be stimulated, the country will be adequately and economically served, labor will receive its full share of the fruits of good management, and investors will be fairly rewarded.

This advertisement is published by the Association of Railway Executives

Those desiring information concerning the railroad situation may obtain literature by writing to The Association of Railway Executives, 61 Broadway, New York

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Prompt Delivery
Write for Catalog and Prices

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"Why don't you quit digging, Bill, and blast the holes with dynamite? You must have a lot of coin, too, that you like to spend on wages. And tired! Say, I'll bet you go home every night with a backache that takes the joy out of life.

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"I learned what dynamite can do by reading 'Progressive Cultivation'. This is a 68 page book published by the Hercules Powder Co. giving detailed directions for using dynamite on the farm or orchard. It tells you how to plant trees, dig ditches, clear your land of rocks and stumps, break up subsoil and do many other things with the help of explosives."

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Now is the time to act, so that you can get a crop from your land next year. It is a certainty that crops will bring good prices next year, so take advantage of this condition and get your land under cultivation now.

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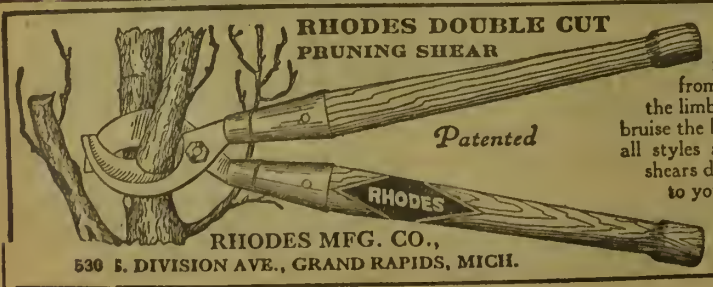

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RHODES MFG. CO.,
530 S. DIVISION AVE., GRAND RAPIDS, MICH.

Heart to Heart Talk with Beginners

By Jean A. Koethen

ADVICE to beginners is handed out in such generous doses by writers and speakers alike that I hesitate to add my mite to the already immense stock on hand. Advice is worth just what it costs and is usually accepted at its face value. It is only because I have not forgotten my own costly and precipitate beginning that I dare to venture.

It seems to me nine-tenths of all shipwrecks in poultry work are due to a failure to visualize the fundamentals of poultry husbandry. The novice, seeing the great numbers of eggs offered for sale concludes that hens, being hens, must lay and lay profitably under any and all conditions. It is only when he has tried it out that he learns that hens kept under any but the most favorable conditions are a liability rather than an asset.

Before the beginner with chickens can decide whether his inclinations lie with the fancy or with commercial production, he must learn a few things about chickens and their care. He must understand the four fundamentals, sanitation, feeding, breeding and brooding. Most beginners, I presume, recognize this. The question is, just how is one to learn these things.

If I were a young man or a young woman with a taste for poultry culture and without incumbrance, I would go up to the University of California and take a full course in agriculture with as much special work with poultry as I could manage. Poultry keeping, let us not forget, is a branch of agriculture. The poultryman ought to know not only how to raise the greens for his chickens but how to utilize his poultry manure in raising fruit and other crops. The specialty poultryman puts his eggs all into one basket. It is far better to plan for diversified agriculture with chickens as a profitable side line than to plan for poultry alone.

Begin Where You Are

But I am writing today to the man or woman who is busy with other employment, earning a living or caring for the house, and has only a limited time and space to devote to poultry. Such a man came to see me a few weeks ago, a man who had some spare time during the day, but only a few square feet of ground at his command, to ask how he should prepare himself to make the best use of the ten acres he had bought for a future poultry and fruit ranch. What I said to him I would say to any beginner: Start right where you are.

If I had had some experience in raising chicks with hens, as this man had, I would order 50 White Legborn chicks from a first class breeder or hatchery, and I would make very sure that they were chicks with some pedigree, all I could pay for or command. I would try to have them delivered in February, because February pullets are sure to lay in the fall. Then I would set about making a place for them and at the same time gathering information about caring for them.

Literature for Beginners

My first step in providing myself with literature would be to register for the poultry correspondence course given by the University of California. Full information regarding this course may be had by writing Extension Department, University of California, Berkeley. It costs $5, I believe, but is worth many times five dollars. As it extends over some months it will not take the place of general literature on the subject.

My second step would be to write College of Agriculture, Berkeley, asking for bulletins on raising chicks and feeding for eggs. I would also write to Maine Agricultural Experiment Station, Orono; the Cornell Agricultural Experiment Station, Ithaca, New York; Purdue Agricultural Experiment Station, Lafayette, Indiana; Iowa Agricultural Experiment Station, Ames, Iowa; Oregon Agricultural Experiment Station, Corvallis, Oregon, and Poultry Experiment Station, Storrs, Connecticut, for bulletins on these same subjects. You may have to pay for what you get, and you may may not be able to get anything, but excellent bulletins have been issued by all these stations, and if the supply is more than sufficient for home needs they are glad to distribute them. The only government bulletin I have seen that is worth while is "Important Poultry Diseases," by Dr. Salmon. All the others lag far behind those issued by the experiment stations.

Then you will want one good poultry book. Modesty makes me hesitate to recommend the Cultivator book, "Poultry for Profit," but it was written for beginners and tries to cover all they will need in a simple, practical way. For those who wish something more ambitious, Professor Dryden's new book on poultry husbandry is excellent. Particulars regarding it may be had from the Oregon station.

What Shall the Novice Do?

The above advice as to literature is for both the beginner who knows a little about chickens, and the novice who knows nothing. For both practice and precept must go hand in hand. There isn't much use reading about chickens unless you have a few to practice on, and trying to raise chickens without something to go by is like raising a baby without a good book to fall back on. The thing has been done again and again, but it is expensive.

By the word "novice" I mean the person who has never raised a chick. These people are more easily beguiled than any one else by the lovely display of fluffiness in the hatchery window. They take home a box full, put them in a box without air or heat, and that is the end of all that beautiful young life. The novice should begin with a sitting hen and a setting of eggs, follow the directions in the book in setting the hen and in caring for her during incubation, provide her with a comfortable coop, and watch Mrs. Biddy raise her family. You can learn a lot in one season from a few mother hens, with a good book to direct your investigations. When you have learned what little chicks need in the way of warmth and feeding you can branch out in any direction you please, by purchasing either hatchery chicks or fancy eggs, but by all means learn first how to raise chicks. The sacrifice of life on the altar of knowledge is too harrowing.

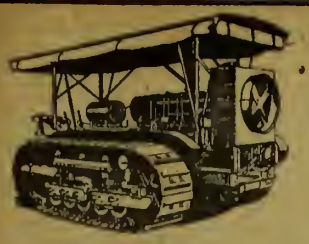
Poultry Queries

Conducted by J. A. Koethen

Weeks House

Doubtless you have heard of the Weeks system of management intended to increase egg production at the minimum expenditure of effort and designed to be followed by those whose plot of ground is limited in extent. It seems to me that this method might be followed with some success in the cooler—mountain or coast — sections of California, but would fail if put into practice in the warmer localities where the mercury frequently reaches 100 degrees or more. Crowding the hens in small space in territory subject to high temperatures would appear to invite disease and other troubles. Am I not right? And what do you know of the Weeks system anyway as a general proposition? — Subscriber, Keokuk Iowa.

The Charles Weeks house (I hardly think he calls it a system) was designed and is used by Charles Weeks of Palo Alto. I have seen two such houses and only two in Southern California, and I do not know how satisfactory they have proved. So far as I can see the house is as suitable for a warm climate as any kind of no yard house, for it provides just as much ventilation and about as much floor room and keeps the hens in smaller flocks. The main difference is that in this house 20 hens are kept in a space eight feet square, and that is all the room they have to exercise in. When 800 hens are kept in a house 16 by 100 each hen has but two square feet of floor space but she is privileged to roam over every other hen's two feet, so she has a much better exercising ground. The Charles Weeks house, as you probably know, is a long house, but only eight feet wide



"Accuracy"

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The Pride of Petaluma

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Catalogue No. 3, free for asking.

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GERMOZONE The Best Pet Stock Remedy

For Poultry, Pigeons, Dogs, Cats, Rabbits, Parrots, Canary and other birds or pet animals, Garmozone is a universal and safe remedy; for colds, snuffles, roup, sore throat, loss of voice or singing, influenza, bowel trouble, distemper, sora eyes or ears, canker, sleet, loss of fur or feathers, sores, wounds, skin disease, —or other affections of skin or mucous membrane.

"My hens have never done so well as this year and haven't lost a single chick"—Mrs. Flora Kapple, Walker, Ia. "Simply grand for rabbits"—L. W. Browning, Boone, Ia. "Cannot praise Germozone enough. I use it for chickens, stock and household"—Mrs. Wm. Hoeppel, Hugo, Okla. "My bird puppies don't know what distemper is and I never had such good success before with chicks"—Curly Smith, Kennett, Mo.

Germozone is sold by most drug, seed and poultry supply dealers, or mailed postpaid in 25c, 75c and $1.50 packages from Omaha. Book on treatment of diseases free with each package.

GEO. H. LEE CO. Dept. F-30 OMAHA, NEB.

Headquarters for IRRIGATION Supplies
Pumps, Engines, Sprayers, Hoists Etc.
Catalog FREE on Request
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Los Angeles.

Westrobac
Los Angeles, Calif. 618 So. Spring St.
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Two carloads of mules were last week shipped from Tulare to Arizona.

and divided into these square units which are entirely separate. Mr. Weeks claims that he gets more eggs by dividing the hens into these small flocks and that there is less chance for disease to spread. The main objection to the plan is that it makes too much work. Most poultrymen find that by keeping their hens in flocks of from 80 to 200 birds they get as good results with less labor. I never expect to see the house in general use anywhere. As for the adaptability of the no-yard house in general to a hot climate, that is a problem a good many people are working on. Theoretically you are right. Practically, the hens seem to do very well without yards wherever I have seen them.

Spineless Cactus for Green Feed

"You often have questions about feeding spineless cactus," writes A. F. Ames of Fallbrook. "I have fed it for five years to both hens and goats, and like it very much. For hens I commence feeding when slabs are about half grown, which is generally in June, and feed whole. Hens will not eat old, tough slabs, neither will goats unless they are starving. Goats will eat slabs six or seven months old, hut hens will not eat them well after three or four months. My hens have laid well while being fed cactus, often gaining in egg production. Goats also do well, for the cactus is laxative and keeps them in fine shape when they are on dry feed. They never go off their feed or have digestive troubles when fed cactus."

Oiled Floor for Coops

What objection, if any, is there to an oiled floor for poultry coops?—Subscriber, Fallbrook.

I do not see what objection there can be to oiled floors, unless it is that they cost some trouble and expense. I have read that the dirt floor, tamped down and oiled with road oil, makes a very fine hard floor. When a board floor is required to keep out rats and moisture, as in all our big commercial plants, it would not be much improved by oiling.

Raising Pullets

I have wondered if one could make a living raising pullets for sale. Is there always a demand for them around Los Angeles in August and Septemher at a fair advance on cost of raising? I have a deciduous orchard and alfalfa for them to run on, hut will have to huy all my feed. I have been very successful for the past six years raising chickens. Am getting along in years and feel the need of letting up a little on the work, and egg production confines one very close. One could use cheaper buildings and the land would be free from fowls for several months of the fall and early winter, in fact, nearly six months, so it would not get foul.—Subscriber, Fallbrook.

Yes, the demand for pullets in the fall always exceeds the supply. One who understands raising them ought to do very well by devoting himself exclusively to this branch of poultry work. Only last week I talked with a man who said he had hunted far and wide for some one to raise 500 pullets for him. I have sent him your address and hope you will get in touch with one another.

FARM BUREAU EGG LAYING CONTEST

The end of the sixth week of the California farm bureau egg laying contest shows W. J. Neef still in the lead.

Standing of pens to date:
W. J. Neef, Santa Cruz, 238 eggs.
D. B. Walls, Petaluma, 199 eggs.
C. Brown, Santa Cruz, 185 eggs.
S. L. Gibson, Santa Cruz, 183 eggs.
B. Rose, Santa Cruz, 170 eggs.
W. Wood, Santa Cruz, 160 eggs.
C. K. Hale, Santa Cruz, 153 eggs.
P. Pasquale, Inglewood, 153 eggs.

Leading pens for week: W. J. Neef, 46 eggs; D. B. Walls, 41; Enterprize Poultry Ranch, 40; P. Pasquale, 36; B. Rose, 35; S. L. Gibson, 33; C. Brown, 33.

Leading individuals to date: (These pullets all average over 70 per cent since start of the contest.) Owned by—D. B. Walls, 35 eggs; H. Peck, 32; Bellow Bros., 30; H. Peck, 31; A. M. Webb, 30; D. B. Walls, 30; Enterprize Poultry Ranch, 30; R. C. Gibson, 31; W. J. Neef, 31; P. Pasquale, 31; W. J. Neef, 30; W. J. Neef, 30; G. G. Barker, 30.

Heider

Fewer Parts—No Gears to Strip —More Power for the Pull

Heider Friction Drive does away with clutch, transmission gears and bevel gears. No gears to strip. Power ordinarily used by these parts is put into drawbar pull or belt work. **7 speeds forward, 7 reverse,** for traction or belt with one motor speed, one lever. Saves wear—easier to operate. Simplest drive known.

12 Years Actual Field Work

You do not have to take a one or two days' "demonstration" as proof. America's leading power farmers have been using Heiders for 12 years. Many original Heiders are in use today.

Ask for Heider Catalog, which also describes the famous Rock Island CTX Tractor Plows and the Rock Island No. 38 One-Man Tractor Disc.

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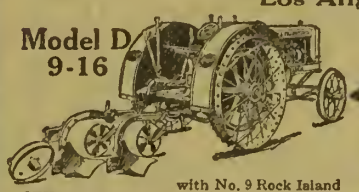
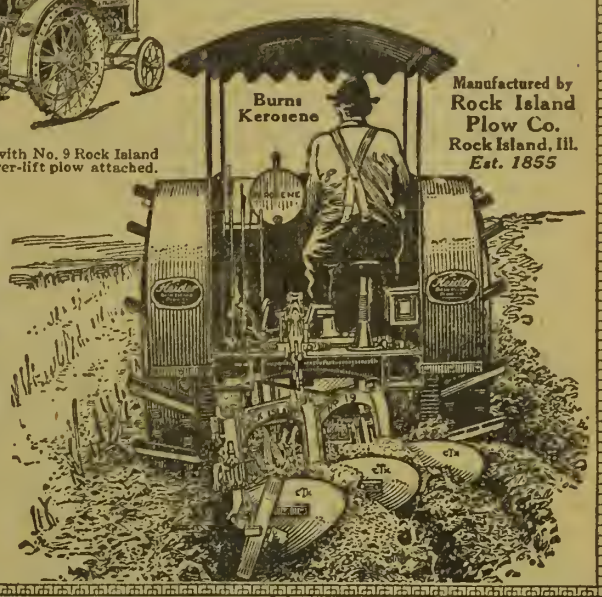
Los Angeles, Calif.

Model D 9-16



with No. 9 Rock Island CTX two-bottom power-lift plow attached.

Model C 12-20 With No. 19 Rock Island 2-3 Bottom CTX Power-Lift Plow Attached



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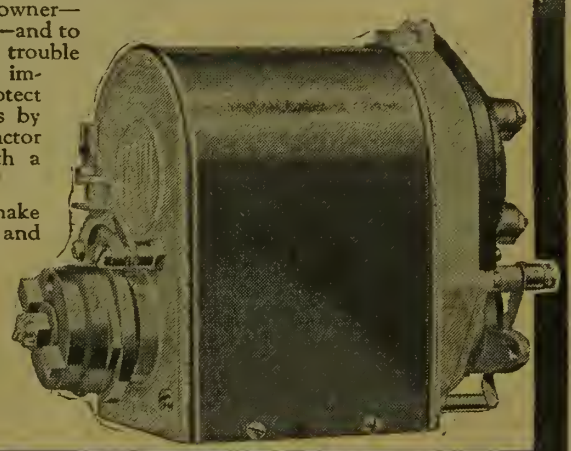

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Los Angeles Markets

Los Angeles, January 7, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price 65 cents.

Dairy Exchange prices last week on extras:

Jan.	1	2	3	5	6
'19	65	65	65	65	65

CHEESE

Brokers' prices:

California, fresh, lb., 28; price to retail merchants, 28@30.

EGGS

Fresh extras, Produce Exchange closing price, 58 dozen; case count Produce Exchange closing price 56 dozen; pullets, Produce Exchange closing price 50 dozen.

Dairy Exchange prices last week on extras:

Jan.	1	2	3	5	6
'19	58	58	58	58	58

POULTRY

Prices to producers: Hens, lt. 33; heavy, 34; colored over 4 lbs., 35; broilers, 32 @38; fryers, 35; roasters, 35; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hen turkeys, live, 40; dr., 41; squabs, 45@47.

Belgian hares, 3 to 3½ lbs. live, 17.

LIVE STOCK

Los Angeles, Jan 6. — Weighed and delivered off cars without food or water: Hogs (hard-grain fed), 125 to 150 lbs., 14.00; 150 to 175 lbs., 14.50; 175 to 225 lbs., 15.00.

Cattle (on foot, gross weight): Steers, good, 11.00@11.50; medium, 10.50@11.00; heifers, 9.00@9.50; fair, 8.50@9.00; bulls and steers, 6.00@6.50; calves, 125 to 150 lbs., 11.50; 175 to 225 lbs., 10.50.

between 7 and 8 o'clock January 6, by

Sheep—Ewes, 8.00@8.50; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock December 29, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Four cars California, 2 cars Idaho, 1 Washington arrived. New stock: Stockton, Burbanks fancy, 5.15 per cwt.; Russets, 4.50@5.25; bakers, 5.50@6.60. Salinas, 5.00. Local, lug boxes, 1.65@1.75. Local White Rose, 4.50@5.00.

Sweet potatoes: Market steady. Lugs, 1.25@1 50; cwt., 3.75@4.25.

Carlots: Demand and movement moderate, market stronger, prices higher, very few sales. Per cwt. in straight cars 3.00@3.40; few in mixed cars 3.50.

Onions: Demand and movement moderate, market strong. Home grown and Stockton: White Globes, cwt., 5.50@6.00; Yellows and Browns, mostly 6.00.

VEGETABLES

These are the actual prices obtained January 6, by the Los Angeles wholeDecember 29, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Beans, green, lb., best, 15@17; other 8@9.

Beets, doz., 45@50; lb., 4@5; sk., 2.50 @2.75.

Cabbage: Market strong. Per lb., 2@ 3½; per cwt., best, 3.00@3.50; others, 2.50 @2.75; sacks, 3.00@3 25.

Carlots: Demand and movement moderate, market stronger. Supplies limited. Winningstadt and Cannonball in straight cars mostly 55.00; in mixed cars 55.00@ 60.00, mostly 57.50@60.00; very few sales high as 67.50 in mixed cars.

Carrots, dozen, 35@40; lb., 3; sk., 1.50 @1.85.

Cauliflower: Local stock, per dozen, best, 1.00@1.10; others, 65@75; field crates 1.35@1.60; others 1.00@1.25.

Carlots: Demand and movement moderate, market stronger. Crates Half Early and Pearl, wide range in quality and condition, straight cars 1 10@1.20, mostly 1.15; mixed cars 1.15@1.25, mostly 1.20@1.25.

Celery: Market steady. Local stock, per dozen bunches 1.35@1.50. Crates, wide range prices, 5.00@6.00; fancy shipping stock, 6.00@7.00, best high as 8.00.

Carlots: Demand and movement moderate, market strong, little change in prices, supplies limited. Per dozen, straight cars, few sales, No. 1's, 90@95, few high as 1.00; No. 2's, 80@85; No. 3's, 70@75; mixed cars, No. 1's, 1.00@1 10.

Cucumbers, hothouse, 1.25@3.00 doz.

Chicory, dozen, 45@50.

Eggplant, best, lb., 16@17.

Peas, local lb., 15@17; poorer, 8@15.

Lettuce: Local stock: Market stronger. Per dozen, 45@50; crates, 1.50@1.75; other 1.00@1.35; best shipping stock, 2.00 @2.25.

Carlots: Demand slow, movement moderate, market firm, prices slightly higher, wide range in quality and condition, generally fair. California: Crates Los Angeles market (Iceberg), straight cars, wide range in price 1.75@2.10, mostly 2.00@2.10; mixed cars 2.10@2 25, mostly 2.15@2.25.

Peppers: Supplies very light, lug boxes, wide range. Bells, 16@18 per lb.; poorer low as 12; Chilis, best 15@16.

Pumpkins, 1½@2 lb.

Parsnips: Lugs, 85@1.00; sacks, 2.25@ 2.75; others, 1.65@2.00; per dozen, 50. Per lug, 1.00.

Rhubarb: Local stock scarce, bx., 1.15 @1.25; few best, 1.50.

Squash: Hubbard, cwt., 2.75@3.50; lb., 2@3½.

Spinach, doz., 35@40.

Tomatoes: Demand and movement moderate, supplies very light, market stronger. Lug boxes, ripes, best, 1.50@ 2.00; poorer, overripes, 50@1.00. Shipping stock, 2.25@2.50.

FRUITS

These are the actual prices obtained January 6, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: California: 4-tier, Bellefleur, 1.85@2.00, mostly 1.90@2.00; 3½-4½ tiers, 1.50@1.75; loose, 4@4½ lb.; Glen Seedlings, 2.25@2.75; White Pearmains and Yellow Newton Pippins, 2.00@2.35 box. Delicious, loose, 6@7 per lb.; Newtown Pippins, 5@6; Pearmains, 4@5; Winesaps, 6@6½. Northern: Jonathans, extra fancy, 3.40@3.50, fancy, 3.00@3.25; choice, 2.50 @2.60; loose, 7@7½ per lb. Spitzenbergs, extra fancy, 3.25@3.40, fancy, 2.90; choice, 2 50@2.75. Delicious, boxes, 4.00; Ben Davis, per lb., 5; Pippins, 5@6; Winter Bananas, extra fancy, box 4.00@4.25; fancy 3.50. Rhode Island Greenings, 2.50 box.

Bananas, 8@8½.

Cranberries: Barrels, 18.00; Oregon, boxes, 4.00@4.25.

Grapes: Supplies scarce. Demand and movement good, market firm. Local and Northern, from storage, per pound: Tokays, 16@20; Black Cornichons, 18@20; Red Emperors, wide range, 15@16; cr., 3.50@4.00.

Pears: Winter Nelis, 3.75; Seckel, lb., 7.

Persimmons, lb., 8@15; mostly 12@14.

Pineapple, lb., 18@20.

Pomegranates, lb., 6½@9; half boxes, 2.35.

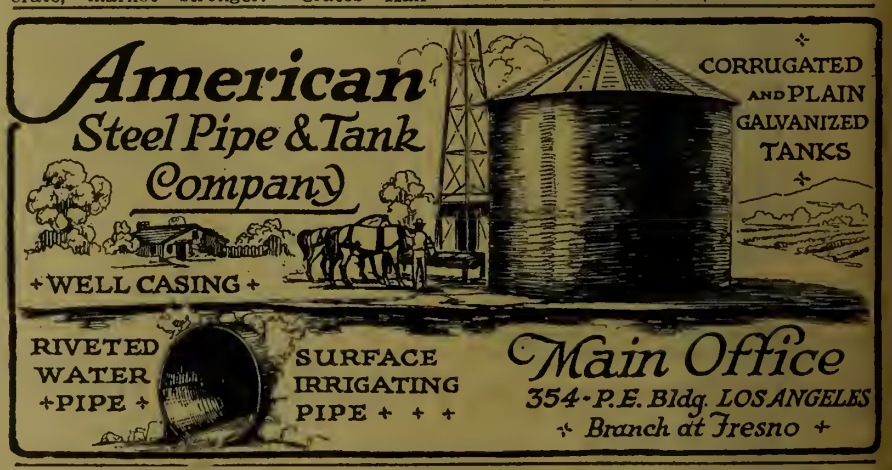
Lemons: Valley stock, fancy, 3.25@3.50; loose, 2.50@3.00; juice, 2.00@2.50 Local: Packed, 2.50@3.00; loose, 2.00@2.50 box. lb., 3.

Oranges: Navels, 4.00@5.00 box. Local stock: Packed, 3.00@4.00; Tangerines, 8 @10 lb.

Grapefruit: Arizona: Seedless, per box, 3.50@4.00; California: Porterville and Imperial Valley stock, per box, mostly 3.50@4.25. Local: 2.00@2.50 box.

HONEY

Demand and movement slow, market dull. Carlots f. o. b. usual terms, per lb.: White Orange Blossom, mostly 19; White Sage, supplies very light, mostly 20; Extra Light Amber Sage, 18½; Light Amber Sage, 18½; Light Amber Alfalfa, 16. Beeswax: Demand and movement moderate. L. c. l. lots, 43 per lb.



Special Notice to Duroc-Jersey Breeders

I leave for the East in January. Several breeders have given me orders to buy bred sows and gilts for them. I will be pleased to purchase for you anything you want. Will personally select them. Write me what you want and the blood lines. I'll tell you just what I pay for them.

Clayton Slocum **Willows, Cal.**

N.B.—Write me at once

LOOK FOR THESE IN THE DUROC SALES

Cal. Duroc-Jersey Sale, University Farm, Davis, Jan. 14

Two great big high backed breedy looking gilts sired by Orion's King Gano and bred to a son of Gano. **IRELAND RANCH SALE, Owensmouth, Jan. 30.**

Three extra choice and desirable gilts sired by Orion's King Gano and bred to a son of Gano, and one by California Orion Cherry King and bred to Orion's King Gano. These kind don't grow in bunches—but they are the Graham kind. Look for them.

Donald H. Graham **Lancaster, Cal.**

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	24.00@27.00
Barley	20.00@25.00
Alfalfa	23.00@28.00
Barley Straw	10.00@12.00

San Francisco Markets

San Francisco, January 6, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	67
Prime Firsts	65½

Dec.	30	31	Jan. 1	2	3	5
'19 ...	66½	66½	..	67	66½	67
'18 ...	66	64½	..	64½	65	..

CHEESE

Dairy Exchange quotations:

Cal. Flats	28½
Ore. Y. A.	34
Jack, full cream	28@30
Cal. Flats	31½@33
Ore. Y. A.	37
Jack, full cream	33@34

Dec.	30	31	Jan. 1	2	3	5
'19 ...	67½	67½	..	63	64½	65
'18 ...	74½	74½	..	75	76	..

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	65
Extra, pullets	58
Undersized	55½

POULTRY

Wholesale prices are:

Leghorn, 36@37; small, 36@37; large, 37@38; roosters, young, 35@37; old, 21@23; broilers, 38@40; fryers, 33@34; turkeys live, 38@40, dressed, young, 48@51; Ducks, Indian Runner, 25@27; Pekin, 28@32; geese, 30@32; Squabs, 50@60.

Belgian hares, live, 18@20; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle—Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 10¾@11; do, 1,200 to 1,400 lbs., 10¼@10¾; do, second quality, 9@9½; do, thin, 7@8.

Cows and heifers—No. 1, 8½@9¼; second quality, 7½@8; common to thin, 4@6.

Calves—Light weight, 12½@13; medium, 11@12; heavy, 8@10.

Lambs—Yearling, 10@11; milk, 12@13.

Sheep—Wethers, 9@10; ewes, 6@6½.

Hogs: Weighing 100 to 225 lbs., 14½; 225 to 300 lbs., 14; 300 to 400 lbs., 13.

Moran & Co. quote:

Cattle: Good steers, 1,000 to 1,200 lbs., 10½@11½; good heifers, 1,000 lbs. and over, 8½@9¼; good cows, 1,000 lbs. and over, 8@9; canner cows, 5@6; good bulls. 5½@6½. Calves, light, 12@13.

Hogs: Top packer, hard and well-finished, 150 to 225 lbs., 15; 225 to 300 lbs, 14½; over 300 lbs., 13½.

Usual dock and price discounts for other weights and kinds.

POTATOES

Wholesale selling price:

Potatoes: Per 100 lbs.: Rivers, fancy, 4.25@4.50; choice, 4.00@4.25; Oregon Gems, 4.25@4.50; Salinas, 4.50@5.00; sweet, 4@4½ lb.

ONIONS

Wholesale selling price:

Onions: Onions, fancy brown, 5.00; choice, 4.25@4.50; yellow, 4.00@4.50; white, 4.50@4.75

Garlic, 18@20 lb.

VEGETABLES

Wholesale selling price:

Artichokes, cr., 15.00@25.00; doz., 1.00@1.25.

Beans: String, 15@20; Lima, 12½@15.

Brussels Sprouts, lb., 8@9.

Carrots, per sack, 1.00@1.25.

Cauliflower, doz., 1.25@1.45.

Cabbage, doz., 40@50.

Celery, doz. bunches, 40@50; cr., 6.00.

Cucumbers: Hothouse, 3.00; L A. lug, 3.50@4.50.

Eggplant, lb., 10@12½.

Lettuce, cr., 2 00@2.25; doz., 50.

Pumpkins, lb., 2@2½.

Radish, 7@9 doz. bunches.

Tomatoes: Southern, cr., 1.25@1.75.

Spinach, lb., 2@3.

Squash: Hubbard, sk., 1.25@1.75; Summer, bx., 1.50@2.25.

Peppers, Bell, lb., 10@12½; Chili, lb., 10@12½.

Peas, lb., 15@22½.

FRESH FRUITS

Wholesale selling price:

Apples: Beliflowers, 1.75@2.25; Newton Pippins, 2.15@2.50; Jonathans, 2.50@3.00; Spitzenburg, 2.25@2.75 ch.; fy., 3.00@3.50.

Bananas, 7½@8.

Cranberries, 6.50@7.00 per standard box; barrel, 13.00@14.00.

Pears, box, 2.50@4.00.

Persimmons, box, 1.25@1.75.

Pineapples, doz , 2.75@3.50.

Pomegranates, 1.50@1.75.

BEANS, PEAS

Jobbing price per cental:

Beans: Small white, 6.50@6.75; large white, 6.50@6.60; cranberry, 7.50@8.00; red Mexican, 7.75@8.00; pink, 6.50@6.75; California Bayou 9.25@9.75; Blackeye, 6.25@6.50; red kidney, 12.00@13.00; Lima, 13.50@13.75; Garvanza, 9.50@10.50; Kotenashi (in bond), 5.35.

Dried Peas: California, 6.50@7.00 per cental for green, recleaned.

Citrus Markets

Los Angeles, January 7, 1920.

The output of navels will be far lower than anticipated earlier in the season. This is partly due to wind but more to the fruits running rather small. Independent buycrs are reported as paying four cents per pound for February delivery. F. o.b. price is ranging between $3.50 and $3.75. Auctions report as high as the $7 price but this is only occasionally, the prices generally ranging from $2.50 to $5.00.

Lemons are still extremely low, poor grade fruit in auction sometime selling around 40 and 50 cents. Good stock occasionally commands in the auction around $3.50 to $4.00. One sale reported last week in Boston reached $6.10.

Shipments

Shipmcnt of oranges from Southern California to date since November 1, 1919: Oranges, 3,622 cars; lemons, 602 total, 4,224. To samc date last season; Oranges, 2,222; lemons, 1,206; total, 3,432. Central California: Oranges, 3,259; lemons, 120; total, 3,379. To same date last scason; Orangcs, 2,074; lemons, 150; total, 2,224. Northern California: Oranges, 259; lemons, 20; total, 279. To samc date last season: Orangcs, 219.

WEATHER REPORT

San Francisco, California, January 8, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.01	8.97	17.58	62	38
Red Bluff	.00	3.99	10.45	66	32
Sacramento	.01	3.01	7.39	50	34
San Francisco	.00	4.32	8.68	62	39
San Jose	.00	3.10	6.48	62	32
Fresno	.00	1.48	3.76	54	38
San Luis Obispo	.00	5.18	6.82	82	86
Los Angeles	.06	4.33	5.48	86	43
San Diego	.20	2.40	3.83	84	44

Plant Rice

For clean seed of the following Varieties see us:

Wataribune Early

No. 1600 an Early Bearded Variety

No. 1564 an Early Beardless Variety

Write for quantity price

Aggeler & Musser Seed Co

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Los Angeles, Cal.

Fruit Trees

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Our stock is complete as yet
Place your orders early to be sure of getting what you want
Only experienced men handle our stock
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MORRIS & SNOW SEED CO.

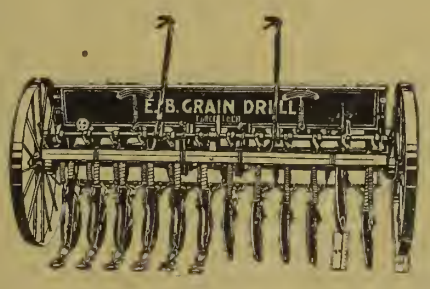
439 C S. Main Los Angeles, Cal.

Important Now and at Harvest Time The Choice of the Right Grain Drill

Proper planting is the first step toward a successful crop. The choice of the right grain drill now means many extra bushels at harvest time. An investigation will show you why an E-B Drill assures you more bushels per acre, more bushels per man and more acres with the same seed.

Here are a few features that have made E-B Drills the choice of so many farmers:

1. Plants with equal facility in weedy or trashy ground, stubble or sod, or in soft ground.
2. Eccentric spring lift assists in raising discs or forcing them into ground. Adjustable so that 10 or 12 discs can be raised with one finger.
3. E-B Grain Feed combines fluted feed and double run or internal feed. Prevents bunching and cracking of seed. Sows all kinds of small grain.



4. E-B Single Disc Closed Delivery Opener deposits the seed in the bottom of the furrow.
5. E-B Double Disc Furrow Opener insures greatest crop return because all seed is planted at an even depth and well covered with soil.

Any E-B dealer will explain these superiorities and many more in detail. And if your needs are for a specialized type of drill, he can give you helpful information about the full E-B line.

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A Complete Line of Farm Machinery Manufactured and Guaranteed by One Company

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Sacramento, Cal.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Wife's Property Rights

A woman marries a widower with one son. Before marriage he owned a ranch upon which there was a mortgage. Subsequent to marriage the wife worked and helped pay the mortgage. Can the husband make a will leaving the ranch to his son? The two have taken out a homestead on new land which is not very good. Is it true that on the death of the husband the homestead belongs to the wife? If so, does the wife share in the other property? Can the ranch be sold without the wife signing the deed?—Subscriber, Stratford.

All property owned before marriage, and that acquired afterwards by gift, bequest, devise or descent with the rents, issues and profit thereof, is the separate property of the spouse owning the same. Such separate property may be encumbered, sold or devised by will without the consent of the other spouse. It would be very difficult for the wife to establish any claim in this separate property by reason of the fact that she assisted in paying off the mortgage. All property other than separate property is community property; such would be the case of the homestead taken up, and in came there was a declaration of homestead, under the state laws, upon the death of the husband, such homestead property would become the property of the wife. If the homestead is taken up under the government land laws, then it would follow the particular provisions of those laws and might become a part of the estate. All property other than separate property is community property in which, after payment of the debts against the community, the wife is entitled to her share.

Deed to Husband and Wife

A husband and wife with no children buy a ranch on contract made in the name of both. In case one should die, could the deed be made to the survivor without court proceedings? How should the deed be made so the property would revert to the survivor without expense? Would it be necessary to pay an inheritance tax in the case of the death of one of the parties when the deed is made jointly? —Subscriber, Redlands.

A contract or deed to the property may be so drawn that upon the death of one, the survivor will succeed to the rights of the deceased, in which case the survivor would be required to pay the proper inheritance tax based upon the valuation of the interest in the property. In order to draw such a contract or deed it would be best to go to someone skilled in such matters. The usual provision is that property is to be granted to the two persons named or their survivor in join tenancy.

Contract for Sale of Land

J. bought 40 acres of land from P., making cash payment and giving crop mortgage with the provision that in case the crop was insufficient to pay then the mortgage was to become a lien upon the land. Other payments were to be made subsequently. The crops were insufficient to pay the mortgage and nothing else has been paid. J. claims that he has an equity in the property for the amount of first payment and mortgage. How can the vendor proceed? — Subscriber, Imperial.

Without seeing the particular wording of the contracts it is impossible to give any direct opinion in the matter. It is probable that there was an original contract for the sale of the property at the total purchase price. It is possible that a mortgage could be so drawn that it would become an encumbrance upon the property. P. would probably take action to foreclose his vendor's lien in case of insufficiency in the agreements between the parties. He could undoubtedly foreclose his mortgage if it was a lien upon the property. Whether it was a lien or not could be determined only from the particular wording of the mortgage. The presumption is that it is not. You should probably take the matter to some attorney in your locality.

Mexican Land Patents

In the years past my father obtained patents to numerous property interests in this state from the Mexican government. On his death all of his property was willed to his wife. I have received no share in his property. Lately there has been a fire in the house which has burned up all of the papers. I understand that my father was drunk when he signed the will. Much of this property was never probated. What is the position in respect to it?—Subscriber, Pope Valley.

The title deeds and evidences of title were undoubtedly recorded in the office of the county recorder. Such records are prima facie evidence and would show the title so that the destruction by fire of the title deeds would probably be of comparatively little importance. If it can be shown that a will is executed when the testator is not of sound and disposing mind, as would be the case if under the influence of liquor or drugs, such will can be refused probate and the property would thereupon descend according to the manner provided by law as if there were no will. As to property which was never probated, there is a defect in the chain of title which is subject to attack by any heir of the party owning the property before death. During the early days in California there were many of such omissions to probate, and lately found heirs have in many cases been successful in recovering the property.

Kicking Horse

I sold a driving horse who kicks on driving down hill with buggy. The neighbor to whom I sold said he could handle her. He paid $10 on account of $30 purchase price, the balance to be paid in the next month. He now refuses to pay the balance and demands his $10 back. It seems the neighbor put the horse on a plow and she kicked the plow as well as the cultivator to pieces. I never misrepresented the horse. Can I recover my $20?—Subscriber, Pope Valley.

If the purchaser was fully acquainted with the characteristics of the horse as to kicking and temper, doubtless he can make no complaint and you are entitled to recover your $20. Such contracts, however, are difficult to prove and the matter is one purely of fact, as to whether or not the reputation of the horse was fully known.

Form C Single Phase Motor
25 Horsepower One Manpower — 1-6 HP.

Pumping 1000 Gallons Per Minute

This installation of a Vertical G. E. Motor connected to a Deep-Well Turbine Pump is operating at 1150 R. P. M. and pumps 1000 gallons per minute from a well 50 feet deep and 12 inches in diameter.

This one pump installed on a ranch at Santa Clara, Calif., is of ample capacity to irrigate 40 acres of prunes and in fact could easily supply 50 to 60 acres.

When selecting motors it is always well to remember cost is not price in the beginning, but cost in the long run.

The electric way is the modern way—the proven economical way.

General Electric

General Office **Company** Schenectady, N.Y.

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Bean Power Sprayers

Syraying Is Important

Don't experiment. Spraying is too important. An ineffective and inefficient sprayer is a time wasting, money wasting device.

Bean sprayers have cut spraying costs to the minimum. They eliminate troubles and money losing delays. They have led for 36 years. They are the standard for the world. Our patented features of superiority are described in catalog 33. Send for your copy today. Use the coupon.

Bean Spray Pump Co.

258 W. Julian St. San Jose, Cal.

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Gentlemen: Without obligation to me please send me a copy of your catalog 33. I have ..... acres of ..... I am interested in Hand Sprayer..... Power Sprayer .....

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Hauser's Organic Fertilizers
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GET MAXIMUM INCOME from your Land by having your IRRIGATION, DRAINAGE and BUILDING PROBLEMS properly attended to by the ENGINEERING SERVICE COMPANY
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here was an old geezer and he had a
lot of sense;
e started up a business on a dollar-
eighty cents—
he dollar for stock and the eighty for
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rought him three lovely dollars in a
day, by dad.
Vell, he bought more goods and a little
more space,
nd he played that system with a smile
on his face.
he customers flocked to his two-by-four,
nd soon he had to hustle for a regular
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p on the square, where the people pass,
e gobbled up a corner that was all
plate glass.
e fixed up the windows with the best
that he had,
nd told 'em all about it in a half-
page ad.
e soon had 'em coming, and he never,
never quit,
nd he wouldn't cut down on his ads
one jit.
ell, he's kept things humping in the
town ever since,
nd everybody calls him the Merchant
Prince.
hy, he was doing business when the
times were punk.
eople have to purchase and the geezer
was wise—
or he knew the way to get 'em was to
advertise!

—E. F. McIntyre.

IN SPITE OF TERROR

Continued from last week.

Billy turned toward the deck house.
alf the nearer end and all one side
it were ablaze, as were two or three
rrels of lubricating oil and the deck
out them. Along the far side of the
bin, however, was a narrow strip
deck still free of flame; it led to
e iron ladder that climbed the
arer tank.
Billy ducked behind the low side of
e deck house and rushed for the iron
dder.
The moment his head came above
e deckhouse roof, the hot breath of
e flame seemed to flow over him, and
gasped and ducked involuntarily.
was a good deal worse than he had
pected. It seemed that the very air would scorch him before the blaze approached.

He drew a quick breath and climbed as fast as he could.

Reaching the end of the ladder, he stepped out on the broad, rounded top of the tank. The wide vent in the middle was large enough to admit a man's body. A flat iron lid closed it, and was fastened in place by turnbuckles with hand screws.

His hands were on the fastenings of the lid, and he was working with all his might, when a twist of the flames below swirled a fierce blaze against the side of the tank and up almost to his feet. The hot, thick smoke rushed into his eyes and nose and nearly strangled him. And it seemed as if the whole side of his hand and arm and face had been seared. He dodged and staggered and cried out with the pain, and he almost fell between the sloping sides of the two tanks. But a sudden little back flow of wind carried the blaze away, and he began again to work at the fastenings.

Two of the turnbuckles were already loose; the third and fourth turned easily. He grasped the handle of the lid and lifted with all his might. It rose, slipped, and slid over the edge and fell toward the fire; and a warm, sickening stench of gasoline swept up into his face.

Gasoline! It was the most inflammable and explosive thing of which he knew! Worse by far than gunpowder was that vast store of volatile liquid fuel under his feet! He leaped away to the second tank, and for a moment the temptation to dive off into the cool water below was almost too strong to resist. Would not the open tank explode at once? Then, with shaking hands, he attacked the fastenings of the second tank.

This task was easier. The lid came off quickly. He stood up, and then a sudden great flare of fire like an opened fan seemed to leap up out of the smoke, and a roaring boom, like the discharge of a cannon, shook the iron under him.

The whole air above the deck house seemed filled with spurts of pale blue and sapphire light. Something tremendously big and powerful—irresistible—suddenly caught him up and flung him headlong into the bay!

He came to the surface half-dazed; the salt water filled his nose and throat. He struck out desperately, with the instinct to swim away from the fire.

They picked him up — Claude and the tankboat man—a minute later. They had cast off from the stern, had come round toward the bow, and had shouted to him to jump. Then one of the barrels of lubricating oil on the deck had exploded. And Billy came back to his full senses in the boat to find himself unhurt, except that he was singed a little, and to learn that the tank-boat man, in spite of his broken ankle, was running the motor-boat engine.

Of course, by the time Claude turned The Chip up to the club dock, there were scores of people on the shore; and of course there were cheers on cheers when the story became known. For it was by the light of two huge, wonderful plumes of fire, that stood up 30 feet each from the opened vents of the gasoline boat's tanks, that the passengers of the motor boat were lifted out and led up to the club piazza. And those fountains of yellow flame, with the spray of fire that drifted seaward from them, showed clearly enough that Billy's work had been worth while.

To disagree with the other fellow and still remain friendly; to see the other fellow's viewpoint and still cling to your own opinion with a smile that is sincere; to travel the first fifty miles in company with a crowd quietly and not tell all you know; to smile at the breakfast table and then go to work, not willingly but anxiously, proves that you are a bigger man than the ordinary fellow we find on the pay roll.—Exchange.

DELICIOUS RIPE OLIVES

Every Californian knows how delicious ripe olives are, but here are suggestions for ways of using them, perhaps new to some Cultivator readers:

Olive Sandwiches

Pit one pint of ripe pickled olives; grind fine with one-half cup of California wainuts; moisten liberally with mayonnaise, and spread on lettuce leaves placed between thin slices of buttered bread.

An excellent sandwich is also made by combining equal parts of chopped olives and shrimps and mixing this with mayonnaise.

Minced Olives

Twelve ounces of ripe pickled olives; four ounces of preserved sweet peppers. Run the olives and peppers through a meat grinder. This mixture is very good for sandwiches.

Mixed with a few stalks of chopped celery and mayonnaise this makes a fine salad.

Olive Sauce

Four tablespoons butter; one sliced onion; five and one-half tablespoons flour; two cups brown stock; one tablespoon salt; one-fourth teaspoon pepper; one dozen ripe pickled olives. Melt butter in a saucepan; add onion and cook until slightly brown; remove onion and stir butter until well browned; add flour, sifted with seasonings; stir to a smooth paste and continue browning; add stock gradually, beating constantly. Pare the meat from olive pits, leaving it in one continuous curl; cover with boiling water and cook six or seven minutes; drain and add sauce. This is delicious with meats or wild fowl.

Artichoke Salad

Boil artichokes with a teaspoon of salt until tender; when cold, remove the center of the artichoke, chop it with pitted ripe olives; fill the mixture and serve with mayonnaise.

SHE has a good time at *her own* party—does the hostess who serves Ghirardelli's Ground Chocolate. Whether it's an "afternoon at home"—an informal evening—or some guests who "drop in" unexpectedly—Ghirardelli's offers the happiest solution to the refreshment problem. So delicious, so economical, so easily made!

Never sold in bulk—but in cans only.
In ½ lb., 1 lb., and 3 lb. sealed cans—
at the store where you do your trading.

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GHIRARDELLI'S
Ground Chocolate

CALUMET BISCUITS—light, flaky mounds of goodness—capped with a tender, done-to-a-turn crust. You'll admit that no other biscuits *can* compare with them—the minute the first batch comes from your oven.

HIGHEST AWARD GIVEN CALUMET BAKING POWDER WORLD'S PURE FOOD EXPOSITION

CALUMET
Baking Powder

PARIS EXPOSITION

Makes Most Palatable and Sweetest of Foods

—because it is absolutely pure in the can and in the baking.

—because its leavening strength never weakens. It is always the same, and results are always the same —always the finest.

Absolute certainty—more than the usual raising force—with the moderate price you pay for CALUMET—make it decidedly the most economical of leaveners.

You save when you buy it. You save when you use it.

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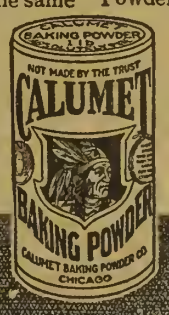
A perfect product of the world's largest, most up-to-date and sanitary Baking Powder Factory.

Contains only such ingredients as have been officially approved by U. S. Food Authorities.

Try it! Drive away bake-day failures. Reduce baking expense. Have most delicious and wholesome bakings.



BEST BY TEST

Style, Beauty and Rare Comfort

WOMEN who look for style and beauty first of all, find just what they want in Martha Washington Shoes. Late, correct styles always, and rare comfort built into every Martha Washington Shoe.

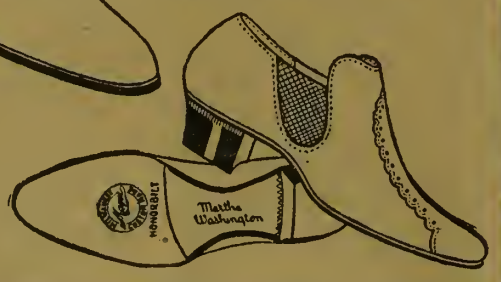
Try a pair of these famous shoes. You will like their comfort, the way they wear and the way they hold their shape.

Go to your dealer and choose from the many fashionable styles. After your first pair you will always want the complete satisfaction you get from Martha Washington Shoes.

Beware of imitations. Look for the Martha Washington name and Mayer Trade Mark on the Shoe. If your dealer doesn't handle them, write us.

F. Mayer Boot & Shoe Co.

Milwaukee, Wis.



This shoe has been widely imitated. Look for the name and trade-mark on the sole or label in the top.

Mayer Martha Washington Shoes

Olive Salad

To one pint of pitted ripe olives add one stalk of crisp celery, one or two tart apples and one-half teacup of California walnut meats. Chop all, not too fine, and serve on lettuce leaves with mayonnaise.

Stuffed Green Peppers

Six green peppers; one cupful bread crumbs; two level tablespoons butter; one-fourth of an onion, partly cooked; one-half cup chopped ripe olives; salt. Remove the tops and seeds of the peppers and boil them for ten minutes in salt water. Mix other ingredients and fill peppers. Bake for 15 minutes in a hot oven in a pan containing a little water. The peppers may be garnished with strips of pimentos.

Olives, Italian Style

Place ripe pickled olives in a pint or quart jar; cover with French dressing containing a clove of garlic. Allow this to stand for several hours, shaking occasionally. Serve as a relish.

Ripe Olives in Mexican and Italian Dishes

Ripe pickled olives should be used whole in chicken cooked Mexican style, and in all Italian and Mexican dishes, such as chili con carne, or tamales.

Olives in Croquettes

A ripe pickled olive in the center of a chicken croquette improves it wonderfully.

Crab Cocktail

Two-thirds cup mayonnaise; one-third cup tomato catsup; one head celery; one dozen ripe pickled olives; two green peppers; one crab. After removing the seeds from the peppers, run them, together with the celery, through a meat chopper; pit and chop the olives; pick the crab meat into bits, and mix all together with the liquid. Serve in cocktail glasses.

Beef Stew with Olives

Boil beef until tender; season with parsley, pepper, salt and a dash of paprika; add one cup ripe pickled olives pitted, and let them just come to a boil; thicken gravy with a tablespoonful of flour and serve with mashed potatoes.

Canapes

Cut stale bread into any desired shape and fry a delicate brown in deep lard; drain on brown paper. Mix equal parts of finely chopped ripe olives and English walnuts; season with cayenne and moisten with mayonnaise to the consistency to spread. Spread the mixture on the bread and garnish with thin strips of pimentos.

Oroville Olivettes

One pint ripe olives; one small can oysters; butter size of walnut; salt and pepper to taste; one cup milk; one heaping tablespoon of flour. Into a sauce pan put butter; when melted mix flour, add milk, olives and liquor from oysters; boil few minutes, add salt, pepper and oysters; serve on rounds of toast. (Will serve four persons.)

CAN APPLES

Apples that fall off the tree or are imperfect can be used satisfactorily to make apple products. Do not can any decayed part nor allow apples to become overripe before canning.

Canning Whole Apples

Wash the apples, which must be reasonably firm. Remove core and blemishes (pare if desirable for immediate use). Place whole apples in blanching tray or blanching cloth and blanch in boiling water for two minutes. Remove and plunge quickly into cold water. Pack in large, empty glass jars or gallon tin cans. Pour over the product a hot, thin syrup of about 18 degrees density. This is made in the proportion of two and one-fourth pounds of sugar to five and one-fourth quarts of water. Place rubber and top in position. Seal partially, not tight. If using tin cans, cap and tip completely. Process half gallon or gallon containers 20 minutes in boiling water, in homemade or hot-water bath outfit; 15 minutes in water seal; ten minutes in steam pressure outfit, with five pounds of steam pressure. Remove jars, tighten covers, invert to cool, and test joints. Wrap in paper and store. The time of heating will have to be varied according to ripeness and condition of the fruit. Use just enough time to sterilize perfectly, and yet not enough to change the color or reduce the pulp to sauce.

Uses for Canned Apples

Firm and tart apples may be cored and peeled first, then canned by the above recipe. Apples canned whole may be used for the following purposes:

A breakfast dish, with cream and sugar added; baked, like fresh apples; apple salad; a relish with roast pork—the apples may be fried in the pork fat; apple dumplings, deep apple pie and other desserts in which whole apples are desirable. The syrup of canned whole apples can be used for pudding sauces or fruit drinks.

HOUSEHOLD CONTEST

Read "This Week's Patterns" for prize offer for this month's household contest.

THIS WEEK'S PATTERNS

The feature of the newer dresses, the wide effect at the hips, is shown in the girls dress 3091 and the two dresses below. The bloused waist is also in evidence now, as in 3089. The wrinkled belt line in 3085 is new and very attractive. This waist with its vest, revere collar and odd closing is the very newest of the new and is used in varied form in the fashion books that depict Paris and New York styles.

The stores are already featuring summer materials. Especially is there a most fascinating showing of heavy cotton materials for children's clothes. The satisfactory Devonshire and similar weaves show solid colors in all shades, from dark navy blue, even black, through, browns, greens, pinks and yellows. Larger plaids are shown in the soft blending colors of the finer ginghams. An occasional sale can be taken advantage of, but beware of 27 inch widths which are less economical in making up and are sometimes offered at a few cents under the regular price for 36 inch material.

Soisette would be pretty and soft for the set of short clothes in pattern 3090. A tiny crocheted edge in white or colored mercerized cotton can be quickly made, would be dainty and wear well.

Prints and ginghams are now so expensive that one hesitates to buy them for house dresses and aprons. Just at present the city stores are selling men's shirtings in exceedingly good quality much cheaper. They are however, light in color and must make frequent trips through the tub and across the ironing board.

If anybody knows how to beat the H. C. of L. in the clothes sector, now is the time to pass the news along in the Cultivator columns. What are you going to do about it? The "simple art of doing without" is the main dependence, but some new things must be had. Where do you cut corners? Simple hints of the everyday economies will help us all. Send them to the Household Department, California Cultivator, Los Angeles.

For the best letter of suggestions $5 cash will be paid; for second best $1; all others published, one year's extension of subscription to California Cultivator, which is worth $1 in cash—and a lot more in real value.

All letters should be mailed by Saturday, January 17. That leaves just one week for getting them ready. They will be published in the issue of January 31.

The Little Foxes

It's the little foxes that spoil the grapes; so it is with health; mend the broken resistance and you have robustness, neglect and you have weakness.

Scott's Emulsion

concentrated tonic-nutriment, effectually mends the little weaknesses and sustains strength by building up the resistive powers of the body. If you would keep strong—use *Scott's Emulsion* often.

Scott & Bowne, Bloomfield, N. J. 19-41

TRY KI-MOIDS FOR INDIGESTION

Dyed Her Faded Skirt, Also a Coat

"Diamond Dyes" Make Shabby Apparel Just Like New—So Easy!

Don't worry about perfect results. Use "Diamond Dyes," guaranteed to give a new, rich, fadeless color to any fabric, whether wool, silk, linen, cotton or mixed goods,—dresses, blouses, stockings, skirts, children's coats, draperies,—everything!

A Direction Book is in package.

To match any material, have dealer show you *"Diamond Dye"* Color Card.

Strawberry Plants

Big orders a specialty, small orders appreciated. Varieties that do well on the Western Coast. Ask for prices.

V. R. ALLEN Seaford, Del.

RHUBARB

WAGNER'S IMPROVED

Plant Now Growers making $100 and over per acre annually. Splendid results in six months. Special prices for immediate planting. Also berries and small fruit, etc. Write to the originator, J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Calif.

When Writing Advertisers, Mention The Cultivator.

Save 1-2 on Fuel

CHEAPEST HEAT YOU CAN BUY

The Sievert Oil Burner burns distillate costing only 5½ cents per gallon in cook stoves, heaters, furnaces, pasteurizers, boilers, prune dippers, dairy sterilizers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Install it yourself. Write for circular and prices on different sizes. Address Sievert Oil Burner Co., 718 North Main St., Los Angeles.

The Cultivator Patterns

BE SURE TO SEND SIZE

3091. A Pretty Frock. Cut in 4 sizes: 8, 10, 12 and 14 years. Size 10 requires 4¾ yards of 27 inch material. Price, 10c.

3089-2644. A Unique Dinner or Afternoon Gown. Waist 3089 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 2644 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. The width of skirt at lower edge is about 1¾ yard. For a medium size it will require 5⅝ yards of 45 inch material. Two separate patterns, 10c for each pattern.

3090. Set of Short Clothes. Cut in 4 sizes: 6 mos. to 1 year, 2, 3 and 4 years. Size 4 will require 2⅜ yards of material 36 inches wide for the Dress, ⅞ yard for the Drawers, and 1⅞ yard for the Petticoat. Price, 10c.

2697. Ladies' Apron. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. Size Medium will require 4¼ yards of 36 inch material. Price, 10c.

2719. Girls' Dress. Cut in 4 sizes: 4, 6, 8 and 10 years. Size 8 requires 3¾ yards of 27 inch material. Price, 10c.

3085. Misses Dress. Cut in 3 sizes: 16, 18 and 20 years. Size 18 requires 5⅝ yards of 44 inch material. Skirt measures 1½ yard at lower edge. Price, 10c.

3084. Childs' Dress. Cut in 4 sizes: 2, 3, 4 and 5 years. Size 4 will require 3 yards of 27 inch material. Price, 10c.

3063. Dress for Home Wear. Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 5¼ yards of 36 inch material. Width of skirt at lower edge is 1¾ yard. Price, 10c.

CATALOGUE NOTICE

Send 10 cents in silver or stamps for our Up-to-Date FALL AND WINTER 1919-1920 CATALOGUE, containing 550 designs of Ladies' Misses' and Children's Patterns, a CONCISE AND COMPREHENSIVE ARTICLE ON DRESS-MAKING, ALSO SOME POINTS FOR THE NEEDLE (illustrating 30 of the various, simple stitches) all valuable hints to the home dress-maker.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest Chicago styles, all pattern orders are filled in Chicago. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles.

HOUSEKEEPING HELPS

If you have a carpet that looks worn and faded get a package of dye for wool of the desired shade, mix it in a pan of hot water and brush into the carpet with an ordinary paint brush.

After using the oil mop, instead of merely shaking the dust out, brush it thoroughly with an old whisk broom and keep the mop fluffy and unmatted.

Don't worry about your work. Do what you can, let the rest go, and smile all the time.

If you have an old kitchen table that you want to cover with oilcloth, paste it on with wall paper paste, smoothing out carefully. It will last much longer and always be in place.

If you have not an electric iron, save time and steps and heat by setting the flatiron on a heated brick or soapstone instead of on a cold iron stand.

There are so many uses for the meat grinder that it is handy to have it fastened to the kitchen table. Keep it clean by pulling over it a clean paper or cloth sack when not in use.

To prevent the wall paper being wet when you wash or oil woodwork, hold a strip of pasteboard along the wood facings. As you work slide it along, keeping it close to the woodwork, and taking a fresh piece when needed.

After you have paid for your steak don't let the butcher trim it and keep the trimmings to sell again. The scraps of meat and bone will help out the soup kettle, any fat can be melted and clarified for shortening.

A healthy baby cannot develop into a healthy man or woman if the mother relaxes her efforts toward health as soon as he can walk alone. There is never a time to "let up." Children are never too old to need careful supervision of their work, their play, their sleep and their food. If you would have your healthy babies healthy school children and healthy men and women pay as much attention to the years after they are two as to the months before they have reached that age.

TO OPEN FRUIT JARS

I note your offer to extend subscriptions on hints or suggestions that will benefit the readers of the Cultivator.

In mingling with people I find so many have such an effort to remove the caps of their fruit jars, and have often given them my way of opening sealed fruit jars.

To remove jar caps on sealed fruit jars, dip the jar with top down into boiling water several times until the glass is tempered, then leave in the hot water until the rubber is loosened, and it can be easily removed without prying up the lid; thus leaving the jar cap in good shape to use the following year.—Subscriber, Thermal.

CIRCLING WHEN LOST

"The tendency of the person who has entirely lost his sense of direction to 'circle' is well known and has been repeatedly proved by experiment," says George Gladden in Boys' Life. "The most plausible reason for this circling is that it is due to the unequal strength of the two sides of the body. That is, if the right side be stronger than the left—which usually is the case—longer strides will normally be taken with the right leg than with the left, and this will cause circling to the right. The circling seems always to occur when one becomes hopelessly lost and is likely to continue until the victim drops from sheer exhaustion. One instance on record is that of a lost man who, after walking steadily for six days and nights, finally stumbled into a camp only about six miles from his starting point. Five miles of travel in a straight line in any direction from that point would have brought him out of the woods and incidentally would have saved him from the loss of his feet, both of which were so badly frozen that their amputation was necessary.

"Traveling by landmark, or by compass, are the only sure ways to avoid circling. Landmarks should be observed carefully and frequently, for as one proceeds they are likely to change their appearance, sometimes very considerably. The importance of the compass to the lost man is, of course, very great, provided he uses it intelligently. And part of that intelligence will be shown by absolute confidence in the instrument for the present purposes. 'Magnetic variation,' that is, the difference between the magnetic north, as shown by the compass, and true north may be disregarded for ordinary pathfinding in the woods, as the deflection is not sufficient to throw the traveler seriously off his desired course. But beware of local attraction, such as would be established if the compass were held near any iron or steel object, like an axe or a knife or a belt buckle. To make sure that the needle is not being affected in this way put the compass on the ground and note whether the needle keeps its position in both places. Very rarely a compass will be affected by a mass of iron ore beneath the surface of the ground."

TO SAVE FOOD

Heating in a slow oven is a very simple and practical means of preventing infestation of foods or seeds. Where seeds are treated, care must be taken to prevent injury to germination, but in case of foods the strength of gas or the height of the temperature are not items so long as they are sufficient to kill the pest. Temperatures of from 120 degrees to 140 degrees Fahrenheit will soon kill any of the ordinary pests. This temperature, if maintained for only a short time, will also not seriously injure most ordinary seeds.

Simply spread out the food or other material to be treated in shallow pans or similar containers and place them in an ordinary stove in which the temperature should not go above 140 degrees Fahrenheit. Treat for from ten to 20 minutes and both eggs and feeding stages of all common pests will be destroyed. Foods or seeds should then be stored in clean containers, tight enough to insure that no pests may enter. Occasional inspection will be additional insurance.

SUCCESS FOR SALE

You want success. Are you willing to pay the price for it?

How much discouragement can you stand?

How much bruising can you take?

How long can you hang on in the face of obstacles?

Have you the grit to try to do what others have failed to do?

Have you the nerve to attempt things that the average man would never dream of tackling?

Have you the persistence to keep on trying after repeated failures?

Can you cut out luxuries? Can you do without things that others consider necessities?

Can you go up against skepticism, ridicule, friendly advice to quit, without flinching?

Can you keep your mind steadily on the single object you are pursuing, resisting all temptations to divide your attention?

Are you strong on the finish as well as quick at the start?

Success is sold in the open market. You can buy it—I can buy it—any man can buy it who is willing to pay the price for it.—Exchange.

PATENT WINDER

Seven years ago Henry J. Conners of Peterboro hung his vest on a fence in the barnyard. A calf chewed up the pocket of the garment in which was a standard gold watch.

Business of seven years passing, as they say in the movies. The butcher arrives on the scene, and the animal, a staid old milch cow, becomes steak and stew beef. But that isn't all; the missing watch was found in such a position between the lungs of the cow that the respiration—the closing and filling of the lungs—had kept the stem wound, and the watch, so Conners says, had lost only four minutes in seven years.

CARELESS OF HIM

Walter—Mr. Smith's left his umbrella again. I do believe he would leave his head if it were loose.

Robinson—I dare say you're right. I heard him say only yesterday he was going to Switzerland for his lungs.—Tit Bits.

Don't Give Decay an Eight-Hour Start

THE germ enemies of the teeth are most active at night. They can work undisturbed between the teeth where particles of food may remain unless you brush your teeth.

Don't give these enemies an unfair advantage—beat them by cleaning your teeth with Colgate's just before going to bed. This is safe, sane and delicious. Use it in the morning, too.

Teach the children this habit for health.

Colgate's is Recommended by More Dentists Than Any Other Dentifrice

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SLIDEWELL COLLARS

are all made with the Patented Tie-protecting Shield that Saves your Tie, Time and Temper. Unsurpassed for Style and Long Wearing Qualities.

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America's Pioneer Dog Medicines

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And How to Feed
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The Car For All Roads

OVERLAND 4 is a car for all seasons and all roads; attractive in appearance; economical in operation. It glides over the roughest roads with a smooth steadiness that is amazing.

This remarkable car has the two-fold economy advantage of Three-Point Suspension Springs and light weight. Three-Point Suspension Springs give Overland 4, with 100-inch wheelbase, the riding ease usually associated with great weight and long wheelbase. They take most of the shock and rebound out of road jolts. They lessen greatly the fatigue of long rides.

By protecting car and motor from the constant racking blows which mean wear, these springs greatly reduce up-keep expense. They make possible riding comfort with light weight; and Overland 4's light weight gives the further economy of low fuel and oil consumption and greater tire mileage.

Overland 4 is a quality car throughout—in design, finish and riding qualities. Equipped complete from Auto-Lite Starting and Lighting to Demountable Rims.

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — January 17, 1920 — No. 3

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JAN 20 1920

Is the World Going to Starve?

WE still watch for the census returns with intense interest. We ask: "Is the nearby city growing; is our state growing; are there more people to eat of our products; is our marketing field greater than it was ten years ago?"

The tendency must be toward the bigger and better. We must grow. The world must grow. So we are watching for the census returns.

But since the period of hunger of large portions of the world, which has followed war's destruction, the question sometimes suggested by the boast "See how fast we are growing," is "Can the world continue indefinitely to feed this ever increasing hoard of humans; will the soil of the earth produce enough a hundred or a thousand years hence?"

The answer to those questions might possibly include some sugestions as to the causes of the late war and certainly suggestions as to why nearly every one of the older nations of the earth is endeavoring to reach out and provide for its future peoples by colonizing and securing more of the earth's surface. They are looking to the preservation of their own kind.

Out of the bigness of her domain and bigness of her heart America has said—and still is saying; "Come, we have enough for you all, help us to reclaim our rich valleys, our hillsides, our deserts."

They came from all Europe; they came from Africa; and more recently, they have been coming from Asia. The European and African were true pioneers and did help in reclaiming swamp and desert; the Asiatic has been inclined to take advantage of the pioneering of the white race; he has pushed the white man from the improved land and taken only the richest and generally near the large cities.

Now Americans are beginning to think—a very few of us are beginning to think very seriously; we are asking ourselves; 'Has not the time come when we should become even bigger hearted than we have in the past and look more to the future of our own race?"

Take, for instance, the rich valleys around the city of Los Angeles. But a few years since they were filled with attractive homes of American gardeners and truck farmers. Today 85 per cent of Los Angeles' vegetables are grown by Japanese. The change has been gradual, in fact, almost imperceptible, excepting to the American farmer who has been forced off the farm. It is to be admitted that the Asiatic has proven himself economically the fittest to survive. His habits of living are such that the American farmer found it impossible at prices which were made to educate his children and provide comforts for his family and grow vegetables to supply Los Angeles markets. In other words, an unrestrained price war prevailed. The Asiatic proved himself superior for the American said: "Labor in the shipyard or in factories at shorter hours for higher wages suits me better." It is an axiom that the children born on the farms today rule the cities tomorrow. The birth rate on California farms is being increased with wonderful swiftness by the shipping to this country of women who are sent purely for breeding purposes, this in direct violation of the spirit of the agreement entered into between the two governments. And this violation in order to secure another violation of the agreement in that a "native born American" may hold title to land under the guardianship of his Japanese father.

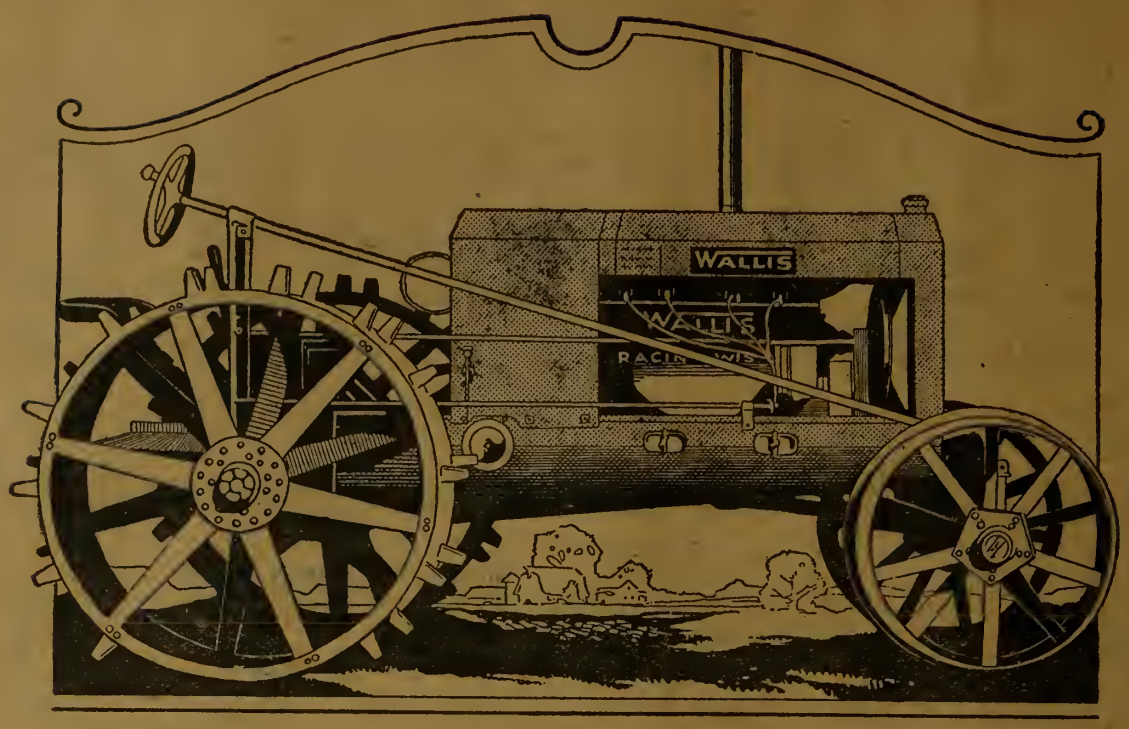
The people of the East are not in touch with these facts, are not in sympathy with our "race prejudice" and do not understand that we Californians are simply looking to the future of our own. "But if any provide not for his own, and especially for those of his own house, he hath denied the faith and is worse than an infidel."

The Japanese has proven his economic fitness, he is proving his wisdom by providing for the future of his own. The future generations of American born Asiatics will call him blessed.

The generations to come of our own will call us—

The East is saying "Business is good, don't disturb us."

The West is saying "Wait, we have commissions gathering facts."



DURING 12 years of service Wallis principles have proven above all else the attribute of constancy. We have established the incontestable fact that Wallis engineering is basically right—that this tractor is built to easily shoulder the strains of heavy farm work.

This important result is not a matter of chance. Wallis engineers have developed it by building on a basis of pure quality—by creating new standards and blazing new trails in tractor designing.

The Wallis owner knows the result: He has seen it in a sweet-running, powerful machine, which goes on day after day without faltering—a machine which serves him faithfully and teaches him the real meaning of tractor economy.

Any Wallis owner will point to his tractor with pride. He will show you the highly developed valve-in-head motor. He will point to the patented "U" frame—the lightest yet sturdiest foundation ever built into a tractor. It saves many pounds of needless weight—and practically eliminates vibration. Other important developments he will point out. For instance, the cut and hardened steel gears which run in dust-proof cases in a constant bath of clean oil; the removable cylinder sleeves which save the heavy cost of reboring cylinders and of new pistons if a cylinder is scored; machine finished combustion chambers—a refinement used only in a few of the finest automobiles.

The Wallis owner speaks of these things with enthusiasm because he knows that the rough work and terrific strains a tractor must overcome require even better engineering and materials, more careful and accurate workmanship than an automobile or truck. And he knows that his Wallis serves him faithfully because it is built upon such standards.

Today there is only one tractor of Wallis quality—and that is the Wallis. It represents a class entirely its own—a class extending back for 12 years when Wallis first proved that in quality—not bulk—is the only real tractor strength obtained.

Wallis owners know that the tractor is a perfected thing—a profitable investment. Wallis has proved it.

More and more men each day are finding in this quality machine the answer to their question "What Tractor?" The demand is heavy right now. This very day is the time to investigate, if you want a Wallis.

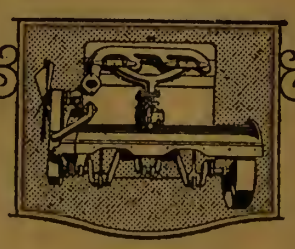
See the local dealer or write us.

J. I. Case Plow Works Company, Dept. T. 31 Racine, Wis., U.S.A.

Branches and Distributing Houses in All Principal Cities

WALLIS

America's Foremost Tractor



The Wallis Tractor and J. I. Case Power Farming Implements will be exhibited at Kansas City, Minneapolis and other important tractor shows

NOTICE: We want the public to know that the

WALLIS TRACTOR

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California Cultivator

Vol. LIV, No. 3 | Los Angeles, January 17, 1920 | One Dollar Yearly

Grafting Walnut Trees

By J. B. Neff

SUCCESS in grafting walnut trees requires greater care than in most of the deciduous fruit trees. There are certain rules to be observed which must be carefully followed and at the same time there are other supposed rules which have no bearing on success.

The larger part of the nursery grafting is done by persons who are expert hence we will confine our remarks to the grafting of older trees which have been planted in orchard form and are not producing as well as could be desired. It is not good policy to allow walnut trees which are not producing well to grow to the age of 15 or more years without top grafting, as those trees have large branches which have to be taken off, and scars are left which are slow in healing over and which, if not given more care than the average grower will have time to give, will eventually cause much damage to the trees. If however, there are thrifty trees in the orchard which are not producing well they can be greatly improved and will come into good bearing much sooner by top grafting than would be the case if the tree was removed and a new one planted.

If it is at all possible the scions should be placed in branches not more than three inches in diameter and two or three scions should be placed in each branch. If the scions should all grow they can be left the first year and the best one left at pruning time next winter. In most cases three to five branches will be enough to leave in which to place the scions, and the other branches should be cut close the body of the tree before beginning the work of placing the scions. Scions should always be of solid, mature wood, that is, with as small pith as can be conveniently found, and with good living buds. The growth having buds close together is best as shorter scions can be used, which is an advantage as they require less moisture and are not so liable to be moved by birds alighting on them.

The most convenient size is about one-fourth inch in diameter and three and one-half inches long, but equally good success is obtained with scions much smaller, or as large as five-eighths of an inch diameter if properly placed. It is probably well to state in this connection that the movement of the sap in the trees is upward through the white wood and downward through the cambium layer (between bark and wood), that the requirements for successful grafting are that the union of scion and stock be such that the upward flow of the sap in the stock can pass into the scion and that the downward flow can pass from the cambium of the scion to the cambium of the stock. Also that all cuts, on ends of scions as well as where the scion is inserted in the stock, shall be thoroughly covered with wax and air tight. Where clefts are made pour these full of hot wax after placing the scion.

When the stubs are cut at the proper place use a heavy butcher knife and mallet to make the clefts, placing the knife across the stub as if a chip one-half to five-eighths of an inch were to be split off. Then depress the handle of the knife to an angle of 30 to 45 degrees and split the edge down two and one-half or three inches, allowing the edge of the knife to reach the farther side of the stub but not cutting down on that side. Open the cleft with a steel wedge one-half inch wide and thickest on one edge, placing the thickest edge toward the outside and far enough from the bark to allow room for the scion. Trim the cleft in the stub so it will be smooth, using a sharp knife. Then cut the scion so it will fit perfectly and place it so the inner bark (cambium layer) of both will be on the same line or at least cross twice. Remove the wedge and put hot wax over all the cuts on both scion and stock at once. The work should be examined every three or four days until leaves are formed, and if threadlike cracks are found they should be covered with hot wax. Any cuts on the body of the tree should be covered with a coat of heavy mineral paint and the trunk and stubs should have a coat of whitewash. An excessive flow of sap for a week or two will kill the scions as the callus cannot form in water. This flow of sap can be controlled by boring one-quarter inch holes in the trunk of the tree near the ground. Bore one or two holes three or four inches deep and wait a few minutes to see the effect before boring more. Do not bore too many holes as three or four will be sufficient to control the flow on the largest trees. These holes soon callus over and do not damage the tree.

If the sap flow has damaged the wax covering wipe it off and cover again. The wax can be made of one pound beeswax, five pounds rosin, one teacup flaxseed oil and one ounce lamp black melted together. The object is to get a wax which is soft enough to be pliable without running in the hot weather. Be sure to get pure flaxseed oil as an oil that will not dry on exposure to the air will penetrate the bark and destroy the cambium, in that way killing the scions. The lamp black is added as coloring matter to show when all the cuts are covered. After the scions have made a foot of growth it will be necessary to nail laths to the stubs and on the tree in such a manner that the new growth can be trained in the desired direction. Care must be taken that the scions are not disturbed when nailing. Strong laths will be needed and can be made of Oregon pine, one inch by two inches by eight feet long. These will be needed two years before removing. Do not take off any of the sprouts at first except those within a few inches of the scions, but as the scions increase in size the sprouts may be thinned, and when the sprouts become two feet long they should be headed back but not removed entirely until the next winter. Do not head back any of the scions during the growing season.

The grafting can be done at any time after the middle of January, but if only a few trees are to be grafted it will be well to wait a month later since there will be less time in which they will require attention. The grafting can be continued until the sap begins to flow and causes the bark to slip. Scions can be cut at any time after the trees are dormant until the bark begins to slip and the buds swell and open. Scions should always be kept in a cool damp place but not where they will be wet. Damp sawdust inside a house is a suitable place.

It is not necessary that scions be cut in advance and "cured" as it is some-

Continued on Page 82

Dairymen! On Your Guard!

By R. P. Royce

LAST week Attorney-General U. S. Webb granted permission to Mrs. M. M. Webster of Sacramento, George M. Renner of Stockton, S. M. Bailey of Imperial and R. Holcomb of Fresno to use the name of the state to sue the Associated Milk Producers of California and four affiliated corporations (the Northern California Milk Producers Association, the Milk Producers Association of Central California, the Imperial Valley Milk Producers Association and the San Joaquin Milk Producers Association).

The suits in question are the result of the request made last September by John W. Preston, representing the above named parties, and to which reference was made in our issue of September 27.

Judging from the reports in the daily press, the case against the milk producers is to be thoroughly tried in the metropolitan papers. And in the opinion made public by Webb the producers stand guilty of several crimes, for the attorney-general says: "I am satisfied from the records and statements before me that, due to the operation of some, if not all, of the respondents (and it is acknowledged that they all act in concert), both milk and manufactured dairy products have been diverted from their local and natural markets; that surplus milk has been destroyed for the apparent purpose of limiting the supply and thereby keeping up the price thereof to the consumer, and that the price of milk has been raised to the consumer in localities controlled by respondents while in localities not so controlled and where free or nearly free competition has obtained, similar raises in the price of milk to the consumer have not occurred."

And there you are!

The worthy attorney-general has evidently spent several months investigating the problem—but we wonder from what angle the study has been made. Has the attorney-general gone to the dairymen themselves and ascertained their problems? Did he take the trouble to discover how much production costs have mounted? Did he investigate the increased price of labor and feed? Did he come to the realization that the dairyman is a consumer and that, in common with all other consumers, his cost of living has mounted by leaps and bounds? Did he find that sugar, flour, shoes and clothing cost the dairyman as much as they do the city or town consumer? We take it that he did—otherwise he would have hesitated to lend the name of the great state of California to those who seek to sue the milk producers.—(Continued on Page 110).

Agricultural News Notes of the Pacific Coast

Northern California

The Alameda County farm bureau has been holding pruning demonstrations.

Lower Sacramento River sections are shipping about 15 cars of celery daily.

Willows, Glenn County, reports jujubes producing profitably in that county.

Low water has made serious situation in transportation on Sacramento River.

Canneries are contracting for next year's asparagus crop along the Sacramento River.

Livermore, Alameda County, has been selling its last wool clip on $1.35 to $1.40 scoured basis.

The Pacific Coast office of the United States sugar equalization board has been closed.

The bigh school at San Juan, Sacramento County, is conducting a short course in poultry culture.

Durbam, Butte County, Cooperative Stock Breeders Association will hold its fat hog auction sale January 19.

Nurserymen of Yolo County report sale of ten carloads of young almond trees to go to San Luis Obispo County.

Tehama County's farm bureau membersbip totals 256. The attendance at the meetings during the year totaled 2,837.

Glenn and Colusa County farmers have subscribed $100,000 to start work on Glenn-Colusa irrigation district.

Solano County farmers are subsoiling and winter irrigating in order to conserve moisture for next season's crops.

Butte County rice growers contemplate largely increased planting because of long price expected in the 1920 season.

Engineers are still investigating tbe Iron Canyon dam site with reasonable hope that a good base for foundation may yet be found.

San Francisco will hold a National Rabbit and Cavey Show January 29 to February 1. V. C. Howe of North San Leandro is secretary.

The Sutter County farm bureau directors contemplate erection of halls for exhibition and social gathering purposes at Meridian and Nicolaus.

California auto numbers now given out are reaching well up toward tbe 600,000 mark. It is said there are actually in the state 463,887 machines.

Rice growers and a great many otbers are hoping sportsmen will bear in mind that tbe duck season closes January 31 and keep their guns active meantime.

E. M. Sheeban, formerly secretary of the state viticultural commission, is urging construction of evaporators as an aid in handling the next wine grape crop.

Rights of way for state highway have been secured through northern Sonoma County and material extension of state highway construction is anticipated.

Modoc County livestock men are objecting to too much sunshine. Roads often closed by snowbanks at this period of the year are free and travel is good, but the livestock is suffering from lack of pasture because of rain shortage.

Central California

Ceres contemplates the erection of a fig cannery.

Raisins already marketed total practically 183,000 tons.

There are six times as many cattle as hogs in the Santa Clara Valley.

The Prune and Apricot Growers of Hanford bave purchased site for packing house.

Delhi, Merced County, held a New Year's rabbit drive which netted 115 of the pests.

Turlock board of trade has advanced money for financing hog auctions to be held monthly.

Navel orange shipments from Lindsay, Tulare County, to date reach above 1,000 carloads.

The total hay crop of Santa Clara County fell off 7,000 acres last year to make room for orchards.

The cotton growers of Fresno County organized for mutual benefit at a meeting at Fresno on January seventh.

Eastern returns on Tulare County navels indicate a price to the growers f. o. b. Porterville of $4.00 to $4.50 a box.

Santa Clara County has 7,652,000 prune trees on 76,520 acres, tbe next in importance being 665,800 apricots on 6,658 acres.

Tulare County has levied a special tax of $1.50 on $100 valuation to build roads connecting with improved state and county highways.

Tulare County farm bureau has appointed a delegate to the state federation. The county has conducted a campaign for new members.

Farmers of Crows Landing district, Stanislaus County, are planning the extension of irrigation ditches and reclaiming large tract of dry land.

January 16 the state will auction 6,825 acres of school land at San Luis Obispo and on the 19th at Salinas 8,489 acres in Monterey County.

Tbe new sweet potato curing plant at Turlock, Stanislaus County, is in operation and the first carloads of the product will be shipped before January 15.

Santa Clara County ranchers complain tbat ranch hands will not work horses because they have to care for them after working as many hours as other help.

County Commissioner Fred Roullard of Fresno reports inspection of 334,408 acres and the poisoning of 59,000 acres with 26,000 pounds of poisoned grain in squirrel campaign.

The San Joaquin County assessor says Japanese own $315,805 worth of land in that county and 213 Japanese own $250,345 worth of personal property outside incorporated cities.

Milk from 1,000 cows per day is being used at Tulare in the powdered milk factory. Nine pounds of powder is obtained from every 100 pounds of milk; the 91 pounds are water.

The head office of the California Prune and Apricot Growers Association at San Jose reports added acreage to date over last ycar's of 7,000 acrcs of prunes and 2,000 acres of apricots.

Farm home meetings for January in San Joaquin County are: Lockeford, 15; Manteca, 16; Acampo, 19; Linden, 20; Ripon, 21; Escalon, 23; Lodi, 24; Live Oak, 27; La Fayette, 28; French Camp, 29; Farmington, 30.

Southern California

Imperial Valley is now forwarding carlots of grapefruit.

Chino walnut growers are planning big packing and warehouse.

The San Diego poultry sbow is on this week; will end next Monday.

Commissioner Brock of Ventura County is making a gas drive on squirrels.

Claremont and Pomona packing houses are running full handed on navel shipments.

Newport Beach, Orange County, has ruled against locating of oriental fishermen in that section.

The Poultry Breeders of Southern California closed its annual poultry sbow at Los Angeles Tuesday.

San Bernardino County reports its crop of oranges, especially Valencias, much lighter than that of last year.

In San Diego County the 200 acres of cabbages are expected to yield 75 carloads, shipping to begin January 15.

The O. K. Fruit Exchange, comprising Ontario-Upland-Cucamonga district, shipped last year 3,356 cars of citrus fruits.

A new townsite named Hillgrove has been laid out between El Monte and Puente, Los Angeles County, on the Salt Lake railway.

The Goleta, Santa Barbara County, walnut warehouse is still handling nuts and gleaning and sorting will continue to Feburary 1.

Tbe Salt Lake citrus packing house at Riverside is being greatly improved in equipment. Several thousand dollars worth of machinery is being installed.

The farm bureau of Imperial County is urging county commissioners to postpone road building campaign until more definite plans as to best routes can be made.

El Cajon Valley, San Diego County, has begun its orange shipping season; its fruit is running largely to Sunkist grade and is being shipped under Cuyamaca label.

The new cotton compress at Los Angeles is working on its first order of 3,000 bales. Large cotton warehouse facilities have been provided at Los Angeles harbor.

Imperial cotton growers recently made a journey to the Salt River Valley cotton producing section of Arizona, gathering information as to long staple culture.

The Pomona Valley Poultry Association recently elected as president C. H. Taylor; first vice president, A. M. Green; secretary, H. G. Brown; treasurer, Carl Trebing.

Murray Horne of Los Angeles is shipping to a brother in Gladstone, Australia, one pure bred bull and one heifer of Polled Herefords, purchased at Des Moines, Iowa.

Rhodes grass is securing increased planting in many parts of the Imperial Valley. It was introduced there in 1902, being originally secured in South America by the department of agriculture.

There will be a short horticultural school course at Hemet, Riverside County, January 11-14. Profs. Bioletti and Whitten of the state agricultural college and Farm Adviser Hodgson of Los Angeles County will be present.

The Coast and General

The Washington state irrigation institute was recently held at Spokane

Tbere will be 120,000 acres about Phoenix, Arizona, planted to cotton in 1920.

The National Wool Growers Association will meet in Salt Lake City January 19-21.

The Washington Poultry Association recently held its annual sbow at Wenatchee.

The weather bureau's last report for Arizona stock ranges is: "Good, plenty of grass and water."

Idaho wool growers in session at Boise favored ten year grazing permits in public lands.

Cotton picking in Western Arizona is nearly endcd, the season being fully six weeks in advance of last.

The farmers of Washington recently met at Toppenish and organized a hay growers marketing association.

On January 15 the shipment of Mexican tomatoes from Sinaloa began —an anticipated crop of 1500 carloads

Brazil is so short of farm hands that it will pay the steamer farcs for 3,000 German farm hands from Amsterdam.

The Yakima Valley of Washington expects a total output of about 4,000 cars of hay valued at about $250 per car.

One old hen near Portland has had her life insured for $5,000. Sbe claims the record of 330 eggs in 365 days.

Benton County, Oregon, recently held its annual corn sbow, its principal feature being an enormous corn castle.

High water in all Arizona streams is giving ranchmen a grand crop of fuel and fencing material from driftwood.

Arizona wishes congress to amend the immigration laws to allow temporary importation of cotton pickers from Mexico.

Short length stove wood at Jerome, Arizona, is selling at $42, a greater cost for fuel than pine lumber at prevailing prices.

Oregon farmers are trying out sunflowers for ensilage. Good old Indian corn is still considered the standard, however.

Middle West cattle owners have combined and secured the services of W. G. McAdoo and Francis J. Heney to fight the packers trust.

Tbe war department is about to release 34,000,000 pounds of frozen beef to the wholesale trade at 20 per cent below Cbicago quotations.

Of 21,000 brands on the books of the livestock sanitary board of Arizona but 5,000 bave been legally registered and no others will be recognized.

Oak Harbor Fruit Growers Association, Washington, has agreed to contract 80 per cent of its crop of berries at seven and a half cents for a period

The Multnomah, Oregon, fair directors have sold their fair grounds to the county commissioners, and hereafter the fair will be under the management of the county.

Tbere are at present 15,000 Mexicans in tbe Salt River Valley, Arizona, that are temporarily in the United States as farm laborers holding government permits as a war measure of five years.

A Letter From England

By J. Raine

KELSHAM Farm House, Headcorn, Kent., December 13, 1919. Sir: I have been sitting over my fire reading your paper which made its ever welcome appearance this morning. It is growing late; the winter wind is roaring in the great cavernous chimney of this ancient farm house; the breath of the wind is touched with ice; the Christmas is once more drawing very nigh, and tonight I happen to be alone.

As I look musingly into the flames leaping on the hearth I see pictures, and they are pictures of your wonderland. There comes over me a feeling of fascination. I have passed the halfway mark to the century, and I am a fairly busy man without much time for dreams, but the California that your paper tells of seems to have laid a spell upon me, and I feel that I would give a good deal to see the reality of the vision which is pictured in the flame.

* * *

Every week you send a message of interest, and profit, from the new world to the old; can not the old, for once, find something to say that will interest the new? Would it interest some of your readers that the house in which I sit chatting to them was an old, old house, a hundred years before the Mayflower sailed on her history making voyage. About the year 1450 this house was built. There are men and women sleeping in the church yard here who ate their Christmas dinner under this roof 300 years ago and more. When the first fathers of your country left these shores for a land of freedom for religious opinions, the astonishing event would no doubt be much debated by the good folk round this hearth, all wondering what the new Exodus might portend. How tongues would wag and heads would shake, tongues that have been very still for such a long time now, and heads which, we will hope, have now much better information on religion than we have.

These very old houses make one realize something of the "oldness" of England herself, the motherland of so many mighty peoples, children of which she is really proud beyond words, though like other mothers she has not always understood why her children should wish to be different, sometimes, from what she was. But she gets wiser as she gets older, and she understands quite a lot now.

* * *

Now for some of your readers who do not care a cent for old houses, but who may be interested in, say, raisins. Looking down at me from the old oak chimney shelf is a blue packet. On the packet is a gorgeous sun in full blaze. In front of it is a charming young lady carrying a tray of the very finest grapes. Under is "California Sun-Maid Seeded Muscat Raisins." What do you think about it? I found the lady of the grapes—where do you think?——in our village shop. I promptly invited six of her to go home with me. (34 cents a time. Is this about right?) Anything more delicious than the good things your raisin lady hands out I don't want to taste. I am steadily eating them, straight out of the packet, and if I don't get the raisin habit it won't be the raisins' fault. The order has gone forth that Christmas pudding, mincemeat, etc., are to be made this year of Sun-Maid raisins only.

Having shown you that my disposition is thoroughly friendly, not to say grateful, will you allow me to touch on two points which I think deserve your attention. I am told in several quarters that your raisins are rather too dark for our market. Our housewives have so long been accustomed to light colored raisins for cooking purposes that they do not take kindly to dark ones. Is it possible to cure your grapes in a way that will meet our tastes? It seems obvious that you wish to get your product on to our market, and—well I am telling you what I am told.

You have, I hope, accepted my suggestion in the spirit in which it is offered, and will perhaps allow me to refer to a matter which appears to call for serious consideration. The raisins I have been praising are those of the Sun-Maid brand, packed by the California Associated Raisin Company, Fresno. They certainly are quite excellent in every way, and though our women folk may take time to appreciate them, they do you nothing but credit. But there are California seedless raisins in our shops which do not do credit to their producers, and which the shopmen surely cannot sell, and which the women will most certainly never want, and no wonder. Today I was shown an opened packet of a certain brand, which was just a nasty mess. A yellowish, viscid, sickly looking matter was oozing out of the said mess, and —well the stuff was on offer for three cents less than what the tradesman had given for it. I asked the man why he didn't stock Sun-Maid brand. He said that he had had some, and had sold it, and it had given satisfaction, and he was sorry he could not get any more till 1920. (The color had not interfered with this man's sales, but still "one swallow does not make a summer").

Now this is how it strikes me. I think I have read that the majority of your raisin growers are members of the association. The article they offer is first rate, but the credit of the California seedless raisin is in danger of suffering through stuff put on the market by a comparatively few men who perhaps are tempted by an extra cent or two offered by some smaller concern. Those extra cents have to be got back somehow if the finished article is to be able to compete in the same market as the brand of the big association, which also has, by reason of its size, facilities for successful advertisement which the smaller concern can not command. One thing is certain, there won't be any repeat orders for the brand I am referring to.

I hope you don't mind my mentioning these two points; if I am in the wrong through incorrect information, please forgive me.

* * *

What a great business the cattle and dairy industry seems to be in your state. The milk and butter fat records you have made are well ahead of anything we have done so far, I believe. However, I don't want to touch on that side of the business now. Christmas is the time of fat stock shows with us. Is it the same with you? Scarcity and cost of foodstuffs make fattening a difficult problem at present, but still there have been some fine Christmas beeves—as our fathers would have called them—in the shows. Smithfield Show, London, is the most important, and has just taken place. The King's Challenge cup for the best beast in the show went to G. F. Cumming's grey crossbred heifer. The champion cup for the best steer or ox went to Alexander Reid's black crossbred which had previously won the championship at Edinborough. The Duke of Portland's white heifer won the breed cup for the best Shorthorn, which reminds me that over a million pounds has been paid this year for pedigreed Shorthorns, most of which have gone abroad.

Speaking of Smithfield, the first show was held as long ago as 1798, and the prize money only amounted to 50 guineas, but there were evidently some fine animals competing. An ox belonging to a Mr. Westcar, which won first prize, was sold for 100 guineas, and measured eight feet 11 inches long, six feet seven inches high, ten feet four inches girth, and weighed 300 stones (1,400 pounds). So the record runs. Some ox.

At Smithfield this week—this will appeal to your poultry men—a pair of Rhode Island Red cockerels won the pure bred championship in the dressed poultry section, for, I believe the first time.

* * *

As you may be aware Kent is the great fruit and hop county of England and this year must have nearly set up a record for both. Of course in acreage hops are very low compared with pre war days. Last year only 15,000 acres were under cultivation. Replanting is now proceeding apace, and it will not be long before we are touching the old figures again. The average price of English hops is 18 pounds five per 112 pounds, and imported hops are said to be almost as much, some people say more. You ought to be able to grow a fine sample in your climate; but what are you going to do with them now that you have suddenly become so virtuously abstinent? I rather doubt if a sudden conversion is a lasting proposition. I see that one of your big hotel men is over here trying to fix up a $20,000,000 palace for London. That will mean accommodation for quite a lot of your folk, and will be a sort of "home from home" on very high class lines. I haven't heard whether a liquor license is to be applied for. Well, I'm on the dry side anyway, though I sometimes think that I miss quite a lot.

However, there will be a very sincere and hearty welcome to all of you who are looking forward to a visit to the old country, and the more the merrier. Let me say here that if I can be of any assistance to anyone in providing information, or perhaps even in showing some of the interesting things that this county is rather proud of, please make use of me. I have perhaps unusual opportunities for offering some service to those interested in fruit and hops as I look after an experiment department for one of the largest firms of insecticide makers in the country, Messrs. Robinson Bros.

* * *

A prosperous New Year to California and to the California Cultivator.

About Tractors and Trucks

By James De Camp

WITH the growth of the tractor industry the buying, selling and trading of second hand tractors is becoming a separate and well established business. It is inevitable that, as has been the case in the used automobile game, a certain class of unscrupulous speculators will traffic in unreliable machines.

Remember that a man who disposes of an automobile or a tractor has a mighty good reason for doing so. If you are in need of a tractor and cannot stretch your purse over the price of a new one it is advisable to deal with one of the large agencies selling new machines.

These houses usually take in used tractors in trade for later models and in many cases will give some sort of a guarantee or term of service. A tractor thus purchased is sure to have been overhauled and supplied with any necessary new parts.

Tractor Operating Under Difficult Conditions
Tractor negotiating light sandy soil and walking away with eight-foot double disk.

It is true that many good bargains are advertised by the individual owner. Unless you have had mechanical experience it will be to your interest to employ a competent mechanic to inspect your prospective buy. Piston slaps, bearing knocks and serious ailments of like nature are not detected by the untrained ear of the layman. The period of service of a tractor is not recorded in terms of miles on a speedometer dial. The usage to which

Continued on Page 82

Established 1877 Forty-second Year

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Saturday Jan. 17, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

MINDING OUR OWN BUSINESS

Perhaps the most popular pastime in the United States is minding one's own business. Hence, at the last meeting of the National Grange, 4,000 farmer members being present, it was unanimously resolved that the farmer wants to be "neither subsidized, patronized nor uplifted." He wants the gambler to leave his products alone and give him a fair chance in the market; likewise that he shall not be legislated out of existence. If left alone, the farmer will como across.

PLANT MORE TREES

Hundreds of tons of olives were ruined this season because of winds sweeping through the orchards at ripening time. Some of the fruit was gathered from the ground and made into oil, but it is poor consolation to grow big, fine table olives only to send them to the oil mill. No series of windbreaks would have saved all of this loss, hut a reasonablo planting would have lessoned it and the state ed many an individual grower bo the ther. It requires somo littie land to grow windbreaks, but there are some sections of the state where best results with horticultural crops call for this protection.

Plant a tree; plant a row of them.

KILL THE VARMINTS

The gassing of bugs on the trees will soon be over for a very few months, but the gassing of squirrels in their holes is now in best of form. Where the rains have been sufficient to moisten the ground wasteballs and carbon bisulphide aro used with deadly effect on the squirrels. Ground squirrels are costing the country millions. The state and the various county rodent controls should have fullest support on the part of producers, for the money which is saved will easily pay for the cost of the control and leave a large profit.

MORE WEATHER, PLEASE

"Present prospects," according to crop review report, "for 1920 crops are classified as 'good' ". And so they are, but we have our weather eye on the sou'east and are hoping with a very long hope for a wee bit o' rain. The extreme northern end of the state has had only about half its normal precipitation up to this time. The south is somewhat above normal as to total quantity, but its distribution has not been as satisfactory as in some other years.

On the other hand, it has been somewhat cold, and in some citrus producing sections "no smoking" signs have been ignored.

GREAT CITRUS FAIR

The National Orange Show people announce that it will be bigger and better than ever. It will open on February 13 and continue till the 23d. The show will not be near the center of town as heretofore, but at Urbita Springs a short distance south of it. Ten acres will be covered with tents and temporary structures, and the small lake in the park makes possible a water carnival. It is presumed the attendance of Easterners will this year be greater than ever. Nearly all of the citrus producing districts of the state have given assurance of participation. Every variety of orange, lemon and grapefruit, as well as hundreds of by-products, together with implements and working appliances, will be exhibited.

FARM EDITORIALS

Many men of many minds are required to make up a republic. This republic of the United States has the goods. The time was when there were two very decided factions; one believing in abolition, the other in slave holding. That was our most serious difference of opinion. The question was settled, however, and both sides now agree it was settled right. Numberless other questions have come along. Some have been settled and some are up for argument. Today we have the League of Nations, prohibition, labor, and most of us on the Pacific Coast are hoping we may have a more general discussion on the matter of America for Americans. The Cultivator has touched upon this somewhat, and has brought out letters of commendation—or otherwise—and these letters make excellent farm editorial reading. The first one is from Edwin S. Petorsen of Altadena. He writes:

"In the discussion now going on about the Japanese, let me commend your moderation and evident desire to reach a conclusion calmly. Hysteria and yellow journalism can do no good, although both seem to be the ordinary spirit in which our papers discuss all vital questions.

"If the Japanese are a menace, of course, the United States has a right to meet the matter—no one questions that. On the other hand, there is a serious lack of labor in the state, and as long as that remains acute cost of living will stay up. This lack is on the increase for many foreigners not caring to live longer in a country of prohibition are leaving in large numbers. Los Angeles, I am told, has lost over 3,000 Italians. And in spite of all cries to the contrary, there are no vast hordes waiting to come here from Europe. Those who do leave Europe are bound for South America where the financial gain is as great and life less trammeled by Puritanical laws. With the loss of over a million workmen gone back to Europe, and the desire of many of our citizens to send the Japanese and Mexicans back to their countries, I ask you who is going to pick the oranges and lemons, as well as do the many similar tasks. The real Americans? I doubt it."

As Mr. Petersen says: "The United States has a right to meet the matter if the Japanese are a menace." Likewise, we may say the country has a right as to prohibition or other question which concerns all the people.

If booze is a menace, as the great majority of our people seem to think, it is wiped off the slate. The majority has ruled, as it must continue to if we remain a republic. As to the solution of the labor question it will be a long time before it is entirely solved, but there is a suggestion on this page.

A San Diego County subscriber, who requests that his name be withheld, writes:

"I read with great interest those articles in the Cultivator about the Japanese invasion of California. There is one point which no one seems to consider and that is the Japanese will not sell land in Japan to Americans, so why should Americans sell their land to the Japs? My informer was a Japanese man of the educated class. He said Japan was held for the Japanese only (if this is not correct I should like to know). He also said the word of his countrymen was not to be relied upon and that they could be very cruel, which we see is true from the accounts we get of the treatment they deal out to the Chinese of Shantung today. What virtues they do possess are actual dangers and weapons to be used against the Americans in some future time if the Americans tolerate them now. They have, in a way, so impressed the world with their good qualities that many people are quite blind to their bad qualities.

"Go ahead with those articles and may they open the eyes of those who are indifferent to the situation."

C. D. Hubbard of Santa Barbara County feels that more definite and immediate action should be taken by each one of us. He writes:

"I consider this the most serious matter that has ever come up in California and the United States. If our laws could only be made with the idea of the good old U. S. A. for white Americans and laws for right and justice instead of political and financial and selfish gain. I would like to join a club and take an oath something to this effect: 'I promise never to buy, rent or lease anything of a Jap or to hire a man, woman or child Jap, or sell, rent or lease anything to a Jap.'"

FARM LABOR PROBLEM

The farm labor problem is yet to he solved, that is, its solution is yet in the future unless the American has determined to allow the Japanese to settle it for him. Discussing this matter, the Los Angeles Times asserts that white workers prefer other employment, especially that where the more arduous work is performed by machinery and the mechanic furnishes the brains, and then regrets that the days of "hard labor" on the farm are largely over for white people. "Crops must be tended by hand; there must be laborious hours in the sun, employment of muscle rather than of brain. It is a wearying occupation."

We do not agree; we believe the most inspiring and noblest of all work is out in God's open, growing food and raiment. There is no more universal yearning than that of the human shut up within four walls for an opportunity to be out in the sunshine tilling the soil, but the trouble has been in the matter of compensation. The competition has been too keen and others who like the life of the outdoors were willing to forego many things which the American deems essential, and he was undersold and ultimately driven from the land. He will go back to it quickly if given the opportunity to earn honest bread and butter. However, the Times continues the discussion of the labor question from a new angle, so we quote liberally:

"So long as the Japanese continue to control the production of food stuffs in California there is no prospect of a reduction in the cost of living. Japanese labor is not cheap labor. The little brown traders know how to get as much for their products as the traffic will bear. The average price of vegetables has increased 200 per cent in five years. So long as the Japanese control production they will fix their own prices; and despite the so-called 'gentlemen's agreement' restricting Japanese immigration, Japanese workmen continue to find their way by the tens of thousands yearly to the agricultural districts of California. What is the remedy?

"There is a single source of adequate supply of labor to cultivate the idle acres of California at this time. That supply is to be found in China. The Chinese coolie offers the only present defense against the Japanese industrial invasion. The hasty reader will exclaim that the oriental menace would not be lessened if Chinese farmers were to be substituted for the Japs. But between the two there is a vast difference. The Times reiterates its suggestion that the Chinese Exclusion Act should be suspended for a period of three years; and that Chinese farmers should be permitted to come to this country to work for a three-year period, under contract to return to China at the end of that time.

"Once a Japanese gets into California through the meshes of that gentlemen's agreement, he stays here. He takes up land, holds it in the name of his offspring hy a picture bride, and the acres which he occupies are lost for all time to the white race. With the Chinese a different arrangement can be made. Bringing them to this country on a three years' contract to work does not mean giving them permanent residence here. At the end of that three-year term they must return to their own country. They do not become a menace to white sovereignty. They are a present help in time of need.

"If a machine were to be invented which could do all the arduous work now performed by hand on the farm it would be welcomed as a Godsend. That machine would mean increased production and a lowered cost of living. Why then the protest against employing a human machine to do the work? Who would he injured if 1,000,000 Chinamen were brought to this country to work on the farms or where needed, and if 100,000 of them were to be employed in California? They would replace none of the white workers in California industries. The only ones to be affected would be the Japanese farmers. This influx of Chinese workmen would break the Japanese corner on the food market. The workers of the city would be able to live for less. The grocery and vegetable hill of the average Los Angeles housewife would he cut in half within a year; and not a singie white person in Los Angeles would bo thrown out of employment. Why are we shrinking from a solution of the labor problem which would be of such general benefit?"

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"SINCE I changed over from solid tires to Goodyear Cord Tires, my motor trucking to Omaha, 31½ miles, has improved tremendously. I now deliver livestock in less than half the time, and with shrinkage greatly reduced. At 15,000 miles, my Goodyear Cord Tires look well able to travel much farther." — Roy Stokes, Rural Motor Express, Loveland, Iowa

HERE is a case, like many others, where the traction and cushioning of pneumatics help farmers to get better prices by making safer and more dependable deliveries.

It is consistently reported that pneumatics enable shippers to reduce the shrinkage of livestock in transit and to unload at stockyards on time despite weather conditions.

The scarcity of help is not such a handicap to these farmers, because they have thrown off the other handicap of slow hauling, either by teams or on solid truck tires.

They haul more loads per day on pneumatics without additional hands, and also get more work from their power-driven machinery, because a truck on pneumatic tires is the quickest feeder for this machinery.

The development of Goodyear Cord construction, extending over many years, has made the pneumatic principle most effective because it has given to the Goodyear Cord Tire a remarkable toughness.

Additional information, showing how farmers save drudgery and increase income with pneumatic-tired trucks, can be obtained from the nearest Goodyear Truck Tire Service Station, or by writing to The Goodyear Tire & Rubber Company, at Akron, Ohio.

GOODYEAR

CORD TIRES

The FRUIT GROWER says=

"for tree planting genuine GIANT is most satisfactory"

The Giant Farm Powders—Eureka Stumping and Giant Stumping—loosen and pulverize the soil instead of packing it and throwing it high in the air.

Western fruit growers have used hundreds of tons of these Giant Powders for blasting beds for trees. They have proved that blasting with genuine Giant Powders provides free drainage, increases moisture-storage capacity and insures vigorous growth and early bearing.

"My trees planted three years ago in beds blasted with Giant Powder are 75 to 100 per cent bigger and better than the trees that I planted in dug holes," writes H. H. Smith, Oregon City.

You will enjoy reading "Better Farming with Giant Farm Powders." It describes all the new and money-saving methods of blasting beds for trees, subsoiling established groves and orchards, clearing land, ditching, etc. Write for it now.

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When Writing Advertisers, Mention the Cultivator.

Olives and Grapes at Hemet

By Ernest Braunton

DOWN in the Little Laks district four miles east of Hemet the Riverside County farm bureau held a pruning demonstration on the Wilson and Moulton ranches, January 5. The subjects for surgery were olive trees and grape vines and the operating surgeon was Prof. F. T. Bioletti of the state college of agriculture. About 50 persons were present from nearby ranches, with J. E. Wherrell, president of the Riverside County farm bureau, R. M. Wilson, farm adviser, and R. E. Neblung, assistant adviser.

The first tree pruned was a large Mission olive 27 years old in an orchard where every other one had been taken out three years ago and those left are still too close together. These trees are very tall, of many stems or lowly divided trunks. Prof. Bioletti said the sole determining factor in topping them should be the cost of picking the crop. "Do not merely top such trees for you will cut away but half of the growth and a lot of new shoots will spring up to take its place and grow higher still. Cut down ten or 15 feet, perhaps more, and make a new head. Cut out the main upright just above a strong branch pitching outward and remember the reduced cost of picking must justify the expense of this topping or it should not be done. But either top heavily on large trees or not at all. This will encourage lateral growth, and judicious thinning annually will develop a heavy crop of olives much nearer the ground.

"Cut out old centers on any trees and encourage side branches, but each year thin, thin, thin. The sun and air must get in, so thin until you can see through all parts of the tree. While topping is occasional, thinning must be done annually. There are no specific rules for pruning olives; the main object to be obtained is a well-thinned tree."

At this point Prof. Bioletti was asked the cause of olives shrivelling on the trees about November. He said it was due to cold winds when the soil has become so cold that the roots will not function well and cannot therefore pump water to the fruit and foliage to overcome the exhaustion by the drying wind. This is technically a physiological drouth. A physical drouth is one where sufficient water is not present in the soil, but a physiological drouth is one where sufficient water may be present but the tree cannot use it because of partial dormancy of the feeding roots, caused in this case by reduced soil temperature."

Young Olive Trees

The next pruning was of three varieties of younger trees six years old, the first a Manzanillo. "This variety," said Prof. Bioletti, "is a drooping one and seldom grows too high. Open up the center, thin well and cut away the larger drooping branches. If this were a Mission I would not cut the lower branches so much as the growth is more upright." By the time Prof. Bioletti had said this much the tree was nearly pruned, the whole operation not requiring more than five minutes.

The next subject was a Mission. "Do very little pruning until five or six years of age. Leave the center growth until the side branches have got their proper angle. If you prune out before this takes place, when trees are young, the side branches will grow in toward the center, as the tendency of the Mission is to make upright growth. But thin, always thin, for three things: First, to let in sun and air so a well distributed crop will set; second, so too many olives will not set; third, to encourage good growth for next year. Again, do not be particular how you prune so long as you thin. The Ascolano is a straggly grower, also needs cross-pollination, and doubtless all olives would be better for it, too. This variety will droop, and at two years old it is better to tie the trunks and branches to stakes and keep them thus upright for two years, after which they will have become fairly fixed for proper position."

Fertilizing and Irrigating

Asked about fertilizer he said he had little to say for if soil is good olives need little or no fertilization but if they are fed a nitrogenous fertilizer only is needed, but a well chosen olive soil should not need fertilizing or the game is not worth while. Asked as to irrigation he said three irrigations are necessary if rainfall is insufficient but the first one need not be given in case of sufficient precipitation. The first should be to start the growth, in January or February; the second two or three weeks before time of blooming, in the Hemet section about April. The third application is for sizing up when the olives are half or two-thirds grown. Olives should be irrigated infrequently but heavily.

Grapes

The first grape pruned was a Thompson Seedless that had been left too long and built up too high. This variety is long pruned. "Leave fruit canes two to four or even six feet long, weak spurs to one eye, medium spurs two eyes, and strong spurs three eyes, or an average of about two. Also leave a strong spur near the base of each fruit cane (if present) so it will make the fruit cane for next year, for the old one should be cut away. Ninety-five per cent, rather more, of each season's growth should be cut away. Leave three to six canes, according to manifested vigor of vine and never use any but the one-hand pruning shears; the two-hand or hedge shears often split the canes and especially the spurs. Every vine or long-pruned grape should have a stake or trellis, and the latter is much the best. Canes of horizontal growth will sometimes break in pulling up to a stake, which they would not if fastened to a trellis. In staking take canes in both hands, and beginning at base keep bending them sharply all the way up in the direction you wish to draw them. This distributed bending will prevent snapping at one point and will check the sap flow so it will start growth all along the cane. Otherwise, and if tied upright, the sap will rush up and make the growth nearly all terminal. The best trellis is two wires strung 24 and 40 inches above the soil, the lower for the canes and the upper to care for the upright laterals."

The answer to the last question brought books and scraps of paper from pockets of nearly all present. The question was: "What are the best grapes for a family vineyard in the south?" The answer was: "I will give you three grapes in three classes, a white, a red, and a black in early, medium and late season, though there is no good flavored late grape. Nearly all these are new ones, but the best, and all but Black Monnukka and California Concord, or Pierce, are to be short pruned. The early varieties are: Kahlali, Duke of Magenta, and Black Monnukka, being white, red, and black as named, as are the other classes. For medium plant White Queen, Marvel of Malaga, and Black Muscat, or perhaps the Pierce where the Black Muscat is not good. In late varieties use Verdal, Gros Guillaume, Gros Colman or even Black Cornichon. One may get not more than two each of the new varieties from University Farm, Davis, for five cents a cutting so long as they last. Better allow them to substitute in case of shortage. Use these buds for grafting, to gain three or four years in fruiting. Or if grown from cuttings plant up near house and water well once a month. Next season the rooted cuttings may be set in permanent position. At Davis we have 400 varieties."

BLUE RIBBON PEACH NEWS

The California Peach Growers Inc. begins the new year with issue of Vol. I No. 1 of Blue Ribbon News, a house organ. This is for circulation among the members of the association and is full of live stuff of news interest to the peach grower.

"Through the columns of the Peach News we will endeavor to keep the membership informed from time to time on crop and market conditions, as well as to convey to each member any special report we may have on the progress and affecting the general welfare of the association."

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THE LIST of motor cars below is not merely impressive evidence of Willard leadership—but of a three-fold Willard responsibility—fully realized and fully accepted.

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The lastest of many Willard contributions to battery improvement is the Still Better Willard with Threaded Rubber Insulation—an invention which entirely does away with what was previously an almost universal battery repair expense—re-insulation. Our one objective is the car owner's complete satisfaction, and this we pledge to those who make or sell motor cars and to the millions of men and women who drive them.

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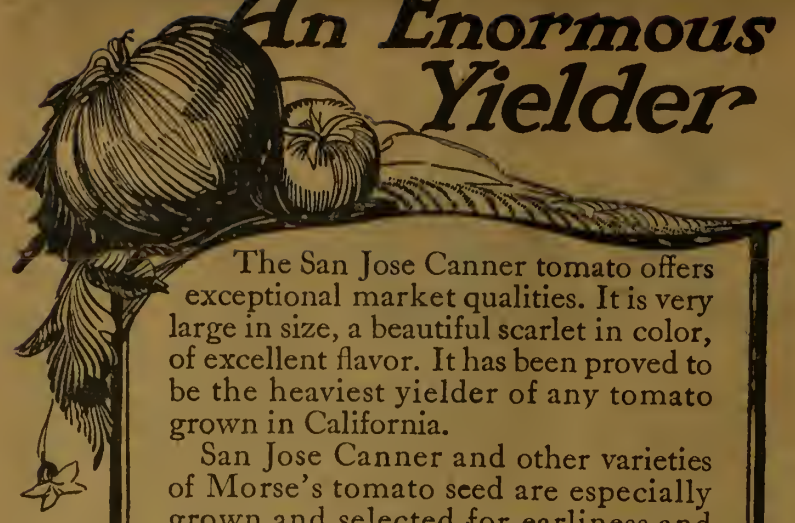

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Like other Morse seeds—our tomato seed is *soil-tested*. That means that seeds are planted in the soil (not on a blotter or cloth) and we count the number that sprout. Morse's seeds are alive. They grow. They yield large crops.

Write us for quotations on any kind of field or farm seed. We operate the largest seed farms in the world. Consequently, you'll always find it profitable to get our prices on Morse's Grand Prize seeds. Send us a list of your seed needs today—and ask for our free 1920 Seed Guide or catalog.

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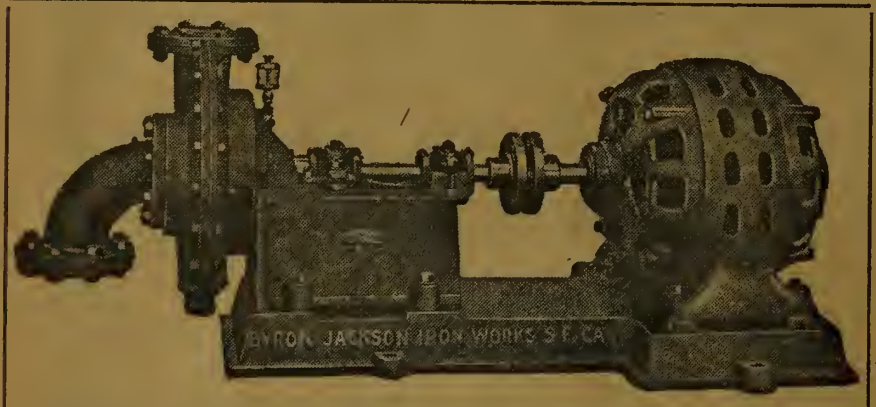

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Write us giving your water conditions and requirements.
Our New Catalog No. 60-B for the asking.

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Are Very Scarce

Our stock is complete as yet
Place your orders early to be sure of
getting what you want
Only experienced men handle our stock
Send for our complete catalog

MORRIS & SNOW SEED CO.

439 C S. Main Los Angeles, Cal.

When Writing Advertisers, Mention the Cultivator.

ABOUT TRACTORS AND TRUCKS

Continued from Page 77

the outfit has been subjected can only he determined by the inspection of an experienced person.

In most cases a brand new tractor will be found cheaper in point of service and upkeep than the second-hand hargain. Many have found it a wise financial step to purchase a new tractor on terms rather than invest the cash at their disposal in a used machine.

The tractor industry has a future comparable only to that of the automohile business. Dealers in used automobiles have heen forced to hand together for protection against curbstone vendors and "fly-hy-nighters" who concealed "shot" bearings hy filling motors with heavy steam engine oil and are even alleged to have used an oil containing a high percentage of pulverized cork.

If your tractor is given one-third of the consideration accorded a horse, repair bills should he a curiosity. With the rainy season here it is in point to remark that a tractor left standing in the field through storm and shower will not perform with maximum efficiency and depreciates rapidly in value. Rust and exposure are deadly enemies of service while moisture often causes expensive short circuits.

Tractioneering is becoming a recognized profession. Many localities hoast of a plowing and cultivating contractor who will undertake piece work, using his tractor or tractors. Others, doing business on a larger scale, ship their machines ahout the state, working in the San Gahriel Valley one month and the Sacramento the next. These "taxis of the soil" prove convenient and economical for the man who does not own a tractor or has more work to do than his equipment can handle. It is reasonahle to predict that those living near the larger towns will soon be able to rent tractors without an operator, just as automohiles are hired out by the day, week or month without a chauffeur.

Accredited tractor schools are turning out qualified tractor mechanics. Many garages in the smaller towns now display signs, "Tractor Expert," or "Tractor Work Done Here."

The census of 1920 will demonstrate that Old Dohhin is not yet to be classed with the downtrodden buffalo. However, there will he a tremendous decline from the figures of 1910 in the number of his kind registered. The spread of the automobile retired the horse to the stronghold of the farm, which has since heen successfully invaded by the tractor. The tractor movement is of such recent growth that it has not had opportunity to make itself felt seriously at the time of the present census.

Figures compiled several months ago hy the sanitary bureau of the hoard of health of New York City show that 41 per cent of the horses accredited the metropolis by the census of 1910 have disappeared at the present time.

Users of solid motor truck tires seem to consider that the "feet" of their machines need no attention whatever. Mileage may he prolonged by treating cuts and chipped places at the side of the tread with cement and tire putty, just as a pneumatic casing is taken care of.

GRAFTING WALNUT TREES

Continued from Page 75

times termed. They can he kept two months or can he cut and placed in the tree at once with equal success. Any wax that will adhere to the wood without cracking or running and without any free oil to soak into the hark is equally good. Scions of mature wood of the last year, whether one-eighth or five-eighths of an inch in diameter, are equally good when properly placed. One part of the twig from which the scions are cut is as good as the other provided the wood is mature and the end huds are as good as those on the side and vice versa.

The Illinois experiment station made a series of experiments with fruit trees to determine whether there was a difference in propagating from large or small buds or whether cuttings from different parts of the tree had any influence on growth. The conclusion was that all huds from healthy wood were equally good, so far as growth of trees was concerned, and that there is no tangible basis for the assumption that large scions are superior to small diameter scions for purposes of propagation.

Turlock cantaloupe growers are receiving their supply of seed from Colorado.

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Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

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To the manufacturer this principle demands the construction of the very best, the most efficient machine manufacturing skill can produce—a machine accurate to a hair's breadth in every detail—one that stands up under the heaviest work any tractor can be called upon to perform.

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that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

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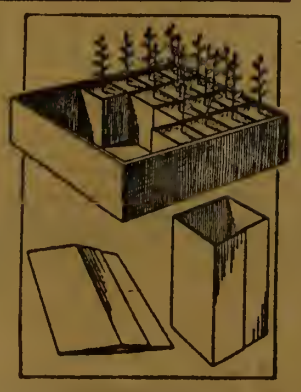
These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rosa Cuttings, Geraniums, Eucalyptus, Olive Cuttings. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.



THE EXPAN CO
935 East Central Ave. Redlands, California

When Writing Advertisers, Mention the Cultivator.

ADVERTISING OLIVES

A constructive program looking to the greater development of the ripe olive industry of California through national educational advertising of olive products is about to be put into operation by the California Olive Association. This organization, composed of olive packers and growers from all parts of the state, represents in its membership more than 75 per cent of the olive tonnage of California. The association is being incorporated to enable it to undertake the work of market development and articles will soon be filled with the secretary of state.

The cost of advertising which will be conducted by the association is met by an assessment of $5 per ton on all olives grown and packed by the members of the state wide organization, the growers and packers each contributing to the fund in equal amount. The advertising policy is determined by the advisory board of the association, and this board is composed of three of the largest and best known growers and packers of olives in the industry. The members of the advisory board are: Frank Simonds, Los Angeles Olive Growers Association, chairman; B. B. Meek, Mt. Ida Packing Company, Oroville; R. C. Merryman, Exeter, the latter one of the largest growers of olives in the San Joaquin Valley.

"While the present membership of the California Olive Association takes in more than three-quarters of the packing concerns in the olive business, we will add several large firms to this number in the next few weeks," writes J. J. Hoey, secretary of the association. He adds, "The fact that our work of market development for olive products is to begin at a most logical period in the development of the industry, when it is apparent to all that we must provide markets ahead of our rapidly increasing production, and furthermore, that the cost of this work is distributed equitably over the industry, insures the support for this movement of almost every factor in the olive business."

CURING OF LEMONS WITH VASELINE

A Scone orchardist, anxious to keep some of a good crop of lemons for summer use, recently sought information as to the efficacy of a vaseline treatment and the comparative values of curing treatments. The department's reply was as follows:

The following experiments with Washington navel oranges and lemons were carried out fortnightly, commencing June 14, 1918, and ending August 7, 1918, at Yanco experiment farm:

Fruit wrapped and packed in paper lined cases, also in sand; fruit vaseline and packed in paper lined cases, also in sand; fruit unwrapped and packed in paper lined cases, also in sand; fruit dipped in borax and packed in paper lined cases, also in sand.

The results from those unwrapped and those treated with borax were not satisfactory, those that had received a coating of vaseline keeping best of all. The lemons so treated kept in perfect condition from June to January, though it would not be advisable to store for market past November on account of the deterioration of the fruit beyond this month.—Agricultural Gazette, N. S. W.

FIGHT GRAPE MEALYBUG IN JANUARY

January has been found to be the best month for attack against the grape mealybug, says the bureau of entomology, United States department of agriculture. Fumigation with cyanide of soda and with sulphur fumes has been satisfactory in the dormant season at night, but sulphur is considered better. Spraying has proved less effective than fumigation. A campaign among grape growers has been begun to secure their cooperation in restricting the spread of the pest on picking boxes and in other ways.

PROFITABLE APPLES

One of the newer producing apple sections is that of Greenfield, Monterey County, in a sense an extension of the Pajaro Valley apple section. The Greenfield fruit has been commanding higher price than that from most other sections of the state during the past season.

ORANGE TREE RECORDS

A. D. Shamel states in some of his talks on bud variation and bud selection that William Hertrich, superintendent of the H. E. Huntington ranches in the San Gabriel Valley, has the most complete set of records of orange tree performance on a large scale. With this statement in mind a member of the Cultivator staff spent some pleasant hours looking over these records, also those pertaining to fertilizers and packing house returns.

The experience of Mr. Hertrich calls to mind a remark made by C. C. Chapman of Fullerton. He was asked how he could afford to apply so much fertilizer to his orchards and his reply was: "How can I afford not to?" Some of the Huntington trees have been well fed and those best fed paid the best returns.

Value of Fertilizing

On a block of Valencias 25 years old with 69 trees to the acre, the application of fertilizer cost $1.72 per tree, total including everything, even cost of keeping records. This is $119.86 per acre. This was in 1917 and the treatment was much the same in 1918. The 1917 crop was 697 picking boxes per acre. The 1919 crop was 5,758 picking boxes to the acre. The 1918 crop is not given because it was a year of small crops everywhere, with high prices, so the monetary returns were satisfactory. Furthermore the fertilizing given in 1917 and followed in 1918 would show the full effect only in a two year lapse.

Many will be interested to know what was applied to these trees for the crop production in the average orchard in that neighborhood, on old trees, in 1917 and 1919 was about the same in quantity. Ten pounds of tankage was applied in March and a like amount in July; 200 pounds of Riverside lime rock in August, and 920 pounds of stable manure later in August. In September a cover crop Melilotus Indica, was sown, using 15 pounds to the acre. The figures given for fertilizer are per tree. The application of stable manure may seem considerable but it is only a pound and a half to the square foot. When fertilization and crop are figured against each other it shows that the investment has proven a good one. On orchard blocks where heavy applications were made year by year, heavier by far than those herein quoted, the returns were excellent. As an example, one block of trees which in 1918 cost $2.81 for food, returned a net profit of $16.03 a tree.

Crop Performance

On one ten acre block there were 666 trees 25 feet apart, the place of the other 24 trees being taken by a building. Of this number in 1918 there were six trees that bore one box of oranges; 13 trees, two boxes, 18 trees three boxes; 18 trees, four boxes; 29 trees, five boxes; 49 trees, six boxes; 53 trees, seven boxes; 71 trees, eight boxes; 121 trees, nine boxes; 105 trees, ten boxes; 65 trees, 11 boxes; 57 trees, 12 boxes; 37 trees, 13 boxes; 16 trees, 14 boxes; five trees, 15 boxes; two trees, 16 boxes; and one tree, 18 boxes. In another block of better performance three trees bore 19, 21, and 23 boxes each. These are one year's records. If three years' records show similar results those trees falling below the average of the figures given will be beheaded and top worked with buds from some of the best yielders bearing high grade fruit.—E. B.

FERTILIZE RAISIN VINEYARDS

Vineyard fertilization is perhaps the most essential thing confronting the raisin grower at this time if he wishes to continue his success, according to Fred K. Howard, consulting horticulturist for the Associated Raisin Company. In fact the need of applying plant food in some form is no longer questioned by most growers. The essential thing is to determine, if possible, what the soil needs to produce good crops.

According to Howard the matter is seriously affects the quality of the product that the association is prepared to meet the grower a little more than half way. Upon request fieldmen will call and obtain soil samples which will be tested and recommendations based on the results of the test will be given to the grower.

The Keynote to Bigger Profits

Spraying is not an expense —properly considered — but an investment that pays for itself over and over again by producing more and better fruit and bigger profits.

But spraying must be done properly—at the right time, in the right way, with the right materials.

For example, there's nothing better for a dormant winter spray than Universal Brand Crude Oil Emulsion. It cleans the limbs of insect pests. It softens the bark and makes your trees healthier and more productive.

We have a hulletin covering the whole prohlem of insect control in deciduous orchards. Write for your copy today — a post card hrings it.

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Place Your Order NOW for Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

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PLANT QUARANTINE SERVICE

The state quarantine law provides that: "When any shipment of nursery stock, trees, vines, plants, shrubs, cuttings, grafts, sicons, buds, fruit pits or seed or vegetables or fruit, imported or brought into this state, is found infested or infected with any species of injurious insects, or their eggs, larvae or pupae or other animal or plant disease or there is reasonable cause to presume that they may he so infested or infected, which would cause damage, or be liable to cause damage, to the orchards, vineyards, gardens or farms of the state of California, or which would be or be liahle to be detrimental thereto or to any portion of said state, or to any of the orchards, vineyards, gardens or farms within said state such shipment shall be immediately destroyed by the state commissioner of horticulture, his deputy quarantine officer, quarantine guardians or other person or persons, who shall be commissioned by the state commissioner of horticulture, to make such inspection." It is further provided that under certain conditions such shipments may be sent out of the state. A careful study of the state quarantine law will show that quarantine officers are only given authority to inspect plant products to determine the presence or possible presence of "any injurious insects, or their eggs, larvae or pupae or other animal or plant disease." This law in no way grants authority to reject plant products because of poor physical condition, such as natural decay, sunburn or frost. The authority granted us to reject plant products offered for entry into California should be used with discretion, not abuse.

SPLIT ORANGES NOT STANDARD

The Fresh Fruit Standardization Law states that oranges when packed or sold shall be virtually free from insect and fungous diseases and other serious defects. Superintendent of Standardization A. W. Hoyt of the state department of agriculture has ruled that split navels are to be classed as serious defects. This is quite a proper application of the term and Los Angeles County inspectors are instructed that all splits showing fungous infection, decay, softening of the tissue of the fruit or injury extending through the rind into the fruit itself so that the orange is reudered susceptible to immediate rot infection and decay are harred, and such injuries should be classified as serious defects."

The inspector of fresh fruits will go far toward securing equitahle enforcement of standardization laws as applied to all comodities if he will try to maintain the viewpoint of the consumer, bearing in mind that the continued welfare of the producer is dependent upon the continued satisfaction of the customer.

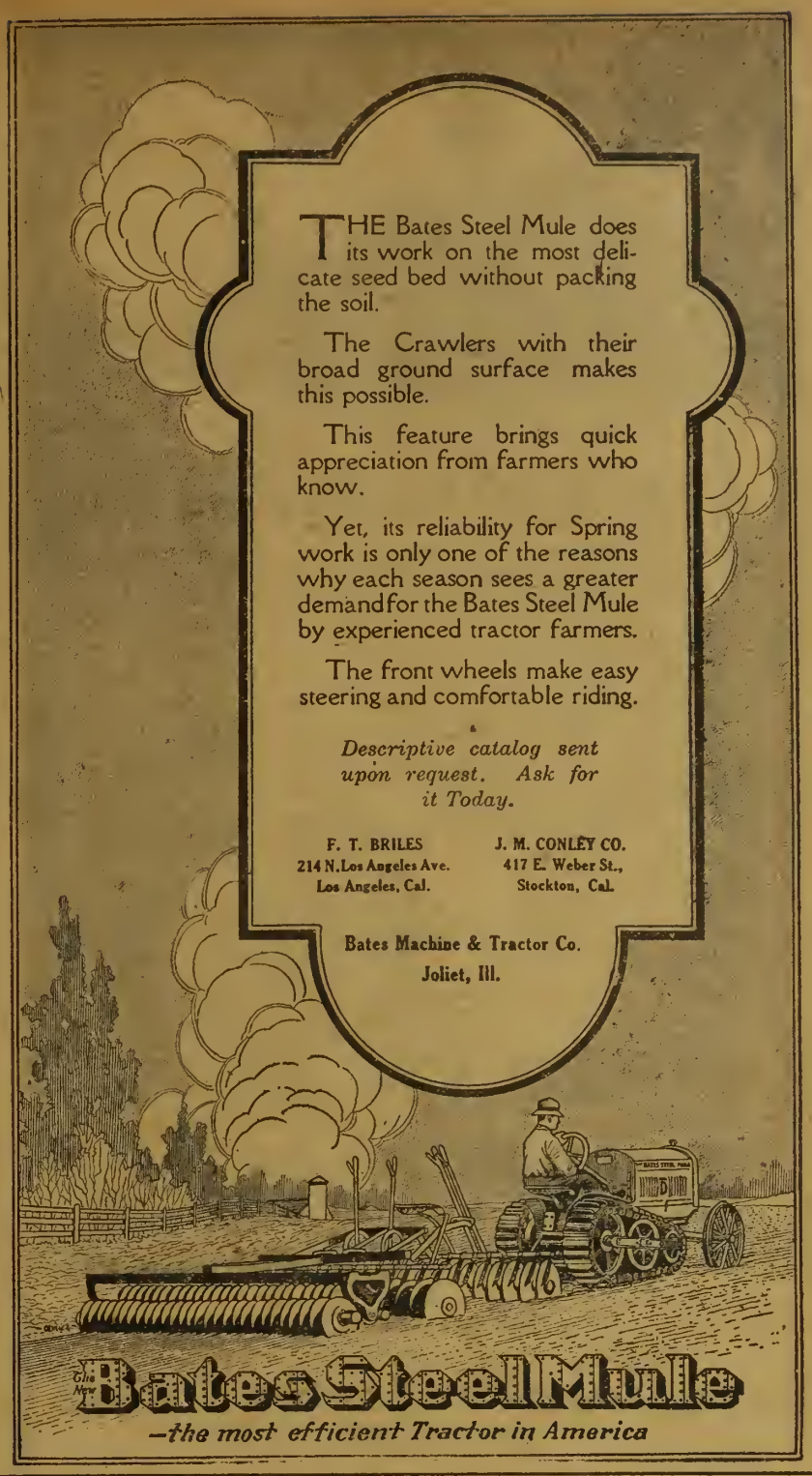
CITRUS CANKER CHECKED IN FLORIDA

Citrus canker, which had beeu effectively excluded from California hy a rigid quarantine, is now reported to be checked in Florida, as shown by a report just issued hy the state plant hoard. This disease threatened at one time to wipe out the entire citrus industry in Florida hut through the efforts of the plant board there is little if any danger of recurrence of this dreaded danger though there is not yet certainty that it is all stamped out.

The report shows that in May, 1914, 13,727 trees were found to be infected with citrus canker. At this time the plant board was formed and put forth to cope with the situation. The task looked as if it would be herculean, but the board went to work and it will be seen from the report that they have been successful, as in May of 1919, there was found only one tree infected.

During the five years in which the plant board has been in operation, 342,254 trees have heen found to be infected. Of this amount 234,998 were destroyed hy permission of the owners. The trees destroyed were burned on the premises. Nursery trees destroyed during this time amounted to 2,613,514.

The Arizona American-Egyptian Cotton Company of the Salt River Valley is planning a bonded warehouse and compress to cost $250,000.


THE Bates Steel Mule does its work on the most delicate seed bed without packing the soil.
The Crawlers with their broad ground surface makes this possible.
This feature brings quick appreciation from farmers who know.
Yet, its reliability for Spring work is only one of the reasons why each season sees a greater demand for the Bates Steel Mule by experienced tractor farmers.
The front wheels make easy steering and comfortable riding.
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The New Bates Steel Mule
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We Specialize in Fruit Bearing Trees

We grow our trees in the choicest spot in California—Fresno. Here in Central California the most favorable climatic, soil and water conditions prevail, making possible the production of superior trees and vines. Added to this is our intimate knowledge of the business which enables us to exercise the most intelligent care in growing and handling nursery stock.

You should have our catalogue. Our descriptions of varieties are more complete and comprehensive than in any other book. It tells you what you ought to know in order to select trees intelligently. Sent free on request.

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WAGNER'S IMPROVED
Plant Now Growers making $1000 and over per acre annually. Splendid results in six months. Special prices for immediate planting. Also berries and small fruit, etc. Write to the originator. J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Calif.

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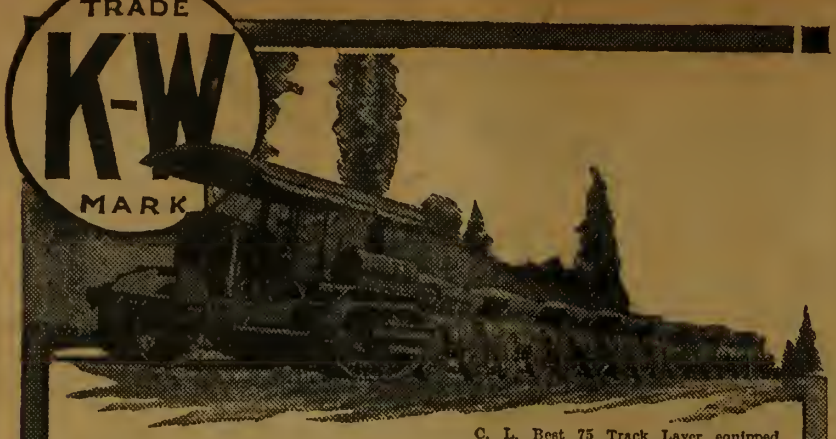

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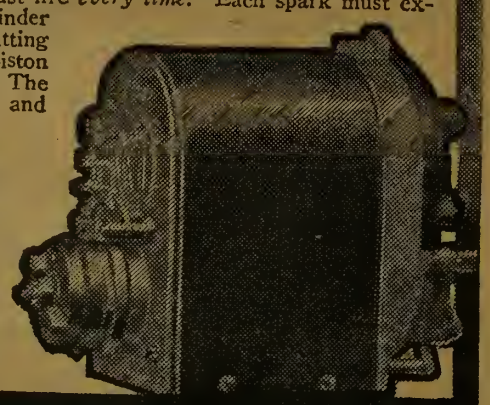
A Sure Spark for the Hard Pull

TO start this dead load of seventy tons and to keep it going steadily up grade requires extraordinary power and an absolutely "sure fire" magneto.

Like most tractors built to give unusual service this "Best 75" has a K-W Magneto.

When a gas engine has a light load and can speed up it is easy to generate the spark. The engine will even go in spite of an occasional miss or weak spark.

But on this job as on most tractor work the pull is slow and heavy. *Every cylinder* must fire *every time*. Each spark must explode all the gas in the cylinder completely and quickly putting the full punch behind the piston at just the proper instant. The K-W Magneto *does* this and *continues* to do it.



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TRADE K-W **High Tension MAGNETOS** Fire Any Kind of Fuel and Get Maximum Power Out of Every Drop Used

Sanguinetti's Quality Brand

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Unexcelled for Germination, Purity, Color and Productiveness

VARIETIES:

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"THE HOME OF THE HAIRY PERUVIAN"

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Thousands of Farmers are Using Wright's Condensed Smoke (made from seasoned *Hickory Wood*). A small brush, thirty minutes and a $1.00 bottle **Wright's Smoke**, smokes a barrel of meat. *Smokes it thoroughly and gives the meat a delicious flavor.* No fooling with fires. No danger of meat spoiling. No drying out or shrinkage. Easier, Cheaper, Quicker and better than using a smoke house.

Curing Meat Before Smoking is very important. Wright's HAM PICKLE is a scientifically prepared sugar cure that gives perfect results. A $1 jar and 27 pounds of salt cures a barrel of finely flavored hams and bacon.

Wright's FARM BUTCHERING SET (Nine regular butchers' tools, including saw and cleaver) should be on every farm. We buy in carload lots and **Re-sell at Cost—$3.95.** Send for instructive booklet: *"The New Way of Smoking Meat."*

All Wright Products are Guaranteed. Sold by All Drug and General Stores.

E. H. WRIGHT CO., Ltd., Established 1886 804 Broadway **Kansas City, Mo.**

When Writing Advertisers, Mention the Cultivator.

The Winter Garden in Southern Arizona

By M. E. Bemis.

ONE hesitates in these times to urge a general home gardening campaign. In the war period when food was scarce it was a matter of patriotism and one who produced in his own garden a part of the food for the family table felt that he was doing his bit to win the war. In passing it may not be out of place to say that this collective effort of many individuals was not without its result and with the hundreds of other denials of millions of people contributed in no small degree to the ending of the war.

Now we lack the patriotic appeal but still have an advantage from the economic standpoint; the benefit in health due to a larger use of vegetables and the convenience of having fresh food are all as applicable now as ever. It is a little hard to convince the farmer who is making so much money in raising cotton, or some other crop which is farmed on a big scale, that he feels his time to be worth $10 to $25 a day, that he should spend any considerable portion of that day in raising a few radishes or squash or a few turnips. As well, almost, undertake to persuade the president of a bank that he would save money if he would do the janitor work himself.

But not all farmers are in the above class. There are yet a good many—shall I say "old fashioned"—farmers that think a farm incomplete without a garden. To those a small amount of information may be helpful at this season of the year when the brightly covered seed catalogues are beginning to make their appearance.

At this time of the year the spring garden should have attention in Southern Arizona (except the higher elevations) and in the Imperial Valley of California. The variety of vegetables and the ease with which one may raise them in the Southwest is a constant delight as well as a surprise to Eastern people. Most of the older residents take it as a matter of course and regard gardening as a trifling business that is hardly worth the effort or consideration of a busy farmer. So many farmers claim that it does not pay them to plant a garden that I am inclined to accept their testimony as a fact, but there is something more than mere dollars to be considered. To paraphrase St. Paul's famous expression, one might well say, "Thou shalt eat a few fresh vegetables for the stomach's sake."

The most successful gardeners I have known are those who have the faculty of giving to all details that attention which is demanded. This would mean the thorough preparation of the soil, working up a fine seed bed and irrigating so as to thoroughly saturate the soil. This is usually accomplished by laying off the bed into rows, the distance apart depending upon the vegetables to be grown. Generally the water is run for several hours through the rows. When partially dried out the seed is planted just above the water line, the presumption being that there will be sufficient moisture in the ground to germinate the seed. If there is not and all the plants do not come up then a second irrigation becomes necessary, but the danger of a crust forming after irrigation before the plants break through makes this somewhat of a last measure procedure.

Beginning with January the things which may be planted are beets, carrots, collards, kohl rabi, lettuce, mustard, onion seed, onion sets, parsley, parsnips, peas, radishes, spinach Swiss chard and turnips. In February practically the same things and in addition potatoes, and toward the latter part of February sweet corn, or as is more commonly grown in Arizona, the Mexican June corn. This is strictly speaking a field corn, but makes excellent roasting ears. About three years ago I gave an ear of this corn to a friend who lives in Downey, not far from Los Angeles. He planted this, saved some seed, and for the past two years he and his neighbors have been raising it and selling it for roasting ears under the name of Arizona Sweet Corn. It has yielded well and the customers are highly pleased.

Of varieties that have been found best adapted to Southwest irrigated gardens might be mentioned the following: Beets, Early Egyptian, Crosby's Egyptian and Early Eclipse; carrots, Danver's Half-long and Early Chatenay; onion sets, Yellow Bottom, White Bottom; onion seed, Bermuda, Australian Brown and Prizetaker; lettuce, New York Market, Denver Market, California Butter. In a variety test of lettuce at the experiment station at Mesa a few years ago the New York Market showed such superiority over all other varieties as to leave no doubt of its value as a market lettuce; for family use there are some others that do very well. Only the early varieties of peas should be planted in the spring, such as American Wonder, Extra Early Alaskan, etc., spinach, Prickly Seeded Winter has been found to do well.

In the flower garden one may plant in January, cosmos, larkspur, petunias and sweet alyssum. Bulbs of the following may also be put out: Anemone, amaryllis, canna, calla lily, gladiolus, Spanish daffodils and jonquils.

Gardening in a Large Way

Cow peas being grown at the Arizona state hospital as a preparation for gardening

CALIFORNIA A WINTER GARDEN

From near San Francisco south to the Mexican line California in midwinter is a great vegetable garden. So strong is the Eastern demand for California vegetables in winter that every effort is put forth for a crop at that time, no matter what other uses the land may be put to through the remainder of the year. Nowhere is vegetable production more of a science and nowhere is the acreage increasing more rapidly year by year. One must know how to take advantage of the varying seasons in planting, tillage, irrigation and harvesting, and not only must he keep close watch on market and prices but frequently must anticipate the market or "figure ahead of the game."

The Pajaro Valley has shipped fewer apples to England than for several years.

The 1919-1920 Arizona Lettuce Crop

By E. W. Stillwell, Bureau of Crop Estimates

LETTUCE growing in Arizona is confined to three principal districts; first that comprising Phoenix, the Fairgrounds and Glendale; second, an area close to Mesa; third, a new section near Toltec. Climatic conditions and growing methods are about the same in the three districts. The contract system common in the Imperial Valley of California is followed for the most part, although some growers raise their crop for independent sale.

The growing of the crop in the Phoenix-Glendale district has been attended by a number of mishaps this season. The other sections have fared better. The following shows first, revised estimate of original acreage and, second, estimate of the acreage at the present time available for harvest: Glendale, 400, 150; Fairgrounds, 300, 125; Phoenix, 150, 25; Mesa, 150, 125; Toltec, 100, 100. Total 1,100, 525. This acreage compares with 150 acres for the state in 1919 and 125 in 1918.

A glance at these figures shows that over one-half of the original acreage planted this season has been abandoned. The abandonment was especially heavy at Phoenix, the Fairgrounds, and Glendale. In these districts the same deterrent factors operated. The first planting early in September failed to germinate properly because of hot weather and new seed which the growers were forced to use on account of a shortage of old seed. Most of the acreage thus affected was planted again although perhaps ten per cent was abandoned at this time. The second planting was hardly out of the ground before it was attacked and many fields entirely destroyed by caterpillars which migrated from adjacent corn and cotton fields. The only lettuce to entirely escape was that which was not near corn or cotton and comprised a very limited proportion of the whole planting. This second crop failure discouraged a large number of the growers and few replanted. The greatest part of the lettuce remaining is late.

The small decrease in the Mesa district was due mostly to poor germination of seed in the early plantings. The caterpillars did not appear there.

Lettuce has never been grown in the district near Toltec, therefore the results obtained are especially interesting. It perhaps will be noted that there has been no decrease from the original acreage planted. However, most of the present acerage was secured by a second planting. Irrigation is furnished by pumping water from wells. After bringing the first planting of lettuce safely through the ground the pumping plant broke down and the plants died from lack of water. This second planting was late but the stand is reported as almost perfect, and as there has been practically no damage from pests of any kind the crop is in excellent condition. An estimated yield of 200 Brawley crates per acre is expected. Carlot shipment probably will start February 15, continuing through March with the heaviest movement the latter part of that month. It is thought at this time that 60 cars averaging 330 crates each will be shipped from Toltec.

The present condition of the fields remaining in other sections is good, probably 85 per cent normal. Growing conditions have been favorable since the caterpillars were banished. The only visible damage to the crop is a yellowing of the outer leaves and tips of plants in some fields of early plantings which were hit by frost This damage is evident on not over five per cent of the crop and hurts the appearance rather than condition or carrying quality.

The effect of late planting upon the yield is not known and it is difficult to obtain an accurate estimate upon this point. The best authorities however seem to agree on about 200 Brawley crates per acre. Using this as a base the estimated commercial production for the Phoenix-Glendale and Mesa districts would be approximately 258 cars of 330 crates each. In figuring the actual carlots which will be shipped, however, it is necessary to take into consideration local factors which influence this item. The acreage at Toltec and Mesa will all, or practically all, move in carlots. That at Phoenix will be used largely for local consumption, the remainder going out in l. c. l. lots. The Glendale and Fairgrounds acreages will go out in carlots, in l. c. l. lots and some will be used for local consumption. Considering these facts it is believed that the carlot shipments probably will be about as follows: Glendale, 40 cars, Fairgounds 75 cars, Mesa 75 cars, balance l. c. l and local, 68 cars.

In previous years the so-called "2-3 crate" has been the popular package, but this year only one shipper will use it. The rest will use the Brawley crate. The 2-3 crate measures eight by 18 by 23½ inches. Lettuce is packed in two layers with ice between. The number of heads in a crate runs from 30 to 48, three packs being used, 30, 42, and 48, the former two being the most common. The Brawley crate is well known to the trade and measures 13 by 18 by 24½ inches. The contents usually are packed in four layers, the number of heads varying from three dozen to as high as nine or ten dozen in some instances. The popular and most common pack is from four to five dozen. These crates average 330 to the car while the 2-3 crate runs from 420 to 448 per car.

Carlot shipments probably will begin from Glendale, the Fairgrounds and Mesa the first week in January but will be light during that month. Perhaps 15 cars will move from the first two points combined and as many from Mesa. Forty to 50 cars are expected to move from Mesa in February, the remainder in March. The movement from Glendale and the Fairgrounds should be fairly uniform throughout February and March, probably heaviest about March 1st. The movement from Toltec has already been discussed.

Figures secured from the railroads by the bureau of weights show the total carlot movement of lettuce from Arizona in 1919 and 1918 as 40 and 64 cars, respectively. The relatively light shipments in 1919 were because of poor yields.

Raymond Ellis is the new assistant farm adviser in Tulare County.

GRASS FOR ALL

Much land in the southern third of California supports no native grasses, and the search for suitable species for the varied soils and climates has been both interesting and profitable. The federal government, the state, and enterprising seedsmen have all contributed their share, until now we have grasses or forage plants for all soils and situations. One man on the shores of the Salton Sea has 320 acres of Rhodes grass on soil so strongly alkaline no other crops will grow, land upon which not a single spear of grass ever grew before. Others are growing good grass crops on what heretofore has been dry desert sand or barren hillside.

TRACTOR AND IMPLEMENT PLAN FOR 1920

The California Tractor and Implement Association, with headquarters in San Francisco, has decided not to hold large public demonstrations during 1920. A fund of at least $12,000 is being raised, however, and smaller demonstrations and large still exhibits will be made at state and other fairs.

Hudson's Four Year Old Prophecy Fulfilled

The Super-Six Motor Patented, Controlled And Exclusive to Hudson Has Met Every Promise

"The superior type which all must concede" is a claim we made for the Hudson Super-Six nearly five years ago.

Today close to 80,000 Super-Six owners and scores of official records reveal the truth of that prophecy.

Hudson originated through the Super-Six a principle which added 72% to power and 80% to motor efficiency. It reduced vibration almost to nil and thereby increased motor life. The forces which in other types destroy are in the Super-Six directed to useful employment.

They account for Hudson becoming the greatest speed, hill-climbing and transcontinental car ever built. Its position is not questioned. Everyone knows it.

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No one at first realized the Super-Six capable of withstanding such punishment as it has taken in the hardest tests ever imposed on a motor car.

The fastest 100 miles ever officially recorded of a stock car did not show Hudson's limit. So harder tests were imposed. The twenty-four hour run was one; and although a Super-Six stock chassis in that time traveled a distance greater than from New York to Denver, its endurance limit remained unknown. The trip across the continent from San Francisco to New York, in a seven-passenger touring car, was made in 13 hours less time than its nearest rival. And then, since that did not show its endurance limit, the car was turned about and completed a test never attempted by any automobile before or since. The round trip was made in 10 days, 21 hours.

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Each successive Super-Six model has added to Hudson's leadership. Each Hudson has become even more dependable, and now it seems to be as nearly perfect as it is possible to make an automobile.

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Look about in any assemblage of fine automobiles and note the dominant distinction of Hudson. Even sellers of rival cars, unwilling to admit the mechanical superiority of the Super-Six, because in that particular they know none other can use its motor, openly say Hudson sets the style in body types.

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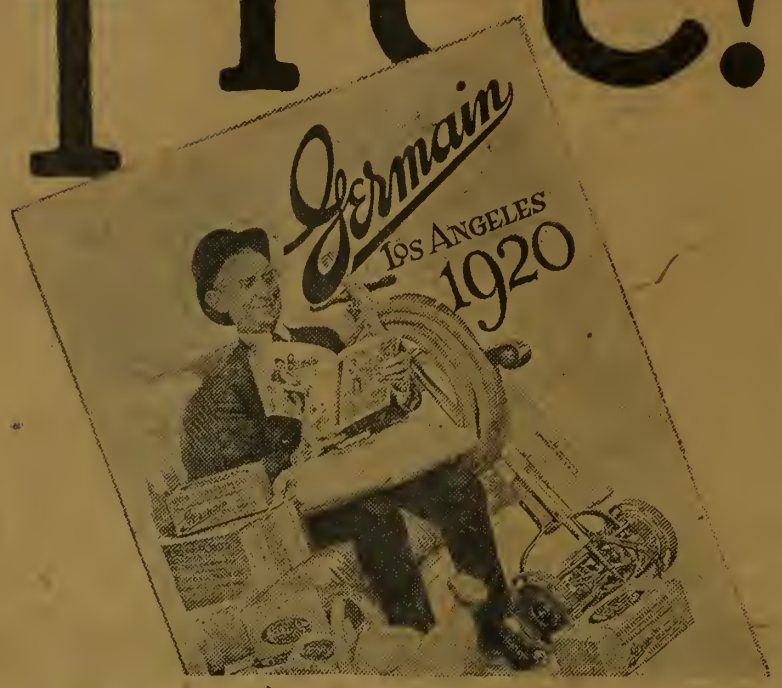

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A Blow at High Cost of Living

Through the efforts of Georgia farmers a bean has been developed which fills the requirements of coffee. A new plant, brought recently from South America, its success has been demonstrated by enormous yields in Southeastern States. The government analysis shows it similar to coffee, but without any trace of caffeine, while coffee experts have pronounced it superior in taste and aroma.

Every man with a small plot of ground can grow, roast and grind this remarkable bean, thus securing a drink of unexcelled quality at an enormous saving.

A pound of seed should produce three hundred to four hundred pounds; sixteen pounds plants an acre, yielding five thousand to six thousand pounds. We are planting several thousand pounds for market purposes, but wish to buy your surplus yield, at a good market price.

The bean grows on a bush, maturing in a few months. After the harvest the stalk and leaves may be used as stock feed, as its analysis is practically identical to alfalfa. Its nitrogen contents make it invaluable for intercropping purposes. The plant requires no unusual method of cultivation.

This is California's latest industry. Help make it the greatest. We wish your cooperation.

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CITRUS INSTITUTE

Declaring that the best authorities in the world on citrus fruit culture will be brought here for the citrus institute to be held in conjunction with the Tenth National Orange Show, Dr. H. J. Webber, director of the University of California citrus experiment station, has announced the conference of citrus fruit men for February 20 and 21. The Orange Show will be held February 13 to 23.

"The Institute program this year," said Dr. Webber, "will be an enlarged one. We will bring to San Bernardino some of the best authorities in the world on citrus fruit culture, men whose advice is invaluable to the grower. I am not ready to announce the program at this time and can do nothing more than assure the citrus fruit growers of California that it will be decidedly to their advantage to attend the institute, which after all, is the really practical side of the Orange Show."

The University of California citrus experiment station at Riverside will have a large and comprehensive exhibit at the Orange Show, said Dr. Webber. Last year the experiment station had on display 125 varieties of citrus fruit. This year there will be 300 varieties, and according to Dr. Webber the experiment station will within five years have completed a collection of between 500 to 600 varieties.

OAK ROOT FUNGUS HELD UP

The quarantine office at San Francisco has detected an infestation of oak fungus on apple trees received from a Portland, Oregon, nursery. "This pest,' writes the quarantine office, "is rather difficult to detect on nursery stock as ordinarily it has not progressed sufficiently to injure the roots of the trees. All one can detect is the black 'shoe strings' or rhizomorphs. If the roots are muddy their presence is almost certain to be overlooked as the fibrous tree roots and the rhizomorphs will appear almost identical. When the tree roots have been washed, the rhizomorphs are very easy to detect, as they are often almost coal black in color.

"The tree roots from this nursery were not washed as the trees happened to be apples, and in looking for aphis on the roots the fungus was discovered. If the stocks had been stone fruit, probably they would have been missed altogether. Each condemned tree was capable of starting an oak fungus spot in our orchards. To the best of our knowledge no method has ever been found which has proved successful in eradicating this fungus from the soil of an orchard after it has once become established.

"In our opinion this is one of the worst diseases the fruit grower has to contend with. It slowly but surely spreads through the soil, killing all stone fruit trees with which it comes in contact. The infested area continually gets larger until after a time a large area of land becomes absolutely valueless for fruit culture. The fungus seems to thrive particularly well in our best soils. The only trees which seem to survive it are the California black walnut, the pear and the fig. These are not very profitable in some localities, so the disease is capable of turning land valued at from $1,000 to $2,000 an acre into $300 an acre vegetable land.

"Washing of all tree roots would very largely prevent the introduction of this disease as it could be so much more easily detected. Borers, crown gall, hairy root, etc., would be much easier to discover and we would be very glad to see the time come when the washing of imported trees is made compulsory."

COTTON GROWERS TO ORGANIZE

An organization of cotton growers of the state is being urged by Director Hecke of the state agricultural department, for the general protection and promotion of the industry, including the inauguration of a system of regular inspection of the growing crops of cotton specifically planted as a source of seed supply, and the ultimate certification of cotton seed offered or sold. An organization meeting was held at Fresno, January 7.

Have you visited your local school this year? The teacher would like to have you do so. Better schools will result in any community if all take an interest in them.

WHY THE DIFFERENCE?

Orchard investigation by the Cultivator in three of the southern counties proves clearly that during the severe electrical windstorm about Thanksgiving Day the orange trees in some sections sustained severe damage. But in the same sections where orange trees lost much of their foliage lemon trees apparently lost none. In these few sections lemons are on one side of roads running in all directions and oranges just on the other side. Also orchards are planted to both lemons and oranges, the division running east and west as well as north and south. Also home groups of citrous trees were noted about dwellings. In every case the orange tree alone sustained injury. This was corroborated by L. B. Valla, traveling freight agent of the Southern Pacific Railroad, who has visited all citrous sections, and met a Cultivator investigator in the field. The Los Angeles County farm bureau has also noted these strange conditions and has asked the state college of agriculture if an expert cannot be detailed to fully investigate the matter in the hope of determining the cause of wind damage to orange foliage while that of the lemon is apparently immune. So far as noted no grape fruit trees were injured.

PROSCRIBED ORNAMENTALS SENT BACK TO FLORIDA

In checking up the reports of the state quarantine guardians received at the central quarantine station, Frederick Maskew reports a fine illustration of the diligence of the plant quarantine inspectors in the report of H. A. Spies of Ontario under date of December 5. In the brief, prosaic manner customary to the quarantine service, Mr. Spies reports the detection of a suspicious appearing parcel brought in as personal baggage by a passenger from Atlanta, Georgia. Upon examination the contents of this package were found to consist of 100 Cape Jessamine plants, from a white fly area, and brought into California in violation of the White Fly Quarantine No. 21. "Refused and returned to Ashford Park Nursery, Atlanta, Georgia" is the plain, straightforward statement of Mr. Spies.

EXPERIMENTS IN CONTROL OF MEALYBUGS

The Leffingwell Rancho Lemon Association, as the result of the success of the work of the office of pest control of the California department of agriculture in the control of mealy bugs by the biological method, has under consideration the erection of a insectary for the purpose of breeding beneficial insects. This insectary, it is planned, will be a community institution, to be supported by a number of citrus associations in the Whittier district. Superintendent Harry S. Smith was last week called in consultation with the officers of the Leffingwell Rancho Lemon Association and later with these officers and Messrs. Armitage and Harold Compere of this office visited the insectaries at Alhambra, Santa Paula, and on the Linonelra Ranch.

VACUUM FUMIGATION AT COACHELLA

Two vacuum fumigators designed and installed by Field Entomologist Mackie of the state department of agriculture, are now in full operation at Coachella. These fumigators are used to free dates of stored product pests. The work of these fumigators has been a complete success, the packing house manager being authority for the statement that not a single pest has been seen in the house this year. The date growers expressed complete satisfaction with the result of Mackie's work.

DIGGING MILLION DOLLARS WORTH OF NURSERY STOCK

Commissioner C. K. Turner of Placer County has advised Director Hecke under date of January 3, that nurserymen in Placer County are busy digging some 2,300,000 deciduous trees, a crop worth at current prices between $700,000 and $1,000,000. The only serious trouble with any of this stock is crown gall. Of this there is not as much as usual.

WHAT WASHES OUT OF SOIL?

When water percolates through earth, what does it carry out of the earth with it? That question, no doubt, was asked many thousands of years ago and has been repeated from time to time ever since, but it has never been completely answered. The answer, however, is being written bit by bit. The chemical and mineralogical nature of the materials extracted from soils by treatment with water has been under investigation by the bureau of soils. A number of minerals have been identified in these products and it has been shown that the evaporated water extract of soils leaves a residue showing considerable resemblance to the Stassfurt and other natural saline deposits. A material, provisionally called ultra clay, which consists of particles so fine they remain in practically permanent suspension, has also been obtained by these extractions and its properties are now under investigation. This ultra clay contains a much larger proportion of soluble salts than the soil from which it has been separated. A very significant attribute of ultra clay is its high absorptive power for potash. Soils containing a large proportion of ultra clay erode easily.

BULB INDUSTRY

The United States uses every year, in normal times, about $2,000,000 worth of bulbs and has produced hardly $25,000 worth of Dutch bulbs in any one year—this despite the fact that few plants are more widely adapted and few crops more easily grown than bulbs.

The reason for this situation, says the United States department of agriculture, is that it has always been thought that the bulbs could be bought cheaper than they could be grown. In the future, however, conditions are going to be different, and the department has published Bulletin No. 797, "Commercial Dutch-Bulb Culture in the United States." This 50 page discussion of the subject is available for limited distribution to interested persons.

Thus far, says the bulletin, commercial production of Dutch bulbs in this country has been confined to the Atlantic and Pacific seaboards, north of Norfolk and San Francisco, respectively. Good bulbs have been produced in both regions. The western area is confined to a rather narrow strip which receives suitable rainfall and is sufficiently affected by seacoast conditions to prevent rapid transition from winter to summer.

PROTECT YOUR TOOLS

Nearly every man owns at least a few tools such as chisels, hammers, augers, saws, wrenches, files, etc. These tools as a rule are infrequently used. They are often kept in places where they are exposed to moisture and consequently rust. Almost all tools, with the possible exception of hammers, are rendered less efficient by rust. When it is so easily prevented, it seems strange that steps are not taken to do it. It is well worth while to save the tools as every one knows that has had occasion to buy any new ones lately. Probably the best tool protector and carrying case for a small kit may be made in the shape of a roll from a piece of water proofed fabric.

A SQUARE DEAL NEEDED

Rural life is nowhere more attractive than in California. To the average adult of middle life it is almost entrancing. Yet the per cent of boys who leave the ranch at the first opportunity is nearly as great as leave the eastern farm. Rural attractions seem powerless to counteract or prevent this cityward trend. For good roads, automobiles, daily mail delivered at the door, telephones, electric light and power, even proximity to the city, fail to stem this ever-flowing tide.

The trouble, then, is not with the farm itself. Therefore it must lie with those who occupy it. Or must we admit the lure of the city to be stronger than the love of home and the farm? We believe that the fundamental cause for dissatisfaction is that the maturing boy, at least, does not get a square deal. It is an old and sad but true story that the farm boy is given a lamb, a calf or a colt for his "very own" and after it has grown to maturity it is sold by the father or turned into the general farm stock without the boy receiving any pecuniary benefit. Surely this is discouraging enough and sufficient to dull or crush the spirits, for a time, of any red-blooded boy.

But the boy finally becomes a man as able to cope with the problems of life as was his father at like age; perhaps better so. Doubtless he is as ambitious to start in business for himself as the average young man. What chance has he on the farm as compared to the city youth? The latter is a son, perhaps of John H. Smith, dealer in general merchandise. When he is 21 years of age the firm, if the boy prove worthy, becomes Smith & Son. But in the country it usually continues to be John H. Smith, proprietor of Meadowbrook Farm. The boy has no capital and sees no chance of starting in for himself. Too often he is less fortunate than the hired man, for the latter receives good wages and may therefrom, through strict economy, accumulate enough to make a modest beginning in farm operations of his own. Fathers, do you realize that your son has become a man, as much so in every way as yourself? Is your "boy" getting a square deal? If so, he will not leave a California farm that is able to support two men, but the fact must be recognized that both are men.—E. B.

According to W. C. Jacobson, superintendent of rodent control of the state department of agriculture, a large acreage of alfalfa and a great many fruit trees in some of the reclamation districts in northern Yolo County have suffered seriously from the depredations of pocket gophers. Grain lands have been literally honeycombed by the surface burrows of this pest, and since the grain has been removed and the stubble burned the gophers are making severe inroads into alfalfa fields and young orchards. On 300 acres of plum trees over 200 young trees could be readily lifted out of the ground, the tap roots having been cut off within a few inches of the surface. An alfalfa field which had a good stand for the past two years has been so invaded as to have only one-third of the crop secured before the invasion of this rodent pest. Methods and means of control are quite difficult because of the nature of the soil. However, arrangements have been made to flood a large area and drown as many as possible before proceeding with poisoning and trapping.

Ted—"I hope you gave your girl a Christmas present that will cause her to long remember you."

Ned—"I don't know about that; but it's a constant reminder to me, for I bought it on the installment plan."—Judge.

SPRAYING MATERIALS

The old saying that: "A stitch in time saves nine" is particularly applicable for the owners of fruit trees and vines.

There's another old saying you may apply in the same connection: "Better be sure than sorry."

Taken for granted that you realize the necessity for constant vigilance and the thorough application of spraying materials during this season of the year, the next question is what brand to use.

Orchard Brand spraying materials are made in California for Pacific Coast conditions. They are the result of many years' experience in orchard work by scientists, practical fruit growers, research, laboratory tests, and demonstrations which have proved their effectiveness.

There is a booklet full of carefully prepared information for fruit growers, which will be sent upon request. From it you may learn how to secure a profitable crop, and to preserve your trees or vines in healthy condition.

Write us for this booklet as soon as you have read this.

Also write for Bulletin No. 3 on Dormant Spraying of Deciduous Fruit Trees.

At this season these sprays are the best to use:

Orchard Brand Lime Sulphur Solution, Orchard Brand Bordeaux Mixture, Universal Brand Oil Sprays.

When you write for the booklet tell us the condition of your trees or vines. We will be glad to help you solve your problems.

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Plant Peaches

By A. Layman

IN 1914 when the peach growers were all in the hole, were not even getting the cost of production, and a "glut" prevailed, George Rooding said in an extended article written for the Cultivator:

"When four cents a pound is the ruling price for dried peaches, it is useless to deny the fact that the producer is in the hole. Everybody cries 'overproduction'. The packers start the music going and the echoes travel last to the great consuming public, reverberate and rebound until the poor grower, coming in with the refrain, actually believes he has engaged in a business which is absolutely hopeless.

"Let me ask you one question right here. Mr. Grower, do you think you are bettering your conditions when this state of affairs exists by going on year after year putting out an inferior product because you say it doesn't pay to make your fruit better? Right here I want to say that your reasoning is all wrong, for it is just such uninviting stuff which influences the consumer to say: 'Nay, nay, Pauline! this article does not appeal to me.'"

The remainder of the article from which the above is quoted filled a couple of pages and appealed for a more general planting of peaches of best varieties and producing highest quality of fruit. At that time it was commonly asserted that the business was overdone. "It's too common a fruit; it can be grown everywhere."

Today, in fact, for the past two years, the peach growers have come to the realization that the California peach, like the California navel orange, is grown to perfection nowhere else in the world. Still more, Eastern peach growing sections have suffered seriously from inroads of disease and from the fact that climatic conditions are not so well suited to peach growing as in this state. Of course, California success in peach growing has been increased, or rather, made possible, by cooperation. The peach growers were amongst the last, however, to realize the necessity of organization. They have succeeded wonderfully in perfecting an association which has handled the dried fruit production of the state. This association is now issuing a house organ, in the first issue of which is an article touching upon the necessity of planting a peach which will protect the Blue Ribbon brand. This article is written by George Feaver, Jr., president of the Fresno County farm bureau, in answer to the question, "What shall I plant?"

By George Feaver, Jr.

"What shall I plant?" is a question frequently asked. The person who undertakes to answer it wisely in the light of experience is taking grave risks. In view, however, of the fact that the planting of freestone peaches has been largely overlooked for several years past, it would seem that if you have suitable soil and would plant wisely for later years, you would do well to plant them now.

The drying peach is going to be very scarce in five years; it is already getting scarce. And at the same time prices are good, and I look for them to remain at 15 cents or better for several years.

Here in the Fowler district, most of the peach orchards are old, a large part of them so old that it is only a matter of a few years until practically all of them will be pulled out and replaced by vines or alfalfa. It is not customary to replace old trees immediately with new trees, owing to the possible presence of disease and the fact that a long series of crops have very likely more or less exhausted those elements in the soil which support the particular kind of tree pulled out. It is natural, therefore, for the farmer to plant vines, perhaps first planting alfalfa, sometimes planting the vines before the trees themselves are uprooted. It is not likely that the orchard acreage will be increased soon in this district. The same is true in most older districts. But observation proves that a large proportion of the trees coming into bearing in the next five years will be cling peaches for canning purpo If we expect the future to be tal care of, we have got to begin now.

Good Orchard Soil

Perhaps in planting peaches in future we will choose the soil a lit more wisely than in the past, tak care to avoid too sandy as well as heavy soils, alkali, and too much ha pan. Light, deep, rich, sandy loa well drained, are found ideal for peach. Peach trees will, howev grow well on some heavier soils.

While both Muscats and Thomps Seedless raisins are selling at go prices, it is hard to turn them do for the peach. The seedless com into bearing quicker and is a gene favorite. It is certainly far from purpose to discourage the culture the grape when I say that experien has often shown that the time to pla one fruit is when everybody else rushing into another. It so happe at this time that many old orchar which suffered from neglect in t financially disastrous days before t organization of the California Pea Growers are very far gone and may look for heavy losses of trees the next few years. The drouth th year killed thousands more, especial where water failed. The pendulum popularity which swings so often planting is sure to swing back aga to the peach. But what are we goi to do to fill our orders for the fin peaches in the world, say five or s years from now, if nobody plan peaches?

Kinds to Plant

The Muir, which is the best pea for drying, should be planted no The Lovell, a good drying peach, a more of an all-around fruit, al should be planted. However, it h one fault, that of carrying drying ov sometimes into the grape harvest. does not peel as well as the Muir. B it is a good peach. The Elberta, wh not sold for fresh fruit, bears a f tonnage for drying. I would not a vocate planting all drying peaches, all one variety, but rather I would lik to see general diversification in tr fruits, grapes, and alfalfa and oth products.

As the country settles up, the lab problem will be easier for the pea growers. By looking ahead a f weeks the peach grower can get h

Want Better Drying Sheds

I would like to make a suggesti for the handling of drying peaches understand that the cost of producin harvesting, and curing a ton of dri peaches this year amounted in so cases to $90 to $100 per ton. One re son, it appears to me, is the antiqua ed methods prevailing in the dryi sheds. The work is made too unhand Men are used to unload the truck place the boxes of fruit for the c ters and remove the trays. A litt mechanical ingenuity ought to provi a method of bringing in the trucks fruit, slipping the boxes to the cutt alongside and replacing them witho much handling. A mechanical a rangement for stacking the trays, low ering them a couple of inches, an finally placing the stack automaticall on the cars below for the men to mo to the sulphur house and the dryi yard ought to be devised. Such equi ment would release some of the to pick the fruit.

THE JUJUBE

By Forest E. Grow

The Zizyphus jujuba, or jujube, been grown by the Chinese for h dreds of years. Many varieties h naturally originated, and large chards of 100 acres in extent h been planted to the better sorts.

The seedling trees, like most ot fruit trees, are unreliable, but sin the better grafted varieties have b secured and planted, their real meri and value are just beginning to realized. The grafted trees comme bearing tho second year after pla ing, and often bear a small crop t first year. The trees are regula heavy bearers and have a decided or amental value.

The fruits ripen from September to November 15. Some varieties

good only when fresh, others may be dried like prunes or raisins, and keep in this condition for several years, and a few varieties will keep for an indefinite period. The dried fruit becomes sweeter with age.

When the fruit is desired to be eaten fresh from the tree, it should be picked when it shows a reddish brown or mahogany color, for at this stage it has a pleasant sub-acid flavor.

If the fruit is to be dried and stored away for winter use, it should be left on the tree until it is thoroughly colored and about ready to drop. A short exposure to the sun; usually about a week, under cheese cloth or a similar cloth covering for partial shade will prepare the fruits in condition for storing away in sacks. Laundered corn meal or flour sacks are very satisfactory.

It is generally conceded by those who have had the pleasure of testing the fruit that when the larger, finer flavored fruits can be produced in sufficient quantities and processed on a commercial basis that the product when properly introduced, would be a very popular seller in the confectionery and high class grocery stores. All who have sampled the processed fruits speak of the delicious flavor and texture, and I have yet to find one who dislikes the flavor of the jujube.

(Ways of using jujubes next week by Mr. Grow in household department. These are original, tested recipes.)

BETTER FARMING

The Los Angeles County farm bureau held an important and well attended meeting in Los Angeles December 20, the theme being "Better Farming." Addresses were made by J. B. Vaile, Prof. B. H. Crocheron and Elwood Mead, Carlyle Thorpe, Volney H. Craig and Dean T. F. Hunt. From Dean Hunt's address we quote:

"There have been two ideas underlying the development of agriculture in this and other countries. One is that cheap food and the rising prices of real estate help to build up cities. The idea is based partly upon the population increment. The greater the population the more profitable monopolized business becomes. It is based also upon another idea, so well expressed by President Wheeler: 'No American will have anything to do with anything that is not growing.' The most significant factor in the life of an individual or a city or a country is progress.

"The first question to consider, therefore, when one proceeds to discuss better farming, is whether your motive is to build a better rural civilization in the county or to increase the fame and wealth of the county seat, or both. George E. Roberts, the ex-treasurer of the United States, and now member of the National City Bank of New York, was not far from the truth when he said recently: 'A large decline in important farm products has occurred in the last two months, but the town wage earners are still engaged in trying to push their wages higher. In the long run equity must rule * * *. The essential truth to be absorbed is that the situation is not one of a struggle between capital and labor, but between groups of producers.' Doubtless, this is not quite the whole truth, but it is near enough to it to be mighty significant.

"I come now to the second idea underlying the development of agriculture. It is to create those conditions in the open country which will make it possible for those who actually do the work on the land to make successful homes. No one should be permitted the monopoly that ownership in land implies unless he intends to raise and educate a family from the proceeds thereof. The idea that people who live on the land shall be upstanding, God fearing, intelligent, well educated people is not based on altruism; it is due to the fact that the grandchildren of the people who now occupy the land will occupy the cities. This idea of a successful family life, this idea that the home and not the individual is the essential unit, which seems to have become a bit old fashioned, has a wider sweep than the farm home.

"For the 60 years ending 1910 about 1,500 farm families had been added to California annually. The number added yearly has not varied materially throughout this period, except during the Civil War when the numbers were of course greatly reduced. This addition is not important, therefore, from the standpoint of numbers. Its importance lies in the recognition that an unsuccessful farmer is not an asset to the state; that the fertile land of the United States must be reserved for those who wish to rear and educate children as well as to raise food and clothing materials; and that it is in the interests of the people of the cities, as well as those of the country, that the conditions of ownership and development shall be such as to cause intelligent, capable Americans to seek homes in the open country. If we are compelled to admit that food and clothing can be produced only under conditions requiring a submerged foreign laboring class, then we must make the further admission that democracy will fail and Americanization is a will o' the wisp. The primary purpose for better farming is not necessarily cheap food, however important that may be, but the primary purpose is a virile educated citizenship."

IS BORAX IN POTASH FERTILIZERS INJURIOUS?

Numerous cases where farmers who use much fertilizer injured their crops by applying potash either alone or in mixed fertilizers were reported last year. This was due to the fact that much American potash contains borax in sufficient quantity to be harmful where large amounts of fertilizer are applied. This condition has caused the department of agriculture to issue an order that all fertilizers containing more than one-tenth of one per cent show on the bag or other package just how much borax is contained. This has a tendency to make fertilizer users afraid of American potash. For ordinary conditions, however, this fear should not prevent most farmers who want some potash from using the American variety. This is due to the fact that farmers generally do not make large applications of fertilizer. They seldom apply more than 300 pounds to the acre and these or smaller amounts will not carry borax enough to do any harm.

It has been found that to do harm to crops ten pounds of borax per acre is required when applied with the wheat drill or broadcasted. This would require 1,000 pounds per acre of a fertilizer containing as much as one per cent of borax, and one per cent is very unusual. Where fertilizer is drilled in the row with a corn planter attachment there is a little more danger from borax, since it only takes two pounds of borax per acre to be harmful in that case. This would require 200 pounds of fertilizer containing one per cent borax, and it is unsafe to apply more than 100 pounds of any fertilizer in the corn row for the reason that heavy applications in the corn row do no good when hot, dry weather comes on. Harm may even result from firing or other causes. Farmers need have little fear of American potash.

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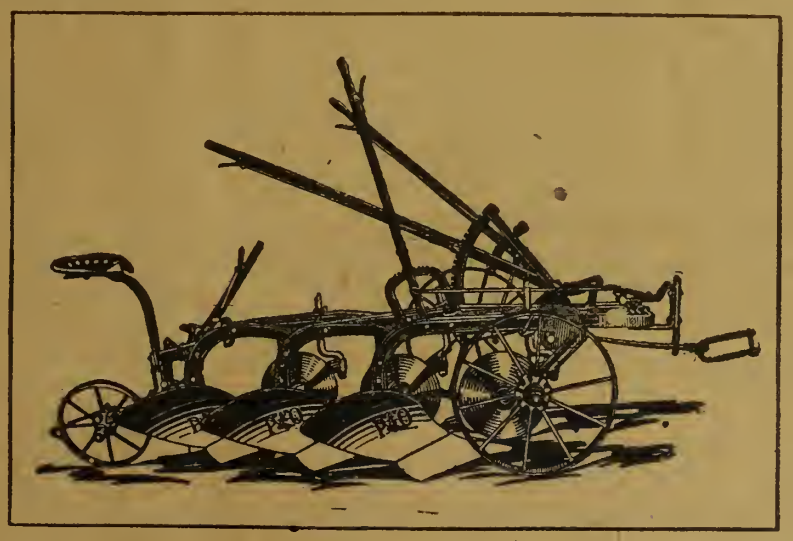

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Ever Increasing Trade finds us better prepared than ever before to take care of our Day Old Chick business. New concrete building—100 Jubilee machines hatching eight breeds. We sell Hyde's W. L. Cockerels from trapnested stock. Great stuff—shipped on approval; $5.00 to $7.50. Some Buff Orpingtons also. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

For Sale—Baby Chicks from my thoroughbred carefully selected flock of S. C. White Leghorns. Orders accepted now for spring delivery, at $15.00 for 100 chicks, $140.00 per 1,000. Every order receives my personal and most careful attention. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

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Thoroughbred S. C. White Leghorn Chicks —In 100 and 1000 lots from our Hoganized and Trapnested Stock. Order now for spring delivery. Inventors and Distributors of "Forbros" Separator and Trapnest combined. Write for circular. Forster Brothers, 2918 Otis Street, Berkeley, California.

Quality Barred Ply. Rocks and White Leghorns. A western bred strain of utility merit and demonstrated world's winning strength. Guaranteed hatching eggs and vigorous breeders for sale. GOLDEN RULE POULTRY FARM, Penn and Stamelen, Porterville, California.

White Leghorns—Breeding Stock, Hatching Eggs. Bred to standard and to lay. At 1919 Oakland Show won 2nd and 4th cock, 4th hen, 4th and 5th pullet, 2nd pen. 178 birds competing. All curves, white plumage, vitality, high egg production. MAHAJO FARM, P. O. Box 597, Sacramento, California.

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Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

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Solano Berkshires. Choice stock for sale, service boars of varying ages, bred gilts, unrelated pairs and trios. Reasonable prices. Write for information. R. C. Gruhlke, Dixon, Solano County, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

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I Will Offer a dozen first class young Duroc sows bred for spring litters to my crack yearling boar Nutmeg Gana 292547. Worth investigating. L. R. Hitchcock, Van Nuys, California.

Big Type Durcos; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

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The Best in the West—California Gertsdale and President's Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A Crawshaw. Hanford, California.

Big Type Poland Chinas—900 lb. grand champion El Profit, heads herd—line bred Big Timm. Viola L. Renwick. Santa Barbara, California.

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For Sale — Millions of Stone Tomato Plants from seed selected by myself and guaranteed. Liberal discount on orders placed before February 15th. Order now and make sure—ran short last year. L. C. Johnson, Pomona, California. Phone 2987.

For Sale—A few hundred sacks of White Rose Seed Potatoes grown from Hill Selected Seed. Clean and high production per hill. A. J. Mueller, Saticoy and Saugus Avenues, Van Nuys, or Van Nuys Hotel.

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Domestic Rye Grass, Italian special, 10c per. lb. f. o. b. Stockton. Also Burr Clover Burrs. Aurora Seed Mill, Stockton, California.

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Everbearing Strawberries, Superb, Progressive, Americus; St. Regis Everbearing Red Raspberries. Write for catalogue. Fred Leissler, R. 6, Box 429, Seattle, Washington.

Get Cory Thornless Mammoth Blackberry plants direct from Cory's Mt. Pass Ranch, $3.00 per dozen, postpaid. G. S. Wills, Jamestown, California.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc. Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

Write the Amount and kind of Seeds wanted. Four kinds alfalfa. Orders filled promptly. Wanted, Sudan in carloads. Box 504, Fowler, California.

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For Sale — Several thousand Cornichon Grapevines and Drake Seedlings; also a limited supply of fruit trees. Burke's Nursery, Lodi, California.

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For Sale — Turkey Eggs, from Wild-Domestic crosses. Raise more turkeys. Introduce wild blood into your flock. Get hardy, vigorous poults. Mammoth Bronze eggs also. Write for circular with directions how to raise 90 per cent of all you hatch. Orders booked now for February eggs and 5 day old poults. The Wild-Domestic Turkey Home, R. D. Box 26-A, Hemet, California.

For Sale — Breeding Toms. Pure Bred White Holland Beauties $12.00 each. Orders booked for White Holland Eggs, shipped in laying season. 50 cents each. Order early, supply limited. Mrs. L. A. Robinson, Hemet, California.

For Sale—Turkey Breeders Take Notice. Thoroughbred Mammoth Bronze, Buy Eastern Toms. You run no risk. Every bird guaranteed to be as represented. If not, return at once. C. O. D. R. M. Dodge, R. D. 2, Bakersfield, California.

We advise our customers wanting turkey eggs from utility or prize stock to place their orders now. Eggs 50c to $3 each; 25 per cent deposit required. Paradise Valley Poultry Ranch, National City, California.

Turkey Eggs—Also young Toms. "Gold Nugget" and other leading Mammoth Bronze strains. Quality plus honesty. Can you beat it? Carrie Andrews, Hemet, California.

Write for Prices on Turkey Eggs, also "Thoroughbred" Turkey Cockerels. Robinson Turkey Ranch, San Dimas, California. Covina Phone 902. Mention Cultivator.

MISCELLANEOUS

Closing-out Sale—$350 Victoria Canopy Top Surrey at $70.00 or crated F. O. B. Santa Fe, $80.00. Popular latest style surrey; a $200 rubber-tired Pony Buggy at $95.00. Last two jobs remaining from our large stock of horse vehicles. WICKERSHAM IMPLEMENT COMPANY, Fullerton, California.

Red Leaf Tobacco—Homespun aged in bulk. Chewing or Smoking—6 pounds $3.30; 10 pounds $5.00. Postpaid. Murphy Company, Martin, Tennessee. REFERENCE, People's Bank.

5,000 ft. of 8-in. and 10-in. surface irrigation pipe, $38.75 and $45 hundred feet. Don't wait month and expect order filled —very little new pipe in country. DEMMITT CO., 120 N. Main St., Los Angeles.

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If you wish to be sure of having your orders for eggs from our wonderful imported prize geese, filled in the spring, order now, giving us a 25 per cent deposit. Eggs $1 each. Paradise Valley Poultry Ranch, National City, California.

FARM LANDS FOR SALE

AGED WIDOW SELLS 275 ACRES $4,500 WITH 3 HORSES AND 2 colts, 6 cows, complete farm implements; on improved road, ¾ mile town; 100 acres tillage, balance pasture; wood, timber, fruit. 5-room house, 100 ft. barn, etc. $4500 gets all, easy terms. Details page 22 Strout's Catalog Farm Bargains 23 States; copy free. E. A. STROUT FARM AGENCY, 531 A. G. New York Life Bldg., Kansas City, Mo.

For Sale or Trade—A ranch near Hemet of 160 acres, well improved; 80 acres in wheat, 20 barley, 20 in oats, balance for corn and alfalfa. All good fruit land. Price $36,000—part cash, balance mortgage, or would trade for stock and lease on large dairy or for small dairy with stock. Address Owner: C. C. Jorgensen, Hemet, California.

Equipped for irrigation—95 acres rich gravelly loam, bordering on rich creek, ¼ mile from Sacramento River; all oak tree land, ½ cleared; will sell all or 20-25-50 acre tracts; first class for all crops, especially alfalfa and trees. Buy from owner and save commission. Box 123, R. D. 2, Orland, California.

For Sale or Exchange—6 acres Washington navels, 4 miles east of Porterville. In frostless area. Never has been damaged by frost. 2½ acres 12 years old; 2½ acres 8 years old; 1 acre 4 years old. Ideal home place. Reason for selling, living outside of state. Write Chas. Wentworth, 1721 Faraon Street, St. Joseph, Mo.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

For Sale—240 Acres good alfalfa and orchard land; good climate; 58 miles from Los Angeles. All fenced and cross fenced. Also have some improved land nearby. John Rouff, Palmdale, California.

Fine Alfalfa Land Northern Los Angeles County, easy water lift; $55 an acre, one-fifth down. Write for our alfalfa circular. Lippincott Company, Fay Bldg., Los Angeles.

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Manteca Soil and climate produce paying crops. Farms all kinds and sizes. State what you want. Walter Buchanan, Ripon, California.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

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Nursery Stock. Apples, pears, peaches, cherries, prunes, plums, berries, etc. OURS IS MAIL ORDER SYSTEM. IT SAVES YOU MONEY. Write us now for Planters' list. 20 years in business. Carlton Nursery Co., Carlton, Oregon.

Wanted—Black Walnut seedling nursery. Will buy or graft on shares. Have my own scions, Eureka and Placentia Perfection. The Walnut Nursery. W. A. Litten. Prop., Whittier, California. Phone 6294.

Budded Avocado Trees—We grow all varieties. W. P. Sherlock Avocado Nursery, R. D. No. 2, Puente, California. Sales yard on Third Avenue between El Monte and Puente.

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Wanted—Nursery Foreman. Young man experienced in fruit tree growing. Must be thoroughly competent field nurseryman and efficient in handling labor crews. In your reply give all particulars, experience, references, salary expected, etc. Address: Nurseryman, care of California Cultivator, 112 Market Street, San Francisco.

Wanted for Mountain Fruit Ranch—single or married—middle aged or elderly man—with good intention of doing right. Right party will find real home and good layout. Address: C. J. Mosler, P. O. Box 65, Julian, California.

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C. P. Bailey & Sons, San Jose, California. Importers and Breeders of Thoroughbred Angora Goats and Persian Sheep for fifty years.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands

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Beat the Butcher—Raise your own rabbit meat and know it is healthy. Our magazine tells you how. One year for 12 one-cent stamps. After January 1st 25c so get it now. SANDERSON, Eagle Rock, California. Dept. CC.

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While we import all our coffee we export a large quantity. We get some from the West Indies and send some back. The bulk of our coffee comes from Brazil, but Central America, Mexico, the West Indies, and Hawaii and Porto Rico supply what are known as mild coffees; from Aden and Arabia comes the familiar Mocha; and the Dutch East Indies send Java coffee. We send these coffees to many countries, but Cuba is our best customer, to which country we sent 15,595,000 pounds in 1919, and 11,699,000 to Spain. Other customers in the order of their importance are: France, Belgium and the Philippine Islands. While we export coffee to Central America, Mexico, and the West Indies, it is not the varieties we receive from there, but Mocha and Java. But that we send to Cuba comes from Porto Rico.

SWEET CORN FOR BREAKFAST IN ENGLAND

A Tennesseee newspaper says: A novelty to Americans in London fruit store windows has been the display of sweet corn. The ears are exhibited in state along side hothouse peaches and grapes. The corn sells for 25 cents each (an ear), the peaches $2.25 each, and the grapes at $1.25 a pound.

An American who went into one of the fruit shops to make inquiries about the sweet corn was informed that it was grown in England with special care.

The impression prevails that it is the American custom to eat sweet corn for breakfast. Most of the English people who can afford sweet corn therefore have it prepared for the morning meal. It is boiled until the whole ear is tender, then it is sliced and the entire cob is eaten.

MORE AND BETTER ROADS

Of national interest to truck owners is a series of conferences which representatives of the National Grange are holding with Senator Townsend of Michigan relative to his bill in congress providing for the building and maintenance of a national highway system by the government under a federal commission.

M. L. Pulcher, vice president and general manager of the Federal Motor Truck Company, Detroit, Michigan, points out that the action of the National Grange, which comprises 700,000 farmers, in endorsing a national highway system at their annual convention in Grand Rapids recently is the most significant step yet taken to obtain legislation for the problem which the tremendous expansion and use of the highways by motor vehicles has brought to the front as a real necessity.

"The motor industry has played no small part in the development of the roads of the country," he said. "They have helped in the expansion of the network of roads which bind the towns and the villages, the cities and the farm hamlets.

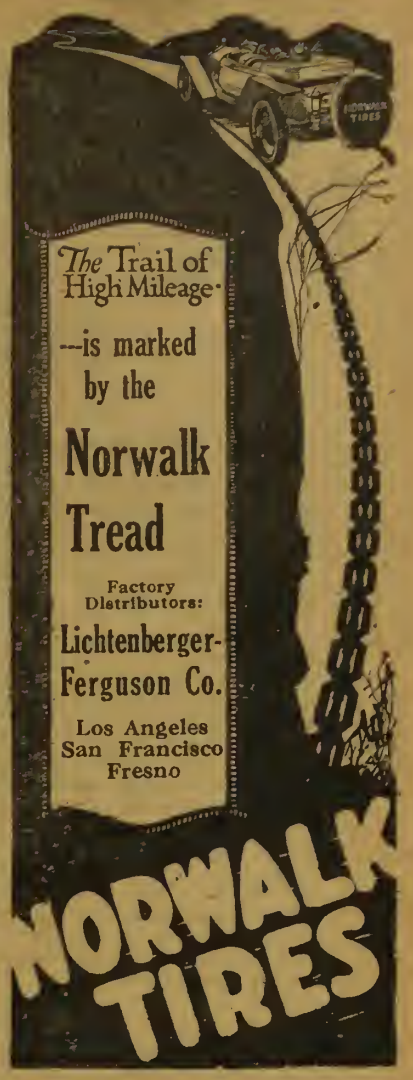
"A national highway system will give a tremendous impetus to intercity haulage. The great highways of commerce will be strengthened and made more durable. The truck will become in reality the "little brother" of the railroad.

"If a great body of farm folk of this country believe that a national highway system will be beneficial to them, how much more beneficial will it not be to the manufacturers, part of whose transportation problem is vitally tied up in the motor truck.

"The farmers with great vision for the future and their own needs have gone on record in favor of a national highway system. When will the business men and manufacturers go on record?"

HOME CONSUMPTION OF COTTON

American cotton mills consumed 491,313 bales of cotton during September, a slight increase over that used in September, 1918. The 1919 figures include 23,552 bales of foreign and 2,458 bales of Sea Island cotton. On September 30, there was 1,074,457 bales in consuming establishments and 2,492,220 bales in public storage and compresses. During September 54,176 bales of foreign cotton was imported as against 313 bales only in September, 1918.



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Certain pump manufacturers are deliberately infringing Layne & Bowler Patent Turbine Centrifugal Pumps. In order to protect our rights we shall hold responsible not only the manufacturers but distributors and USERS of infringing pumps. Detailed notice mailed to any pump user upon request.

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W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

County Bee Inspector Pleasants of Orange County reports bee conditions in that section excellent.

Own a "Selected" Farm in Western Canada

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THE most wonderful opportunity in the world for Business Farmers is in the "SELECTED" FARMS which can be bought for $15 to $40 an acre along the lines of the Canadian National Railways in Western Canada.

"Selected" Farms

These "SELECTED" Farms are carefully chosen from the cream of the richest wheat and cattle country in America, to meet your special needs, on the advice of experts representing 14,000 miles of railway, whose assistance, though free to home seekers, is of great practical value.

A Cordial Welcome

Western Canada extends a helpful hand to home seekers. Friendly neighbors, with the same customs and language—splendid schools, churches and social life—every benefit that you formerly enjoyed and many advantages that you could not get from higher priced land elsewhere—warm, sunny, growing summers and dry, cold, healthy winters—await you in this wonderfully prosperous "LAST WEST."

Taxes Are Low

Western Canada taxes fall lightly on the farmer. A small tax on land, but buildings, improvements, animals, machinery and personal property are all tax exempt.

Big Profits in Wheat and Dairying

Western Canada is famous for its big wheat yields. "SELECTED" FARMS along the lines of the Canadian National Railways average more than 20 bushels of wheat to the acre. Under specially favorable conditions a yield of 50 to 60 bushels per acre is not uncommon.

Dairying is exceptionally profitable. That soil and climate are well adapted to it is shown in greatly increased production and high quality maintained. A world-wide market awaits all that Western Canada can produce.

Fortunes from Beef and Dairy Cattle

Western Canada, the Cattle Man's Paradise! Beef and dairy cattle yield great profits. Stock thrive on the prairie grasses, which in many cases cure standing and make fine hay. Cattle and horses require only natural shelter most of the weather, and bring high prices without grain feeding.

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Terms on "SELECTED" Farms: About 10 per cent cash down, balance in equal payments over a term of years; interest *usually* 6 per cent.

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Special railway rates will be made for home seekers and their effects to encourage personal inspection of the Farms along the lines of the Canadian National Railways. Rates and full information will be sent free on request. *Write or mail coupon TODAY!*

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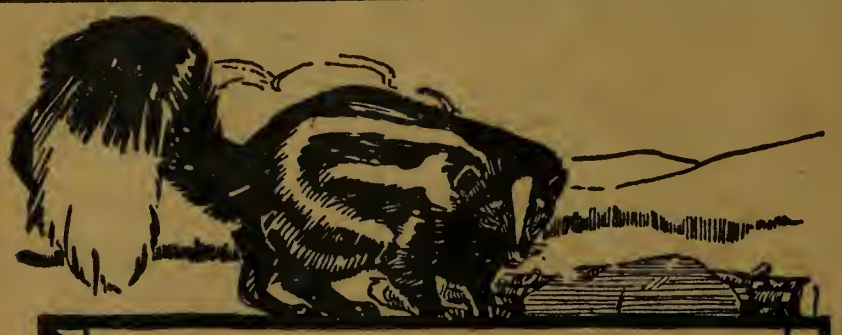

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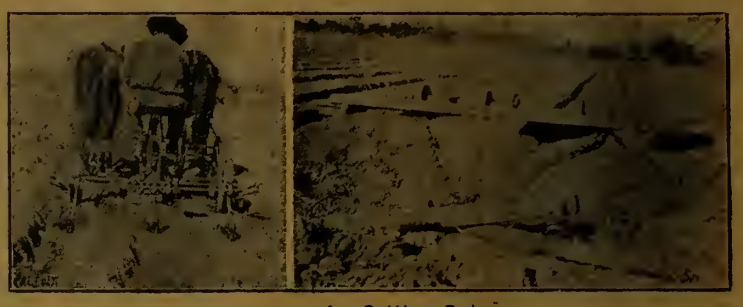
Onions and Spinach in Coachella

By Ernest Braunton

NEVER was the outlook for the truck grower better in the Coachella Valley than at present. This is the message brought back by R. G. Risser, manager of the crop production department of the California Vegetable Union.

The onion acreage in this valley is 2,700, just planted, about three times the usual or past area, though doubtless it will not be reduced in years to come. The crop centers largely about Thermal, for that is the home of the heaviest grower, Geo. M. Beach, who is also president of the Thermal Growers Association. Mr. Beach has 120 acres of onions. The extended acreage is largely due to the high prices of 1919, prices which will doubtless hold firm for the coming crop, not far away, for the shipping begins in April, the bulk of the crop going out in May. During the past year the entire crop was shipped through the California Vegetable Union which paid the growers $3.15 net for 50 pound crates. This was above six cents a pound and as the yield was about 300 crates to the acre the grower received nearly $1,000 for each onion acre.



Preparing for Setting Onions

Picture at left shows the first operation after plowing by the two horse furrower. Picture at right shows smoother and marker.

The onion growing in the Coachella is almost entirely in the hands of Americans, there being a few Mexicans and still fewer Japanese. The varieties grown are Yellow Bermuda and Crystal Wax, principally the first named. Nearly all the seed used is grown at home; Mr. Beach has for several years raised his own. Those who buy get the Teneriffe-seed from the Canary Islands. Mr. Risser saw a five acre seed bed on the Beach ranch which contained sufficient young onions to plant 150 acres. The biggest competitor is Southern Texas where the acreage ranges from 8,000 to 18,000 and the crop is a little earlier than in California. There is also grown from 300 to 500 acres in the Imperial Valley where conditions are also very favorable for onions.

Standardization Law

This year will see the first enforcement of the new standardization law though the Vegetable Union has for years encouraged grading and the output will not be much changed because of present legal restrictions. The law will eliminate three classes, split onions, seed stock onions, and those of wrong color. The latter are of the best, of course, but each must go where it belongs. So the white onions will be looked over and the yellows and reds placed in their own color class. The split onions are due to a check in growth, perhaps a lack of water, followed by a new start, often the result of an irrigation too long delayed.

As the soil is light and easily worked it is trenched deeply with a cultivator making three furrows. Over this is run a smoother made of planks under which disks run that mark the lines and make tiny trenches for the little plants. They are planted in double rows about 13 or 14 inches apart and double that space between the double rows. The young onions are pulled out of the seed bed, cut down to two or three inches high and put in crates for hauling to field. This work is usually done by contract, the labor being largely Mexican. The price this year is $30 an acre as against $20 an acre last year. As soon as planted the crop is irrigated in the furrows made by the previous cultivation. The first cultivation of the young onions is by hand pushed wheel hoes, a row at a time, but later it is done on a wider plan and the patient burro is much used to plod across the field with a cultivator attachment. The onion's most serious enemy is the thrips and its best friend nitrate of soda.

The Succulent Spinach

The spinach crop is now being shipped, the most perishable of all crops shipped out of the state. It was once thought it could not be sent to Eastern markets and it is only three years ago that it was first shipped in carload lots, so it is one of our newer industries. But the perfectly packed and refrigerated crop now reaches the

A California Spinach Ranch

The upper portion of the picture depicts a spinach harvester or cutter turned on its edge to show the method of placing the knives which do the cutting.

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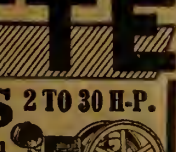

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Atlantic seaboard in 14 days. One grower in the Coachella Valley has an immense crop, running to 400 crates an acre, for which he is asking $3 a crate. If he gets his price the return of $1,200 an acre certainly should satisfy, but he is anxious to harvest the crop at once so he may immediately replant the land to onions. This is a phenomenal yield, for many fields run but 100 crates to the acre. The varieties grown are principally Broad-leaved Prickly and Bloomsdale Savoy, with the former dominant. Other growing centers are around Austin, Texas, and Norfolk, Virginia.

CROPS' VALUE ALMOST TRIPLED

The value of crops produced in the United States this year is nearly three times greater than the average annual value during the five years preceding the outbreak of the European war, according to the report of the secretary of agriculture. "On the basis of prices that have recently prevailed," says the secretary, "the total value of all crops produced in 1919 is $15,873,000,000, compared with $14,222,000,000 for 1918; $13,479,000,000 for 1917; $9,054,000,000 for 1916; $6,112,000,000 for 1914; and $5,829,000,000 for the five year average, 1910-1914. These values represent gross production and not net returns to the producer. The value of livestock on farms in 1919 was $8,830,000,000, compared with $8,284,000,000 in 1918; $6,736,000,000 in 1917; $6,021,000,000 in 1916; $5,890,000,000 in 1914; and $5,318,000,000 for the five year average, 1910-1914.

"This increased financial showing, it is again necessary to emphasize, does not mean that the nation is better off to that extent or that its real wealth has advanced in that proportion. Considering merely the domestic relations, the true state is indicated rather in terms of real commodities. The increased values, however, do reveal that the monetary returns to the farmers have increased proportionately with those of other groups of producers in the nation, and that their purchasing power has kept pace in the rising scale of prices."

POTATO SEED FOR SUBTROPICAL USE

It has been the experience of potato growers in practically all warm countries, such as Cuba, Bermuda, Florida, Louisiana and Texas, that it is impractical to try to produce their own seed potato stocks for more than one or two years, and in fact most early producing localities import their seed every year. The natural potato climate is one where the season is cool and usually short, and it is in such localities that the plants are little troubled with disease. They grow rapidly and the tubers from such plants make strong, vigorous seed which produce a new crop ten days or two weeks earlier than seed grown in a warm climate. Potatoes grown in a subtropical climate soon lose their vigor and become very susceptible to disease and "run out" to such an extent that it becomes necessary to replenish seed stocks from localities where the potato naturally thrives. Seed potatoes brought directly from cold climates to warm ones often do not give quite as large yields the first season as "acclimated" seed—that is seed grown for one year in the new locality. It is therefore possible to improve southern seed by selection of most vigorous plants and in this way carry over the homegrown seed one or two years.

THE FLANDERS POPPY

Some alarm may have been occasioned by reports that over there "in Flanders fields where poppies blow" lurks danger for agricultural America. The field poppy of Europe (Papaver Rhoeas) is the same old red poppy we have always grown in our gardens and from which the Shirley poppy is a sport. Though grown in the United States for centuries, no complaint of it has reached our ears. In California an occasional stray plant of it has been seen in damp sandy spots, as is the case with many other escapes, but not enough of it will ever grow wild flowers.

The manager of the Sutter Basin Company has been investigating irrigation systems of the southern part of the state and planning for irrigation extension in the Sutter district.

For Any Pumping System

BOSCH
HIGH TENSION MAGNETO

Power that is instantaneously ready—Power that is absolute in its dependability—Power that is enduring in its economy—is assured by the use of Bosch High Tension Magneto Ignition on a properly designed gas engine.

When Fairbanks-Morse Engineers conducted their extensive ignition investigation of 1919, they tried all ignition systems as compared with the world-famous Bosch Magneto. They exposed the Bosch High Tension Magneto to all kinds of weather—gave it far more severe tests than it could ever get under the hardest farm conditions, and then they had to agree that their newest and best engine, the famous "Z," should be Bosch magneto equipt.

The searching strain of farm work necessitates nothing less than Bosch High Tension Magneto Ignition—it is always efficient and dependable. For any piece of engine-driven farm machinery, insist on Bosch High Tension Magneto—America's Supreme Ignition System—you can get it.

BE SATISFIED SPECIFY BOSCH

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Main Office and Works: . . . . . Springfield, Mass.
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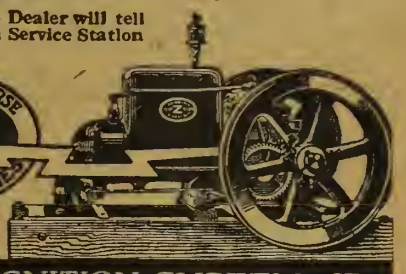
Any Fairbanks-Morse Dealer will tell you the nearest Bosch Service Station

It is the BOSCH Spark that gives real life to this farm engine



AMERICA'S SUPREME IGNITION SYSTEM
MOTOR TRUCKS - TRACTORS - AIRPLANES - MOTOR CARS - MOTOR BOATS - MOTORCYCLES - GAS ENGINES - ETC.

Dayton Airless

PIERS of LIVE RUBBER take the place of a TUBE
This Tells the Story
I have used a set of Dayton Airless Tires, getting 44,000 miles out of the front and 20,000 miles out of the rear tires, the difference in mileage being due to my overloading my Ford Touring Car by hauling three barrels of oil constantly.
I used the tires constantly, nearly three years, and Dayton Airless Tires make no difference in the wear and tear of a car. I find the engine and steering apparatus as good or better than the average car of like age.
And the satisfaction of knowing that when a person starts he can get somewhere without distress of both body and mind by punctures, blowouts, and loss of time is a compensation in this age of progress for any difference in price. The fact is, in the long run, the cost of Dayton Airless is about half the pneumatic cost.
HAROLD T. SMITH, Asst. Treas.
HUMBLE & GULF COAST OIL COMPANY

Punctures Proof AND Easy Riding

Put Dayton Airless Tires on your car now and forget punctures, blowouts, pumps and patches. Seven years of service has proven their success and reliability. Over 100,000 are in use today. They don't bounce like a tight pneumatic nor d-r-a-g like a loose pneumatic. They are easy riding—and wear till there's nothing left but shreds.

Equip Your Ford

or any other car using 30x3 or 30x3½ sizes. No spare tire needed. Thousands in use on light delivery cars. Send coupon for booklet and prices.

Excellent Territory Open

We have a splendid proposition to offer to business men in every county where we have no agent. Mail the coupon for the facts.

SALCH-COPPEL CO.

1426 Market St, San Francisco, Calif.

Mail this Coupon

SALCH-COPPEL CO.,
1426 Market St., San Francisco, Calif
Please send booklet and prices on Dayton Airless Tires as follows:
.....Passenger Cars
.....Light Delivery Cars
.....Dealer's Proposition
Name .....
Address .....

Produce Ex-

...ices last week on

8	9	10	12	13
66	..	..	66	66

CHEESE

Brokers' prices:
California, fresh, lb., 28; price to retail merchants, 28@30.

EGGS

Fresh extras, Produce Exchange closing price, 60 dozen; case count Produce Exchange closing price 56 dozen; pullets, Produce Exchange closing price 54 dozen.

Dairy Exchange prices last week on extras:

Jan.	7	8	9	10	12	13
'19 ...	58	58	..	..	59	60

POULTRY

Price to producers: Hens, lt. 35; heavy 35@37; colored over 4 lbs., 35; broilers, 32 @36; fryers, 35; roasters, 35; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hen turkeys, live, 40; dr., 41; squabs, 45@47.

Belgian hares, 3 to 3½ lbs. live, 17.

LIVE STOCK

Los Angeles, Jan. 13. — Weighed and delivered off cars without food or water: Hogs (hard-grain fed), 125 to 150 lbs., 14.50; 150 to 175 lbs., 15.00; 175 to 225 lbs., 15.50.

Cattle (on foot, gross weight), steers, good, 11.00@11.50; medium, 10.50@11.00; heifers, good, 9.50@10.00; fair, 9.00@9.50; bulls and stags, 6.00@6.50; calves, 125 to 150 lbs., 12.00, 1.75 to 225 lbs., 11.00.

Sheep, ewes, 8.50@9.00; lambs, 14.50 @15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock January 13, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Eleven cars California, 2 cars Idaho arrived. New stock; Stockton: Burbanks, fancy and special brands, 5.50@6.00 per cwt., mostly 5.60@5.75; others 5.35@5.50. Russets, 5.50@5.60. Local: lug boxes, 1.65 @1.75. Local White Rose, 5.00@5.40.

Sweet potatoes: Market steady. Lugs, 1.35@1.65; cwt., 4.00@5.00; mostly 4.00.

Carlots: Demand and movement slow, market weaker. Per cwt., 4.00@4.50, mostly 4.25; very few sales.

Onions: Demand and movement moderate, market strong. Home grown and Stockton: White Globes, cwt., 5.50@6.00; Yellows and Browns, mostly 6.00.

VEGETABLES

These are the actual prices obtained January 13, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Beans, green, lb., best, 15@17; other 8@9.

Beets, doz., 45@50; lb., 4@5; sk., 2.75@ 3.25.

Cabbage: Market strong. Per lb., 3¼ @4; per cwt., best, 3.50@4.00; others, 3.00; sacks, 3.25@3.50.

Carlots: Demand and movement moderate, market stronger, supplies very limited. Winningstadt and Cannonball in straight cars 70.00@75.00, mostly 70.00; in mixed cars 75.00@80.00, mostly 75.00 (crates extra).

Carrots, dozen, 35@45; lb., 3; sk., 1.50 @1.85.

Cauliflower: Local stock, per dozen, best, 1.15@1.25; others, 75@1.00; field crates, 1.75@2.00; best high as 2.00@2.25.

Carlots: Demand and movement moderate, market firm. Half Early and Pearl, straight cars 1.10@1.15, mostly 1.10; mixed cars 1.20@1.25; few high as 1.30.

Celery: Market steady. Local stock, per dozen bunches 1.35@1.50. Crates, 6.00@7.00; fancy shipping stock, 7.50@8.00.

Carlots: Demand and movement moderate, market strong, supplies limited. Per dozen, straight cars, few sales, No. 1's, 1.00@1.05; No. 2's, 85@90; mixed cars, No. 1's, 1.10@1.20; No. 2's, 1.00@1.10.

Cucumbers, hothouse, 1.50@3.00 doz.

Chicory, dozen, 45@50.

Eggplant, best, lb., 16@17; hothouse, lb., 25.

Peas, local lb., best 11@12; others, 8@10.

Lettuce: Local stock: Market firm. Per dozen, 45@50; crates, 1.50@2.00; other 1.00@1.35; best shipping stock, 1.85 @2.00.

Carlots: Demand and movement moderate, market firm, wide range in quality and condition, generally fair. California: Crates Los Angeles Market (Iceberg), straight cars 2.00@2.10, mostly 2.10; few low as 1.85; mixed cars, 2.15@2.25, mostly 2.25.

Parsley, doz., 35.

Peppers: Supplies very light, lug boxes, wide range. Bells, 16@18 per lb., Chills, best 15@16; Florida Bells, 30@35; Chili, 22@25.

Pumpkins, 1½@2 lb.

Parsnips: Lugs, 85@1.00; sacks, 2.25@ 2.75; others, 1.65@2.00; per dozen, 50. Per lug, 1.00.

Rhubarb: Local stock scarce, bx., 1.15 @1.30; few best, 1.50.

Squash: Hubbard, cwt., 2.75@3.50; lb., 2@3½.

Spinach, doz., best 35@40; other, 25@30.

Tomatoes: California: Lugs 1.50@1.65; Mexicans: Lugs, 4.00; crates, $3.50.

FRUITS

These are the actual prices obtained January 13, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: California: 4-tier, Bellefleur, 1.85@2.00, mostly 1.90@2.00; 3½-4½ tiers, 1.50@1.75; loose, 4@4½ lb.; Glen Seedlings, 2.25@2.75; White Pearmains and Yellow Newton Pippins, 2.00@2.25 box. Delicious, loose, 6@7 per lb.; Newtown Pippins, 5@6; Pearmains, 4@5; Winesaps, @6½. Northern: Jonathans, loose, 7@7½ per lb. Spitzenbergs, extra fancy and and fancy, 2.50@3.15; choice, 2.25@2.50; lb., 6½@7½. Delicious, boxes, 4.00; Ben Davis, per lb., 5; Pippins, 5@6; Winter Bananas, extra fancy, and fancy, box, 2.25@2.50. Rhode Island Grecnings, 2.50

Bananas, 8@8½.

Cranberries: Barrels, 15.00@18.00; lb., 16@17; Oregon, boxes, 4.00@4.25.

Pears: Winter Nelis, 3.75; lb., 6; Seckel, lb., 7.

Persimmons, lb., 8@15; mostly 12@14.

Pineapple, lb., 18@20.

Pomegranates, lb., 4@4½; half boxes, 1.50.

Lemons: Valley stock, fancy, 3.50@3.75; loose, 2.50@3.00; juice, 2.00@2.50 Local: Packed, 2.50@3.00; loose, 2.00@2.25 box, lb., 3.

Oranges: Navels, 4.50@5.00 box. Local stock: Packed, 3.50@4.00; Tangerines, 8 @10 lb.; poorer, 5@6.

Grapefruit: Arizona: Seedless, per box, 3.50@4.00; California: Porterville and Imperial Valley stock, per box, best 3.75@4.25; other, 3.00@3.50. Local: 2.00@ 2.50 box.

HONEY

Demand and movement slow, market dull. Carlots f. o. b. usual terms, per lb.: White Orange Blossom, mostly 19; White Sage, supplies very light, mostly 20; Extra Light Amber Sage, 18½; Light Amber Sage, 18½; Light Amber Alfalfa, 16. Beeswax: Demand and movement moderate. L. c. l. lots, 43 per lb.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded. 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6: Limas, 14½; baby, 13.

GRAIN AND FEEDS

Price bid local grain exchange, December 2:

Egyptian corn, 3.45.
Feterita, 3.20.
Corn, Yellow, 3 08¾.
Barley, 3.60@3.65.
Oats, Cal. Seed, 3.25; Eastern White, 3.10@3.35; Milo, 2.98@3.10.
Corn, Yellow, 3.50; White, 3.35@3.47½.
Eastern Kafir, 2.47½.
Alfalfa Molasses, 38.00.
Alfalfa Meal, 38.00.
Wheat, 5.30@6.30.
Cotton seed meal, 68.00.
Milo, 2.93¾@3.02½; Eastern No. 2, 2.80.
Eastern milo, 2.71¼.
Barley, 3.55@3.60.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	24.00@27.00
Barley	20.00@25.00
Alfalfa	23.00@28.00
Barley Straw	10.00@12.00

San Francisco Markets

San Francisco, January 13, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	67
Prime Firsts	65½

Jan.	6	7	8	9	10	12
'18 ...	65½	66½	65½	65½	65½	..

Rects. wk. ending Jan. 12, 3,161 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	27@29
Cal. Flats	29½
Cal. Y. A.	36
Ore. Y. A.	37
Oregon Trip	34

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	70½
Extras, pullets	62½
Undersized	56½

Jan.	6	7	8	9	10	12
'19 ...	69½	70	69½	69	70	..
'18 ...	75	73½	69½	69½	67½	..

Rects. wk. ending Jan. 12, 205,290 dozen.

POULTRY

Wholesale prices are:

Leghorn, 36@37; small, 36@37; large, 37@38; roosters, young, 35@37; old, 21@ 23; broilers, 38@40; fryers, 33@34; turkeys live, 38@40, dressed, young, 52@53; Ducks, Indian Runner, 25@27; Pekin, 28 @32; geese, 30@32; Squabs, 50@60.

Belgian hares, live, 18@20; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Western Meat Company prices are:

Cattle: Grass steers No. 1, weighing 1,000 to 1,200 lbs., 11@11¼; do, 1,200 to 1,400 lbs., 11; do, second quality, 9@10; do, 7@8.

Bulls and stags: Good, 6½@7½; fair, 5½@6½; thin, 4½@5½.

Cows and heifers: No. 1, 8½@9½; second quality, 8@8½; common to thin, 4½ @6½.

Calves: Light weight, 13@13½; medium, 11½@12½; heavy, 8½@10½.

Lambs: Yearlings, 10½@11½; milk, 12½@13½.

Sheep: Wethers, 10@10½; ewes, 7@7½.

Hogs: Weighing 100 to 125 lbs., 15; 225 to 300 lbs., 14½; 300 to 400 lbs., 13½.

Moran & Co. quote:

Cattle: Good steers, 1,000 to 1,200 lbs., 10½@11½; good heifers, 1,000 lbs. and over, 8½@9¼; good cows, 1,000 lbs. and over, 8@9; canner cows, 5@6; good bulls, 5½@6½. Calves, light, 12@13.

Hogs: Top packer, hard and well-finished, 150 to 225 lbs., 15½; 225 to 300 lbs., 15; over 300 lbs., 14.

Usual dock and price discounts for other weights and kinds.

POTATOES

Wholesale selling price:

Potatoes: Per 100 lbs.: Rivers, fancy, 4.25@4.50; choice, 4.00@4.25; Oregon Gems, 4.25@4.50; Salinas, 4.50@5.00; sweet, 4@4½ lb.

ONIONS

Wholesale selling price:

Onions: Onions, fancy brown, 5.00; choice, 4.25@4.50; yellow, 4.00@4.50; white, 4.50@4.75

Garlic, 18@20 lb.

VEGETABLES

Wholesale selling price:

Artichokes, cr., 15.00@20.00; doz., 1.00 @1.25.
Beans: String, 15@20; Lima, 12½@15.
Brussels Sprouts, lb., 8@9.
Carrots, per sack, 1.00@1.25.
Cauliflower, doz., 1.25@1.45.
Cabbage, doz., 40@50.
Celery, doz. bunches, 45@50; cr., 5.00 @6.00.
Cucumbers: Hothouse, 3.00; L. A. lug, 3.50@4.50.
Eggplant, lb., 10@12½.
Lettuce, cr., 2.00@2.25; doz., 50.
Pumpkins, lb., 2@2½.
Radish, 7@9 doz. bunches.
Tomatoes: Southern, cr., 1.25@1.75.
Spinach, lb., 2@3.
Squash: Hubbard, sk., 1.25@1.75; Summer, bx., 1.50@2.25.
Peppers, Bell, lb., 10@12½; Chili, lb., 10@12½.
Peas, lb., 15@22½.

FRESH FRUITS

Wholesale selling price:

Apples: Bellflowers, 1.50@2.00; Newton Pippins, 1.75@2.25; Spitzenburg, 2.00 @2.50 ch.; fy., 3.00@3.50.
Bananas, 7½@8.
Cranberries, 5.50@6.00 per standard box; barrel, 11.00@12.00.
Pears, box, 2.50@4.00.
Persimmons, box, 1.25@1.75.
Pineapples, doz., 2.75@3.50.
Pomegranates, 1.00@1.50 bx.

CITRUS

Wholesale selling price:

Per box: Lemons, fancy, 5.00@5.50; choice, 4.50@5.00; standard, 2.50@3.00; lemonettes, fancy, 3.25@3.50; others, 2.00 @2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@3.00; oranges, Valencias, 3.00@4.00; navel, 4.00@5.00; limes, 1.50@ 1.75 per crate; tangerines, 1.50@3.25 per crate.

BEANS, PEAS.

Jobbing price per cental:

Beans: Small white, 6.50@6.75; large white, 6.50@6.75; cranberry, 7.50@8.00; red Mexican, 8.00@8.50; pink, 6.50@6.75; California Bayou 9.25@9.75; Blackeye, 6.25@6.50; red kidney, 12.00@13.00; Lima, 13.50@13.75; Garvanza, 9.50@10.50; Kotenashi (in bond), 5.35.

Dried Peas: California, 6.50@7.00 per cental for green, recleaned.

ALMONDS

California Almond Growers Exchange opening prices:

Nonpareil @32½, IXL @31½, Ne Plus Ultra @30½, Drake @23½.

HONEY

Jobbing prices: Extracted, Water White and White, 18@20 lb.; Light Amber, 17@18; Amber, 13@15; Comb, 25@ 28 for White and Water White and 23@ 25 Light Amber.

DRIED FRUITS

Prunes:

Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On smallsized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.

For "practically peeled" add 1½c per pound (any grade).

Prices above are all bulk basis.

For packing in 50 pound or 25 kilo boxes add 1 cent per pound.

25 pound or 12½ kilo boxes, all 1¼c per pound.

10 pound boxes, add 2c per pound.

Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.

Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.

Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:

Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@ 23½.

Figs:

White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19 @20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@ 1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20 @4.35; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@ 3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:

Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

Raisins:

California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅜; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned; in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12¾; Thompsons, bulk, recleaned, in 25s, 14¼; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾. Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown, flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown, tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, 2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50, vineyard run, 100s, 13.00.

GRAIN

Wheat: The prices are based upon federal grades and standards at the terminals in San Francisco Bay and Los Angeles, and are as follows, per bushel of 60 pounds:

	Per Bushel	Per Cental
Hard White—		
No. 1	$2.20	$3.66 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51⅓
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.09	3.48⅓

The above are minimum prices.

For sacked grain add 4½ cents per bushel of 60 pounds to above prices. Deductions of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.00@3.05; black, 3.00 3.20@3.30.

Corn: California yellow, 3.10@3.20 per cental; Egyptian, 3.65@3.75; milo maize

Rye: 3.35@3.45.

Barley: Spot feed, per cental, 3.50@ 3.60; brewing, 3.65@3.75.

HAY

Under date of January 10, Scott-Magner & Miller says:

Receipts past week 1,600 tons. Although demand in San Francisco is light there has been good country demand. Owing to cold, frosty weather and north winds grass has been very backward necessitating the feeding of hay throughout the country districts. The warm weather of last week gave every indication of some early grass for feeding but the cold weather of the past week changed very materially all these conditions. The market has been firm and at times prices in excess of our top quotations have been establishcd. Considerable alfalfa hay has been moved from Nevada to this state and promises to continue for some time.

We quote today wholesale prices in carload lots as appear from dealers transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses are to be added according to conditions:

Fancy Wheat Hay (light 5 wire bales)	26.00@28.00
No 1 Wheat or Wheat and Oat Hay	23.00@27.00
No. 2 Wheat or Wheat and and Oat Hay	22.00@24.00
Cholce Tame Oat Hay	25.00@28.00
Other Tame Oat Hay	22.00@25.00
Wild Oat Hay	21.00@24.00
Barley Hay	21.00@24.00
Alfalfa Hay	23.00@28.00
Stock Hay	18.00@21.00
No. 1 Barley Straw, bale	.50@ .9

Citrus Markets

Los Angeles, January 14, 1920

Valencias are recovering from the slump of last week though the recovery is exceedingly slow. Some very low sales are being made for some indifferent stuff. However, in auctions occasional toppers touch the $6.00 mark. At Atlantic seaboard ports lemons are running very low in price. Vast quantities of foreigns are being received. In Middlewest fair prices prevail.

Shipments

Shipment of oranges from Southern California to date since November 1, 1919: Oranges, 4,213 cars; lemons, 6 total, 4,898. To same date last season Oranges, 2,700; lemons, 1,272; total, 3,97 Central California: Oranges, 3,343; lemons, 133, total, 3,476. To same date last season; Oranges, 2,143; lemons, 154; total 2,297. Northern California: Oranges, 2 lemons, 20; total, 280. To same date last season: Oranges, 229.

AT THE AUCTIONS

January 7

New York: 16 Nav., 7 Val. Nav. 1 90 6.40, Val. 1.65@5.75, tangerines 2.00.

Boston: 7 or., 1 lem, Nav, 3.00 5 1 Val. 4.40, lem. 3.35@5.10.

Cleveland: 5 or. Nav. 2.55@5.00, Val 1.95@2.75.

St. Louis: 3 or., 1 lem. Nav. 2.80@3. Val. 2.50@3.90, lem. 3.15@3.60.

January 8

New York: 9 Nav., 11 Val., 1 lem. Nav 2.85@6.00, Val. 1.80@4.60, lem, 90@1.4

Boston: 9 or., 1 lem. Nav. 3.50@5. Val. 3.65@3.70, lem. 65@80.

Philadelphia: 3 or., 1 lem. Nav. 2.50 3.40, Val. 2.85@3.85, lem. 50@1.80.

January 12

New York: 22 Nav. 11 Val. Nav. 1.0 6.10, Val. 1.65@4.15.

Boston: 11 or. Nav. 3.35@5.10.

St. Louis: 3 or. Nav. 2.65@3.65.

Cleveland: 9 or., 1 lem. Nav. 60@5.0 lem. 3.45@4.65.

Cincinnati: 3 or. Nav. 1.70@3.85.

January 13

New York: 16 Nav., 3 Vai. Nav. 1.75@5.70, Val. 2.00@3.65.

Boston: 8 or., 1 lem. Nav. 3.10@4.80, lem. 3.50@5.95.

Pittsburgh: 2 or. Nav. 2.75@4.20.

REVIEW OF TRUCK CROP CONDITIONS

By E. W. Stillwell, Bureau of Crop Estimates

Asparagus (Imperial Valley): Estimated acreage 300, or about same as last year. Shipments expected to start about March 1, with estimated total carlot movement 40 to 45 cars.

Cabbage (Los Angeles and Orange Counties): Rains did not aid very much in eliminating aphis and growers in some sections spraying as precautionary measure, although little damage yet. Demand good and shipments increasing. Orange County acreage late, and shipments almost all from Los Angeles County. Planting fully as heavy as originally estimated, with probable slight increase both counties.

Cauliflower (Los Angeles County): Shipments heavy although cold weather retarded development and heavy winds slowed up loading. Quality of stock variable but tending to improve. Movement after February 1 will be lighter.

Celery (Los Angeles County): Considerable winter blight not previously noticed showed up in fields harvested the past week. This necessitates heavy trimming, and, consequently, smaller sizes. Damage difficult to estimate until crop is actually harvested, and not all fields affected, but believe will cut down total yield 15 per cent. Demand for large size stock keen, and price to growers running generally 90 cents for No. 1's, with top price of $1.00 reported. Growers with large percentage of small sizes finding difficulty to market crop. Crop would be benefited greatly by rain.

Lettuce (Los Angeles County). Shipments continue light, largely mixed cars. Quality only fair. Growers planting heavily for April and May shipment. Acreage appears now about 3,000. Buyers paying as high as $1.25 per field crate for best stock.

Lettuce (Imperial Valley: Rain January 3 tended to open mature heads and stopped shipping temporarily, but generally beneficial. Shipments expected to increase with movement next ten days, averaging 10 cars per day, and heavier the last week of this month. Quality of stock being shipped reported excellent. Weather entire season remarkably favorable. Sales carloads f. o. b. usual terms and cash track around $2.75 per crate, netting growers around $1.50 delivered to shed. Arizona: report from field agent states first car out December 24, second car probably past week, but January shipments light. Peak of movement February. Growing conditions past month exceptionally favorable. Previous estimates of yield and shipments stand.

Peas (San Diego County): Carlot shipments now moving from Carl about five per week. Recent unreasonably hot weather has not been best for development of crop, but it is not believed that yield is affected. Quality reported excellent.

Tomatoes (Mexico): Crop reported as developing normally, although not believed over 1200 cars will be shipped. First car has moved. Shipments expected to continue through May, with peak in March.

Spinach (Imperial Valley): Recent rains thought beneficial to crop. Damage by fungus does not appear to be increasing. Shipments steady—about five cars per day.

MARKET NOTES

Crop Investigator Stillwell of the local United States bureau of markets has just returned from the Imperial and Coachella Valleys, after a thorough canvass of that field. He reports the lettuce crop as 9,500 acres, the 1918 area being 2,650 acres. Spinach covers 1,200 acres, though last year but 75-100 acres. Peas total 865 acres as compared to 300 in 1918. Cabbages run about 295 acres. In the Coachella Valley there are 2,700 acres of onions and 145 acres of spinach.

The outstanding feature of the week has been the advance in cabbages, now selling at $70 to $75 per ton in carload lots, some growers claiming sales at $80. Ten cars daily are going forward, with some cabbages in the 30 cars each day of mixed vegetables. Cabbages are everywhere scarce.

Sweet potatoes are up and if quality was good would bring $5, but they are of poor keeping quality and many spoil in transit. Celery is going forward from both north and south fields and spinach and lettuce shipments from the Imperial Valley are heavy and increasing daily.

Northern Burbank potatoes are coming to Los Angeles market and bringing $5 to $5.25 in car lots; Idaho Russets bring $5. For the first time in several years potatoes are coming from as far east as Minnesota. The first car of Mexican potatoes came in during the week and sold readily at $3.50 to $4.00. These high prices are due to a general crop shortage in the United States of 15 per cent, the northern Maine crop alone being 40,000,000 bushels less than in 1918. French endive is new on the market and peppers and egg plant are coming from Florida, the local grown supply being exhausted.

BOUNDS FOR JAPANESE BEETLE

The Japanese beetle immigrated to the United States in 1911 in the grub stage on the soil surrounding iris plants. Finding residence in Burlington County, New Jersey, this colony of Japanese beetles prospered, multiplied and increased in compound measure to the extent that soon the horde of pests became so obnoxious that the state department of agriculture, in cooperation with the United States department of agriculture, had to exercise the ingenuity of science to hold them in check.

The Japenese beetle is a general feeder which attacks fruit trees, grapevines and many varieties of vegetables, a large number of ornamental plants, and a host of weeds, while it especially likes sweet corn. The beetle is a strong flyer during the warm periods of the day, and it is liable to be distributed on the clothing of autoists, pedestrians or others who travel through infested territories. It is likely to be shipped out on various farm crops, especially on sweet corn, as the beetles penetrate the ears of corn. In order as far as possible to limit distribution by such means a federal quarantine is now in effect providing for the inspection and certification of all green sweet corn used commercially in infested portions of Burlington County. Control measures which spell sure doom to the Japanese beetle consist of establishing a belt of poisoned foliage around the infested area. Destruction is also effected by means of poison sprays used copiously on green growth subject to attack, as well as by treating the soil with sodium cyanide in solution. Roadways are being cleaned of food plants which are attractive to the pests, in order to prevent dissemination of the infestation through the agency of passers by.

AMERICAN TRADE WITH INDIA

A trade commissioner writing on this subject says that American prices are too high and we must remember that of the 350,000,000 inhabitants, 300,000,000 have no purchasing power. Wages over the whole country do not average more than 25 cents a day and when the cost of living is taken out of this, not much remains. The prices of goods sent to India must, therefore, be within the reach of the people.

IMPORTS FROM MEXICO

It may not seem strange that our largest importation from Aguascalientes, Mexico, in 1918 was bones, of which we received 772,000 pounds, and of hides 130,918 pounds. So much for bulk, but in value we received $11,276,613 worth of copper bullion and $1,112,936 worth of lead bullion. Hides came third in value and next came goat skins.

AFRICAN ORANGES

Sir Percy Fitzpatrick, a leading orange grower residing at Clonave, South Africa, is visiting the orange growing sections of California. Author, politician and globe trotter, he has a thorough knowledge of the principal citrus sections of the world. About 100,000 acres of oranges are coming into bearing in his home section.

It has cost the American farmer and consumer literally billions of dollars in slow, small, costly, tedious hauling and frequent inability to get products to market. Inability to deliver regularly and at will on account of poor roads produces the most gluts and market dearths, which result in wide, unreasonable, and disastrous fluctuations that add largely to the cost of living, and farm failures.—B. F. Harris

Manufacturers of auto trailers report sales steadily increasing.

HE'D TRIED IT AND KNEW

Willis—Why don't you pronounce these foreign names correctly? Don't you know how?

Gills—Sure, but if I did nobody would understand what I was talking about.—Judge.

WEATHER REPORT
San Francisco, California, January 10, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.95	10.65	18.86	54	34
Red Bluff	.20	4.29	11.19	66	36
Sacramento	.08	3.20	7.98	58	34
San Francisco	.04	4.36	9.39	52	42
San Jose	.01	3.12	6.91	60	28
Fresno	.00	1.51	4.09	62	30
Los Angeles	.20	4.56	5.93	66	41
San Diego	.16	2.58	3.71	64	40

THERE'S a reason for everything. Nothing ever "just happens." My success with poultry is not an accident or a matter of "luck"—here are the three reasons my hens pay:

The FIRST reason:

My success begins with the baby chick. I start them on the right feed, and in that period when baby chicks so easily sicken and die, the pure dry buttermilk in Globe "A-1" Baby Chick Mash, and the fine balance of ground grain, grain hearts and meatine, builds them to vigorous youngsters, makes them grow, and acts as a safeguard against disease.

The SECOND reason:

My growing chicks are well fed. Experience has taught me not to "stint the ration and stunt the bird." During the stage of rapid growth, when the making of bone, muscle, flesh and feathers demands feeds high in protein, Globe "A-1" Growing Mash (containing Dry Buttermilk) brings them to maturity as strong, healthy birds ready and fit to lay.

The THIRD reason:

I know that it takes feed to make eggs—and so I feed an egg ration—Globe "A-1" Laying Mash (containing Dry Buttermilk).

GLOBE A-1 FEEDS

GLOBE MILLS

Makers of Globe "A-1" Flour and all the other good things that bear the Globe "A-1" mark.

San Francisco Los Angeles
Sacramento San Diego
Colton Ogden

Judge them on business principles

BOSTROM IMPROVED

Shipping weight 15 lbs. Price $22.50

Has TELESCOPE with magnifying glasses which enable you to see cross on Target quarter of a mile. Pays for itself on the first job of

IRRIGATING, DITCHING, TILE DRAINING, TERRACING, etc.

Best investment any land owner ever made with Twenty-Two Dollars and Fifty Cents. Simple, accurate, durable and complete with full instructions. Used and endorsed by Agricultural Schools, County Demonstration Agents, and farmers from Atlantic to Pacific, and you will endorse it too, after using it—if not your money back.

Write for description of Level and TELESCOPE, details of money back guarantee; also name and address of our distributor in your section.

BOSTROM-BRADY MANUFACTURING CO.
89 Stonewall Street, ATLANTA, GA.

Bred Gilts For Sale

11 SPRING GILTS—5 Tried Spring Yearlings

STRICTLY BIG TYPE POLANDS

Bred for Early Farrow to

The Westerner by "Big Bob" (The Immortal)
And
Calibuster, Carrying the Blood of "Giant Buster" and "Big Bob."
The Spring yearlings are by Kansas King.
The Gilts by Kansas King and King Jones Over.

Mr. Breeder— Pig Club Boy— Mr. Farmer:

There will be few like these offered in the sales this Spring—Breeders who have this kind are not selling them—wherever one is offered, they will mob the auctioneer to get her.

We are pricing them reasonably, and don't forget—they are bred to the two best boar prospects in the state.

Come and see them or write your own guaranty, and we will ship on approval. Cholera Immune.

McCarthy and Starkweather

Route C., Box 384
MODESTO, CAL.

DE LAVAL

the world's cream saver

"He wanted to see them start right"

Thousands of De Laval Cream Separators have been sold to young people just beginning to run a farm, because a father or friend wanted to see them start right.

The older people know from experience that the De Laval skims cleaner, runs easier and lasts longer. They also remember the service they have always received from the De Laval Company and its agents.

The superiority of the De Laval and the uninterrupted service back of it are responsible for the fact that there are more De Lavals in use than of all other makes combined.

Any time is a good time to buy a De Laval Cream Separator—to start saving cream, as well as time and energy.

If you want to "start right," see nearest De Laval agent. If you do not know his name, write to nearest De Laval office

The De Laval Separator Co.

165 Broadway NEW YORK | 29 East Madison Street CHICAGO | 61 Beale Street SAN FRANCISCO

PURE HAWAIIAN CANE

MOLASSES

By actual test it will increase pork production half a pound daily over a barley and tankage feed yet it sells for less than half the price.

By actual test it will increase milk production 15 per cent.

Seventy-five per cent of the Blue Ribbon Winners at the Livestock Show were owned by people who are feeding molasses

If you want increased production at lower costs feed molasses.

Write us at once for prices and interesting booklet telling how to reduce feeding costs.

W. H. Young Company

58 Sutter Street San Francisco

The Highest Priced SIRE and SON

KING KORNDYKE PONTIAC 20th

and HIS SON

KARLRAY PONTIAC TOLA

King Korndyke Pontiac 20th, our junior herd sire, at $6500, is the highest priced Holstein bull ever sold at public sale in California.

Karlray Pontiac Tola, a three months old son of King Korndyke Pontiac 20th, and the great heifer K. P. Tola Joe, has been sold by Gotshall and Magruder, Ripon, to A. B. Spooner, San Luis Obispo, at a price never exceeded in California for a bull calf at private sale.

In these instances price is a true measure of quality.
Why not put a son of this sire at the head of your herd?

OUR ENTIRE HERD IS TUBERCULIN TESTED

Tulare Holstein Farm

W. J. HIGDON, Owner TULARE, CALIF. H. L. REDD, Herdsman

When Writing Advertisers, Mention the Cultivator.

Three Methods for Estimating Milk Prices

By Dean Hunt of State University

Dean Hunt of the University of California college of argiculture in a letter to R. W. Hodgson, farm adviser for Los Angeles County, presents three methods of estimating the reasonable price of milk at a given place or time:

"These threo methods are more or less applicable to all commodities but would appear to be particularly applicable to the price of milk at the present time. They are: Cost of production plus reasonable profit; Price compared to increase or decrease in price of other commoditios; Effect of price in securing necessary supply.

"Among the items which may be considered in determining the cost of production are: Land rental, price of eows, effect of climatic conditions on pasture, price of hay, grain and other feeds, price of equipment and repairs, wages and board of milkers, transportation, depreciation on eows and equipment, taxes and insurance.

"For seasonal reasons, some of these items are extremely variable, both from month to month and, especially in California, from year to year. For example, the cost of producing milk in 1915 was quite different from the eost in 1918. Data aceurately compiled and covering a sufficient number of cases may indicate what the cost was, but not necessarily what it will be or what it should be. For example, some of the dairymen included in any given survey may be unnecessarily ineffieient or may possess 'boarder' eows. With the recent inflation of currency, it is generally recognized that the commodity index offers the best standard of comparison. In order to compare wholesale prices, Bradstreet's index of 96 wholesale commodities furnishes a satisfactory standard. This index on December 1, 1919, indicated that it required $2.26 to buy as much of these 96 commodities at wholesale as $1.00 would buy during the average of five years preceding the war. Nothing was high at wholesale, therefore, on December 1, 1919, that did not cost $2.26 as eompared to $1.00 in pre-war times. Probably the best index for retail commodities is the one published by the United States department of labor.

"A supplementary, but perhaps less accurate, method would be to eompare the price paid by creameries for milk for the production of butter and other commercial products as compared to the wholesale price of market milk, since these two classes of milk are in competition with each other. Thus, if we should find that the price paid the farmer for butter fat for the five years preceding the war was 33 cents per pound and the wholesale price of 3.6 milk was during the same period 16 cents per gallon, we would conclude that when the creameries were paying 70 cents for butter fat, the wholesale price of market milk to sustain the same relationship should be 33.9 cents per gallon. I do not mean to say that these prices have actually existed. I am merely using this eoncrete example to illustrate the principle. Obviously, the usefulness of this method is in part dependent upon whether the dairyman was in pre-war times getting a living wage.

"Obviously, so far as the consumer is eoncerned, he is paying a given price in order to obtain a sufficient and regular supply of milk of a desired quality. If a certain price brings an insufficient supply of this quality, he must necessarily increase the price. If, on the other hand, a given price brings too much milk into the city to maintain a regular supply, the consumer must be charged more than is necessary. Unfortunately, the price that brings about this condition has not materially benefited the producers of milk, that is, the man who actually owns, feeds and milks the cows, because the surplus has been converted into cream, butter, cheese or other products which have sold for a less price.

"Thus, to take an extreme case, suppose that the price necessary to bring a sufficient and regular supply of milk of a desired quality is 30 cents per gallon. If a price of 45 cents per gallon should be artificially set, with the result that twice as much milk is delivered as is needed, tho surplus must be turned into butter or other low price products which may return only 15 cents per gallon. Under these circumstances the net return to the producer can be only 30 cents a gallon less overhead expenses. In other words, any surplus over that necessary to insure a regular supply not only creates an increased charge to the consumer, but in the long run is of no advantage to the producer of milk, that is, the man who owns and feeds and milks the cows. Any such excess is an economic waste. It is of advantage to no one.

"It is of particular importance to the producer to have this waste stopped because it curtails the demand for his commodity without increasing the net priee which he receives. It is of the utmost importance to society, because anything which unnecessarily curtails the consumption of milk, not only by babies but by children and adults as well, lessens the health and vigor of the city population. Any plan of betterment of the milk supply of a city, therefore, should give careful consideration to this question, which is only a phase of that old question which people so often try to beat but cannot—supply and demand. The blind senator from Oklahoma once remarked on the floor of the upper house that there were three things that appealed especially to the imagination of the people, namely; squaring the circle, perpetual motion and price fixing."

1920 FAIR DATES FIXED

At a meeting held in San Francisco, Monday, January 4, managers of a number of the leading Western fairs met and organized the Western Fair Association.

C. R. Thomas of Los Angeles was elected president; Frank M. Rothrock, Spokane, vice president; Charles W. Paine, Sacramento, secretary-treasurer, and Walter C. Ficklin of Fresno and O. M. Plummer of Portland, members of the executive committee.

The following dates were placed in a tentative program: Sacramento State Fair, September 4 to 12; Tulare County Livestock Show, September 14 to 18; Hanford, Kings County, Fair, September 21 to 25; Glenn County Livestock Show, September 27 to October 2; Fresno District Fair, September 28 to October 2; Los Angeles Livestock Show, October 2 to 10; Riverside Southern California Fair, October 11 to 16; San Francisco, International Livestock Show, October 16 to 24; Spokane, Western Royal Livestock Show, November 1 to 5; Lewiston, Northwestern Livestock Show, November 8 to 12; Portland-Pacific International Livestock Show, November 15.

NEW IDEAS ON ANIMAL DISEASE

At the short course at Davis, Dr. K. F. Mayer, of the Hooper Foundation of Research of the University of California, drew attention to the similarity of bacillus abortus of Bang of contagious abortion to the B. melitensis of Malta fever, and pointed out that all abortion disease of cattle is not due to the bacillus of Bang. He suggests importance of pasteurizing certified milk.

Dr. Edward Rocords of the veterinary control service of Nevada, in diseussing the so-called hemorrhagic septicemia in Nevada and California, which has proved such a baffling problem, objects to the use of hemorrhagic septicemia and suggests the popular term, "Red Water," although this is also applied to Texas fever. Dr J. J. Frey of the state department of agriculture advises that all cattle owners in anthrax districts immunize all cattle during spring or early summer, by vaccinating, using triple injections of spore vaccine.

CATTLE PROTECTION BOARD MOVES

The office of cattlo protection has been moved to the Sacramento headquarters of the department of agriculture. All letters, checks and remittances should be addressed, Division of Animal Industry, Department of Agriculture, Sacramento, California.

INTERSTATE SHIPMENTS OF CATTLE

The United States bureau of animal industry regulation seven now prevents the sale for interstate shipment of tubercular cattle, except when shipment is so marked or designated.

Going! Going!

To the Highest Bidder

Will It Be You?

I have cried registered Duroc-Jersey sales from Oregon to the Mexican line, but never before have I had the opportunity of offering to my friends and customers such high-class stock as will go under my hammer at the Diamond Bar Ranch sale.

Think of it! You can secure at your own prices sows and gilts of the same blood lines as animals that have been establishing world records in both sale and show ring back in the Corn Belt. Some of the sows are full and half sisters to these world record animals, and they are bred to boars that not only represent the best blood lines of the breed, but have won in the show ring this season and established enviable reputations for themselves.

This is your Big Opportunity to get started right or to improve an established herd. Don't let anything on earth prevent you from attending the sale.

Ord L. Leachman, Auctioneer

Public Sale Wednesday, January 28

Sale to be held Under Cover, Rain or Shine

40 Duroc Sows and Gilts

CHOLERA IMMUNE

SOMETHING FOR YOU IN THIS OFFERING

If you are looking for the best in Durocs you will not be disappointed, for we believe that this is the only sale west of the Rockies where Pathfinder and Sensation sows, bred to Pathfinder and Sensation boars, will be offered. You can't beat that breeding.

10 Two-Year-Old and Senior Yearlings

By Model Chief 2d, Model Triumph and Councilor.

10 Fall Gilts

By Bark's Premier Guano, King's Col., Golden Col. and Creator.

10 Yearling Sows

By Pathfinder, Great Wonder I Am, Pathfinder's Wonder, A Top Pathfinder and Creator.

10 Spring Gilts

By California's Great Wonder, the undisputed Champion of 1918.

Bred to Grand Champion Boars

Ace of Pathfinders

Grand Champion at Los Angeles, and second to the World's Champion at National Swine Show.

Mammoth Sensation, Jr.

Reserve Grand Champion at State Fair, and the largest junior yearling shown.

Great Sensation 2d

Winner in his class in 1919. Grandson of Great Wonder I Am, and a future champion.

We are holding the sale at the ranch so that you will have an opportunity to inspect our herd — to see our three great super-sires; our scores of big, motherly sows; our hundreds of growthy young pigs. Also we want you to see our model hog plant and notice the favorable conditions under which our stock is raised.

Attend the Sale
Visit the Ranch

How to Get There

Ranch is near Spadra on the Valley Boulevard, 28 miles east of Los Angeles and 4 miles west of Pomona. See big sign at gate. The Orange Belt Line (A. R. G. Busses) and White Bus Line run motor stages every half-hour from the Union Station, Fifth and Los Angeles Streets, Los Angeles. Similar schedule from Pomona.

Send For Your Catalog Today

Diamond Bar Ranch

Where Size is the Fashion and Quality Reigns Supreme

Spadra Los Angeles County **California**

Walter T. Gatton, Supt. Swine Dept.

Send Mail or Telegraph Bids to the Auctioneer, or to R. P. Royce or B. S. Bennett, in care of Diamond Bar Ranch
They will be given consideration

The Big Poland China Sale

My next big Poland China sale will be held on my farm one mile north of

Ripon, Cal.

Thursday, January 29, 1920

What I Will Sell

From my herd of 85 sows and gilts of breeding age I am selecting fifty head that I believe will please any buyer looking for good Poland Chinas whether he be breeder or farmer. I am particularly anxious that this sale come up to present day standards so I am choosing some of the best animals my herd affords.

Compare the Breeding

I solicit a comparison of the sows and gilts in this sale with that of any ever offered. Pay particular attention to the sizes of the animals in this sale. They are by such noted boars as:

King's Big Bone Leader, Giant Bob, I. B. A. Wonder, Young Jumbo, Joe's King, California Wonder, Model Major, Caldwell's Big Bob, Blue Valley Tecumseh and Forrestview Bob.

And will be bred to

King's Big Bone Leader and Giant Bob 2d

(The 1918 Grand Champion Boar) **(A son of the 1919 Grand Champion)**

Where will you be able to buy at any sale this year a greater lot of Poland Chinas?

Special: Farmers and Dairymen

I appeal to every farmer and dairyman to attend this sale. Whether you buy or not I want you to see the kind of hogs I am raising. The time is past when any kind of a hog will do. It has been definitely proven that pork can be produced more quickly and more economically by the use of pure breds. I believe you will enjoy visiting my herd so I invite you to be my guest on this day. I believe you will be glad you came.

Object of this Sale

The real object of this sale is to interest more farmers in my community in raising pure bred Poland China swine. Our county needs more good hogs. We need more Poland China breeders. The demand is here. The Poland China hog has proven to be the greatest hog raised in the United States and we need more breeders to help supply this demand. I hope my sale will be the means of starting a good many new breeders. While I know that some of the offering will go into already established herds, I am particularly anxious that the greater part of it remain here in our own community. That's why I am giving you a special invitation, why I urge you to come to this sale and help me make this the greatest Poland China center of the state. I will do all I can to assist you in raising and selling your stock. Come on, let's all work together for better hogs and more profit.

AN ATTRACTIVE FEATURE

of this sale will be a Caldwell's Big Bob sow bred to the grand champion boar *King's Big Bone Leader*. This sow was first prize senior yearling at the last state fair.

This litter will be exceedingly valuable and sell for big money.

A catalog of this sale will be mailed you on request and will give you a lot of interesting facts.

Sale starts promptly at 12:30 P. M.
Lunch served at 11 A. M.

Remember the sale will be held on my farm one mile north of Ripon and there will be ample protection against bad weather.

Geo. W. Bell, Tulare, will be the auctioneer.

Les McCracken Ripon, Cal.

The Breeder's Opportunity

During the past few months a number of articles have appeared in the Cultivator relating to the splendid development going on on all sides of the livestock industry in this state.

The general tone of such articles has been hopefully optimistic, but from time to time mild admonitions to those engaged in the pioneer work have been ventured—not because we have felt any real or present necessity for a word of caution, but because we have felt that there might be and because the future development will depend upon what foundations these pioneers have laid. While the writer in no wise wishes to appear to know all there is to know about livestock (as a matter of fact, the longer he associates himself with the livestock industry, the more modest and hesitating he grows!) he has had more or less experience with the industry in this state as well as in some of the older sections, and his past work has been such as to afford an opportunity to study the general aspects of the business, to observe the methods of the more sucessful breeders, to learn a few of the many reasons for the failure of some, and to develop a deep seated appreciation of the real economic value of a better quality of livestock. He has watched with the highest satisfaction the ever broadening conquests of the improved breeds, and, he has noted with thousands of others, the leavening influence of good blood on the common stock of this country. He has also become familiar with certain practices and motives that have fastened themselves upon the industry in the older sections to the distinct detriment and retarding of the various breeds.

If it appears that we devote too much space to the general proposition, it is only because we are so thoroughly convinced of the real opportunity that is open to the livestock producers of this state, an opportunity that is not approached anywhere, and because we are anxious to do what we can in establishing the business on a thoroughly sound, conservative and permanent basis, that will result in the greatest good to the state as a whole. We believe firmly in the ability of well selected stock of the various breeds to increase the efficiency of the business of producing livestock, and thereby increasing the net profits of those engaged in the business, thus making it possible for all to enjoy to a greater degree the things held most worth while. For that reason, and that reason alone, we find justification for our efforts in the cause of better livestock. And for that reason, and that reason alone, will any man who engages in the active affairs of a breed find his justification.

The movement toward a more efficient class of livestock is infinitely bigger than any man or set of men and the general trend is irresistible. Possibly from time to time certain factors may tend to retard the natural course of progress, but such interruptions are only temporary—the onward sweep can not be stemmed. And just here it might be well to suggest that in the end the destinies of a breed or the men identified with a breed will depend entirely upon whether or not development has followed the cold hard headed ideas in the mind of the average farmer or ranchman. Breeders must keep this fact in mind always: The great bulk of producers care not one whit for a fad or fancy that does not have practical value. The average man simply wants proof that the claims made for pure bred livestock are so, and it is therefore up to the breeders to furnish that proof—and they have abundant evidence. The gravest mistake one can make in taking up the breeding business is to get the false notion that registered livestock offer a quick cut to wealth and that price and show yard records are the two goals to aim for and that the goals can be reached in a short time. The big thing to plan for is to produce the kind of stock that will best meet the needs of the average man. With that accomplished the market for surplus will very largely take care of itself—but it can't be accomplished in a day—or year.

California breeders are today in an enviable situation. This state is, practically speaking, a virgin field. Every class of livestock is in demand. We know what can be accomplished by well directed effort. Because of the newness of the industry in this state, our breeders and those agencies closely identified with the development of the livestock industry are free from all influences that have worked harm to the business in the older sections, and if we are wise we will keep our business free and build upon a sane and conservative basis, the foundation of which will be a clear conception of the real value of better blood.—R. P. R.

SOUTHERN CALIFORNIA JERSEY SALES

January 22 and 23 should prove red letter days in Southern California for buyers looking for pure bred, tuberculin tested, registered Jersey cows.

On January 22 Mr. E. E. Shattuck is disposing of his selected herd of 15 Jerseys, at Rhoades & Rhoades stock yards at Clearwater, most of which are two year old heifers, and the majority of which are due to freshen in the near future. These heifers are in calf to the great young sire, Eleden Stoke Pogis whose dam was a R. O. M. cow. They are all sired by St. Lambert's Golden King whose dam has a R. O. M. record of 700 pounds of butter fat in a year. Both of these bulls will be sold at the sale.

January 23 The Arden Dairy will sell every registered Jersey on their ranch near El Monte. This herd includes 110 head of corking good females that combine type, breeding and individuality. There are also 15 bulls, from calves to those ready for service. There are a large number of springers in this herd and a number just fresh.

The above sales will be conducted by Rhoades & Rhoades of Los Angeles.

LIVESTOCK SALE CALENDAR

Holsteins

January 30. C. F. Mohnike, Angiola.
Thursday, March 25, Guaranty Sale, Sacramento.
April 8. Breeders Sale, Tulare.
Wednesday, April 21, A. M. Bibens, Modesto.
Wednesday, May 12, Leeman & Kilgore, Dispersal, Ripon.

Herefords

During last week of February, Pacific Coast Hereford Cattle Breeders' Association.

Shorthorns

April 17, Butte City Ranch, Butte City.

Berkshire Swine

February 14. J. Francis O'Connor, Santa Rosa.
February 16. Muddux & Son, Sacramento.
February 18. Western Berkshire Congress, Davis.
April 17. Butte City Ranch, Butte City.

Duroc-Jerseys

January 28, Diamond Bar Ranch, Spadra, Los Angeles County.
January 29, Winsor Ranch, Bonita, sale in Los Angeles.
January 30, Ireland Ranch, Owensmouth, Los Angeles County.
February 4. Fresno County Duroc-Jersey Breeders Association, Fresno.
February 10. Glenn County Duroc-Jersey Association Sale.
February 18. Tulare County Duroc-Jersey Association Sale.

Poland Chinas

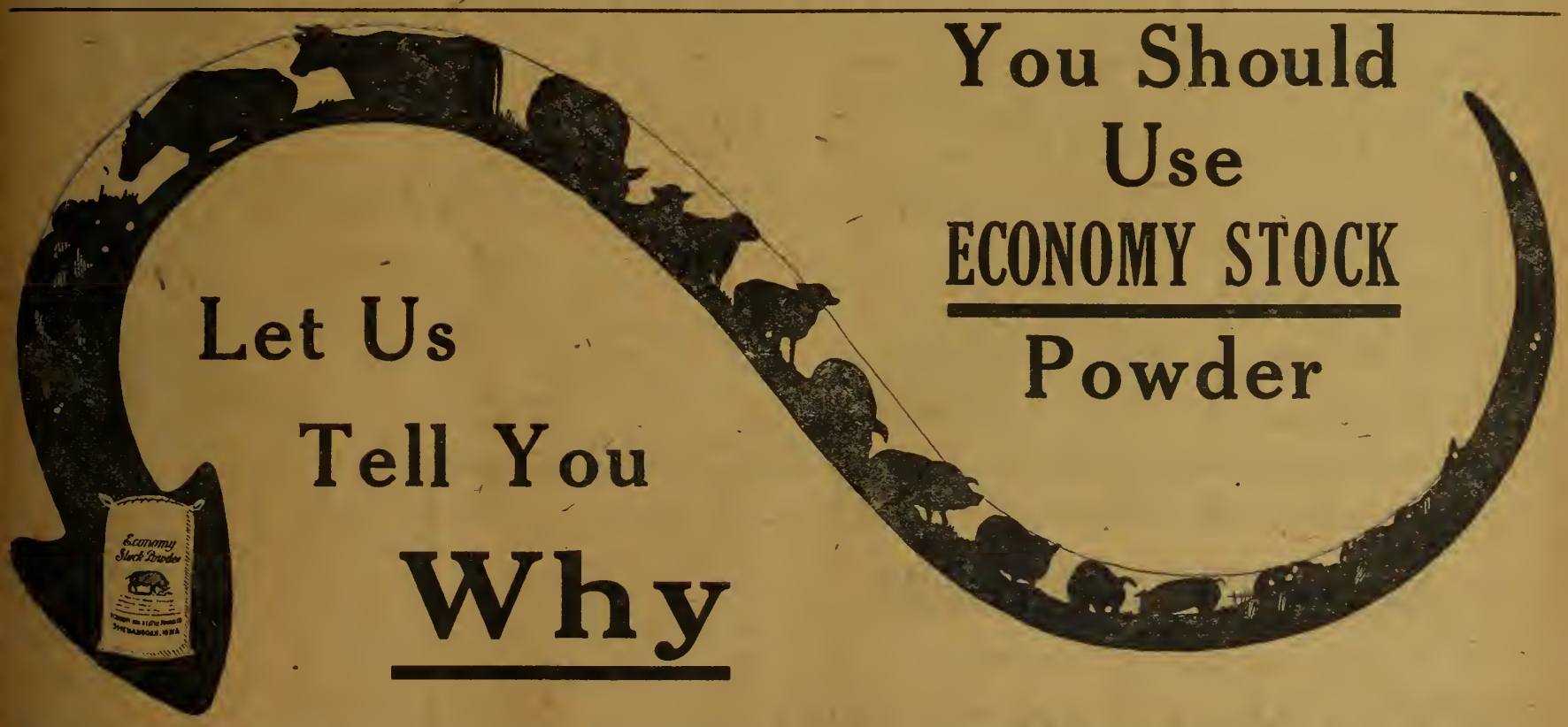
January 24. H. D. McCune, Hanford.
January 26. Chas. Gatewood, Fresno.
January 27. Geo. V. Beckman and Sons, Lodi.
January 28. Hale I. Marsh, Modesto.
February 6. Tulare Poland China Breeders Association, Tulare.
February 12. San Joaquin Poland China Breeders Association, Lodi.
January 13. Glenn County Poland China Breeders, Orland.
February 21. Merced County Poland China Breeders Association, Merced.
February 21. McSwain, Merced.
February 28. Kings County Poland China Breedrs Association, Hanford.
February 29. Les McCracken, Ripon.
March 13. Haag & Bernstein, Hanford.
April 17. Butte City Ranch, Butte City.

Shetland Ponies

April 17. Butte City Ranch, Butte City.

Shropshire Sheep

A school of agriculture boy sold $800 worth of melons from an acre of land last year. He kept an accurate record of all operations and can tell just what they cost him to grow. That kind of bookkeeping pays on any farm.



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Let Us Tell You Why

FOR: HOGS—CATTLE—SHEEP—HORSES

BECAUSE
It acts directly upon the affected parts.
It expels all worms.
It aids digestion.
It suppresses fever in the stomach.
It cools the blood.
It loosens the bowels.
It sweetens the stomach.
It aids mastication.
By feeding the powder in connection with grain, the animal will extract 10 to 20 per cent more of the nutritious qualities.

In our compound are Poke Root, Bloot Root, Sulphur and other ingredients which act upon the kidneys, liver, spleen and blood; a filterer of charcoal to absorb the impurities of the digestive tract; Worm Seed Meal in sufficient quantity to destroy all worms and the four sodas which excite the secretion necessary to healthy digestion, sweeten the contents of the stomach and bowels and remove all impurities from the tract; claims which have been verified time and again by the testimony of our customers, which testimony is based upon their experience with and the benefits derived from the use of our goods.

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Send me your booklet "Economy-Ize Your Farm." Also a free sample of Economy Stock Powder to try out on my stock.

Name .....R. F. D.....

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I have .....hogs.....sheep.....cattle....horses.

Winsor Ranch

"California's Greatest Herd"

Duroc-Jersey Bred Sow Sale

Exposition Park, Los Angeles, January 29, 1920

Winsor's Giant Orion—The largest and smoothest boar on the coast. Sired by the world's grand champion Orion Cherry King, Jr.

Great Sensation 3rd—By the greatest of all big type sires, Great Sensation —and out of the world's highest priced sow.

We Sell the Best 40 Sows That Ever Went Through the Sale Ring in the West

These sows are sired by Great Model, Great Orion Sensation, Orion Sensation, Great Wonder, Grand Model, Grand Model 8th, Orion Fancy King, Great Wonder I am, and Top Sensation.

Write For Catalog

Winsor Ranch, Bonita, Cal.

Morris C. Allen, Mgr. R. K. Walker, Mgr. Swine Dept.

Southern California Sale Circuit—Diamond Bar Ranch, January 28, Spadra; Winsor Ranch, January 29, Exposition Park, Los Angeles; Creamer-Graham Sale, January 30, Owensmouth.

GUESS WORK IS COSTLY

This is particularly true in selecting foundation animals. I have a number of carefully selected Duroc-Jersey sows and gilts of the most approved blood lines and bred to boars of equal caliber that are priced so you can make a profit. Write for particulars.

F. M. JOHNSON NAPA, CAL.

Special Notice to Duroc-Jersey Breeders

I leave for the East in January. Several breeders have given me orders to buy bred sows and gilts for them. I will be pleased to purchase for you anything you want. Will personally select them. Write me what you want and the blood lines. I'll tell you just what I pay for them.

Clayton Slocum Willows, Cal.

N.B.—Write me at once

SANTA ANITA RANCHO

Anoakia Breeding Farm

Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion and Don Castano, five gaited saddle stallion, winner in many prominent shows.

Mammoth Jacks

We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

Poland China and Berkshire Boars

Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited

Anita M. Baldwin

Santa Anita Cal.

W. H. Taylor, Supt.

Bunting's Mission Herefords Are Profitable

They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.

JOHN A. BUNTING

Mission San Jose Calif.

DIAMOND G HEREFORDS

are the kind that make good under all conditions. They have the size, bone and constitution that the range operator wants. Herd headed by Don Perfect 2d one of the best bulls in the West. Correspondence invited and visitors welcome.

H. H. Gable Esparto, Calif.

Beef Cattle Specialis

For 30 years I have been devoting my entire time to pure bred beef cattle. I know the kind of cattle California needs and where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited. R. M. DUNLAP, Hotel Land, Sacramento, Cal.

How to Ship a Hog by Express

G. W. Tucker, a special agent in the employ of the Railway Express Company recently offered some practical suggestions to the readers of the Poland China Journal as to how to prepare and ship hogs by express. In view of the numbor of hog sales to be held in this state this spring, tho suggestions will provo of help to breeders. Mr. Tucker says in part: "In preparing a hog for shipment by express the first thing necossary is to build a crate to suit the size of the hog. You know that when a man goes to his tailor for a suit of clothes the tailor takes his measurement. This is for a live man. The same thing should be done for a live hog. It is possible to have a crate too large or too small.

When the average hog is taken from the herd and crated for shipment it becomes restless and if the crate is too large it gives the hog room to tear out of the crate. A crate should be at least four inches longer than the hog from the end of its nose to the fleshy part of the ham, when the animal is lying down. The width of the crate should be as wide as the hog is in depth, and not the width of the hog across the back when standing.

A crate should be built of lumber one inch thick and 12 inches wide for the floor and with three cleats one inch thick and four inches wide. These cleats should be put on the inside of the floor. When a sow is being shipped, and she is near farrowing time, instead of putting loose straw in the crate, as is often done, a gunny sack filled with a reasonable amount of straw should be tacked down in the front part of the crate but far enough back so the sow cannot reach it with her teeth and tear it. In this manner the sow is protected from the jolting of the express car while in transit. It will also prevent her slipping on the wet floor of the crate. In the summer time, when the weather is hot, a little sawdust put in the crate underneath the sack is an excellent idea. The sawdust will hold the moisture and have a tendency to keep the animal cool, when water is poured underneath the hog's belly.

Always avoid pouring water on a hot hog's back. If, for any reason, a hog should become overheated the animal can be cooled out by bathing the front legs and by swabbing out the mouth. The nose and the top of the head also should be bathed.

In completing the crate you should build the sides and front end of lumber one inch in thickness by four inches in width. The top slats should be of the same material. The rear end of the crate should be made of an upright board one inch thick and eight inches wide. The eight inch board is intended to save the hog's tail from the danger of being injured by dropping outside the crate and being cut off, which often is the case when two four inch boards are used. When shipping a boar a gunny sack with a small amount of straw can be swung in the rear of the crate for protection. In building the sides of the crate one should see that the slats are nailed from the inside and that the nails are cleated on the outside of the upright pieces. If a hog weighs over 150 pounds three upright pieces should be used on each side of the crate. The two slats on top of the crate should como flush at the ends of the crate. An eight inch space should be sawed at the rear of the crate in order to allow the rear upright board to drop. Care should be taken by the shipper to put the one nail needed in the end of the crate so it will reach through and into the slat on the crate. for if it is put through the four inch piece on the rear of the crate to hold the upright eight inch piece it will often tear the hog.

In putting a crate loaded with a live hog upon a platform or into a car door the head of the animal always should be put up first. In unloading from a car door or from a truck, the rump of the animal should come down first.

In every case where an animal is to travel a long distance a watering trough should be provided in the crate. The shipper must attend to this and he should also provide a small amount of corn in a sack and this should be attached to the crate. The feed is not to be used on account of hunger of the animal but a few grains of corn often will quiet it so it will lie down and rest while riding in the express car, just as if it were back on the farm.

The important feature of marking a crate is to see that at least two tags are used, and above all things do not tack these tags on the top or side of the crate. They should be placed on the top slat on the front of the crate in such a manner that the name can be readily found. By placing the tags on the crate in such a manner it will nearly always insure the animal's having its head toward the light and the fresh air in the car. Also the animal's head should be turned in the direction the train is moving. Avoid permitting a hog to remain in a crate with the crate standing in the sun or cold weather.

The Mushroom

In the January number of The Shorthorn in America, the quarterly magazine published by the American Shorthorn Breeders Association, the editor, Frank D. Tomson, draws from his rich fund of experience the following practical observation:

"Occasionally some enthusiast makes his initial investment in registered livestock, perhaps possesses the spirit of a plunger, and attracts a good deal of attention to his apparent motives. There are few who hail him as a good fellow and an important addition to the breeding ranks. They flock around him; they pat him on the back; they exert themselves to introduce him to many others, and in their enthusiasm for him they often overlook the established breeder who has worked long years to improve the breed with which he is identified. Perhaps this new 'Richmond in tho field' inclines to buy the tops at various sales. If so, there is never any lack of boosters that cheer him on his way. But after a time his operations, so far as he is concerned, begin to take on a more serious aspect. There are problems requiring sober thought The buoyancy may subside, and in time he may tire of the game. The enthusiasm that characterized his spectacular entry into the business may pass, and those who were so ready to draw attention to his upward flight may be busy elsewhore when he fails of further ascent. Perhaps he becomes restive, and for lack of practical knowledge of the business of livestock production he may place his entire holdings on the market and make his oxit from one of the most interesting and useful vocations in the world. There have been a good many such instances, but every year witnesscs a larger number of those who intelligently 'play the gamo'; those who have a definite purpose in mind; those who recognizo that the produc

The Next Eventful Day of Interest to POLAND CHINA BREEDERS

Will be the BIG SALE to be held at

FRESNO, Monday Jan. 26, 1920

75 head of big type Poland Chinas—the entire herd of Chas. Gatewood—will sell, including the 1919 grand champion boar, GIANT BOB. An animal from this famous herd will return a substantial profit to the buyer and add lustre to his herd.

35 sows and gilts bred to Giant Bob, 10 bred to Prospoctor and Gatewood's Prospect, 6 boars and about 25 open gilts. These open gilts will be just the thing for a fall sale.

In this sale you can buy sows that have the class of champions, bred to champions and will bo tho mother of champions.

SALE starts at 10:30 A. M. LUNCH at noon

For Catalog address

GEO. W. BELL, Tulare, Auctioneer CHAS. GATEWOOD, Fresno, Ca.

Mr. Gatewood's Statement

Due to poor health I am forced to disperse my entire herd of big type Poland Chinas. In Giant Bob I knew I had a great boar, so last spring I went East and purchased a car of sows and gilts that I thought would mate well with him. I personally selected each individual and saw their sires and dams as I had expected to retain most of them in my own herd. I wish to call particular attention to the two young boars in the sale—Prospector by Long Prospect out of Big Bob dam and Gatewood's Prospect by Wade's Prospect out of Long Prospect dam. I believe these two young boars are wonderful prospects and if properly developed will make great herd headers. I do not believe anyone will be disappointed in the offering.

The Cow's UDDER Must be Healthy

No use trying to force the cow's production if the milk-making organ—the udder and teats—is not perfect. The slightest congestion or injury will immediately interfere with the easy "giving down" of the milk.

Bag Balm is a soothing ointment of extreme penetrating power. In Caked Bag, Cow Pox, Bunches, etc., the injured tissues are quickly softened, inflammation removed and the normal texture restored. Bag Balm promptly relieves chapping, chafing, inflammation and any extreme sore or tender condition.

Thousands of dairymen would not be without a package of Bag Balm in the cow barn. It's a little investment for warding off serious troubles. Sold in generous 60c packages by feed dealers, druggists and general stores. Free booklet, "Dairy Wrinkles," on request.

DAIRY ASSOCIATION CO.,
LYNDONVILLE, VT.

BAG BALM

MADE BY THE KOW-KURE PEOPLE

Facts in BLACK & WHITE

Holsteins Talk in the Language of Money

For many years purebred Holstein-Friesian cattle have been proving their superiority as money-makers. If you want to hear a story of prosperity, listen to the man who breeds and owns Holsteins. Every angle of this Holstein superiority is fully covered in our free booklets which you may have for the asking.

Write today for these incontrovertible proofs.

THE HOLSTEIN-FRIESIAN ASSOCIATION
120 Hudson Street
Brattleboro, Vermont.

Quality Holsteins

Our herd is headed by a grandson of the world's greatest dairy cow, Tilly Alcartra,

Sir Aaggie Korndyke Alcartra

whose dam and sire's dam average:
Butter, one year..... 1096.58
Milk, one year.....27316.60
Females and bulls from A. R. O. dams for sale
All animals guaranteed

Leeman & Kilgore, Ripon, Calif.

Have You Seen the INTERNATIONAL DEHYDRATOR?

You are invited to inspect a Real Working Dehydrating Machine.

GET YOUR ORDER IN

We are now booking orders for next season's deliveries. Save all of your fruit and vegetables and get Dehydrated prices for them.

MAKE MORE DOLLARS.

Write for demonstration appointment.

The International Dehydrator
506 Chamber of Commerce Bldg.,
Los Angeles, Calif.

Brighton Farm Herds

Registered Shorthorns
and
Berkshires---Both Sexes

H. L. & E. H. Murphy
Perkins, Cal.

tion of improved livestock is a business to which business principles need to be applied. Many so-called enthusiasts seem to regard the entry into this useful business of men who incline to the spectacular as of fundamental value and importance to its progress. They overemphasize the value of such an investor and are apt to underestimate the man who makes a modest beginning, the man who quietly makes his initial purchases, who lays the foundation of his herd without attempting in any way to attract special notice. But the passing of time emphasizes the permanent value of the latter class.

"To those long familiar with the trade of improved livestock development this is an old story. There is a difference between publicity and achievement. There is a difference between publicity based on achievement and publicity based on the spectacular. It is well for any one interested in the vocation of producing registered livestock to properly gauge these things. It is well to attach appropriate value and not lose sight of the fundamentals—the basis on which our business rests.

"The man who becomes identified with the cause, however active he may be, if his operations are concluded in a brief period or when the first serious problems are up for solution, is of little permanent value to the cause. On the other hand, the breeder who begins at the bottom and gradually works upward becomes a permanent asset to the industry.

"We recognize that the very nature of the business invites to a greater or less extent performances that are spectacular, but we also recognize that the spectacular performances are more apt to characterize the activities of the transient—the mushroom—the man who seeks the spotlight—than those of the man who becomes a fixture, who plays a useful and important role in the building of a breed of improved livestock."

THE GROWTH OF THE GUERNSEY HERD REGISTER

It is rather significant that ou New Year's Day, 1920, the total number of registrations of Guernsey cows should have passed the 100,000 notch. On that day there were 100,009 cows and 61,411 bulls in the Register. This makes a total of 161,420 animals.

On May 16, 1894, when the office was turned over to the present secretary's care, there was a total of 11,060 animals registered. This means that 150,360 registrations have been made in 25 years.

During 1919, a total of 18,118 Guernseys was registered. Of these 7,111 were bulls and 11,007 were cows. The number of bulls registered in 1919 is almost double the total number registered for the first 17 years of the club's existence, which was 3,708, and is more than 150 per cent of the number of cows in the same period, which was 7.352.

A closer analysis shows that during the last six years the Herd Register has more than doubled itself, 33,664 bulls and 50,971 cows having been registered.

SWINE BREEDERS TO MEET IN FEBRUARY

The California Swine Breeders Association will hold its annual meeting at the university farm, Davis, during the Livestock Week which is scheduled for the last week in February. Besides the election of officers to serve the coming year, an extensive and interesting program covering all the phases of the swine industry is being arranged. C. B. Cunningham of Mills is president of the association and Professor J. I. Thompson of the University of California is secretary.

GUERNSEY BULL SOLD FOR $16,400

High Point Cavalier 41924, a two year old Guernsey bull, has recently been sold for $16,400, by C. D. Cleveland, Eatontown, New Jersey, to W. H. Gratwick, Buffalo, New York. This price has been exceeded in the breed only once in private sale and once at a public sale. This sire is the first calf out of the splendid cow, Cavalier's Helen 65648, a daughter of Langwater Cavalier 21012. His sire is Ultra May King 27600, a son of Don Bernardo of Linda Vista 20617.

-take no chances! -buy the PROVEN Strain!

For your own protection order ONLY Germain's specially-selected, proven, tested, true-to-type Hairy Peruvian Alfalfa Seed. Our supply is limited and we may be oversold in double-quick time. To avoid disappoiment place your order at once. Wire, phone or write for a reservation of seed, stating amount wanted—or call personally if you can. Orders will be filled as received.

Whether you intend to plant now or next Spring, we advise you to buy your seed now. Increasing demand means increased prices.

For further information about Germain's PROVEN Hairy Peruvian Alfalfa, get our free folder and booklet containing 30 testimonial letters.

Send for FREE copy of Germain's 1920 Seed, Plant and Poultry Catalog.

Established 1871
Germain Seed & Plant Co.
N.E. Corner Sixth & Main Sts.
Opp. P.E. Depot.
Los Angeles, Cal.

California Wonder

Kings County Jack Ranch

Breeders and dealers in American Jacks and Jennets

Jacks and Jennets for sale at all times. Come and see them.

JOHN BURRELL
R.F.D.B. Box 74
Hanford, Kings County, Cal.

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

Is a Calf Worth 23 Cents?

For 23 cents you can insure your calves against death from Blackleg by having them vaccinated with PURITY BLACKLEG AGGRESSIN. (The Kansas Germ Free Blackleg Vaccine.) One treatment immunizes for life and there is no danger in introducing Blackleg into healthy herds of cattle. We also manufacture and sell PURITY ANTI-HOG CHOLERA SERUM, PURITY MIXED VACCINE for swine, and PURITY HEMORRAGHIC SEPTICEMIA VACCINES for cattle and sheep. Stop your losses and increase your profits—it's good business. For service that counts, and does not end by selling, write, wire or phone

PURITY SERUM CO., J. L. Thatcher, Manager (Successor to Thatcher Serum Co.)
Riverside, Cal. Sacramento, Cal.

GEORGE W. BELL

A BUSINESS AUCTIONEER

When in need of high class auctioneering service I would be glad to have breeders and farmers correspond with me. I have had years of experience, know values and know pedigrees. I am selling for many of the leading breeders of California and am prepared to deliver the same results that have attracted this custom. Terms reasonable. Write, wire or phone.

GEORGE W. BELL Tulare, California

58 Head Big Type Polands

Second Consignment Sale

Tulare County Poland China Ass'n

At Tulare Sales Pavilion, Feb. 6th

16 Tried Sows — 25 Bred Gilts

15 Open Gilts — 2 Boars

This offering has been selected by our sale committees from some of the best herds in California. Only the best individuals go in the sale. They are the big, easy-feeding, utility kind that can not be surpassed as producers of pork or breeding hogs.

Animals in this sale sired by Boulder Buster, King of Golden Gate, Giant Bob, King's Big Bone Leader, King's Timm, Bridges Bob Wonder and others. And bred to such boars as Rex of Sunnyside, The Californian, King of Golden Gate, California Big Bone Leader and others.

Consignors: R. F. Guerin, W. E. Martin, J. K. Macomber, V. U. Dubell, C. L. Weaver, Z. M. Dickey, A. J. Elliott and Hugh C. Shinn.

Luncheon served on the grounds at 11.30. Sale promptly at 12.30

Write for Catalog to

Hugh C. Shinn, Sec.

Geo. W. Bell, Auctioneer

Two Dispersal Sales

125 -- Purebred Registered Jerseys -- 125

at the ARDEN DAIRY one mile north of

EL MONTE

FRIDAY, JAN. 23d, 10 A. M.

Including 110 high class females and 15 bulls, all tuberculin tested. Arden Dairy, Owners.

15 -- Purebred Registered Jerseys -- 15

at the Rhoades & Rhoades Stock Yards at

CLEARWATER

THURSDAY, JAN. 22d, 10 A. M.

Including 15 choice females and two bulls. All tuberculin tested. A. C. E. Shattuck, owner.

Don't overlook these two sales if you want high class, pure bred, registered Jerseys.

COL. BEN A. RHOADES
HAROLD B. RHOADES — Auctioneers

1505 South Main Street — Los Angeles, Calif.

Coming Strong Again

Tulare, Calif. Thursday, Feb. 12, 1920

40 Bred Duroc-Jersey Sows and Gilts

Tulare County Duroc-Jersey Breeders Association

A Message to Hog Breeders and Farmers

By Professor J. I. Thompson Animal Husbandry Division. University of California

IN November, 1915, the Berkshire breeders held a public auction of hogs at the P. P. I. E. grounds in San Francisco. In January following the California Swine Breeders Association held a consignment sale of all breeds at the fair grounds in Sacramento. So far as my information goes, these were the first two auctions held in this state where only hogs were offered.

Practically all of the sales held for some time after were consignment sales, for no single breeder had enough hogs or cared to assume the risk of staging a sale alone. However, the number of herds of pure breds has increased so rapidly that within the next few weeks a very large number of individual and of combination sales will be held. One paper carries in its last issue announcement of 30 different sales.

The question to be seriously considered by the various consignors is whether or not they are paying sufficient attention to the kind of advertising that will induce men not now engaged in the raising of hogs to buy one or more and persuade the breeder of grade hogs to invest in some pure breds. Unless these two classes can be convinced of the merit of the pure bred the sales record of the present season will not be what it should. Many pure bred breeders have been so busy improving their own herds that they have found little time to do missionary work for the extension of the pure bred business among their neighbors. It must be done and done quickly, and present conditions offer an excellent opportunity. Market hogs are selling at lower prices than has been the rule for some time. Grain is as high or higher than normal. Even though grain is high a very considerable part of it must be consumed by livestock or the bottom would drop out of the market.

It has been demonstrated time after time that a good pure bred is the most efficient machine for converting raw material into human food. A pure bred hog eats more than a scrub and does it more efficiently. He grows faster, breeds more uniformly and suits the market better when he is finished.

At the recent San Francisco Livestock Show both pure breds and grades were entered in the carcass competition and judged by a butcher. In neither class was a grade placed ahead of any pure bred, and the butcher's estimate of the value of the carcasses was two cents per pound higher on the poorest pure bred than on the best grade.

Not long ago my attention was called to a case in point that well illustrates the efficiency of better bred hogs in the general scheme of pork making. A rancher purchased a number of medium priced pure bred sows These sows were put in with his grade herd and carried along in exactly the same manner. When they farrowed all the pigs were given the same feed and care. In a few months they were weighed and the grade pigs weighed around 105 pounds and the pure breds —with the same care, remember— weighed 147 pounds. That is a practical demonstration of the value of pure breds and that is the reason the more progressive farmers are turning from grades to pure breds. It is a matter of good business.

So it goes the country over. At the recent International at Chicago the grand champion pen, pure breds of course, were said by butchers to be the greatest that ever won this award.

During the war pure bred hogs replaced more grades on corn belt farms than had been the rule in the ten previous years. There is a reason. Farmers for the first time found it necessary to keep careful records of their cost of production. Grain was relatively higher than hogs. They found that only the most efficient hogs paid. The result was that the price of the best pure breds began to ascend until the record price for a boar now stands at $30,000.

The shifting from grades to pure breds has not been confined to hogs alone. Dairy cattle, beef cattle and sheep breeders have done the same thing. A few years ago cattle from the range districts were not seriously considered by the buyers of the best feeder cattle. For the past two years the winners of the grand champion carload of steers at the Chicago International were bred on the range. What has made the difference? The reason is easily stated. Pure bred bulls have been used exclusively by an enormous number of range men, and the herds which produced the above mentioned champion carloads have had nothing but pure breds in service for ten years.

No accurate records of the relative number of pure breds to grades in this state are available, but it is a safe guess that the percentage of pure breds is much smaller than it should be. Breeders of grades must be shown that their best opportunity for profit under present conditions is to use the best available machine to convert their raw products into finished ones— and that machine is a good pure bred sow.

In Arizona

Cattlemen in Arizona in the cattle feeding business will be interested in the following comments by Dr. R. H. Williams, animal husbandsman of the university, in answer to a request from an Arizona stockman for information on feeding:

"The present offers an interesting study in the cattle feeding situation in Arizona. Last year most cattle feeders lost money and because they did not have their cattle ready for market before April 1 they lost heavily by the slump at that time. I do not know anyone in Arizona feeding as many cattle as they did a year ago and the large outfits are especially conservative in putting cattle on feed.

"Another feature intimidating expansion in cattle feeding this year is the high price of feeds. With alfalfa hay costing $25 to $30 a ton, milo maize $50 a ton, cotton seed meal $72 and silage $9, feeders estimate that the high feed bill will eat up the profits of feeding.

"I have met quite a number of the cattle feeders and nearly all of them state that they are limiting their operations this year. It just occurs to me that it would be a good plan to get into the cattle feeding business because there will certainly be a scarcity next March and April. We cannot expect the market to follow the same price fluctuations that obtained a year ago, and apparently there should be a good market for well finished cattle in March and April. It is true that the desert looks especially promising at the present time, but the old-time cattlemen claim that Indian wheat and desert forage seldom become sufficiently mature to force gains before the middle of April and range cattle are never fat enough for the butcher until the middle of May from desert ranges. Certainly the feed lots will be scraped clean before the middle of February and after this time it is expected that the price will be high.

"The high price of feeders at the fall round-ups also checked the feeding operations. Feeders who own cattle ranges sold their animals instead of putting them into the feed lot and certain ones after having been on pasture a month were turned back to the range on account of the uncertainty of the market. It is extremely difficult to anticipate what the market will do in the next three months. Uncle Sam reports that we have about ten million more cattle in the United States than we had before the war Apparently corn belt feed lots were not filled up with cattle this fall and from all one can gather there will be a big demand for fat cattle during winter months. The uncertainty of the European outlet, also the uncertainty of the consuming capacity of the American people, owing to the labor

crisis, makes it difficult to estimate the local demand for meats. If we have hard times in this country it will be actively reflected on the amount and kind of meat used.

"There are a great many dairy bred steers, mostly Holsteins, being fed in the Salt River Valley. It is just possible that cattle feeders will make money out of them, but if they do, those who raise them will lose. This means that inferior dairy bred steers are a losing proposition for somebody, and I would certainly recommend that all dairy bred grade male calves be killed witbin the first week after being dropped. I have seen quite a number of dairy bred steers during tbe past week and I judge there is not a yearling that has not eaten over $50 worth of feed and one cannot get more than $25 for them and there is not a two year old tbat has not eaten $125 worth of feed and you cannot get more than $50 for them. It is just possible that one could handle such steers on a short feed and make a little money from them, but I for one would hesitate to handle them. The dairy bred heifer from the standpoint of feeding and profit making has also been just as unprofitable as the inferior bred steer."

DAIRY PRODUCTS ESSENTIAL

Herbert C. Hoover gave to the world a message on cbild welfare work at a luncheon given by the Associated Charities of San Francisco recently. This message was remarkable for its sweeping indorsement of milk and other dairy products as necessities of diet for the human race. Mr. Hoover said:

"The basis of child welfare is health and physical development. The foundation lies in proper feeding. In its broad aspects the proper feeding of children revolves around a public recognition of the interdependence of the human animal upon his cattle. The white race cannot survive without dairy products. The problem of child feeding thus narrows itself practically to town and city children, because without such special thought there are available to country children ample supplies of these most critical articles of child diet.

"At the time of the armistice we were confronted with 200,000,000 underfed people who had been under German domination. It had been the habit of the German army to take the food supplies and cattle of all Poles, Serbians, Rumanians, Czechs, Finns and other oppressed peoples at the point of the bayonet in order that they might give preferential feeding to their own people. Due to denudation of cattle, milk had been unknown in many places for years.

"Whole populations were undernourished, but the children were suffering the most acutely from disease and malnutrition. The number of actual orphans and waifs had enormously increased, so that in considering the problem of the great famine that confronted Europe one of our first activities was to develop a method of saving the children. It appeared that tbe distant future of these nations would lie in the immediate rescue of the greatly debilitated children.

"Here, again, we attacked the problem both by prevention and by cure. The feeding of the children in the public schools in many of these countries was organized under their governments and milk and other supplies were furnished for this purpose.

"The feeding of 10,000,000 Belgian and French people was the first attempt ever made anywhere, so far as I know, at the mass feeding of a whole nation. There were no experts in the problem, but we sought such scientific advice as was to be obtained. We soon found, however, that tbe children were failing on a ration that should be ample for adults. Tbe number of debilitated children up to ten years of age greatly increased. The number of adolescent children developing tuberculosis increased in a disheartening degree. We decided to feed the children en bloc, apart from their parents. Something over 1,200,000 children of the Belgian and French towns and cities were thus put under systematic feeding, and this continued during the last three and one-half years of occupation. If you will go to Belgium today and examine the public health statistics, you will find that the disease mortality among children is less than the pre-war normal, in spite of the fact that they went through nearly five years of continuous famine."

WHAT IS A HIGH CLASS PURE BRED BULL WORTH?

"A good puro bred dairy bull may be worth several thousand dollars just from the standpoint of the milk production of his daughters," says M. H. Keeney of the University of Missouri college of agriculture. "It depends on the man behind the cows."

The following data from the first year's work of the Webster County Cow Testing Association reveals some very conclusive proof that the "bull is half the herd" and that he should be so bred as to be the better half:

	No. Cows	Ave. lbs. Butterfat	Ave. lbs. Milk	Return Above Feed Cost
1.	2.....	494.6	8,490	$244.56
2.	9.....	368.2	6,653	159.52
3.	70.....	284.7	5,781	110.39
4.	96.....	206.1	4,387	63.13
5.	23.....	128.6	2,950	48.51

Two cows in Class 1, of cows producing over 450 pounds of fat, show a profit averaging $224.56. Nine cows in Class 2, of cows producing between 350 and 450 pounds of fat, show a profit of $159.32. Of these 11 high cows six are daughters of one bull. He was a pure bred bull from a high producing dam. Both of the cows in Class 1 which show the profit of $244.56 are daughters of this bull.

It is evident that this bull can be held at almost any price and still be cheap. It isn't what you pay; it's what you get that counts. Such a bull might cost a few hundred dollars, or even a thousand, but he will repay the farmer his purchase price many fold. Compare the profit of his six daughters with the profit of the average cows and note the results. None of the good cows are sired by "scrub bulls." There can be but one conclusion, namely, "the scrub bull must go." He is the expensive animal, even as a gift. Knock him in the head; the quicker the better. A good pure bred bull is the only kind any dairyman can afford to own. They are cheap at any price because they produce the goods.

Cooperative ownership through bull clubs is solving the bull problem in Missouri. By pooling their money the bull club members are securing bulls like the one that sired the cows in Class 1, the kind whose daughters make large profits at the milk pail. Furthermore, the actual cash outlay is little more than the club members formerly had tied up in a scrub. Scrub bulls make scrub farmers. Pure bred bulls make prosperous farmers. Moral: Get into the prosperous class by using only a pure bred bull of high merit.

CATTLE AND HORSE HIDES INCREASE IN NOVEMBER

Increased stocks of cattle and horse hides and decreased stocks of calf and goat skins for November 29 compared to October 31, are shown by the monthly report of the bureau of markets. Percentage increases for November over October were: Cattle hides, 4.4; horse hides, 42.5; horse fronts, 27.1; horse butts, 12.1; kangaroo and wallaby, 1.3; cabretta, 4; pig and hog strips, 8.1; and other hides and skins, 763.8. Decreases in per cent were: Calves, 10; kips, 1; horse shanks, 19.3; colt, ass, donkey and pony, 14; deer and elk, 14.8; goat, 6.9; kid, 85.2; sheep and lamb, 7.8; buffalo. 5.3; and alligator skins, 91.

Total stocks given for November 29 included: Cattle hides, 6,719,202; goat, 14,248,129; sheep and lamb, 9,336,964; calves, 1,806,367; kips, 1,086,211; kangaroo and wallaby, 827,529, and cabretta, 2,677,336.

In a sale of Poland Chinas held by William Wrigley at his farm near Lake Geneva, Wisconsin, January 9, 36 bred sows were sold for $55,975, an average of $1,555 each, which is a new record for the breed. A press dispatch reporting the sale stated that an offer of $50,000 for The Clansman, the Wrigley herd boar and the sire of the $30,000 boar, Designer, Liberator and other famous boars was refused.

IRELAND RANCH

Donald H. Graham E. Avery Newton

Will Sell at Public Sale

Friday, January 30th, 1920

40 Bred Duroc-Jersey Sows and Gilts

Sale held on Ireland Ranch, Owensmouth, Cal.

The Offering Will Include

Four sows by Orion Cherry King 5th. In last year's sales sows by him averaged better than $700.

Three by Orion King Gano; one by Col. Orion Cherry King and six Crimson Col. gilts.

To the thinking breeder the animals to be sold in this sale will make a strong appeal. The predominating blood lines are Orion Cherry King and Defender.

Discriminating buyers will find it worth while to attend this sale.

Sale Starts Promptly at 12.30 Lunch Served

Ord L. Leachman, Sacramento, Cal.

For catalog address 1219 Brockman Bldg., Los Angeles.

FRESNO DISTRICT DUROC-JERSEY BREEDERS SALE

FRESNO, CALIF.

Wednesday, Feb. 4 1920

-40-

Carefully Selected Bred Sows and Gilts

This offering has been selected from the following herds:

Fitzwilliam Ranch, Burrell, Cal.
R. M. Cross, Raisin City.
J. P. Mallory, Fresno.
Guy McClune, Fresno.
J. W. Schmitz, Madera.
J. G. Roberts, Madera
H. H. Bereton, Sanger
Harry Hill, Riverdale
R. H. Lewis, Riverdale
Hillcrest Farms, Caruthers

The sale is made possible by the above named breeders consigning a quality of breeding stock that they would prefer to keep. They are anxious, however, to direct attention to this district as a center for the best there is in Durocs. The offering will be found to be well grown, of modern type and of blood lines that are popular because they are demonstrated sources of superior stock. Every one of the consignors is a practical hog man and is raising Durocs because he knows that they are the most profitable. If you want that kind you should attend this sale.

For Catalog, address the Secretary

H. H. BERETON, SANGER, CALIF.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

ANOTHER BIG RECORD IN HIDGON HERD

The consistent frequency with with large official records of milk and butter are being made at Tulare Holstein Farm, owned hy W. J. Higdon, Tulare, under the care of herdsman Harry L. Reed, fulfills the ostimates which observers of the herd made on the strength of the high breeding and individuality of the foundation animals. The latest large record made in the herd is notable in several ways, and aside from its indiviudal merit it adds greatly to the fame of one cow and largely to the value of a consilderahle number of near relatives. The record maker referred to is tho heifer Ida Lotta Winifred Burke, who freshened at four years and two days with second calf and on official test has 33.02 pounds butter from 604.5 pounds milk to her credit. She was bred by R. F. Guerin, Visalia and was sold in Mr. Guerin's 1917 sale. Owing to her unusual size and her general dairy quality she has always beon regarded as a candidate for a largo record. An outstandlng fact about this heifer is that she is a daughter of Winifred Hotaling, a cow that may now be rated as one of the great dams of the hreed. Winifred Hotaling now has five daughters with A. R. O. records as follows: Winifred Hotaling 2nd, 33.90 pounds hutter from 702.3 pounds milk in seven days, 874.12 pounds butter from 19,951 pounds milk in one year; Ida Lotta Winifred Burke, 33.02 pounds hutter from 604.5 pounds milk in seven days at four years; Winifred Hotaling 3d, 32.18 pounds butter from 575.1 pounds milk in seven days; Winifred Ora Belle, 26.28 pounds butter in seven days, a record recently completed and made out of three-quarters of an udder; and Winifred Richelleu, 16.99 pounds butter from 416.4 pounds milk in seven days at four and one-half years. Besldes this, one of the daughters, Winifred Hotalling 3d, is the dam of Eldorado Winlfred, Alex Whaley's great heifer that made over 25 pounds hutter ln seven days as a senior two year old, and thls year as a junlor four year old made 30.21 pounds hutter from 637.6 pounds milk in seven days. No other cow in the West has produced three daughters with records above 32 pounds hutter in seven days, and the famlly ranks exceptionally hlgh in individuality, registering another notahle instance where type and production are linked up strongly.

Participate in the Opportunity

of securing what is eagerly sought by practically ever breeder of Poland Chinas, desiring size, type, blood lines. Real type sows bred to such boars as Lendorris Liberty Bond, Young Jumbo and Liberator, offers you the opportunity of genuine herd improvement. Inquiries cheerfully answered.

Lendorris Ranch

W. L. Haag & Son **Hanford, Cal.**

Bred Sow Sale, March 13th, 1920

Smooth King

is a real Poland China boar—his name signifies just what he is, smooth—and a king. When I can't breed, raise and sell the right kind of Poland Chinas I will quit the business. This is one reason for my success. Pleased customers keep me in. Write me when you want good Poland Chinas.

Eugene Miner **Lodi, Cal.**

YOU ARE RIGHT

in demanding when you buy Poland Chinas, that they are correct in type—grow fast and are bred for prolificacy. Having bred this kind for years I could sell you no other kind. You invest for profit when you buy from me. Write for price and description.

J. H. Cook **Paradise, Cal.**

DON'T BE TOO LATE

Just a few of the prize winning Poland Chinas, that have been the sensations at this year's shows, remain unsold. I am not pricing them unreasonably and much less than you would pay in the east for animals not so good. Write me today what you want and I will send you full particuars.

J. F. LEHMAN **LODI, CAL.**

FRED GATEWOOD'S SALE OF POLAND CHINAS

Fred Gatewood held his Poland China sale in Fresno, Saturday, January 10. Thirty-seven head sold for a total of $3,430. Twenty-two hred sows and gilts sold for an average of approximately $123, while the summer plgs sold for from $40 to $100. The top of the sale was Blue Valley Susan by Blue Valley Tecumseh, going to Mrs. E. S. Meyers, Riverdale, for $410. W. L. Choisser of Riverdale paid $315 for Lady Sampson, while Hale I. Marsh, Modesto, secured five summer pigs by Giant Bob for $375.

The bred sows and gilts sold as follows:

2. M. J. MacPhee, Herndon, $105.
3. W. L. Choisser, Riverdale, $315.
4. Mrs. E. S. Meyers, Riverdale, $410.
5. H. I. Marsh, Modesto, $150.
6. C. J. Stevens, Herndon, $135.
8. O. E. Hollister, Goleta, $150.
9. Z. M. Dickey, Dinuba, $75.
10. H. I. Marsh, $95.
11. Z. M. Dickey, $85.
12. Les McCracken, Ripon, $65.
13. B. S. Cole, Hanford, $70.
15. F. C. Dollard, Ripon, $65.
16. H. A. Johansen, Fresno, $65.
17. A. J. Van Cleef, Riverdale, $85.
18. E. S. Meyers, Riverdale, $80.
19. E. S. Meyers, $70.
20. U. J. Clifton, Caruthers, $255
21. Z. M. Dickey, $60.
22. Z. M. Dickey, $60.
23. B. S. Cole, $70.
24. Z. M. Dickey, $85.

Extra—W. L. Choisser, $150.

SLIGHT DANGER IN RED SILAGE MOLD

C. H. Eckles, chief of the division of dairy husbandry at University Farm, says that inqulries are heing made concerning the presence of red spots in silage. This red color generally is found, he says, in lumps of silage from the size of a man's hand to half the size of a bucket. When the chunks are pulled open, some white mold is seen and some of the silage may be hright red in color. When thls red color is obserVed for the first time, it often causes alarm for fear the sllage will he lnjurious to stock. The color is produced by a mold and has been investigated rather carefully. No had effects were found when it was fed in large quantlties to animals. While it is always advisahle to discard moldy silage, says Mr. Eckles, no special fear need he felt of this red mold.

FORM POLAND CHINA SALE CIRCUIT

Owing to the unusual numher of public sales to be held this spring the hreeders have found it necessary to arrange, as far as possible, to have their sales fall in circuits. This plan has long been followed hy the hreeders of the Cornbelt and the fact that California breeders find such a plan necessary indicates the growth the purebred industry is enjoying in this state. One of the popular circuits has been designated as the Northern San Joaquln Valley Poland China circuit and includes the following sales: Geo. V. Beckman & Sons, Lodi, January 27, Hale I. Marsh, Modesto, January 28, and Les McCracken, Ripon, the 29th. The above sales will represent the initial individual sales to be held hy each of the breeders named and will include around 150 head of hred sows and gilts. A feature of the sale will be the large number of sows and gilts either sired hy or bred to hoars representing the more popular blood lines of the hreed. The Beckman sale, which will be the first this firm has staged, will offer a number of daughters of Matchless Big Boh.

You'll Be Entirely Satisfied

With Your Purchase at the

Beckman & Sons Big Poland China Sale

Which Will Be Held In

Lodi, Cal., Tuesday, January 27th, 1920

20 Bred Sows and Gilts---20 Open Gilts Sell

In this sale you can secure sows carrying the blood of A. Wonder---Big Bone Bob---Model Major---Big Square Jumbo---Chief Defenders' Choice--- Lakeside Defender and Matchless Big Bob .

And bred to the two matchless sires: **Matchless Big Bob** *and* **Lakeside Defender**

WE MIGHT MENTION

that we will sell a daughter of Big Square Jumbo out of a Chief Defender's Choico sow. She is a half sister to Nohility, junior champion at this year's National Swine Show, and sold to Earl Meharry, Tolono, Illinois, for $6000. She is also a half sister to the grand champion sow at this year's Illinois State fair. Another is an A. WONDER sow, dam of Governor, the hoar we sold in the breeders' sale in Septemher for $300 at 11 months of age. We feel that we can assure you that you will not he disappointed in our first public sale and that you will he entirely satisfied with any animal you may purchase.

Sale starts at 12.30 P. M. **Lunch will be served at 11 A. M.**

Ord L. Leachman, Sacramento, Auctioneer

Catalog ready—Send for it—It's interesting reading.

Geo. V. Beckman & Sons, Lodi, Cal.

boar bred by the university and a grandson of Big Bob, generally rated as the greatest boar the breed has produced in years. For the most part they will be bred to Lakeside Defender, a son of Chief Defender's Choice. The Marsh sale will be fully up to the standard of that well known herd, and it will be remembered that this herd has been responsible for many of the greatest Polands seen in California showings. Les McCracken will feature the get of King's Big Bone Leader, the grand champion at the 1918 state fair, and Giant Bob 2d, the boars that are responsible for his great fall sale. It is expected that buyers will take full advantage such a circuit affords and attend all three sales.

REMEDY FOR PIG EATERS

A sow with the pig eating habit has been bothering a breeder who writes to the Missouri farmer: "I had four sows farrow the first days of September, and two of them ate all of their pigs, another eating two of her seven farrowed. They are in good condition, get a good feed of corn night and morning, also milk slop with shorts twice a day. It is too late to do me any good now, but can you suggest anything to prevent it in the future?" This trouble is more liable to occur when the sow has not been properly fed during pregnancy, says the Farmer. If she has had plenty of bone producing and growth making food during this period, she is much less apt to develop a tendency to eat her offspring, and the trouble is not often developed if the sow has been running on good succulent pasture. Some breeders practice watching the sow carefully at farrowing, and as soon as the afterbirth is passed, removing it and burning or burying it, claiming that if she is permitted to eat it, as she will usually do, it will stimulate in her a desire to eat her young. Others hold the contrary opinion, and even tempt the sow to eat the afterbirth on the presumption that it satisfies the meat craving of her appetite, but the general opinion is in favor of removing it from the sight and smell of the sow and destroying it. Prevention is better than cure, and a light dose or two of salts when signs of farrowing appear, green washy feeds and plenty of water constantly before the animals are all to be commended. Exercise is also valuable in keeping the prospective mother in good condition, but in spite of all some sows will develop the cannibalistic instinct. In such cases salt pork fed to the animal, two or three pounds if that much seems to be necessary to appease her meat appetite, will usually correct any pig eating desires. Plain salt pork cut in thin slices and fed one at a time until the sow seems satisfied, is about all that can be done, and it sometimes fails.

OVERFEEDING MAY CAUSE AZOTURIA

This is the season of year when the disease known as azoturia, and also popularly designated as "lumbago" and "black water," is apt to appear among horses, particularly those that are in good condition. The animals usually attacked are those that are well fed and, though accustomed to regular work, have remained idle for one or more days without corresponding reduction in rations. Among the first symptoms are a staggering of the hind parts and profuse perspiration. Usually the attack comes on suddenly soon after leaving the stable, though it may occur several hours after leaving the stable. After it has fallen the stricken animal may attempt to rise but will be unable to stand on its feet for any length of time.

Horses attacked with azoturia should be immediately freed from the harness and bedded to protect them from injury. Especial care should be taken to prevent bruising the head. A blanket should be thrown over the animal and then it should be removed on a wagon sled or sledge to a stable, preferably a well bedded box stall. Until the animal is able to stand it will be necessary to pass a catheter and draw the urine at least twice daily. Both treatment and nursing should be carried out under the direction of a skilled veterinarian.

While this disease has been attributed to various causes, veterinarians in the United States department of agriculture and other authorities incline to the belief that autointoxication is probably the cause. This theory seems to be confirmed by the fact that the development of the disease is favored by rich feeding and a period of idleness. In any event it is of especial value to know that the disease may be prevented with the greatest certainty by reducing the ration of grain when horses are not working and by exercising them daily.

LEGUME HAYS GOOD FOR BROOD SOWS

That clover and alfalfa hay are beneficial in rations for wintering brood sows is the conclusion of W. L. Robison, swine specialist at the Ohio experiment station. When fed to swine for this purpose, the alfalfa or clover hay is placed in wooden racks low down on the ground so that the animals may secure it easily.

Both clover and alfalfa have given satisfactory results when fed with corn to brood sows. The hay takes the place of a part of the more expensive grain ration, the common method being to give the animals a rather light ration of corn and plenty of hay and a little tankage. If no hay is fed, a somewhat larger amount of grain will be needed.

Brood sows on corn alone usually produce pigs of lighter weight and smaller bones, while those receiving hay and some tankage as a supplement to the corn produce strong, vigorous pigs with plenty of vitality. One satisfactory ration tried consisted of corn, 14 parts, tankage, one part, and what clover hay the animals cared for.

A recent tabulation of testing conducted by the division of animal industry of the state department of agriculture, of dairy herds supplying raw milk to Long Beach, shows that the number of reacting cattle has been reduced from seven to three per cent within a period of two years.

Corral Hollow, Alameda County, ranges report lambing proceeding favorably with best of weather conditions excepting that rains are needed for bettering the pasture.

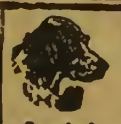
PUBLIC SALE
OF
Shorthorn Cattle

At the Western Stock Show, Denver, Colo., Wed., forenoon, Jan. 21, in the show arena. Thirty bulls and 20 females selected from leading western herds will be sold under the auspices of the

American Shorthorn Breeders' Association

13 Dexter Park Ave. Chicago, Ill.

Shorthorn steers topped all of the leading beef markets. It pays to grow Shorthorn beef.



America's Pioneer Dog Medicines

BOOK ON
DOG DISEASES And How to Feed
Mailed free to any address by the Author
H. CLAY GLOVER CO., Inc.,
118 West 31st Street, New York

SICK ANIMALS
BOOK about Sick Horses, Cattle, Sheep, Dogs and Poultry, mailed free. Address Dr. Humphreys' Veterinary Medicines, 156 William St., New York.

A Sale of Unlimited Opportunities

Are you content, Mr. Breeder, to breed just average hogs? Are you content, Mr. Farmer, to raise just average hogs? The man who realizes his opportunities will be in attendance, will be a *buyer* at *this sale*

A Few of the Herd Improvers To Be Sold

Lady Massive bred to Col. Jack's Surprise, Massive Lady bred to McCune's Buster, Long Bell bred to King's Massive Orange, Rosebud Quality 1st bred to Col. Jack's Surprise, three by King's Big Bone Leader, two by Young Jumbo.

One gilt and one boar by Surprise Prospect out of Edith Rose, litter mates to the $1250 gilt sold in the Consignment Sale at Hanford in October.

Other blood lines represented in this sale: The Californian, The Yankee Jr., Lendorris Liberty Bond, King's County Buster, McCune's Buster, Giant Buster, Wondergerst and King's Massive Orange.

This certainly answers your question asto what sale offers you the greatest opportunities for the purchase of better Poland Chinas.

Mr. McCune Says:

In the sales held by the Kings County Poland China Breeders Association the animals I have consigned have met the hearty approbation of the buyers. In this, my first sale, I have selected only such animals as I thought would properly represent the great Poland China breed Those selling bred will be bred to King's Massive Orange, Col Jack's Surprise and McCune's Buster. A litter by either of these sires assures the purchaser something that will sell for real money. Every animal will sell strictly on its merits and commensurate with its value. I believe the sale will be worth attending and that everyone will find something worth taking home.

McCune's Big Type Poland China Sale
Hanford, Cal. Saturday, Jan, 24, 1920

The bred sows and gilts are bred to King's Massive Orange, one of the state's most popular sires; Col. Jack's Surprise, by Surprise Prospect, and McCune's Buster, by Giant Buster.

20 Spring pigs will sell and you will find they have plenty of stretch and bone.

You will find what you want in this sale.

Sale at 12.30 P. M. **Geo. W. Bell, Tulare, Auctioneer** *Lunch at 11.30 A.M.*

For Catalog Address

H. D. McCUNE, Lemoore, Cal.

Dispersal of Choice Holsteins

Owned by

C. F. Mohnike, Angiola, Tulare, Cal.

(on the old DIXIE RANCH)

Friday, January 30, 1920

This is one of the most attractive looking herds we have ever sold. While no official testing has been done in the herd the blood lines are substantial, and buyers should secure excellent values on sale day. The herd contains

45 --- Registered Holstein Cows, Heifers and Bulls --- 45

20 --- High Grade Holstein Cows and Heifers ---20

The herd sire is CREAMCUP FIDESSA CORNUCOPIA LAD, who is by a son of the 33.53 pound cow Fidessa Bloom. His dam is Anselogess of Sleepy Hollow, 32.68 pounds butter in 7 days, 897.08 pounds butter from 22751.7 pounds milk in one year. His dam and sire's dam average 33.10 pounds butter in 7 days. He is a high class individual in every respect, his calves are of high quality, and he merits consideration from owners of good registered herds. He will be sold, together with 11 of his young daughters, and all bred females in the sale are in calf to him.

A daughter of Juliana King of Riverside, two grand daughters of Ignaro De Kol, a daughter of Anselmo, and a grand daughter of De Kol 2nd's Butter Boy 3d are among the females to be sold.

Besides the herd sire there are a number of young bulls that should find places at the head of high class dairy herds.

This herd as a whole is above the average in type, and the cattle are in good physical condition.

Every animal guaranteed to be a breeder; no animal tuberculin tested.

We will also sell 30 Poland China feeder hogs, two teams of good mares. and one new No. 17 De Laval separator with 1 h. p. motor.

CATALOG FREE ON REQUEST

The place of sale, the old Dixie Ranch, is one half mile east of Angiola, nine miles south of Corcoran, on main line of Santa Fe.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, California.
Auctioneers—Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare.

TO THE MILK PRODUCER

The main object of your being in the milk producing business is to make money. To do this you must keep your cows working at the highest rate of efficiency. Do you know which of your cows pays you the most money? We do. You should.

Here's Your Opportunity to Know

Tuesday, January 27, 1920

We Sell at Public Sale

100 High Grade Dairy Cows

of known productiveness. Every cow has been tested by the cow testing association. You will know what you are buying before you buy. Many with records of 300 pounds of fat per year will be sold.

Reason--We are selling all Grades to make room for our Pure Breds.

Included in this sale are

20 Pure Bred Registered Bulls

From High Producing Dams

Age from 1 month to 1 year. These bulls will be sold about 11 A.M.

Sale starts at 9 A.M

Veemoon Sells

He was the first prize bull calf at 1919 Riverside fair and third prize at Los Angeles. He is out of a 26 pound cow and sired by Sir Veeman Korndyke Pontiac.

Another is out of the 23 pound cow Topsy Clothilde Hengerveld, first prize cow at Los Angeles. Many others equally as good.

This is the Bull Buyer's Real Opportunity; every bull calf on farm sells.

Sale on farm on East 26th St., Los Angeles, 1½ miles east of Santa Fe Avenue.

Rhoades & Rhoades, Auctioneers

Burr Farm, Los Angeles

Live Stock News Notes

Due to poor health, Chas. Gatewood, Fresno, is compelled to disperse his entire herd of Poland Chinas. Last spring Mr. Gatewood made an extensive trip through the Central West, purchasing a car of gilts with the view of mating them with Giant Bob. At that time he expected to remain in the business of breeding Poland Chinas and the purchases were made with the view of improving and strengthening his herd. Due to the reason stated every animal he owns, with the exception of a few young pigs, will be sold in his sale January 26. Mr. Gatewood states that in Prospector, by Long Prospect, and Gatewood's Prospect, by Wade's Prospect, he is selling two young boars that show every indication of becoming wonderful herd headers.

H. D. McCune, one of Kings County's foremost breeders and who has taken a prominent part in making that county noted for its Poland Chinas, will hold his first public sale in Hanford, January 24. In this sale Mr. McCune will sell 60 head, 40 bred sows and gilts and 20 spring pigs. In all probability no sale this year will offer a greater variety of blood lines than will this as practically every great sire in the state, as well as a number in the East, will be represented in this sale. In speaking of the sale Mr. McCune says that it is his desire to establish a standard for animals of his breeding and raising that will be second to none on the coast; further, that the sows selected for this sale have proven prolific and good mothers and the gilts are well grown, have plenty of stretch and bone. "I believe I am making a sale well worth attending and that the buyers will not be disappointed in the animals I am offering the sale."

In the public sale of Poland Chinas that will be held in Lodi, January 27, by Geo. V. Beckman and Sons the blood lines of the sows and gilts to be offered are attractive, due to the prominence on the coast of their various sires. Their herd boars are Matchless Big Bob, by Big Bob Orange 3rd, used so successfully at University Farm, Davis, and Lakeside Defender, a son of the Mehring boar Chief Defender's Choice. Mr. Beckman states that the animals selling bred will be bred to these two boars and that should be sufficient to attract a large number of buyers and he believes there is not an animal in the sale but what will prove entirely satisfactory to the purchaser.

The next Poland China sale by Les McCracken will be held on his farm one mile north of Ripon. The sale will be under cover and ample protection is afforded against bad weather. In the McCracken herd there is to be found something like 85 sows and gilts of breeding age from which he has made his selection of the 50 that will make up his sale offering. Mr. McCracken states that he is particularly anxious to have this sale come up to present day standards so has selected his offering with much care. He is making special effort to interest the farmers and dairymen of his community and would like to see the entire offering remain in his own neighborhood. That is the real object of holding the sale on the farm, and if he succeeds in making a few new breeders he will be perfectly satisfied.

W. F. Sandercock, Sacramento, owner of the Natomario herd of Berkshires, reports the death of his herd boar, Baron Duke 201st. Baron Duke was bred by N. H. Gentry, the noted breeder of Missouri. He first came into prominence when he was purchased by Frank Brush of Santa Rosa who showed him to the grand championship at the 1917 National Swine Show. When the Brush herd was closed out, Sandercock purchased Baron Duke and installed him at the head of his herd. Baron Duke sired a number of prize winners, including Natomas Baron Duke, grand champion at the 1919 state fair and the San Francisco Livestock Show. While the loss of such a valuable boar is great, Sandercock is fortunate in having a number of his best brood sows carrying the service of Baron Duke. Berkshire breeders regret that Mr. Sandercock finds it necessary to recall his sale planned for February 15.

V. F. Dolcini, June Acres Stock Farm, Davis, reports the sale of six Duroc-Jersey gilts to H. I. Bobb of Woodland. Five of the gilts were sired by June Acres Crimson Coi, first prize junior boar pig and reserve junior champion at the 1918 state fair and one is a half sister to that boar Ali are bred to Choice Wonder 3d, the son of Mahaska Wonder, now at the head of the June Acres herd.

W. A. Ward, member of the firm of Easton & Ward, owners of the famous Blackhawk Ranch, Diablo, was elected a director of the American Shire Horse Association at the last meeting of that organization. Mr. Ward is planning a trip to England this year and while abroad will probably select a number of Shorthorns to add to their already good herd.

Chester E. Hoyt, formerly with the United States department of agriculture, and well known to the dairy interests of this state through his work as judge at a number of milk exhibits, has been appointed chief of the dairy inspection service of the state bureau of animal husbandry.

R. M. Duniap, Sacramento, who recently brought out an extensive shipment of Shorthorn and Hereford bulls, expects to return East for another shipment as soon as possible.

February 12 has been selected by the Tulare County Duroc-Jersey Breeders Association as the date for their winter sale of bred sows and gilts. Forty head of bred sows and gilts will be sold and Allen Thompson, president, says that this offering will be by far the highest class of any they have yet made.

W. J. Higdon, Tulare, breeder of Holsteins and Duroc-Jerseys, has recently sold a boar and two gilts to Perry Dresser, Tulare. Mr. Higdon is consigning five bred gilts to the public sale of the Tulare County Duroc-Jersey Breeders sale, February 12.

C. E. Dack, one of Fresno County's prominent Poland China breeders, has recently secured from W. J. Graham, Howard Lake, Minnesota, two fall gilts by Black Price, the 1918 grand champion at the National Swine Show.

January 30, Ireland Ranch, in conjunction with Donald H. Graham and E. Avery Newton, will sell 40 bred Duroc-Jersey sows and 10 young service boars. The sale will be held on Ireland Ranch near Owensmouth, the property of Dr. M. Creamer. The prominence of these breeders, together with their herds, will, no doubt, attract a large number of buyers both from the ranks of the breeders and the farmers. In all probability no better blood lines will be offered this season as the entire offering is practically all Orion Cherry King and Defender breeding.

What should prove of particular interest to milk producers is the forthcoming sale by Burr farm of 100 head of high grade dairy cows and 20 pure bred bulls of all ages. It is rarely that the buyer of grade cows has the opportunity of knowing what he is getting when he makes such a purchase Every cow in this sale has been tested by the cow testing association and on sale day her complete record will be given before she is sold. About 50 are two and three year olds. Probably some of the best buys of the sale will be found in the dry heifers as most of them showed themselves heavy producers with their first calf. The bulls to be sold are all pure breds and include Veemoon, first prize bull calf at this year's Riverside show and third prize at Los Angeles. He is by Sir Veeman Korndyke Pontiac, whose two year old heifers are making exceptionally good records, and out of Doremoon, a 26 pound cow. As every bull calf on the farm is to be sold some excellent prospects can be secured. No douht this sale will hold many attractions for the milk producer desirous of knowing the productive value of the animals he purchases

A sale that should prove of much interest to Duroc-Jersey breeders is that of Winsor Ranch, Bonita, that will be held at Exposition Park, Los Angeles, January 29. In the past it has been practically necessary for breeders to send east for additions to their herds. It should be a source of satisfaction to them that they can now secure animals of the popular blood lines and true Duroc-Jersey type. Forty head will be sold ,and Mr. Walker, manager of Winsor Ranch, states that individually and in breeding they are the equal of those now being sold in the eastern sales. They have for their sires Great Orion Sensation, Great Wonder I Am, Great Wonder, Orion Sensation, Grand Model, Great Model, Top Sensation, Orion Fancy King, and Grand Model 8th. These will be bred to the present herd boars now on the ranch, Winsor's Giant Orion, claimed to be the largest Duroc-Jersey hoar on the Pacific Coast, and Great Sensation 3rd hy Great Sensation. In the owner's opinion such animals as will he sold cannot be distributed without materially changing the quality of the herds into which they will go. No doubt the offering will attract buyers over a wide range of territory.

Hale I. Marsh, who will hold a public sale January 28 of hred big type Poland China sows, takes the position that what has made other states agriculturally great will do the same for California. He is making a special effort to convince both the farmer and the milk producer of the necessity of breeding better livestock. The sale will consist of 35 head of bred sows and gilts, most of which are young sows having farrowed one litter. Mr. Marsh has been a consistent breeder of big type Polands and his show herds have been seen at the various shows for the past several years. The blood lines are easily recognized hy those familiar with present day Poland Chinas and some of the hetter herds of the state contain animals of his breeding. Mr. Marsh states that in selecting the animals for this sale he has paid particular attention to size, bone, type and conformation and that every animal to be sold will he well grown out. He is especially anxious to have as many farmers and dairymen attend his sale as possible. The sale will be held under cover on the farm six miles north of Modesto.

CATTLE PROTECTION

The office of cattle protection of the state department of agriculture caused several arrests and convictions for operating slaughtering establishments and slaughtering calves without first securing licenses to do so from the state as required by the Act of May 28, 1917. The department announces it will make vigorous prosecutions of all violations of the law, particularly in the using of unrecorded brands, and all inspectors throughout the state have been notified to inform of all such violations.

Farmers and Dairymen
Make More Money on the Farm

What has made Illinois and Iowa the two greatest agricultural states in the Union? Why have land values in these two states doubled and trebled in past few years? The reason is well known and it will do the same for California farms.
The day of the one crop farm is past. Today it is intensified farming that pays. The dairyman that is selling whole milk is not making his farm pay as much as he could.

What is the Answer?

Illinois and Iowa are our two largest producers of pork. The farmers and dairymen in these states have found the raising of hogs is very profitable. Pure bred hogs are the real money makers.

I wish to invite all the farmers and dairymen to attend my public sale.

35 Bred Poland China Sows and Gilts
Modesto, Cal., Wednesday, Jan. 28th, 1920

The day is here when pure bred hogs must take the place of the scrub. For years I have been breeding big type Poland Chinas and I have furnished foundation stock for some of our best herds today. The animals I am going to sell are mostly young, proven sows. You can select such blood lines as Major Hadley Wonder, Model Major, Young Jumbo, President, Big Knox, I. B. A. Wonder, Blue Valley Tecumseh, Cantrall's Ideal, Big Bone Bob, or Rosebud's Chief. These sows will be bred to Big Model, Modesto King and Blue Valley Big Bone. I am sure you will not be disappointed in the offering as I have carefully selected every animal and they are true representatives of the present standard of Poland Chinas.

To the Breeder Of special interest to breeders is the fact that I am placing in this sale some of the best sows I own. They are the right type, big boned, high backed and roomy and have proven prolific and excellent mothers. For instance I am selling *Knox Alice* by *Big Knox* which in itself should prove sufficiently attractive to bring every breeder in the state to this sale. There will be others like her.

The sale will be held on my farm 6 miles north of Modesto in my new sale pavilion. Lunch at 11 A. M. Sale starts promptly at 12:30 P. M.

GEO. W. BELL, - - Tulare, Auctioneer

Write today for sale catalog and acquaint yourself with what I am to sell.

Hale I. Marsh Modesto, Cal.

Sale circuit—McCune, Hanford, Jan. 24, Gatewood, Fresno, Jan. 26; Beckman, Lodi, Jan. 27; Marsh, Modesto, Jan. 28; McCracken, Ripon, Jan. 29.

Transport Trucks

"Always There All Ways"

With the cost of feed where it is today, can the rancher and the orchardist afford to continue using horses or mules, when it can be demonstrated that a modern truck will perform the same work more economically and in much less time? The animals must be fed whether they work or not, which condition does not apply to the truck.

The universal demand for foodstuffs of every character demands economical and rapid transportation facilities. Figures show that the agriculturist is realizing more and more each year the value of the truck in the transportation field.

Years of experience and one million dollars are back of the Transport, the most modern truck on the market. You cannot find better truck units than those combined in the Transport. They make for the most all-around efficiency.

It is our experience that the one-ton and the one and one-half ton models are generally the most adapted to the agriculturist's needs. They may be delivered with solid or pneumatic tires. We are always glad to confer with you regarding your needs.

Poyer's Dependable Service

1-ton $1935; 1½-ton $2250; 2½-ton $2835

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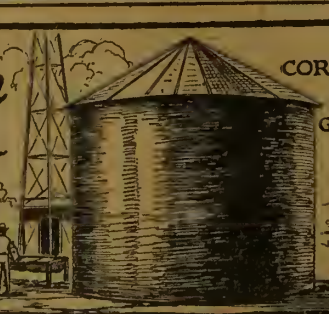

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WAR ON SQUIRRELS

Lorne S. Neville is in charge of rodent control for the Los Angeles County horticultural commission. Before this term of service he was in the same line of work for the state and travelled from San Diego to Siskiyou. A representative of the Cultivator recently accompanied Mr. Neville on an inspection trip to the fields. In the untreated fields were seen hundreds of colonies, sometimes a hundred in one large field of grain. Walking and driving over treated fields for several hours in a district where 4,000 holes were gassed, but 15 could be found where the squirrels were alive and had dug out. These holes were flagged with a short stick and piece of white cloth and in a few days will be visited by the workmen and given a double dose, which insures a territory free from squirrels.

Each man in the field was armed with a shovel and bucket of "dope." The shovels are known as "ladies' shovels" being short and light of handle with a small light blade, amply heavy enough for the work and not hurdensome to carry all day. Two gallon garbage buckets are used with a cover that fits on the outside, the cap rim two inches deep. These cans cost about one dollar each. They are easy to cover and uncover rapidly and little gas escapes as it is heavier than air.

Mr. Neville says that where a rancher opens the can but seldom, as when carrying it to the field while he works, and watches for an occasional squirrel, a tighter can could be used. There is one with a felt lined top rim such as is used in fireless cookers; also many cans with friction disk tops such as paints, some lards and other comodities are packed in. A gallon pail is ample for ranch use.

In the buckets are carried jute balls in a few inches of carbon bisulphide. Each ball will absorb about two ounces of the liquid. They are made at the state penitentiary at San Quentin from the waste from jute bag manufacture.

The workmen range across the fields sufficiently close to observe all squirrel holes. On freshly plowed fields of lumpy soil they must walk comparatively near each other and watch closely, for new holes are very hard to detect. In each such hole one saturated ball is thrown, the worker merely taking it in his hand, throwing it down in the hole as far as possible, chucking a clod into the throat of the passage, covering up with soil and treading on it to make it solid so no gas will escape. That is all; and the immediately subsequent funerals are unattended. Big holes, evidently the home of several, are given two saturated balls. One other method is used, especially in colonies. The balls are thrown in some of the holes, the latter left open, the workman passes on, comes back in five or ten minutes with a flaming ball on the end of a wire, thrusts it in each hole, there is a slight explosion and the hole is filled as before stated. In case smoke comes out of nearby holes these are closed and sometimes but one hole on a mound need be treated.

Buckets must be kept away from fire as the gas is highly explosive. The explosions are light and not at all dangerous, but it is as well for the operator to keep his nose away and to leeward for the gas is unhealthful. The county sells no buckets, but the dry balls may he had at county headquarters for $3.00 a sack of 800 and the carbon bisulphide at $5.00 for a five-gallon can. Keep the liquid away from fire, even lighted tobacco pipes, cigars or cigarettes.—E. B.

MANY PRODUCTS RECOVERED FROM KELP

Kelp apparently is going to be a profitable source of potash, an important fertilizer ingredient that the United States formerly obtained almost wholly from Germany. During the war an experimental kelp-potash plant was established by the United States department of agriculture at Summerland. Before the second year of operation was completed it had been determined not only that the plant could he mado self sustaining on the hasis of potash alone at $2.50 a unit, but that a number of valuable by-products could he profitahly obtained. The chief of the bureau of soils, which bureau operates the enterprise, estimates that if the plant turns out $300 worth of potassium chloride a day it may at the same time turn out $269 worth a day of the four principal by-products.

Among the by-products whose commercial obtainability has been established are iodine, common salt, ammonia and bleaching carbon. This hleaching carbon, formerly imported from Europe and sold for 20 cents a pound, has been prepared and sold from the Summerland plant at 15 cents a pound and appears at present about able to pay the production cost of itself and the potash, with good reason to helieve that it may ultimately be made to pay the operating cost of the entire enterprise. It has been definitely es tablished by large scale operations that very little of the nitrogen of kelp is lost in the various processes and that it can be commercially recovered as ammonia, thus yieiding another important fertilizer element. In this process enough combustible gas is released greatly to reduce if not to elim inate fuel consumption in the plant A tar is likewise recovered, and its subproducts, kelp oils and creosote, have been shown to he of value respectively as flotation agents and dis infectants. Still other valuable by products are likely to be recovered.

DAIRYMEN ON YOUR GUARD

Continued from Page 75

Furthermore, we take it that the attorney-general has thoroughly inves tigated the motives of the plaintiffs, and we assume that he was thoroughly convinced that the four named plaintiffs were willing to dig deep into their own pockets for the money nec essary to stage the pending legal battle for no other reason than a deep and sincere desire to reduce the cost of milk to the consumer.

We also assume that the attorney-general and divers and sundry metro politan papers and the plaintiffs to the pending suits have investigated the price of milk in other cities and are quite aware that the price to California consumers averages considerably helow that of most cities in other states.

But after all, perhaps the suits about to be hrought will prove hlessings in disguise. They will afford an opportunity for the dairy interests of this state to get the real facts governing their husiness into the records—if not into the daily press. They should serve to establish and make plain the costs of milk production. They should establish the fact that dairy products have not increased in proportion to other necessities. They should establish the fact, once and for all, that California dairymen are not profiteers: that they contemplate no menace to the welfare of the public; that all they ask is a fair return for their investment and lahor.

Furthermore, it is to he expected that the suits will also establish the real reason why the dairy interests have been singled out for prosecution, and just why certain parties have so magnamiously dedicated their time and money to the "cause" so consistently (and persistently).

We will also expect, shortly, that the self appointed guardians of the consumers' welfare will start jousting with the costs of other commodities—sugar, shoes and clothing, for instance, and that they will he equally as successful in enlisting the aid of the attorney-general as they have been in the case of milk.

The time has come when the dairymen and all other organized producers might just as well strip for a finish fight for their rights. From the first, the Cultivator has stood for and believed in the fundamental right of producers to organize and conduct their husiness at a profit, and we have felt that underneath the fight against the milk producers the real motive was to discourage and break down all cooperative effort. And we have felt that, should the battle go against the dairymen, other producers' organizations would he in line for the next attack. The time has come when all producers should go to the public with their problems. The public is fair minded once the facts are given, and the producers need to see that the facts furnished the public are true and that the public does not gain its views from the twisted, hand-made stuff originated hy those interests whose motives can be questioned

In the end a satisfactory adjustment will be made. Producers are certainly not expected to produce at a loss, but

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3 BULLS	No. 1 born Mar. 1, 1919. Sire, Our Noble Mayflair Hero.	3 BULLS
No. 2 born Oct. 1, 1919. Sire Our Kathie's Eminent.	All from high record cows in Arden herd.	No. 3 born Dec. 20, 1918. Sire same as No. 2.

ARDEN DAIRY CERTIFIED, EL MONTE, CALIF.

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-Vaughn's Jones--

y Giant Jones out of the $1,400 Daisy A. Poland China boar of the right type. lis pigs show quality and recognized reeders pronounce them the correct type.
Poland Chinas of the Right Type
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apparently, until the public realizes as much, the dairymen are to be made the goats.

Dairymen, stand together now! In cooperation there alone lies sufficient strength to combat the forces that seek your disorganization.

Members of other cooperative associations stand behind the dairymen—else you may be next!

BLASTING GARDEN SOIL

It is to be hoped that everyone who plans to plant a garden next season will proceed without delay to blast the soil while it is dry. There are many reasons for doing so, and the objection that prevents many owners of larger acreage in farm crops from blasting, that of cost, should not apply to the few square rods that comprise the average garden plot. Fifty cents per square rod should be the limit of cost of the operation.

If the blasting is left off until next spring the chances are that the under soil will be too damp for successful breaking. An explosion acts in the ground much the same as any other cultivation. If the ground contains enough moisture to be plastic, it will pack; if it is dry enough to break apart and to crumble, it will become fine and loose. The sample for testing should come not from the surface, but from a depth of two or three feet, where the charges will be placed.

The benefits to be gained by breaking garden soil deeply are numerous and somewhat complicated to state. In the first place, the ground that is broken deeply will take water freely and will hold water in capillary form throughout dry weather. Compacted ground will do neither of these things. With an equal amount of rain or irrigation water broken ground will keep crops growing where unbroken ground will let them wilt.

The free movement of water both downward and upward tends to distribute fertilizing elements evenly all through the lower soil. When the ground is cultivated only on the surface the nitrates and other plant foods tend to gather just under the cultivated layer of soil, with the result that some roots are overfed while others are starving for the same elements. Big crops can be fed to maturity only by having plant food abundant throughout at least a couple of feet of soil.

There are other equally important results of breaking, which have to do with the physical structure of the soil. Without the breaking, followed by the introduction of roots deeper than usual into the ground, proper mellowing is almost impossible to secure. It is the decay of roots and other organic matter, helped along by the action of bacteria, which brings about the crumb-like structure of soil which means big yields.

In a garden the amount of work put on crops is many times greater than in a field. It is well, therefore, to let no link in the chain of proper care be lacking. To fertilize and cultivate and spray is not enough. The soil below the surface must receive its due share of attention.

TESTING ASIATIC GRASSES

Numerous grasses and legumes secured by botanical exploration in central Asia may disclose species that will solve the problem of range improvement on semi-arid lands, according to the bureau of plant industry, United States deaprtment of agriculture. There is a constant demand for grass that will increase the amount of feed above that which may be secured by rational grazing of the land under fences, and specialists of the department are undertaking a systematic testing of Asiatic grasses and legumes.

SOUTHLAND PEAT

While near Glendora recently we saw an orange orchard to which had been applied a dressing of peat from down Orange County way. The orchardist stated it is plowed and scraped out, dried, run over with a disk harrow several times and is then ready for use. It is purchased mainly for its humus which runs about 40 per cent. As a fertilizer it runs about 1.40 nitrogen; potash, .86, and .40 of phosphoric acid. The cost on track at Glendora is $8.80 a ton.

"I Knew Mohawks Were Good Before I Bought Mine"

That's what an automobile owner told us recently.

"Until I heard about Mohawks, I used to choose my tires with my eyes shut.

"I gambled on tires, because most people who tried to sell me tires told me things about them I didn't understand—secrets, mysterious sounding processes—all supposed to be the cause of better mileage.

"When my dealer started talking Mohawks, he had something tangible to say about them — logical, sensible and sincere reasons for their better quality.

"He told me they were made only of pure rubber — no 'fillers', no reclaimed rubber, no shoddy, rosin, glue. He said the fabric tires contained an extra ply of fabric in most sizes—a ply which Mohawk builders knew added longer life.

"He told me about the efficiency of the Mohawk Company, that Mohawk Tires are hand made, because they can be made more uniform and with longer wearing qualities that way.

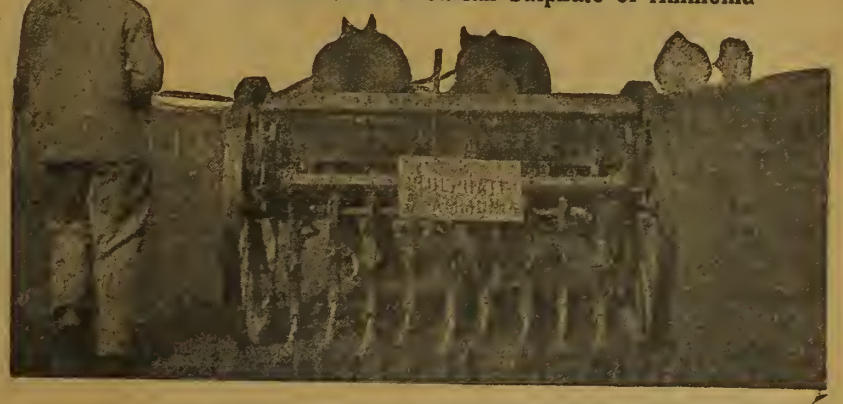
"These reasons for Mohawk Quality were so sensible and sincere—so free from mere claims and mysteries—that I was convinced about Mohawks before I bought them."

Mohawks, both Cord and Fabric, in all standard sizes, and a hand-made Ford Size with an extra ply also. Good dealers everywhere handle them.

Mohawk Rubber Company, Akron, Ohio
Branch: 1436 Van Ness Ave., San Francisco, Cal.

MOHAWK "Quality" HAND MADE TIRES

TOP DRESSING TALKS, No. 7
You can drill Arcadian Sulphate of Ammonia



Top-dress your field crops with Arcadian Sulphate of Ammonia, using the grain drill or fertilizer distributor.

When top-dressed with Arcadian Sulphate of Ammonia, the plants get an even start, maintain uniformly rapid growth and the whole crop ripens at one time. One hundred pounds per acre on California soils will usually increase the yields of grain from 5 to 10 bushels per acre, according to advice from the California Experiment Station.

ARCADIAN
Sulphate of Ammonia

Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past.

Arcadian is the kiln-dried and screened grade, made fine and dry for top dressing purposes. Ammonia 25¼ per cent guaranteed. Made in U. S. A.

For information as to application, write The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.

"Just like a hen —only better"

Biddy's temperature was always right, when she hatched the eggs—you never had to worry. But Biddy was an uncertain quantity in some other ways. Ordinary incubators require so much attention—night and day—then if a cold snap happens suddenly, and the eggs are chilled—or the flame, left unwatched, "runs up"—the whole hatch is lost. That's why poultrymen and farmers, and their wives, everywhere are blessing the

CHARTERS REGULATOR

(Readily attached to your Incubator. Part of the equipment of Charters Incubator.)

The Regulator watches over the hatch while you go to town—while you sleep—no matter if you are delayed, or if you forget. It keeps the flame at exactly the right size to produce the right temperature.

No matter how big, or how small your season's "hatch" may be—from one to one hundred machines or more—if they are Charters machines, you can count on a definite saving of time, worry and expensive loss. You need no incubator cellar with the Charters.

J. H. Stubbe, of Palo Alto, now using 66 Regulators and ordering 35 Charters Incubators, says: "We need not give the lamps any thought at night. The Regulator takes care of any change in temperature perfectly."

P. R. Lyding, of Sebastopol, with 26 years of Incubator experience, writes: "Your Incubators complete are absolutely the best I have ever used."

How they work:

It's the two thermostats that do the trick, actually anticipating any change of temperature outside—thus automatically adjusting the flame to meet the new conditions. The air outside may vary as much as 70 degrees, without affecting the egg chamber as much as half a degree. With the Charters you will need no incubator cellar.

The big tank, which holds a fuel supply that is capable of running the lamp from 2 to 3 weeks without refilling—is another feature of the Regulator. Only one refilling and one trimming of the wick a week. And the regulated flame saves fuel besides.

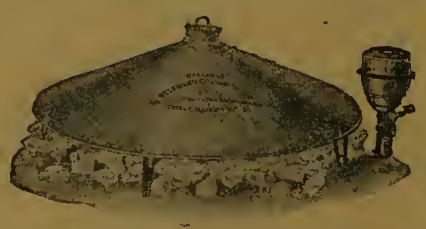
Write for our free catalog today, or send your order for your machine now, so we can deliver in time for your Fall hatch. The Regulator is $10; the Incubator (with Regulator attached) is $65.00. If it does not do what we claim for it—your money back.

See The Charters at principal fairs and poultry shows this year.

CHARTERS MANUFACTURING CO.

334 Soquel Avenue, Santa Cruz, California

The Reliable Blue Flame Wickless Oil Heated Hover



This Hover Represents Our 30-Inch 42-Inch and 52-Inch Sizes.

THE MODERN HOVER

This hover has the same chick capacity as the coal burning brooder. They are made in four sizes, 18 inch, 30 inch, 42 inch and 52 inch hover. A few of the special points on this oil heated hover are as follows:

Burns Coal Oil
Steady Blue Flame
Comfortable and Easy to Operate
Economy of Operation
No Wick to Trim
No Oil Fumes
Visible Oil Feed
Convenient and Safe
No Coal, Smoke or Gas
The Flow of Oil Is Regulated Automatically
Abundance of Heat

DEALERS—Some good territory open for live wires in California. Write today.

Western Distributors

QUEEN HATCHERY

89 Pike Street Seattle, Wash.

KROGH PUMP AND MACHINERY COMPANY

206 No. Los Angeles St. Los Angeles, Cal.
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Krogh Pumps Are Absolutely Water Balanced
No End Thrust Possible No Set Collars Used

The No Trouble Pump

Krogh Direct Motor Driven Pump

Fitted With Ring Oiling Bearings

Renewable Babbitted Bushings

Ring Oiling Gland

We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

A "Going" Duck Ranch

By Jean A. Koethen

DUCK raising as an industry has lagged considerably behind the chicken business in Southern California, possibly because of the high cost of feed, partly perhaps, because the "green duck" market is comparatively new in Los Angeles. During the past two years, however, a number of good sized ranches have sprung up in the section near the coast, and a good many Pekins are raised for the purpose of supplying the growing green duck demand.

One of the largest of these ranches, that of J. W. Deyoe at Inglewood, was established two years ago. From a comparatively small beginning it has grown until now 600 breeders are kept and over 100,000 ducklings turned out yearly Every egg that is laid in the breeding season by the 500 breeding ducks is hatched and every duckling is sold for 35 cents to poultrymen and suburbanites. Last year the incubators turned out 50,000 ducklings, this year they will treble that number.

Contentment on a Duck Farm

The manager of the ranch, U. G. Lee, who has raised every duck on the place, laughed when I asked him how much it costs to feed a duck for six months. "It is costing us ten dollars a day just now to feed this bunch." he declared. "They are not laying yet, or at least only a few of the oldest are laying, but we have put them on their laying ration, and by January we shall have eggs enough to start the incubators. From January till June we expect a 90 per cent egg yield. Toward the end of July, after production has declined considerably and the green duck season is over, we put them on a maintenance ration and keep them on this ration of bran and greens till December, when we put them back on the laying ration.

Feeding for Eggs

The laying ration, which is given the breeders from December on, is mixed by the following fomula: 100 pounds wheat bran, 50 pounds low grade flour, 25 pounds alfalfa meal, 25 pounds corn meal, eight pounds beef scrap, one pint salt, one-half gallon charcoal (once a day). To this mixture is added, when the ducks are laying, about 15 pounds wheat and 15 pounds cracked corn or milo.

The mash is made crumbly moist with water and is fed in wide troughs which are never empty, for a laying duck, Mr. Deyoe believes, should eat whenever it wishes.

Water is kept before the ducks in galvanized iron tubs sunk in the ground, so that they may dip their heads as much as they like. If one occasionally gets into the tub no harm is done.

Mate One to Six

One drake for every six ducks insures fertility. The drakes should be about six months older than the ducks, therefore ducks of last winter's hatch, which are this season's breeders, are mated to drakes of the later spring hatches of the year before. Pekin ducks are good breeders for ten years and are in their prime from the second to the fourth year.

Shut Up at Night

As ducks that are allowed out at night make a good deal of noise, a good tight duck house that can be closed nights is a necessity. This one is 12 feet wide and 64 long and is divided by low wire fences into sections 16 feet wide Each section is extended into a yard 50 feet long, which is intended to accommodate 50 ducks, but at present twice that number are crowded into each yard A hinged door extends the entire length of the top and when closed at night makes the interior perfectly dark, a condition which makes for peace and quiet.

Feed for Ducklings

Ducklings that are raised for next year's breeders are fed the first three days on a mixture consisting of 20 pounds bran and 10 boiled eggs from the incubators. Eggs and bran are chopped together, and to the mixture is added an equal amount of clean sand. To this is added half a dozen heads of lettuce and the whole is made crumbly wet and kept in the troughs before the ducklings from morning till night. After the first week the egg is omitted and the mash mixture is changed to one-third corn meal and two-thirds bran. The green feed is no longer mixed with the mash but is thrown whole into the trough or on the ground.

The Pride of Petaluma

KRESKY'S 1920 VENTILATING brooder stove forces proper ventilation in spite of the operator and sweeps the room with FRESH AIR. PETALUMA'S latest sensation and result getter. TRY it. Keep it if you like it, or send it back if you do not.

Catalogue No. 3, free for asking.

KRESKY BROODER STOVE CO.

Petaluma Cal.

As soon as the drakes reach five pounds weight they are marketed as green ducks except thoso needed for breeders. Last year not less than 27 cents a pound was received for any duck sold from these yards, and in many cases the price was considerably highor.

Poultry Queries

Conducted by J. A. Koethen

Turkey Information

Will you kindly advise me where I can get information about the different breeds of turkeys, in raising for the market.—Subscriber.

"Poultry for Profit," published by the Cultivator, and sold for $1 per copy, gives full information regarding breeds and care of turkeys. An article on this subject will also soon appear in the Cultivator.

Mash Too Forcing

Have your book "Poultry for Profit" and consider it very good. Am also interested in reading your articles in the California Cultivator, which I find very instructive, as I am an amateur in the poultry business. Would you be kind enough to tell me what I can do for my White Leghorn chickens, three months old. They are dropping their feathers. Have been feeding them wheat in the mornings and evenings and a wet mash at noon consisting of: Forty pounds bran, ten pounds bone meal, ten pounds fish meal, ten pounds beef scraps, five pounds milo maize, five pounds corn meal, two pounds charcoal. Keep dry mash before them all day. Recently have changed from three to two feedings a day, cutting out the wet mash at noon, and am also feeding rolled barley along with the wheat mornings and evenings, giving them more barley than wheat. They are a fine bunch of chickens, unusually large and fine plumage. Have kept their house clean and they have no lice or mites. They preen themselves a great deal and then particles of scales drop and today I noticed one pick up a feather on the ground and eat it. They have a run of about one-half acre and had plenty of greens while small and for the last two weeks.—Subscriber, Arbuckle.

Your mash is too forcing. It contains 30 pounds of meat meals to 50 of grain, which makes the meat three-eighths, or 37½ per cent, of the whole. As a rule, from 20 to 25 per cent is all that should be fed to chicks, and 15 to 20 per cent is enough for laying hens. Many feed less. Better put them on a maintenance mash of 95 per cent bran and five per cent beef scrap for a month or six weeks so they will have a chance to develop frame and muscle before they begin to lay. You might examine the skin under their feathers for symptoms of favus, a skin disease which causes a sort of scaly crust to grow on portions of the body. If you find anything, rub the affected part with lard and sulphur, equal parts, well mixed. From the fact that your chickens appear so healthy and well grown, however, I think the trouble is in the feeding. When you give them the laying mash again after a month or more on the maintenance mash, make the proportion of ground grain larger. A good formula is: Three parts bran (by weight), two parts shorts, one part corn meal, one part barley meal, one part beef scrap, one-half part soy bean meal, one-half part oil cake meal, one-tenth part charcoal, five pounds salt to 900 pounds mash.

Fattening Chickens

Please give me the name of a book on the fattening and crate feeding of chickens.—Subscriber, Los Angeles.

Edward Brown, the English authority, has written a book entitled "Poultry Fattening" which covers crate feeding and construction also. "Poultry for Profit," the Cultivator book, goes into this subject quite fully, and Extension Bulletin No. 10 of the Purdue University department of agriculture extension, Purdue, Indiana, gives explicit directions for crate construction and a good formula for a fattening ration. Probably the University of California also issues a bulletin on this subject, but I do not remember seeing it.

HATCH EARLY

Early hatched chicks get a better start than late hatched chicks and are therefore stronger and better able to withstand the attacks of lice and disease. If you will notice a flock of growing chicks which are lice infested you will find that it is the smaller, weaker chicks which are suffering most. Observation will also show that the lice are more troublesome during the warm weather than during the cooler weather of early spring so that the chicks hatched early are not subjected to such severe attacks of lice while still very young as are the late hatched chicks. This of course does not mean that if the chicks are early hatched the lice should be neglected. By all means examine them for lice and, if found, take measures to free the chicks from the pests. It does mean, however, that not so much trouble from lice will be experienced and that they will be easier to control and will interfere less with the growth of the chicks.

WHAT DOES EARLY HATCHING MEAN?

Early hatching means chicks that are past the danger point before the hot weather sets in.

Early hatching means chicks less troubled by lice and disease.

Early hatching means more chicks raised.

Early hatching means a longer growing season.

Early hatching means better grown chicks.

Early hatching means higher prices for the surplus cockerels marketed as broilers.

Early hatching means well matured pullets which begin to lay in the fall.

Early hatching means eggs from the pullets while the hens are molting.

Early hatching means eggs in the fall and winter when prices are highest.

Early hatching means early maturing pullets that become broody earlier the following spring.

Early hatching means greater profit.

HANDLING AND PACKING EGGS

The recent conference of the International Egg and Poultry Instructors and Investigators held in London was attended by American Agricultural Trade Commissioner Edward A. Foley, who has forwarded the following report:

"The first subject under discussion was the new railway rule that each egg should be separately packed in its own compartment before the railways will accept the case for shipment at company's risk. This means that at the present time no eggs will be accepted at company's risk. Neither the American, Canadian, Danish nor Irish eggs are so packed as to bring them under the conditions of this rule.

"Danish eggs are placed in wood wool, Irish in straw, and American and Canadian in cardboard containers. The American container would be acceptable if each egg were wrapped in paper before being placed in its section in the container. A resolution was adopted protesting against this rule as impracticable and as imposing an unnecessary hardship on the shipper."

WATCH LICE ON YOUNG CHICKS

Powder the hen with a good insect powder before moving her and the chickens to the brood coop. The hen should be dusted every two weeks or as often as necessary until the chickens are weaned. If lice become thick on the chickens, or if they are troubled with "head lice," a very little grease, such as lard or vaseline, may be applied with the fingers on the head, neck, under the wings and around the vent. Great care should be taken, however, not to get too much grease on the chickens, as it will stop their growth and in some cases may prove fatal.

Champion Dependable Spark Plugs

Champion Dependability Has No Substitute

MORE than half of all the manufacturers building all types of gasoline engines, equip their products at their factory with Champion Dependable Spark Plugs. This is your guide and protection in selecting spark plugs for *your* car. There is a Champion Spark Plug for *every* type of motor car, motor truck, tractor, motorcycle and stationary engine. Avoid substitutes—look for the name "Champion" on the Insulator.

Champion A-44, ⅞-18
Price $1.00

Champion Spark Plug Company, Toledo, Ohio

WHEN you plan changing your methods of cultivation from a horse power to a machine power basis, you will of course give a great deal of thought to the selection of the right kind of tractor. The same careful consideration should be given to the selection of the right kind of harrow. The easy and safe solution is

Clark "CUTAWAY"

Double Action Tractor Harrow

Harrows that attach to every kind or size of tractor. The first tractor harrow in the field, and first in place, ever since. Whatever tractor you select there's a Clark Cutaway that will fit and do the work.

The disk harrow with special steel main frame that inflexibly holds each set of disks accurately in place. Digs deeper, pulverizes better, and pulls through the soil on less power. Saves time, labor and fuel—and helps produce bumper crops.

The disks in these harrows are forged, not merely rolled and ground, from toughest cutlery steel. They won't chip, crack, nor break like the ordinary run of disks.

Don't be influenced against "cutout" disks by manufacturers who are unable to produce an enduring "Cutout" disk of Clark Cutaway quality.

If your dealer can't supply you, some other nearby dealer will.

Write for free book, "The Soil and Its Tillage" and complete catalogue.

The Cutaway Harrow Co.

718 Main Street Higganum, Conn.

Makers of the original CLARK Disk Harrows and Plows

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Planting Walnut Seeds

Am unable to secure walnut trees from nurserymen. Would it pay me to plant seed now? If so, should they be planted in nursery row or in orchard form? The place is in bands of renter so I would not be able to give the young seedlings the care they should have. What are the best seeds to use, the California Black or Eastern Black? I understand that the Northern California Black is better than the Southern. How should seed be planted and young trees cared for? Can I get nurserymen to come to the orchard and bud or graft the trees? What varieties are best, and should I make contract with nurserymen to do the work or would it be better to contract for buds with owners of trees that I know are good bearers?—Subscriber, Compton.

We would not under any circumstances plant seed in orchard form expecting to graft over trees when they reach proper size. The Northern California Black is generally preferred; the Eastern Black does not make such a vigorous tree. To answer as to seed planting and care in nursery calls for far more extended information than could be given in these columns. In merest outline: The nuts should be planted in the fall after they are gathered. They may be stratified and seed planted in nursery row after they have sprouted, or directly after gathering. They are allowed to grow one to two years, budded or grafted, staked, and after one or two years' growth of the bud they are set in orchard form. In this way uniformity of size is secured. Varieties best suited to your section are being developed and possibly becoming fewer so that by the time the subscriber's nuts are grown so that they are ready for grafting more definite information will be available. The Placentia, Eureka, Santa Barbara, Ehrhardt, Neff's Prolific are among those preferred for Southern California, while Concord, Mayette, Franquette, etc., are preferred in the northern part of the state. Under circumstances mentioned by the subscriber it would probably be best to contract with nurserymen to grow the trees.

Alfalfa Association

Is there more than one alfalfa growers association? If not, where is the present one located and does it have branches over the state?—Subscriber, Dunnigan.

We know of but one general association, the Alfalfa Growers of California and it has branches in various parts of the state. Its headquarters is in Los Angeles.

Pruning Tragedy's

Please give best method of pruning Tragedy prunes. Should young trees be topped or cut back?—Subscriber, Lindsay.

We would cut back young prune or plum trees for the first three years. However, there are others who do not believe in the cutting back. A general discussion of the subject, far too lengthy to appear in this column, may be had by writing the University of California, Berkeley, and asking for Agricultural Experiment Station Bulletin 313, "Pruning Young Deciduous Fruit Trees."

Pruning Young Vineyard

I have a young vineyard which has never been pruned and I am very anxious to give it the proper care and attention. Will you please publish an article on the pruning of grapes?—Subscriber, Arizona.

There is in preparation an article toucbing upon pruning of grapes which will appear in our columns within the next two or three weeks.

Apple Trees Bleeding

I have a number of eight year old apple trees. Three years ago some of the limbs were cut from the trunk and each winter and spring since they have bled. Can anything be done with the wood to stop the flow, or does it not injure the tree?—Subscriber, Beaumont.

We have never heard of wound bleeding so long as the ones you refer to which were cut three years since. Ordinarily there is no harm from this bleeding. Bailey's "Pruning Book" says: "Injury rarely follows bleeding." However, some claim that where the bleeding is allowed to run down on the bark of the tree it may cause external injury. We would try painting when the surface is entirely dry.

Minerals for Hogs

We often note you recommend the feeding of more mineral matter to hogs. In what form and what are the proportions?—Subscriber, Orland.

Generally the proportions of minerals are as follows: Charcoal, eight pounds; air-slacked lime, eight pounds; common salt, six pounds; hardwood ashes, eight pounds; powdered sulpbur, four pounds; powdered bluestone, two pounds. These should be thoroughly mixed and kept in stock so that a small supply may be before the hogs at all times. A low box makes a useful container. Such a mixture is especially cheap and will return big profits in the way of increased gains. It should be mentioned that this preparation is more of a tonic to keep the hogs in good condition than a safeguard against disease.

Persimmon Trees

I note in the issue of January reference to persimmons. Where can I buy these trees?—Subscriber, Hyne

We believe any nurseryman advertising in the Cultivator can supply you with these persimmon trees, that is unless they are all contracted for the season.

Gum of Deciduous Trees

Please tell me the reason for a gum coming out on the branches and trunks of my plum and peach trees which finally die. Is there anything I can do to prevent this?—Subscriber, Long Beach.

Exuding gum is difficult to handle. The trouble cannot be reached directly because it is simply the indication of some other tree trouble. We recently dug up a peach tree seriously infested and found the crown of the tree and many of its roots one mass of crown gall and root knot. This bad affected the health of the tree until its sap had been forced to exude and thus in evaporating left the gum. It is an indication that the tree is seriously out of health and one must look to the soil, and especially the roots or possibly to the weather conditions, for the real cause.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Homestead for Soldier

I have a son in the army who has

served more than three years and who has reenlisted for three years more. Can he take up a homestead and prove up on it without being obliged to stay on the land? Could someone take up a claim for him in Arizona or would he have to see the land and make entry himself?—Subscriber, Exeter.

According to the revised statutes of the United States anyone in the actual military or naval service of the United States who is desirous to take up public lands and by reason of his occupation in such service is unable to do the personal preliminary acts at the district land office, and whose family or some member thereof is residing upon the land which he is desirous of entering and upon which the bona fide settlement has been made may make the affidavit required by law before the officer commanding in the branch of the service in which such party is engaged; such affidavit shall then be filed by the wife or other representative of such party with the register of land office in the district wherein the land is situated, and thereupon becomes effective from the date of such filing. The time actually served, and if discharged upon account of wounds, then the time of enlistment is deducted from the time required to perfect title, except that a minimum residence of one year is required. In the case of such persons in the military or naval service, entry upon the land may be made by agent as well as in person. The widow of any such person is entitled to all of the benefits which such person would have had. Under this law in case of death of such entryman in the military or naval service, his services therein are to be construed as full performance of all of the duties required of him by way of cultivation or residence upon the land, and patent shall forthwith issue to his widow or other representative. The persons who have served in previous wars are allowed six months to locate and file their declaratory statement after making entry upon the land. The above provisions all apply to the homestead laws solely.

LEAKS IN GAS ENGINE

Under the caption "The Tractor is no Better than its Operator," the National Stockman and Farmer gives a fund of valuable information on tractor care. There are many leaks in the gas engine which cost a pretty penny. Here are some as noted in a recent article:

There are many places where the gas engine may leak. Too many tractor and automobile operators think of a leak as causing only a loss of gas on the compression stroke and losing power on the explosion stroke. While this is true, a leak will also cause a loss of power by allowing air to enter on the suction stroke. Too much air will result in a "lean" mixture which will not have the power that a correct mixture would have. In other words all of the air which enters the cylinder should go through the carburetor. A leak will cause other troubles than a loss of power; it will result in overheating of the metal adjacent to the leak. Along with overheating comes "pre-ignition" or "knocking" which will cause a loss of power and is extremely detrimental to the life of the motor.

Among the common causes of leaks in the tractor or other gas engines are: Spark plug leaking at the porcelain; spark plug may not be screwed in tightly enough; leaking at the valves; leaking by the piston rings; leaking at the gasket, etc. Many of the spark plugs on the market at present are constructed so that they may be taken apart. While this is an advantage in cleaning the plug it often gives trouble in leaking. Gas engine valves often give trouble in becoming pitted and will leak. This is true of the "exhaust valve" more often than with the intake valve. The intake valve is exposed to fresh, cool, clean gas and air mixture, while the exhaust valve is exposed to red hot gases and carbon, which has a tendency to make it rough, and pieces of carbon will often lodge under the valve and hold it open. As the temperature in the cylinder reaches to about 3,000 degrees Fahrenheit just at the time of the explosion it stands to reason that the flames rushing through the open valve will have a tendency to heat the valve to the point where it may sometimes melt. Of course such temperatures will cause pre-ignition which has been mentioned above. Pre-ignition is very hard on the motor and causes loss of power. As a great deal of the carbon in an engine often comes from poor oil it behooves every tractor operator and owner to use the best grade of oil.

Leaking by the piston rings results from two general causes: from worn piston rings or cylinder or too light oil or poor oil. There must be an oil film kept between the piston and the cylinder wall if leaking is to be prevented and, too, the oil film must be maintained to prevent excessive wear or sticking of the piston. The gasket between the cylinder block and the cylinder head often leaks. As a general rule oil will collect at the gasket when it is leaking. —J. J.

BETTER ROADS, MORE TRUCKS

Probably the announcement that the proposed expenditures in the United States for the next year for hard surfaced highways will be $633,000,000 as compared with the $125,000,000 of the closing year for the same purpose should mean more to the farmers of this country than to anyone else.

It is a significant fact that nearly 60 per cent of the trucks of the United States work in the country, though a large percentage of them may be housed in the city. About 20 per cent of them are actually owned by farmers.

The possibilities of the truck for carrying commodities between farms and cities have only been touched. The newer and better roads will give the impetus needed to bring out all its possibilities.

OUR FOREIGN TRADE

Phillip B. Kennedy, director of the bureau of foreign and domestic commerce, says: "The excess of American exports over imports has grown out of bounds. There is no question about the demand for American goods abroad. The United States is at present the world's principal producer. It is especially important that we face the general question of our export trade in a farsighted business manner. We have a big stake in the stability of world economic conditions. Our future as an exporting nation depends to a large degree upon our policy in the immediate crisis."

FOES TO THE GRASSHOPPER

Except for the strictly vegetarian dove and pigeon, birds of all families prey upon grasshoppers. Among those especially destructive of grasshoppers may be mentioned the bobwhite, prairie chicken, screech owl, nighthawk, red headed woodpecker, crow, magpie, red winged blackbird, meadowlark and robin. Domestic fowls are also very fond of them and will feed so greedily upon them that in the case of turkeys death is frequently caused by lacerations of their crops due to the roughness of these insects' hind legs.

The "K. K. Company" of Japanese has been organized for the purpose of conducting fruit and vegetable growing and a general agricultural business.

BIG SEED COMPANY NOW DISTRIBUTING NEW CATALOG

Aggeler & Musser Seed Company of Los Angeles Issues 27th Annual Book Finest Yet Published

The largest seed company in Western America is now distributing broadcast its 1920 seed catalog. The big Annual will exceed all previous ones and it is said is a complete course in agriculture, with several hundred interesting illustrations.

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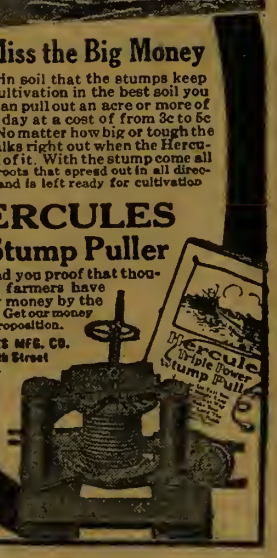

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Household Department

LOVING A GROUCH AWAY

There's a look on the face you can love away,
There's a crease in the brow you can smooth today;
There's a gleam in the eye you can change to one
That is sweet as the ray of the morning sun—
It's the touch of our loving, the sweet of our will,
That scatter the shadows of anger and ill.

There's a grouch that you think will be always the same,
So grim and so dark; but it goes as it came
When you love it away with a tenderness born
Of the spirit of brightness and gladness and morn—
There isn't a grouch ever lived very long
'Neath the spell of a love that is sweetened with song.

You can love it away, love the ache and the care,
Love the heart that is heavy with grief and despair,
Till it lifts to the sunshine, as flowers in the spring,
And responds every time to the song that you sing—
Forgetting its wrinkles and creases and frown
At the touch of love's fingers like velvet or down.—Baltimore Sun.

THE DESERT FEUD

By M. E. Bemis

IT was one of those gloomy, rainy days in early November. A rainy November day is always gloomy anywhere, but in Arizona, where rainy days are of rare occurrence, the gloom seems all the greater. The lobby of the Arizona Club was almost deserted. A few had drifted in for lunch, but most of them had left without the customary after-lunch chat. In an effort to dispel in a measure the general gloom, the manager had ordered a fire in the open fireplace.

Before this fire sat old Hendricks, apparently half asleep. The old man was one of the "old timers," who had come into the country in the early days, had made a fortune from lands and cattle, and, later on as the years rolled by, he had added to it. A man of means so far as money and property is concerned, he prided himself more on his wealth of friends among young and old, rich as well as poor.

Lounging about the room were Dawson, Langley and Paxton. Each wore an expression that was like the weather, though the weather was not alone the cause, but served to intensify the feeling that inspired the expression. The morning had been spent in the performance of a sad duty. A child of Frank Lambrite, one of the best loved members of the club, had that morning been laid away to its last resting place—a little girl that was the light of Lambrite's life, who had bade him good-by when he went away with the first contingent, gleefully promising to be "dood" while he was gone. And Lambrite was "somewhere in France." Later we were to know that at that very moment he was in the hell of the Argonne forest in those last days before the armistice, and alas, the last of all days for many!

In subdued tones the three were discussing the sad event and pitying the father who must come back to a saddened home. Dawson had come back from the front himself with a touch of gas; Langley had heart trouble, so half a dozen doctors had told him, and he had had as many disappointments in trying to get into as many different branches of army, navy and Red Cross service; Paxton was poor, and with his family it was impossible to go, yet each had a separate longing to be there at the front with Lambrite, and especially so this gloomy day. Each in his way was railing at fate, the weather and the hardships of the world. Hendricks still sat apparently asleep, although occasional wreaths of smoke from the cigar between his teeth showed that he was awake or that force of habit enabled him to keep the cigar alight and doze. Paxton impatiently glanced his way and finally said: "Funerals, rain and war—it is all the same to old man Hendricks. I wonder if he can realize just what this is going to mean to Lambrite?" The three continued to talk in low tones for some minutes, and then the old man stirred, gathered his big hulk, sat up straight, and looking over toward the three, said: "You boys think you know something of the sad things of life, and I agree with you that today's funeral was sad enough for most mortals. I have seen many funerals in my time. However, as I look back there is one that stands out in my memory so unutterably sad as to be never forgotten and yet that was not without its compensation after all."

The trio sensed one of Hendricks' infrequent stories of the days when Arizona was new, and crowded closer. The old man was in no hurry to begin. "This is the story of a funeral," he said, "and not calculated to make the day seem much more cheerful or mitigate much the sorrow that you feel for Lambrite and for Lambrite's wife, but it may help a little to know that there have been sadder occasions than that which you have today had brought home so vividly.

"There was a time when I was not known as Old Man Hendricks." Paxton blushed, looked a little foolish and the old man continued: I may have told you before, I was an orphan at the close of the Civil War and made a living shining shoes and selling papers on the streets of Louisville. One day a few years after the troops were mustered out, and about the time when I was 12 or 13 years old and beginning to feel that I was getting big enough to get a regular job, a man of about 25, with an unmistakable military bearing and a personality that impressed me from the first morning that I shined his shoes and sold him the Courier, accosted me with the remark:

"Young man, I have been watching you for several days."

"Yes, sir," I said; "I have been shining your shoes regularly now for just a week."

He seemed pleased, and continuing, said:

"I believe you are just the sort of boy that I want. Do you like horses?"

"I like to look at 'em," I answered, "but I ain't never handled 'em none; but I guess maybe I could. I'd sure like to try."

Well, the upshot of the conversation was that I chucked my blacking kit and bundle of papers and went with John Brent to the livery stable where he bad a half dozen Kentucky thoroughbreds. I found out that he was planning to take them into the ranges of Arizona, his idea being to begin the breeding of fine saddle horses for the range. He had been selecting these for this purpose and with especial care, and was ready to start for San Antonio to connect with some train of settlers that would travel overland by the way of the stage line route now more often known as the Borderland Trail, across the dangerous Apache country into California.

As I said, this man, John Brent, was a man of impressive personality, tall, blond almost to the point of being red-headed, with keen blue eyes that could look holes through a human being, a jaw that was typical of firmness, broad shoulders and muscular limbs, all characteristics that impressed the casual observer and combined to give the impression of one who would be expected to have his way, right or wrong, whom women would be inclined to swear was right, and men, unless they were looking for a quarrel, to concede those rights with as little argument as possible. His voice was rather pleasant, but still incisive and that of one used to commanding others as well as having his commands obeyed pronto.

I learned, not from him, but from others later, that he had been a captain in the Union army. When mustered out he had laid aside his uniform and his title at the same time and gone back into civil life with only the memory of his military days, refusing to answer to the name of Captain Brent.

It is not now strange that to me John Brent was the greatest man that ever lived, for he was the greatest man who had ever come into my life. He said but little, but when he did speak it was to talk to me as an equal, and his instruction in handling horses was given in a kindly way, and not as that of a master to a servant.

We embarked by boat at Louisville and came down the Ohio to the Mississippi and then to New Orleans where the overland journey to San Antonio was begun. At New Orleans

The Cultivator Patterns

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PATTERN DEPARTMENT
California Cultivator
Los Angeles.

Brent bought a six shooter for me and strapped on my waist, with the remark:

"We are going into a land of Indians and gun men where the law is the law of the bullet and the verdict of the court goes to the man who shoots first and straightest."

At San Antonio we joined a train of travelers all bent upon going into that little known western country where fortunes awaited some and death stalked for others. Few were undertaking the venture without knowing the dangers, but like the throw of dice, each hoped his lucky number would be up. In all, I suppose there were 20 wagons drawn mostly by mules. Some of the pioneers were driving through cattle to form the nucleus of herds for the great ranges that were then new and rich with grass.

It was a motley crowd, representing many different classes and from many sections of the country. Brent was from New England originally. There were several others from the eastern United States, a number from the south, whose fortunes had been lost in the great struggle between the states, and who hoped to make good again in a new country.

Among the latter class the most conspicuous was Major Andrews and his daughter Mary. Very little was left to them of what had once been the wealth of a big Mississippi plantation; little except the pride which to those fine old Southern families was last to go. Mary Andrews was a girl of the protected, clinging type, possibly 22 years old. All through the horrors of the war an aunt (her mother died when Mary was but a child) and some faithful slaves had stood between her and want, sorrow and suffering. Of real life, of the work that is necessary to one who must fight his own way, of the real troubles of the world she knew as little as the canary that is petted and fed all its life in a cage, and so far as being of any use to herself or others was concerned, she was as helpless as the canary bird would be if turned loose in the wilderness. Notwithstanding, Mary Andrews was an extremely attractive girl. Her raven black hair, flashing black eyes, with rosy cheeks and red lips her lithe slender figure, tall and straight as an Indian princess, would have made her the admired center of a crowd even in a fashionable ballroom of beauties. Added to her physical charms was a winsomeness of manner, a soft drawling voice that reminded one of shaded nooks in the gardens of the old Southern mansions, of the odor of magnolias and the song of mocking birds. As the ballroom belle she was a queen of queens, but for a pioneer woman, fitted to endure the hardships, perform the work and stand the exposure of the outdoor life, she was as little fitted as the hothouse plant is to stand the rigors of a winter in Alaska. Yet these characteristics, if I may call them so, were not by any means the result of a vicious temperament. Quite the reverse, for a kindlier heart never beat in any girl's breast. She was simply the product of environment, and she herself was no more to blame for her bringing up than is the canary that has never known any world other than the wires of its cage. The great work-a-day-world was from her shut out. Dormant somewhere in her being was the instinct of ancestors that had struggled and worked as most human beings have to work, but as yet all was as foreign as the habits and customs of the inhabitants of the interior of Australia. Could and would some cataclysm wake that instinct to life? We were destined to see.

(Continued next week)

THIS WEEK'S PATTERNS

The long lines of 3107 are particularly good for a stout figure as they add to the apparent height and take away from the apparent width. Be sure to bring the collar up high in the back—if you are inclined to be stout or your neck is not as young as it used to be. The braiding on vest, waist and overskirt is simple and adds immensely to the attractiveness of the costume. A similar simple design in outline, using heavy rope silk, is a little newer than the braiding. This dress would be good in any wool, silk or plain heavy cotton material. In white wool with black embroidery it would be beautiful for any occasion, simple enough for any, distinguished enough for any. Then if it is good material it can be washed in soap and water, ironed and be as good as new and look vastly better than if sent to the cleaner or cleaned at home with gasoline.

A charming dress for daughter is 3101, also showing the decorative possibilities of a bit of simple embroidery. The soft drapery at sides of skirt is very up to date and the soft butterfly bow at the back is charmingly graceful for a slender girlish figure. A soft material in silk or wool should be used.

A pretty spring or summer dress for the small girl is shown in 2752. Can't you just see it in a white lawn or dainty flowered dimity? A nice school dress is 3096. The yoke and front pleat afford suggestions for making larger an outgrown dress that still has wear left in it.

Another attractive apron and house dress are shown. You will agree with us that we specialize in attractive aprons and house dresses. Note the little design at lower left of the apron 3122. Looks quick and easy to make, doesn't it, and could anything be more graceful than the long simple lines. Another good feature is the placing of the pockets toward the front instead of the side of the apron. If you are like the writer—always going through doors with a rush—you have frequently had the experience of catching big side pockets on the door knob or key of some other projection and ripping or tearing. To such housekeepers this pocket will appeal strongly.

A practical and pretty child's dress with rompers to match is shown in 3121. This and the boy's suit 3103 would be pretty and would wear and wash well if made in any of the heavy cotton weaves called romper cloth, kiddie cloth, Devonshire, etc., to which we refer almost every week. It seems to us at present prices the most satisfactory material for wash dresses for children—and grown-ups too for that matter. The writer has just had made a plain one-piece dress in plain color navy blue Devonshire of which she is exceedingly proud for it looks as if it would wear and wash well.—R. P. D.

GOOD FOR COLD WEATHER

Baked Pumpkin

The very simplest method of preparing squash or pumpkin is to cut into three inch squares without removing the rind, place the rind side down in a baking pan and bake until soft in a moderate oven. Served with salt, pepper and butter this is delicious.

Mashed Pumpkin

Force the steamed pumpkin through a colander. Season with salt, pepper and butter. Serve hot.

Pumpkin Corn Bread

(An old fashioned favorite.) One cup mashed pumpkin, one cup cornmeal, one-fourth cup flour, one egg, four teaspoons baking powder, one teaspoon salt, two tablespoons melted fat. Mix in order given. Pour in greased baking pan and bake 40 minutes in a hot oven. Cut in squares and serve hot.

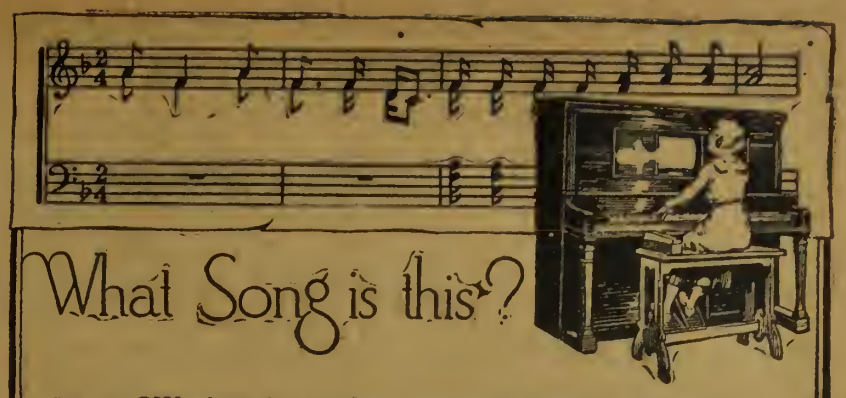
Pumpkin Bread Pudding

One cup stale bread crumbs, one and one-fourth cups sweet milk, one cup mashed pumpkin (boiled or steamed and put through a colander), one-third cup sugar, one-half teaspoon salt, one teaspoon vanilla, two egg yolks, one tablespoon butter (melted).

Pour the milk over the bread and allow it to stand until the crumbs soften. Add pumpkin that has been cooked and put through a colander before measuring. Add the egg yolks and melted butter. Beat well. Pour into buttered baking dish and bake in a moderate oven until the center is firm. Remove from the oven, spread the top with a tart jelly, pile meringue lightly on top and return to oven long enough to brown the meringue. Serve cold with cream. If preferred, the jelly can be omitted and the pudding is good even if you do not serve cream with it.

Meringue: Two egg whites beaten very stiff, four tablespoons sugar, a pinch of salt and one-half teaspoon vanilla.

Old hot water bottles or other rubber objects make fine mats to put under the saucers of flower pots.



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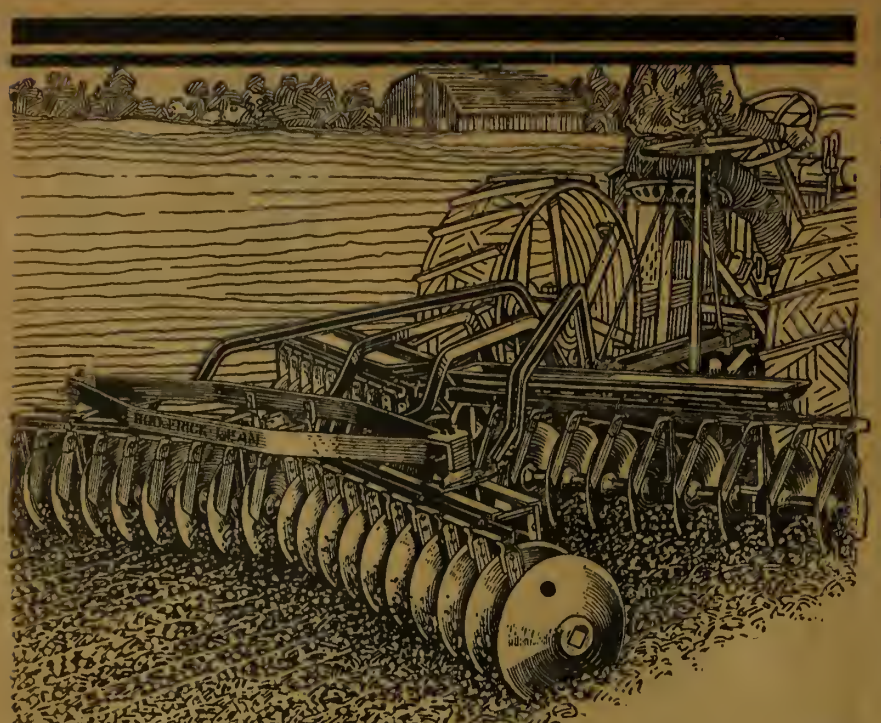

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The Poultry Breeders' Show at Los Angeles

By Jean A. Koethen

THE first Los Angeles Mid-Winter show I attended was held in a big tent in Fiesta Park. It was a great event, and the tent was thronged with farmers and poultrymen from all over the Southland. That was about ten years ago. The next year the show moved farther down town into the old post office building at Seventh and Grand. That year 5,000 birds, including pigeons, were said to be on exhibition. Then it moved down into the big store building at Tenth and Main, and filled, I remember, at least two stories of that big floor area. Now for some years it has been held on Broadway, and this year was crowded into the third and fourth floors of an inconspicuous building, with only the cloth sign and a brooder full of shivering chicks to indicate that a show was in progress. The seeker for blue ribbon poultry had to pick his way around corners and up a winding stair, or else ring for the elevator. Once found, it turned out to be a pretty good show, but it was not easy to find and was hardly a third as big as that memorable show in the old post office building ten years ago.

What has wrought the change? Is interest in pure bred poultry on the wane? Are there fewer fanciers? Are we to chronicle presently the decline and fall of the fancy? No, a thousand times no! There has never been a time when interest in poultry, both utility and fancy, was so keen, when so many people of all walks of life and in city and country alike were turning their thoughts to poultry production or breeding. It would seem the psychological moment for a big drive for better poultry and the inauguration of a Midwinter Show on a larger scale than has hitherto been attempted.

This is no criticism of the Poultry Breeders, I know nothing whatever of the differences of opinion which have led to the organization of a rival association and the holding of two shows instead of one. I only know that this dividing into separate camps is working an injury to the whole poultry industry in Southern California, and especially to the fancy. This having to attend two shows is hard on the breeder, who must perforce enter his birds twice, paying a double entry fee, and hard on the public, which is obliged to pay two quarters to see two small shows, instead of paying one quarter and seeing one big show that the whole community can be proud of. A few of the big breeders take the birds to only one of the two shows, but the little fellows and some of the big ones—and most of the novices, must, to be in the procession, enter their birds at both. Consequently the Poultry Breeders was to a considerable extent a duplication of the Los Angeles show in December, except that there were fewer entries and a less favorable place for showing.

What a splendid thing it would be if all the fanciers in both camps could compromise their differences and build a really suitable building for their shows in a really suitable place! Smaller towns than Los Angeles have done it, and the growth of the poultry industry in Southern California demands it.

Dark Cornish Prominent

In this show Rhode Islands Reds led in number as usual, but Dark Cornish came to the front amazingly. The second floor was nearly filled with this handsome breed, nearly 100 birds being on exhibition. First cockerel, a magnificent bird from Redondo weighing 12 pounds, attracted a great deal of attention.

Wyandottes also made an unusual showing, not only because of the large number and splendid quality of the Whites, but because of the number of other varieties entered. There were some fine Buffs and several each of Columbian, Partridge and Gold and Silver Laced.

Rhode Island Whites were more numerous than ever. These beautiful birds are certainly gaining in popularity, and their reputation as layers is second only to that of the White Leghorn.

The Pit Game is comparatively new on the coast, and the 21 birds exhibited were quite a curiosity because of their diverse coloring. Although all classified as just "Pit Games," some were yellow, some brown, and some gray. Some of the hens resembled the Buttercup and some the Brown Leghorn, and the most noticeable male was a notable combination of yellow and gray.

The number of breeds shown was greater than usual, including Andalusians, Campines, Buttercups, Pit Games, Dark Cornish Games, White Cornish, Golden Gates, Bluettes, Black Minorcas, Buff Minorcas, Buff and White and Blue Orpingtons, Anconas, Houdans, Rhode Island Reds and Whites, both Single and Rose Comb, White, Buff and Brown Leghorns, Light Brahmas, six varieties of Wyandottes, Buff and White and Barred Rocks, Black Langshans, R. C. R. I Whites and 12 varieties of bantams.

Muscovy Ducks, Toulouse Geese and Bronze turkeys completed the list of domestic fowl and rounded out a very interesting display of fine stock.

The judging was by two Eastern men, O. L. McCord of Peoria, Illinois and Erle Smiley of Beaver Crossing, Nebraska.

Officers of the Poultry Breeders Association are: President, W. O. McCubbin, Los Angeles; first vice president, J. J. Jones, Los Angelcs; second vice president, W. J. Stewart, Alhambra; secretary-treasurer, Walter M. Ross, Glendale; auditor, D. Armstrong, Los Angeles.

For Markets See Pages 96-97.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Ticks in Cattle's Ears

Can you tell me what to do to get rid of ticks in cattle's and horses' ears. I have tried oil and grease but that does not help. I do not like to experiment too much as it might injure the hearing, so am asking your advice.—Subscriber, Inyokern.

Ticks in the ears of animals are very annoying and set them nearly crazy. In some young animals they pierce the ear drum and the animal dies. The usual way of treating such cases is to call a veterinarian who throws and ties the animal and with a small forceps or pliers picks out all the ticks he can reach, but he can not get way down to the ear drum so he may miss some. I was told by a successful cattle rancher that his remedy for ticks in the ears was to put a spoonful of kerosene oil in the ear. He said that this makes the ticks come hurrying out and they can be brushed away and killed. He said it never failed. I am not vouching for this treatment but I do not think the kerosene would do any harm and if I had an animal with ticks in the ears I would surely try it. If you try it please let us know the result.

Goat Fails to Breed

Have a goat six or seven years old which after several trials has failed to breed. Since her last kidding about a year ago she has had a slight discharge which at times contains some blood. She seems well in all other ways and at the present time is giving about a quart of good rich milk a day. She gave nearly four quarts when fresh. Could this discharge have anything to do with her failure to breed

and if so what remedy would you suggest?—Subscriber, Corona.

Probably there is some misplacement of the womb. Only an examination could settle that question and a good veterinarian might be able to adjust it. If there is a veterinarian near you that you have confidence in we would advise calling him in to see the case.

Horse Sweating After Work

I have a Clydesdale mare that seems to be in good health and works every day but after she is in the barn a short time she begins to sweat. Is this wrong and what can I do for her?—Subscriber, Hemet.

If the stable is close and warm, and the horse has a thick coat of hair that would account for it; otherwise it shows some weakness. If the coat of hair is very thick and long we would advise clipping her. If this does not remedy the trouble write us again.

Lame Mule

I have a mule that has gone lame. The trouble is apparently in the rear pastern joint. He walks on the toe only and when standing rests very little weight on that foot. What can I do for him?—Subscriber, El Monte.

Examine the foot. He has probably stepped on a nail or if he has been recently shod a nail may have been driven too deep. When a horse or mule goes lame suddenly always examine the foot. If a nail has penetrated the sole or frog, cut the outer tissue away so the wound can drain and heal from the bottom without the pus being confined. If you do not understand dressing such a wound you had better get some one who does. It should be treated properly or lockjaw may follow.

Scours

We recently came in possession of a Guernsey heifer 18 months old that has scours and its back is full of white worms about two-thirds of an inch in length. She is very thin and weak but has a good appetite. Those who have known the heifer say it has been abused and neglected and is not worth raising. It being of a good breed we are anxious to save it. What would you advise us to do.—Subscriber, Lindsay.

The trouble may have become chronic, which would make it hard to cure, but try this before giving up. Give her a dessert spoon of powdered areca nut in the feed once a day for a week. Then have your druggist prepare these powders. Tannic acid three drams, powdered nux vomica one ounce and powdered gentian four ounces. Mix and make into 24 powders. Give one powder in a little feed once a day while they last. The warbles in the back had better be squeezed out and killed. The heifer will do better when they are gone.

Bad Habits

We have a three year old colt that has some bad habits. When in the barn he puts his front feet in the manger and while in the corral he puts his feet in the watering trough. He also has a short tail. Could anything be done for him?—Subscriber, Atwater.

Switching the front legs below the knees will break him but you would have to watch him and when he attempts to reach the manger with the feet apply the switch. Probably a few lessons would break him. Another good way would be to remove the manger and put his hay on the floor. Then you could put a small box in the corner of the stall about four feet from the floor for the grain. In my opinion that is the proper way to arrange the stall for all horses. Then they can be swept out often and no feed left in the corners to get musty. With the watering trough you could arrange it so he could not go near it except when you led him there to drink, then I am sure you could prevent his putting his feet in the trough. He would soon forget it. Scrub out the tail with warm water that has borax dissolved in it; a teaspoon to the pint. As he grows older the tail will probably grow longer.

CARBON BISULPHIDE WILL EXPLODE

Any person who has any doubts as to the explosive qualities of carbon bisulphide will do well to consider the following: A short time ago two officials connected with the California Date Association were preparing to fumigate a certain room in their packing house. A five gallon can of carbon bisulphide was brought and plates filled with the liquid, the can being left in the doorway. Suddenly a puff of exploding gas and a column of blue flame shot from the orifice in the can to the ceiling, barring the way out. Coolness and presence of mind saved the day, and perhaps the packing house. The flames subsided as the gas burned down and the burning liquid was smothered with a few old sacks that were found at hand. The only possible way in which the explosion could be accounted for was that possibly a spark had been scuffed on the stone floor. Particular care had been taken to turn off all electric lights before starting to fumigate.—D. B. M.

HOGS, HENS CARRY TB TO EACH OTHER

"Science has shown," says Dr. Fitch of the University of Minnesota, "that tuberculosis can be transmitted by swine to poultry and, conversely, by poultry to swine. Tuberculosis in poultry is a common disease in this state and causes heavy losses. Fowls affected with it become lame, their combs lose their luster, and their flesh falls away. There is a generally run-down condition. Tuberculosis can be controlled by the removal of infected birds and by a thorough cleaning up of their quarters. The disease cannot as a rule be transmitted through the eggs. Its introduction can be traced usually to infected fowls."

THE PHILIPPINES

The Philippines were discovered by Magellan in 1521, first settled by the Spaniards in 1565 and controlled by them until 1898, the year of American occupation. The total number of charted islands exceeds 3,000. The largest are Luzon, with 41,000 square miles, and Mindanao, with 36,000 square miles. Next in order are Samar, Negros, Panay, Paragua, Mindoro, Layte, Cebu, Bohol, and Masbate. The islands lie 600 miles off the coast of China in about the same latitude as Central America. The principal cities are Manila, Iloilo, Cebu, and Zamboanga. The total population is about 10,000,000, of which 500,000 are non-Christian or uncivilized tribes. The Europeans and Americans in Manila are 6,250; Chinese and Japanese, 19,910; Filipinos, 257,356.

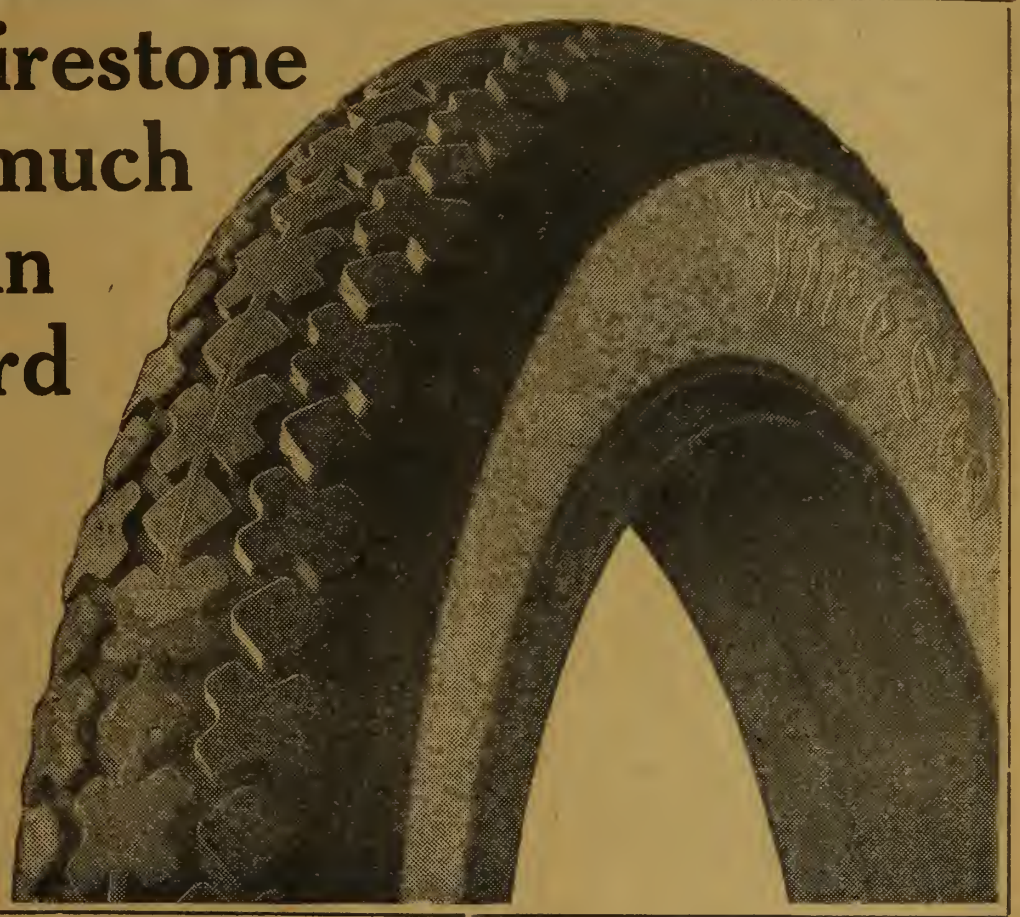
FROM FLORENCE

The United States vice consul at Florence, Italy, reports the exports to the United States for the past six months were of the value of $1,815,239, as compared with $2,493,175 for the same period in 1918, and $1,422,197 in 1917. The greatest value was $545,685 in clover seed, with $431,819 worth of unblocked straw hats as the item of second importance, embroideries, antiques and unbleached straw braid each running over $150,000 and no other articles coming up to one-fourth such values.

CLOSE FRIENDS

Mr. Meant-to has a comrade,
And his name is Didn't-Do
Have you ever chanced to meet them?
Did they ever call on you?
These two fellows live together
In the house of Never-Win
And I'm told that it is haunted
By the ghost of Might-Have-Been.
—Sparks.

Why Firestone gives much more in this cord tire



Most Miles per Dollar

THE dealers say there is no argument—the Firestone Cord, compared side by side with any other, sells itself.

No wonder. It is built to the largest standard oversize of the industry.

It has much greater air capacity than the average. It contains much more material and it delivers extra mileage in proportion. The thicker, heavier tread, that looks and feels the part of its extra mileage, is another reason why it sells itself.

And that tread is as good as it looks from the standpoint of preventing skid, slide or spinning of wheels. It has a tractive power never before equaled in a rubber tread, yet it has no inclosed hollows or suction features to be a drag on speed or a drain on power.

Specify Firestones; your dealer is ready with just your size — Cord or Fabric.

FIRESTONE TIRE & RUBBER COMPANY
Firestone Park Akron, Ohio
Branches and Dealers Everywhere

Firestone

Cows know what they like

Not only must the feed for your cows *be* good—it must *taste* good to them! Your cows know what they like. And—*you* know that the most profitable cow is the cow that converts the most feed into money. It will pay you to feed SUREMILK because your cows "take to it" naturally. They will yield more milk—and that means more money.

SUREMILK is a highly concentrated grain feed. It has a higher feeding value than any one grain because it is a *mixture of grains*—and, therefore, more palatable.

Moreover, comparative feeding tests have proved that SUREMILK will give better results—either more butter fat or greater increase in weight—than any single grain.

Special note to hog-raisers

Hog-raisers have found that feeding SUREMILK builds the porkers up and fattens 'em up. It's better than any one grain such as corn or milo or millet—because it is a mixture of *many* grains. Economical, too—because it is highly concentrated in feeding value and does not bulk.

If you want to know just how different stock feeds compare in food value—send for the new edition of our booklet, "Converting Feed Into Money." Full of practical information and profit-hints. Send for this booklet today—it's free. Simply cut out and mail the coupon below.

STOCK AND POULTRY FOOD DEPARTMENT (A122)

SPERRY FLOUR CO.

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SUREMILK

"A Sperry Product"

STOCK AND POULTRY FOOD DEPARTMENT
SPERRY FLOUR CO.
208 Weber Avenue, Stockton, California

Gentlemen:

Please send me, without obligation, a copy of "Converting Feed Into Money" —showing the true food-value of different stock feeds.

Name _____

Address _____

How the California Feed Law Affects Proprietary Feeds

By GEORGE R. McLEOD
Agricultural Department
Sperry Flour Co.

All proprietary feeds sold and distributed in California after the first of November, 1919, are affected by the feed law passed at the last session of our Legislature. This law not only requires the names of the different ingredients, but also the minimum percentage of protein, the minimum percentage of fat, the maximum percentage of ash and the maximum percentage of fibre contained in the feed.

Similar laws have been in force in many of the Eastern and Middle Western states for the last ten years, resulting in the education of all consumers of feed. In the different states where these laws have been in effect for some time, consumers are now buying feeds on the actual net feeding value that they contain, without regard to color, texture, etc.

California feeds have been bought and sold largely on color and texture, the feeder depending on his eye to determine the value of the feed.

What Goes Into a Feed?

All feeds are composed of moisture, ash, fibre, protein, carbohydrates and fat. A feed low in moisture has more value than one high in moisture, because this element can be supplied cheaper from the well. Ash is the mineral matter contained in any feed and a low ash content denotes high feeding value. Fibre is the structure around which nature builds the other substances during the growth of the plant and it has little real feeding value, although some is necessary, as it makes a feed more bulky and allows the digestive juices to act more freely. While a certain amount of fibre is digestible, the cost of digesting and assimilating is nearly as great as the feed value derived from it. It is on this account that a low fibre content also denotes a high feeding value.

Summing up the different substances which go to make an economical mixed feed, it is necessary to select one with a low moisture, low ash, and low fibre content—as the average feeder can supply these more cheaply himself.

The Feed Must Taste Good

Palatability is another factor that enters into the value of a feed, inasmuch as the animal that converts the most feed into money is the most profitable one; and a feed must be palatable for an animal to consume a large amount of it. A mixture of grains always has a higher feeding value than any one grain fed alone, because it is more palatable on account of the variety

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — January 24, 1920 — No. 4

Have a Head and Use It

SOME heads are sharp and some are dull. Only sharp ones should be used in a pruning operation. We have heard in fruit growers conventions of the past remarks like unto: "When you feel like cutting and slashing your trees throw your pruning hook away and take a vacation." Not very good advice for it is far better to stay with the trees and think a bit. This old world has been growing trees for some years, still we have diverse opinions as to how it is best to treat them. One will say: "It is just as reasonable to saw off your leg as it is to saw off a large branch from a bearing fruit tree." Another will say: "Unless the old and useless wood is removed and new healthy fruit bearing wood secured the tree simply becomes an encumbrance." The non-pruners are now receiving much comfort from the theories of Prof. Whitten who has recently brought to our state university his experience in the Middle West in long pruning.

His methods and comment on them, which have been given at some length in the columns of the Cultivator, brought forth a letter from Alex McGregor, Newhall. In effect his suggestion was that an orchardist might well try a few trees and make closest observation of results. This comment came to the attention of a practical orchardist who has been doing just that thing for many years—Aratus Everett of Moorpark, Ventura County.

A man who has secured a thousand ton crop of Royal apricots each year for four years evidently has a head and uses it, and any word from him will be of value to any other farmer who is working upon this principle. Mr. Everett writes:

"Refering to the article by Alex McGregor in your last issue: 'Have a Head and Use It.' I take this to be, if not a criticism of the new system of pruning deciduous trees advocated by Prof. R. H. Whitten and other scientific writers, at least a question as to the advisability of their methods.

"I have been growing apricots commercially in Ventura County for over 40 years. In 1893 I set out about 150 acres three miles west of where the town of Moorpark now stands. This locality is subject to spring frosts. I soon noticed that the earliest lower blossoms were often killed by frost when those coming out later, say above ten feet, made a crop of fruit.

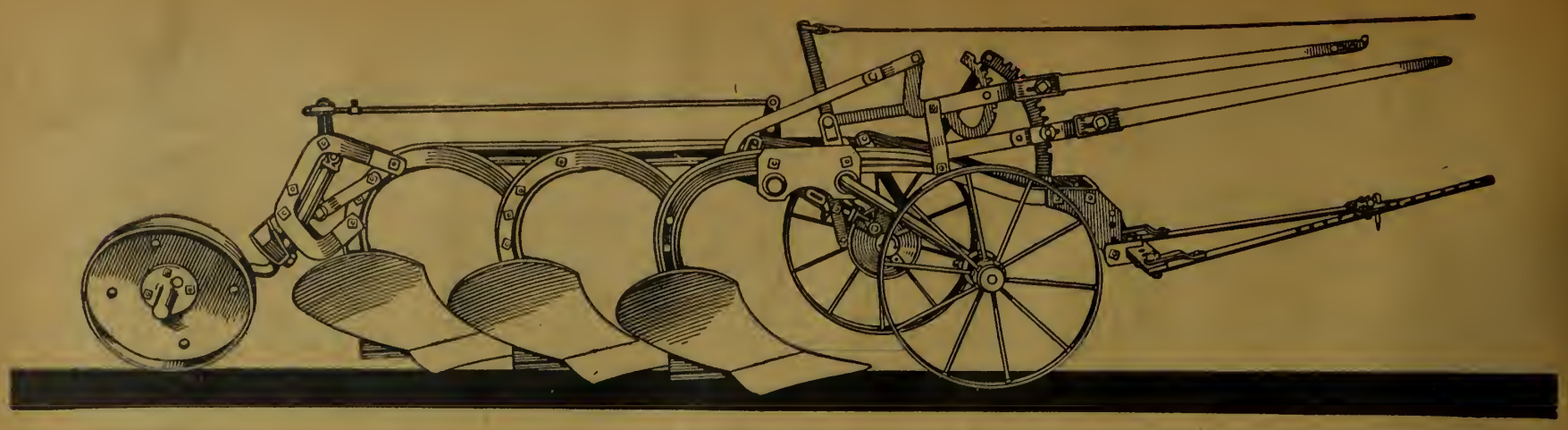
"As I never had approved of the extreme practice of close heading back of young trees, I left from three to five main branches to make my trees and headed back and thinned out the inside branches only. At this time I did not understand the scientific principle as Prof. Whitten explains it but I could see the practical side of it.

"An intimate acquaintance of mine set out about 150 acres of apricots near Saticoy the same year that mine were planted. These were set on rich land. He was thoroughly imbued with the extremely close cutting back system of pruning young trees.

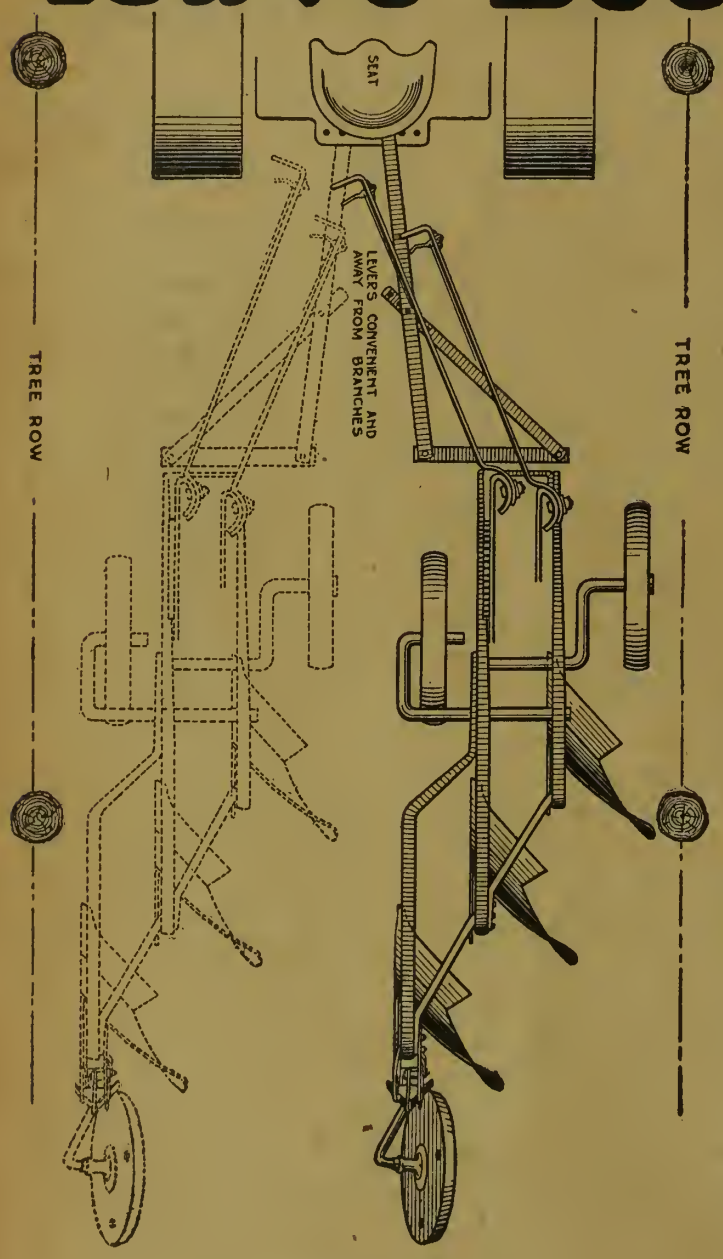
"At the end of five years each main limb of my trees was longer than his whole tree and each of those limbs bore more fruit than his whole tree. From one of my best trees when it was only four years old we gathered over 500 pounds of fine fruit. When this tree was six years old it bore nearly 500 pounds of apricots (green). The intervening year was a fruit failure generally and no record was kept and none has been kept since, but it has borne heavy crops right along and is now in fine condition for a crop this year.

"If we do not die, fruit trees, as well as people, will get old. I notice advertisements in the newspapers to make old people young and spry. I am not trying any of them but when my apricot orchard was about 20 years old I had about one-quarter of the large limbs that were equally distant around the tree cut off about ten feet above the ground.

"A great many sprouts started at the top and some lower down on their limbs. By breaking off all but five or six of these sprouts while they were small, the rest made a strong—(Continued on Page 128).



The Orchard Tractor Plow You've Been Looking For



A Great Feature

With the plow set over to throw either to or from the row, you can quickly angle the levers so that they are easily reached from the tractor seat, out of the way of the limbs and free of the wheels when the tractor is turning short.

A LOW-DOWN TRACTOR PLOW for use with small tractors—a power-lift, easily-handled plow whose hitch and lever construction and wheelbase design permit work right up close to the trees in throwing either to or from the row—that's what you've been wanting in a tractor plow. And that's what you get in the John Deere No. 8 Orchard Tractor Plow.

This plow is the result of close study of the requirements of California orchardists. The suggestions of a number of experienced California fruit growers helped design it. It has proved its special value in many orchards and vineyards. It is also adaptable for general field plowing.

JOHN DEERE No. 8

ORCHARD TRACTOR PLOW

has a reversible hitch and can be set out to either side so that the plow can run close to the trees when throwing either to or from the row. Note this feature in the illustration to the left.

Levers have side adjustment—A feature you will greatly appreciate. See it illustrated at the left. When the plow is set to the right to get close to the row, the levers can be angled the left. When the plow is set to the left, the levers can be angled to the right. In either case, with the plow working up close to the row, the low-set, angled levers are conveniently back of the tractor operator, out of the way of the tree limbs and out of the way of the tractor wheels when turning short. Reversing the hitch and angling the levers is a simple matter—only one bolt to loosen in each operation.

Doesn't scar the trees—With this plow it is easy to keep from scarring the trees while working close up throwing either to or from the row. The furrow wheel has an offset hub—no projections beyond the wing of the inner moldboard, and the land wheel is set close in—*in front of the third beam.*

And these other features—The simple, positive power lift raises the bottoms high and level at a pull on the trip rope by the operator.

The lifting mechanism consists of a single, durable clutch on the land axle. It moves only when the plow is being raised and lowered—practically no wear.

The hitch has a break-pin for protecting the plow when striking a stone or root, and a simple slide and pin lock for quick landing adjustment. Land and furrow wheels have a great range of adjustment for either deep or shallow plowing. There is great clearance in throat of beams and back of bottoms to prevent clogging in trashy conditions or deep plowing.

The John Deere No. 8 Orchard Tractor Plow is equipped with three 10-inch bottoms that scour and pulverize to best advantage.

Don't fail to see this successful plow as soon as possible. You are sure to like it. Ask your John Deere dealer to show it to you.

Write today for a free folder describing the John Deere No. 8. Address John Deere, Moline, Ill. Ask for folder O-17.

No matter what size of tractor you have or what your soil conditions are, there is a John Deere Tractor Plow that will meet your requirements. Besides the John Deere No. 8, there is the small John Deere 23-A three-disc plow for small tractors, the No. 24 four disc, No. 25 five disc, and No. 5 and No. 6 two, three and four bottom moldboard plows for large tractors. All are specially designed for both orchard and general field work.

JOHN DEERE

JOHN DEERE MOLINE, ILL.

THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

California Cultivator

Vol. LIV, No. 4 | Los Angeles, January 24, 1920 | One Dollar Yearly

Who is to Blame?

THE bean growers of California have been accused of being to blame for the late lamented slump in beans. It is repeatedly charged that they could have sold but were so busily engaged in trying to fix prices which would hold up the public and secure undue benefits that they let the golden opportunity slip.

The intelligent reader of bean news during the past 12 months knows that this is not the case. However, in order to assure himself of the facts, State Market Director Weinstock addressed a letter to the California Bean Growers Association, asking for particulars on this point. A review of some of the diverse transactions in bean operations is given in the letter of reply which was written by Geo. F. Maddock, vice-president of the California Bean Growers Association. This association has its headquarters at Sacramento.

Mr. Maddock Writes:

"The criticisms of the association which have been brought to your attention are entirely erroneous. At every opportunity given the association to sell beans to the government, beans have been sold and in every case sold at the government's price. We have not always been given this opportunity since it seems that the food administration department having charge of the bean purchases is directed by men closely connected with the Bean Dealers Association, so there were several purchases made which were not available to the Bean Growers Association. Several conferences were had with H. Clay Miller of San Francisco, who had charge of the purchases for the government and where we were given the opportunity to sell some of the association stock. In every case this stock was sold at Mr. Miller's own price.

"We have time and time again submitted our beans to Ralph E. Merritt, food administrator of California, and to H. Clay Miller, explaining the necessity of disposing of our crop of beans, and only within the last month or two we have made an offer to the President of the United States of every bean that we have at such prices as may be approved by the government, and yet we have not been able to dispose of the crop.

"You make reference to the criticism of some gentleman who was on the staff of Herbert Hoover in Washington, claiming that the association demanded an abnormal price for its beans and that the government as a matter of protection was obliged to import beans from the Orient to the ultimate disadvantage and loss of the California Bean Growers Association.

"The statement as submitted to you is erroneous. This question has arisen before. The same statement was made by Ben S. Allan, former publicity manager for Mr. Hoover and now proprietor of the Sacramento Union. I have discussed this matter with Mr. Allan and after explanations by myself and by Mr. Turner, he acknowledged that he was mistaken in regard to a representative of the California Bean Growers Association being present at the conference which he stated took place. If California was represented at all at these conferences it must have been by a representative of the Lima Bean Growers Association of Southern California, with which we are not allied. Mr. Allan definitely states that he was mistaken in regard to this criticism, that he had made the same criticism to F. W. Kiesel and to others in Sacramento in discussing the bean situation, and that he knows that he has made a mistake and he has since further tried to rectify such error by putting a representative of the California Bean Growers Association in communication with Mr. Hoover, with whom this subject has been discussed in New York or Washington only recently.

"I want to most emphatically state that the California Bean Growers Association has made every effort possible to dispose of its stock of 1918 beans both to the public and to the United States government, and in every case we have endeavored to sell our beans at such prices as will make only a moderate return to the grower, and in the case of the United States government we have offered these beans at prices to be set by the government itself.

"I would further call your attention to a situation in which the importers of Asiatic beans were given an opportunity by certain officials of the food administration bean department to import Asiatic beans into this country in competition with the American grown product, at which time the American grown product was not given an opportunity to participate. I can not repeat the details of this transaction, but you are undoubtedly aware of the whole situation. A thorough examination and investigation was made in New York a few months ago and it was definitely shown, I am told, that Mr. Kimball and others of the bean department of the food administration were responsible for certain transactions which they undertook in connection with this deal, and that when a transcript of the testimony of this investigation was submitted to Mr. Hoover he was highly indignant and referred the entire matter to the department of justice at Washington to take such action as was expedient in the matter.

"I would further refer you to Ralph P. Merritt and to H. Clay Miller, with whom the association has had numerous conferences in regard to disposing of its crop, and if these gentlemen will be reasonably fair towards the association they will speak most highly of our actions, patriotism and our desire to cooperate in every manner with the United States government's desires in handling our crop. The government is undoubtedly at fault in importing Asiatic beans into this country in competition with the American grown product. It is principally at fault because certain officials of the food administration were making private gains by so doing."

In confirmation of the last statement made in the second paragraph of Mr. Maddock's letter, in effect that the bean growers had made offers to the president and had not been able to dispose of the crop, we can refer to the columns of the California Cultivator of December 28, 1918, where on page 658 we call attention to the lima bean situation, largely in Ventura County. We stated:

"For instance, the lima bean people have a large supply of beans cleaned and sacked, ready for delivery, but for which there is no sale. They were approached by a broker 'who claims he has an inside pull with the government,' and who agreed to take 40,000 sacks for government delivery providing he were paid his commission. As the association had the only supply sufficient to meet the demand of the war department, it could not figure out why its members should be deprived of a part of the cost of producing the beans to pay the middleman. The middleman insisted that the deal could only proceed through him and made good in calling the entire deal off, and the government has failed to deal direct with the people who raise the beans."

The government might use this fact that the bean growers would have been able to sell in this particular case, but the bean growers feel that only greatest injustice would have been wrought by consenting to forced payment of commissions to private parties—C. B. M.

Cauliflower in California

By E. Braunton

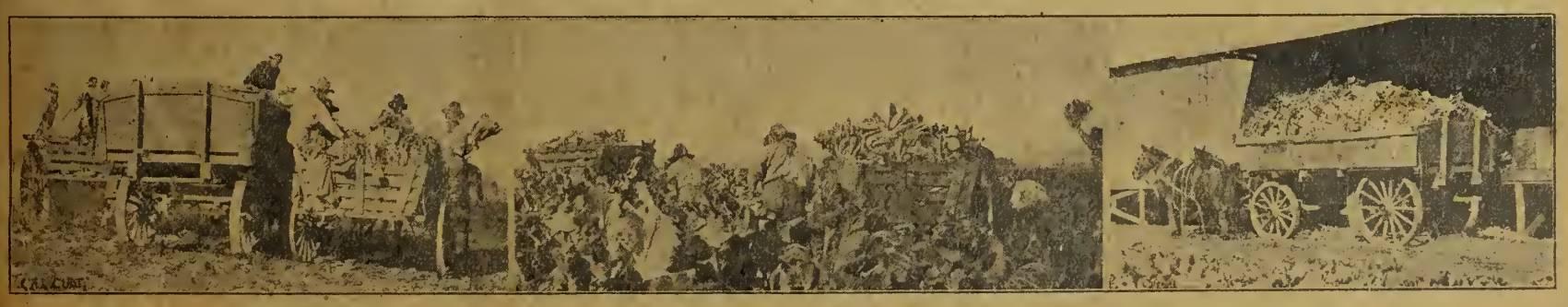
MORE than a thousand carloads of cauliflower have gone East from the Los Angeles section since the opening of the season, some weeks running as high as 125 cars. From a feeble and discouraging start a quarter century ago the industry has grown to gigantic proportions.

In the early 90's cauliflower was grown only for local consumption by Chinese, and occasionally a mixed car of vegetables carried a few eastward. In 1892 A. Beli, an Italian, moved to Whittier, sent to Italy for seed and planted 60 acres. Previous to this time only the Snowball variety had been grown commercially. The Beli crop was fine and a few cars were sent to Chicago, enthusiastically received, and this was really the beginning of the cauliflower industry in Southern California, with a variety heretofore unknown to this country.

But the favorable beginning was not to go unchallenged. Heavy rains came soon after shipments commenced, the railroads were washed out and none but the early packed cars were sent out. The grower went bankrupt and the remainder of the crop went to seed. The surplus of crop and seed, however, opened the eyes of a few to the wondrous possibilities and profits from such a crop in normal years. The backer of the initial enterprise gathered the Beli seed crop and sold it. George F. Prince, now of the California Vegetable Union, distributed the seeds that year to the Chinese growers and next season the shipments greatly increased, as the demand from the East was strong.

Now we have single fields that grow more than the state's output at that time. The largest grower—doubtless in the world at the present time—is Williams Brothers Ranch Company, operating on the Laguna ranch southeast of Los Angeles. This company farms more than 1,000 acres in one piece and at present has 400 acres in cauliflower. Crop rotation is practiced, some land is always in alfalfa, sugar beets or lettuce, and as they

(Continued on Page 131)



Down in Cauliflower Land of Los Angeles County

Picture at left shows method of transferring cauliflower from picking carts to hauling truck; the center one, high wheeled picking carts in cauliflower field; right, load of cauliflower. Photos from ranch of Williams Bros., Laguna.

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

EFFICIENCY

"No business justifies itself today unless it contributes greater efficiency in production, greater justice in distribution and greater wisdom in consumption."

We believe the efficiency in production and wisdom in consumption are far nearer realization than justice in distribution. Here's hoping.

DECIDUOUS STATION

The work of the experiment station staff is now to be balanced up by the establishment of an experiment station made possible by act of the last legislature. It is to be located at Mountain View, Santa Clara County, and will be under direction of W. L. Howard. Prof. Howard will be assisted by Prof. E. O. Essig. This station will investigate insects and diseases affecting deciduous trees and, in fact, general deciduous cultural matters.

COMPENSATION INSURANCE

The state compensation insurance fund reports losses to a lesser degree than anticipated and makes rebates or a dividend of 17½ per cent under policies issued during the year 1919. It will be three and a half years before it will be definitely known as to the entire dividend which may be returned, but with this cheapening of the insurance and notwithstanding "exemptions" of farmers it is perhaps wise for farmers who are employing to protect themselves.

HERESY

While we are permitting the entrance of more Japanese and talking about importing a million or so of Chinese labor and wondering what we are going to do to get the world's work done, would it be in order to suggest that out of the 24 hours we might once more devote, say, about ten hours, to good hard work? The ordinary farmer may reply to this in effect that he is now putting in about 14 to 15, and the labor union will accuse us of uttering heresy, so we withdraw the suggestion.

SCHOOL AT RIVERSIDE

The land has been purchased and it now appears that Southern California will soon have a school which will give to Southern California boys and girls agricultural education privileges.

Because of the long distance to the school at Davis it has been urged for some years that there should be located south of Tehachapi a practical school similar to that of the North. A state school has been maintained at San Luis Obispo. This school has not been under the direction of the state university but has rendered excellent service to young people of San Luis Obispo and adjoining counties. The one now to be located farther south will be under direction of the state university as is that at Davis. The courses at this school will be more nearly along the line of high school courses with the addition of two or three years of practical farm work under direction of scientifically trained men. The South, and Riverside in particular, are to be congratulated that this school work is finally taking definite shape.

BIG FARMING

Californians have sometimes looked with dread on large corporations controlling great tracts of land for the reason that this extensive farming has prevented the small farmer with his intensive methods from securing a foothold, and, in addition, especially under wasteful methods, has yielded extremely light production of human food. But intensive culture in a large way can be received more cordially.

We note a movement is on foot for intensive culture of a large tract in Monterey County not far from King City. It will be financed by Los Angeles capitalists and under the direct supervision of Carlyle Thorpe, manager of the California Walnut Growers since that organization was formed. C. C. Teague, for years at the head of the Limoneira lemon properties of Ventura County, is also connected with the concern. If steel and copper and automobiles and farm implements can be manufactured more cheaply and more profitably through large aggregations of capital, it should also be possible in the manufacture of potatoes, nuts and fruits.

COOPERATION BUSTING

Trust busting has been the popular pastime for some years. It is possible much good has been accomplished for there have been trusts which have violated all the rights of men and probably many of the laws. Just at present there seems to be an onslaught on the cooperators. Farmers organizations in California have been forced to send their principal officials to Washington in order to show cause for existence as a cooperative organization. Raisin growers and peach men have both been attacked. Now comes the dairymen's turn. This time the state's attorney general questions the right of the farmers to unite and employ business men to dispose of the products of their farms. Every cooperator in the state has a vital interest in this fight for if the dairymen's association goes down other associations may expect their own finish within a short time. No greater blow could be given to food production interests in the state for as soon as collective action on the part of the producers is denied production will certainly be lessened.

ECONOMIZE

The war loan organization of the 12th federal reserve district is appealing to Westerners to pledge themselves to the budget system of management of their households during 1920. The leaks in the purse of the ordinary American must be plugged up. Then, of course, the savings are to be invested in government securities.

This is an excellent suggestion and we will join, not only because th department is suggesting it, but be cause the H. C. of L. and a few othe factors are absolutely compelling i There is a whole lot of truth in the re ports of awful extravagance of som portions of the people; there is mor truth in the statement that the grea mass of us wouldn't recognize extra agance these days if we met it. W have seen it stated that the extrava gant spendthrift is being overadvertis ed by zealous merchants and due cre it is not being given to the rank an file, the bone and sinew of our natio Most of us are doing as we have sinc we began buying, save that a littl more care and attention is of nece sity given to the value of every penn

MAKING GOOD

The news sheet of the Unive sity of California reports: "464 St dents of State University Disqualifie to Return for Study."

In the items which follow it is sta ed that this number represents 6 per cent of the total undergraduat body. This number is declared to b within the limit of the averages past years. 319 of these 464 student are men and 145 are women. T University of California has becom one of the greatest educational ins tutions in the United States. Pe haps we are entirely safe in sayin the greatest, for it has become so numbers and its reputation has gon around the world, hence there is gre honor in being admitted to its course However, a word to the 464.

Presumably some of them are fro California's farms. Some of the have tried hard, and perhaps in th greatest of all prerequisites of huma success, common sense, may be qualified that future years will yie them success equal to that of t brightest of those who finished wi honor their university course.

We would not discourage one these young people from looking f other educational advantages, in fac the only salvation for them, as f all of us, is to look for every possib help in securing qualification for mee ing life's problems. There is one ins tution always open, the University Hard Knocks. It has qualified mar a young man and young woman meet difficult problems and comp success.

John Hays Hammond in an artic in Colliers Weekly of January 10 as why we send our young people to c lege. He answers: "Not primarily become graduates of Yale or Harva or Princeton or of any other instit tion. We send them to strengthe character and get knowledge of a kin that will help them to better serve t world." Later in the article Mr. Ha mond makes the point that many young person can avoid wasted yea by following his preparatory scho work with rich and large experien with practical everyday affairs of lif

Mr. Hammond is a bit caustic r garding the curricula of some school "This is not to say that a collegia education is useless. Far from tha it gives a man an immense advanta over his self-educated fellow of equ intellectual powers, but the boys ha too much to learn about things th should know and too much to forg about what they did not need to kno in the first place. They have spe too much time on subjects which th will not use and too little on some the subjects which they most despe ately need."

In any case, Boys and Girls who a "disqualified," qualify for a life service. There is a great big wor before you with wonderful oppo tunities.

PARENT OF ALL MANKIND!

"Army officers from stations in the Orient, who recall the 'Me und Gott' attitude of the German imperial dignitaries before the war, were exhibiting yesterday," says the San Francisco Chronicle, "translations of an article in the Japanese newspaper Niroku when the transport Sherman docked. The article has been translated and published again in the Japan Advertiser, an English language newspaper of Tokio, in its issue of May 9, 1919. The Niroku is regarded as the official mouthpiece of the Japanese government on all important matters of state.

"B. R. Robinson, Y. M. C. A. secretary on the Sherman, supplied the article, which follows:

"'To preserve the world's peace and to promote the welfare of mankind is the mission of the imperial family of Japan. Heaven has invested the imperial family with all the qualifications necessary to fulfill this mission.

"'He who can fulfill this mission is one who is the object of humanity's admiration and adoration and holds the prerogative of administration forever. The imperial family of Japan is as worthy of respect as God and is the embodiment of benevolence and justice. The great principle of the imperial family is to make the popular interests paramount—most important.

"'The imperial family of Japan is parent not only of her sixty millions, but of all mankind on earth. In the eyes of the imperial family all races are one and the same; it is above all racial considerations. All human disputes, therefore, may be settled in accordance with its immaculate justice. The league of nations proposed to save mankind from the horrors of war and can only attain its real object by placing the imperial family of Japan at its head, for to attain its object the league must have a strong punitive force of a superior national and superior racial character, and this force can only be found in the imperial family of Japan.'"

Orange County Soils

By Ernest Braunton

ORANGE COUNTY has recently had a series of field soil lectures and demonstrations of an extremely practical nature. Armed with a soil auger the lecturer stalks into the field, bores down into the soil, uses the auger as a station and to lean upon betimes and discourses to his audience on what is beneath their feet. Afterward he bores deeply and brings up samples to prove the truth of his statements.

Farm Adviser Wahlberg had as his guest during last week J. W. Nelson, professor of soil technology at the state college of agriculture. Prof. Nelson has been with us ten years, previous to which time he was for 12 years with the bureau of soils, United States department of agriculture. At Yorba Linda he spoke in part as follows:

"This region is an old alluvial plain elevated by mechanical action and is now in advanced age. During the last hundred years it has been getting into the condition you now find it, the subsoil getting harder and closer all the time. The rain each year percolates and carries with it the finer particles of soil and, finally, unless the process is arrested, the subsoil becomes hardpan. This is due largely to iron salts or silicates.

Danger From Hardpan

"This tendency and condition the farmer must overcome by intelligent practice, for when roots reach this hardpan it is high time to act. This hardpan is not at uniform depth for rains do not percolate evenly in such soils. When they strike this hard stratum they can go down but little more and that but slowly. The rains or irrigation water meet the same resistance. Water lying thus develops a toxic condition and trees are thereby harmed and may in a few years be killed. One farmer, visited some years ago, had land of a 30 per cent slope and presumed his subsoil was parallel with surface and therefore provided perfect drainage. But after eight or ten years of irrigation his trees began to suffer, and cat-tails and rushes began to grow in spots. Tests with a soil auger proved that his subsoil had an undulating surface, the little hollows forming shallow reservoirs in great number, and the water lying therein poisoned the tree roots.

"Another rancher had an almond grove not irrigated for 30 years. When the nuts were half grown the trees did not appear in best condition, so a heavy irrigation was given. The water went down to hardpan, among the feeding roots, a hot spell of weather came which rapidly developed a poisonous condition, and in one week his trees were dead.

"Get a soil auger and bore down six feet at specific distances over all your orchards and make a subsoil or hardpan map. Note particularly if it is as far down to hardpan at the upper end of the orchard as it is at the lower end, and if water is percolating to a like depth. Do not look at the tree to see if it appears to need irrigating, for it is then too late for best results, for the tree gets a shock from shortage of water and another when it gets a sudden and copious supply. This series of shocks is highly injurious. Use a soil auger to determine when irrigation is necessary. I find that orchards south of the Tehachapi are but 60 per cent of normal.

Wet All the Soil

"In many orchards but 80 per cent of the area used by the trees is irrigated. Water is run so far from the rows that tests show four feet about the trunk is not wet during irrigation. This is therefore useless ground during the growing period. In the winter, after rains, this space becomes saturated and we have a 100 per cent growing area. But it is not then needed! Fall blooming often results from this stimulus to working roots nearly dormant during the summer. This so-called false blooming is highly injurious.

"I know a citrus orchard that was badly affected with mottle leaf. The owner was advised to run water down furrows about ten inches from the trees. This he did and in six or seven years the mottle leaf had entirely disappeared, though the case was a bad one. If we do not properly handle our soils the orchard areas may be back in grain in 50 years, for that is the history of many orchard sections in other states. Kansas is a notable example. You must replace the nitrates drawn out by the crops. Organic matter must be introduced. Keep up the supply of nitrogen. Every time you plow or cultivate you lose nitrogen and in some way you must put it back.

Double Cover Crops

"Double cover crops will solve many serious orchard problems. After a winter cover crop is turned under the surface seven inches of soil shows a temperature of 120 to 130 degrees in warm spring weather. This is bad for humus, which is burned out through exposure, for heat oxidizes the organic matter and summer cover crops keep the soil cool and bacterial activity is good. Moreover, summer tillage is not needed and so the cover crop is not an added heavy expense. I know of one case where a reddish brown cemented soil was converted to a fine soil in seven years. In 48 hours the water would go down but 20 inches. Seven years later it would reach 48 inches in 24 hours. This was under double cover cropping and the soil was also doing its own fertility work. Where no water is available for summer cover crop apply barnyard manure if you can get it.

"Now that the farm bureau movement is so well organized we should hire a man to buy up all the farm manure in six or eight Western states. Maine potato growers are shipping it from these states and if they can afford to do so for potatoes we can afford to do it for our orchards. We should have it shipped in solid trainloads. Care for manure; 65 per cent of the value of stable manure is in the liquids and this may be washed away. Also lime your soils. Lime being easily soluble is one of the first things carried away after soil is stirred. We cannot too much advise on experience gained at the state farm at Davis, for soils vary much and their amelioration is a local problem for each farm center.

"Plant cover crop last of August or early September. If no rains come, irrigate. If soil is hard and rains light, lime will open your soil and a series of check dams or deep furrows will hold the water. Disk cover crops in if soil is double cropped, but if only single crop is used, turn it in deeply, one foot if possible. See that soil is filled with water during winter as a base for lighter applications during summer. Do not merely irrigate every 30 days or any other specific period if you have any choice. Use the soil auger to determine when water is needed. Cover crops may be of cow peas or Melilotus alba. These annuals are generally better than alfalfa, for the latter usually is harvested, though the deeper rooting is highly beneficial."

Asked if disks or mouldboards were most favorable to hardpan, Prof. Nelson replied that disks packed the soil less, also do not tear out roots as do plows proper. Asked as to deep cultivation or plowing, he said that farmers who claimed to plow deeply turned over but four or five inches, as was proven by measured furrow—that ten inches, which really is deep plowing, is most unusual. Where soil surface is very hard and rains run off, he advocated plowing very deep furrows, filling in with bean straw, or some such material, thus making a permanent trap for rain water.

Cotton Yield in the San Joaquin Valley

By A. Layman

WE have heard cotton growers say: "Half a bale is fair; a bale to the acre is big; but two bales—that's some cotton." So a chronicle of cotton growing in Arizona as recorded by Mr. Bemis in the California Cultivator of January 10, in which the champion cotton grower was reported to have secured a yield of 11 bales, averaging a full 500 pounds, from a little less than seven acres, showed a great production. Arizona may well be proud of it, and it's an indication of a great future for cotton production in that state. As Mr. Bemis said in that article, big yields are sometimes more or less accidents, in any case they are not averages, but it is well that we may chronicle these striking productions as an inspiration to all of us to use to the limit the resources in our possession.

A subscriber at Arvin, Kern County, Milton Roderick, sends copy of the Bakersfield Californian which reports a meeting recently held in Fresno. One feature of this meeting was a report made by Gordon T. Ives regarding his own production. It is not simply a chronicle of totals, but of methods as well which are used in securing that production. Outline of these methods is given by Mr. Ives as follows:

Planting began April 2 and was completed April 6.

About 12 pounds of Pima seed was used per acre—it was planted flat.

Owing to insufficient seed being planted (20 pounds would have been better), and the ground drying out, I did not get a perfect stand, so I ran water close to one side of the rows April 23 to germinate the rest of the seed, which had the desired result.

I began cultivating with 14 tooth cultivator as soon as I could see the rows. Six cultivations were given before the first irrigation, which came about June 19.

I stirred the surface as above after each irrigation until the cotton got too tall for a horse to get through.

This cotton is planted between 14 foot rows of Thompsons, being three feet ten inches apart, two rows.

Chopping (mostly pulling) began June 9, when the plants were a foot to one and one-half feet high. We aimed to thin to about eight inches.

Frost came about October 23, which was about a month earlier than last year. Picking began November 9. The price paid for picking the first half of our crop was four cents per pound. The first picking was finished January 1. The amount of first picking was 13,700 pounds. We expect about 1,500 pounds from the second picking. This will be close to ten bales from five and a half acres.

Mr. Camp, government cotton expert, and Mr. McGee, buyer for the Goodyear Rubber Company, measured the fiber and found it 1 14-16 inches.

My nine irrigations, ending October 23, could have been materially reduced had my ground been level and had I used wide ditches that reached from one row nearly to the other.

The cotton plants in our field stood quite uniformly three and one-half to four feet high, except in about an acre, where the water ran too fast.

A good crop of bottom, middle and top bolls matured.

Our best picker, a lady, picked 136 pounds one day, making $6.12. Several others could pick over 100 pounds per day.

John W. Gilmore of the state university has given much study to California cotton production. In addressing the same meeting he touched upon the importance of the great Southwest as a cotton producing section. He said:

"The San Joaquin Valley, especially the southern counties, owing to climatic and soil conditions, are best adapted to long staple varieties including both upland as well as Egyptian. In fact, California and Arizona are the only two portions of the country where the Egyptian varieties can be grown successfully, and in my judgment it is not worth while for the farmers of this part of the state to compete with the farmers of the cotton belt in producing other staple varieties.

"Two important factors are essential in making a cotton industry in this part of the state permanent," he continued. "It is essential for the best interests of the industry that types or varieties of cottons be not mixed in a community. Mixing of varieties always results in deterioration, from which defects some portions of this state have already suffered severely. The farmers should adopt as early as possible one variety of cotton and perfect the culture and quality of that variety.

"It is also important that cotton be produced as much as possible upon family farms. This is not in disparagement of the larger estates, but is stated for the reason that if a few acres be produced upon every family farm it would render the erection of gins profitable. Moreover, cotton culture is well adapted to the labor and time-conveniences of families.

"Although cotton culture is seldom a complete failure, yet farmers must not get the opinion it is easy to grow. The quality and yield can be greatly improved by superior culture methods. Upland cotton is ordinarily sold according to nine grades, and Egyptian according to five grades, and the prices between these several grades vary widely. This is merely to indicate the wide variations in quality that our commercial cottons have. Every cotton grower should strive to produce cotton of the highest grade possible, and with our excellent climatic conditions at the time of picking there is little excuse for presenting cotton of the lowest grades from this part of California."

Agricultural News Notes of the Pacific Coast

Northern California

More raln, please.

Californla is now shipping rice to the Orient.

Shasta County will greatly increase its rice acreage.

A Butte Couuty turkey raiser recently sold seven turkeys for $87.

El Dorado farm bureau people recently visited the university farm at Davis.

Chico, Butte County, recently shipped 2,000 tons of prunes to European points.

Thousands of barrels of wine were loaded on shipboard and started for England before January 16.

Yolo County Shorthorn breeders are bringing in a bunch of fine pure breds from best Eastern ranches.

Auto trucks recently transported 60,000 almond trees from Woodland to Arbuckle, Colusa County.

Farm bureau leaders of several western staes made a tour of Sacramento Valley counties last week.

The almond growers give credit for much of their success this season to well dlrected advertising campaign.

California now stands second as a rice producer, having passed both Texas and Arkansas. Louisiana is still first.

The California Oriental Exclusion League ls insisting on excluding not only Japanese, but Hindus, Chinese and all Asiatic races.

The farm bureau of Glenn County has an ambitious plan to acquire timber land and produce lumber for the benefit of the agricultural industry of the county.

Owing to strikes and labor shortage boats and barges along the Sacramento River have been a very small factor in transportation during the past summer.

All records for rice shipment from the Glenn County section were broken last month. The biggest six day shipment was 81 cars.

State Market Director Weinstock has tendered his resignation because of ill health continued since a recent attack of pneumonia.

An auto ferry service is to be installed across Carquinez Straits from Morro Cove near Vallejo to Valona near the Crockett sugar mlll.

Alameda County wool producers have recently made sales at between $1.25 and $1.40, this on scoured basls. One shipment of 500 tons was recently made.

Prof. Jaffa states that California rlpe ollves contaln much of nutrition and that while green olives may be good as a relish they are of practically no value as a food.

An almond grower of Byron, Contra Costa County, has greatly increased hls output by giving his orchard irrigation. It was formerly handled as a dry farming proposltion.

The Poultry Producers of Central Callfornla, Inc., is doing pretty well, thank you. It has recently been taking stock and finds lt has closed a successful year at a profit of $65,000.

Tehama County farm bureau meetlngs: Bend, January 16; Richfield, 19; Corning, 21; Los Molinos, 26; Proberta, 28; organlzation at Liberal school, 30; directors' meetlng, 23, 10:30.

Central California

Tulare County has chosen September 14 as the date of its next fair.

Several hundred acres of new vineyards are being planted near Tulare.

Two cars of hogs recently sold at auction at Modesto at the rate of $14.05.

Santa Clara County produced two and a half mllllon pounds of dried peaches.

A large number of new members have just united wlth the Farmers Union local at Turlock.

A dehydrating plant with capacity of 50,000 tons is contemplated at Salinas, Monterey County.

Valuable pure bred Holstein bull belonging to Glst and Son, Tulare, recently died from bloat.

Stanlslaus County Holstein-Friesian Breeders Association has been organized. A. M. Bibens is president.

Stanislaus County farm loan association received lts regular dividend check from the federal land bank at Berkeley.

The San Joaquin Light and Power Company plans new construction during the next five years which wlll cost in excess of $50,000,000.

A cereal experiment station giving especial attention to best varieties of wheat has been establlshed on a large ranch in Monterey County.

Salinas, Monterey County, is having serious discussion with itself as to manner of handling tractors and cattle on the public highways.

The Farm Bureau Marketing Associatlon at auctions, mostly in the San Joaquin Valley, sold a total of 49,123 hogs which returned $1,705,752.

Tulare poultrymen will meet February 2 to listen to addresses by Prof. Dougherty of the university farm and discuss business of the local association.

The soldiers colony at Delhi, Merced County, built under the state land settlement commission, is taklng shape in the construction of laborers' cottages.

The Monterey County Cattlemen's Associatlon recently met at Kings City. The cattle industry of the state now represents an investment of $3,000,000.

Milk producers of Stanislaus County are asking the Milk Producers Association to pay for milk not only on the basis of butter fat content but also on total amount of milk.

Fig growers of the state are endeavoring to get together for the sake of cooperative marketing. The lnitial steps were taken some weeks ago at Fresno and the new association is now drawing to itself new members dally.

Eldorado County farm bureau directors are after land speculators who are buying real estate at reasonable prlces and selling at greatly increased speculative prices. They resolve: "It is our further belief that this method of dealing in real estate is pernicious and obstructive."

The Central Californla Berry Growers Association, membership of which is coufined largely to Santa Cruz, Monterey, San Benito, Santa Clara, San Mateo and Alameda Counties, has closed a most successful season. There are 243 members controlling 1,022 acres of strawberrles, 164 of loganberries, 149 of blackberrles, 168 of raspberrles.

Southern California

More rain ls the cry of every grain and hay grower.

Beet planting is starting ln many Southern California sectlons.

A citrus pruning demonstration was given at Covina last Saturday.

Citrus growers of Pomona Valley received over $15,000,000 for last season's crop.

Orange County orchardists are giving winter lrrigation and thoroughly soaking subsoll.

Palo Verde Valley claims production this year of 102,000 bales of cotton from 167,000 acres.

Many citrus growers are urging holding back on shipments of navels until market stiffens.

A long staple cotton gin is assured to Brawley if her producers will plant 235,000 acres to Pima cotton.

Los Angeles County forester and many assistants are placing 450,000 trees on the mountain slopes.

A new water associatlon has been formed by farmers near Ontario and a number of wells will be sunk.

The next Natlonal Orange Show begins February 13, ends February 23. "Swat the jinks" is the slogan.

Pomona Valley apricot and peach growers produced approximately $1,300,000 in their orchards last season.

The farm bureau of Santa Barbara County recently held a meeting at Carpinteria and organized a local center.

Bean growers of San Fernando Valley have organlzed with headquarters at Van Nuys. W. J. Petit is president.

Prof. Bioletti of the state university has been giving pruning demonstrations ln Southern California vineyard sections.

The Sespe Power Company of Ventura County is developing a big lrrigation project, securlng waters from Sespe canyon.

Orange County is planning for a showing of her citrus possiblllities at the coming National Orange Show at San Bernardino.

The Citrus Growers Protection Association of Pomona Valley has done some most effective work during the past week in frost fighting.

Prune and apricot growers of Ventura County recently held a meeting at Santa Paula and llstened to address of H. C. Dunlap of San Jose.

The Ventura County fair directors have recalled their fair dates, September 1 to 4, and are canvassing the season for other dates which will not conflict with state or county fairs.

Pomona Valley in eastern Los Angeles County manufactured something over $9,000 worth of sorghum syrup this past season. The average of the better cared for crops reached nearly $300 per acre.

Southern California dairymen are confronted by a serious feed problem. Alfalfa lands have been reduced until established alfalfa acreage is now renting at around $60. Other feed ls proportionately high and pasturage ls nil.

California produced more than 102,000 bales of cotton during 1919. Approxlmately 82,000 bales of this was produced iu the Imperial; 18,000 in Palo Verde and Coachella Valleys and the balance ln Klngs, Fresno, Kern and Tulare.

The Coast and General

Arizona's cotton plcking season is not yet finished.

Malheur County, Oregon, recently sold $100,000 worth of good roads bonds.

The Northwest Milk Dealers will convene in Portland, Oregon, February 3-5.

The bureau of forestry of Hawaii is urging more careful attentlon to forest production.

The American National Livestock Association convenes at Spokane, January 27-29.

The Inland Empire Bee Keepers convention opens at Spokane, Washington, next Monday, January 26.

The state of Oregon is constructlng bridges and culverts, the contract price of whlch will amount to $11,696,777.

Port Angeles, Washington, is building a $20,000 cannery. It ls owned by business men and farmers of the communlty.

Arizona has been glven generous rains with heavy snow in the mountains. The precipltation at Nogales was 1.88.

Thirteen thousand acres of some of Oregon's best potato lands were recently purchased for the use of white farmers.

The Jackson County farm bureau recently held a fat stock auction, selling hogs at 16 cents and sheep at 12 cents per pound.

One of the largest ranches sold recently in Arlzona was that commonly known as the Kyrene Ranch, comprising 750 acres in the Salt River Valley, on the railroad from Phoenix to Maricopa. This has been run as a stock ranch for many years but will be planted to cotton this comlng year.

The bankers of Maricopa County, Arizona, are to begin a campalgn for the assistance of the farmers by furnishing some facts from authoritative sources, showing the advantages of proper crop rotation and the maintenance of livestock. This information will be sent out in the form of pamphlets.

Citrus growers of the Salt Rlver Valley, Arizona, held a school or institute at one of the groves January 6 and 7. This was conducted under the dlrection of County Agent H. C. Heard and the speakers were officials of the horticultural commission, state college of agrlculture and the United States department of agriculture.

Twenty thousand acres has been added to the lands under the Salt River, Arizona, project that are to have permanent water rights. A long drawn out legal battle has been finally settled in favor of owners of certain lands and by the decision of Secretary of the Interlor Franklin K. Lane these lands now are a part of the project and as such are entitled to receive water.

One of the cotton ginning companies of the Salt Rlver Valley, Arizona, is installing a bolling machine to save a large amount of lint contained in the late bolls that do not open. It is expected that this will enable the saving of some 5,000 bales of cotton that otherwise would go to waste. The value of the lint will be about half that of the lint from mature bolls but even at 40 cents a pound farmers consider it worth saving.

Citrus Trees and Alkali

By E. L. Koethen

MANY citrus growers in California are coming to the conclusion that the accumulation of alkali in the soil is the source of much of the trouble encountered by them in the production of their fruit.

That this is at the bottom of much trouble is shown by the condition of the trees in many orchards irrigated by wells in which the water is highly impregnated with alkali. But it is not generally recognized that we are all threatened with the same trouble to a less degree. The older growers will remember that there are recurring periods in which mottle leaf and yellowing of the foliage, accompanied with much die-back, occur and that after a few years it disappears again and for a time all goes smoothly. These periods will be found to correspond with periods of low rainfall and the consequent accumulation of alkali in the soil. Most all of our irrigating waters contain more or less alkali. In evaporating this leaves an accumulation in the soil. It may be an apparently slight amount, but in the aggregate after many months of accumulating it does often become sufficient to make trouble. If the winter rains are sufficient to cause a run off, the soluble alkalies are carried off, but in years like last year, for instance, there is not enough rain in each storm to cause a run off and at the end of the season the accumulations of the previous year are still in the soil. This process repeated several years in succession is bound to make trouble for trees that are not alkali resistant.

The writer has heard some talk by successful growers about the necessity of filling the ground up with water during the winter to prevent June drop. Undoubtedly a good practice. But is it not possihle that of even more importance than the supplying of sufficient moisture to great depth is the washing out of the alkali? If this is the case, it is not only desirable to run enough water in the winter time to moisten the soil to great depth, but an actual run off is needed. The deep irrigation will merely carry the alkali to lower depths, whence it will again come to the surface by capillarity with the water. But with sufficient water to run waste water off the ranch, soluble salts of alkali go along and the soil is cleansed.

We have laid much stress on the folly of running much waste water, because of the losses of fertility, which is true if the water has been allowed to cause erosion, but have we not lost sight of the fact that we can save water so as to accumulate deleterious salts in our soils?

The obvious remedy is to use the water available in the winter time to rid the soil of this enemy of citrus trees. The present time is the time to do this. We have had two years of sparse rainfall. Thus far this winter has not been better. In most sections of the South the rains have not been sufficient to run any water off. "They have come so gently that the water has all soaked in." This is very nice, but it does not rid the orchard of alkali. This may cost a little extra, for pumping water from wells is expensive, but we believe it is money well spent.

Avocados at Yorba Linda

By Ernest Braunton

THERE is a favored section in Orange County, centering about the village of Yorba Linda, that is as nearly frost free as any section. While in general it is like much of the foothill districts, the land is more broken, and small ranches are found where there is no evidence of frosts visiting even the most tender plants.

No matter what their private interests, all the avocado growers are a unit in saying that there is no better proven commercial variety to date than the Fuerte. Others well known are named and will be listed, together with some first grown and named at Yorba Linda, the budwood having been brought from Guatemala. The most successful grower to date, judged by financial returns, is J. T. Whedon, who has but two or three acres now in bearing, trees six years old, but next year an extended acreage will commence to yield a crop.

Mr. Whedon was asked to name the best five varieties from his point of view, based upon experience. That is, not necessarily a list for the average commercial grower, as will be explained later. His list was: Sharpless, Fuerte, Spinks, Dickinson, Taft. Mr. Whedon explained his entire crop is contracted for, as in years past, by a leading Los Angeles hotel, and such trade demands the largest sizes and will pay the prices. His trees are nearly all Fuerte and in every way satisfactory. The few Sharpless trees he has bear larger fruits though much fewer.

Asked by the writer if a tree of each planted side by side would at the end of five or six years bear the same total in weight, Mr. Whedon answered that the Fuerte would far outstrip the Sharpless, perhaps two to one, but the larger variety would bring the most money from the hotel trade only. So the rest of us will give Fuerte first place. Each man, therefore, has his private list of favorites. The remainder of the varieties named are general favorites and good ones to plant, but someone experienced will urge slight objections to each, as they all do. It is believed the Fuerte will stand at least three degrees more of cold than the others named.

Another Grower's List

Dr. Lester Keller, on the other side of town, has nine acres of hillside and hilltop orchard with 600 trees in 40 varieties, not all of which have yet borne fruit. Dr. Keller expressed himself as satisfied with Mr. Whedon's list, but when pressed for one based on his own experience named a list somewhat different. Fuerte, Sharpless, Spinks, Puebla, and Dickinson have done best with him in the order named. The Puebla is a thin skinned fruit of purple color when ripe, the only thin skinned variety thus far named, for they are not seriously regarded by the growers on a large scale. It is the largest of its type and thought to be a hybrid between the Mexican and Guatemalan types. It is of good flavor, seed fairly large, an excellent home sort, as the writer can testify, having eaten many. It is also the only thin skinned variety recommended by the California Avocado Association. So let us plant a tree for home use.

New Varieties

H. H. Knight will give you another list and add the caution: "Bide a wee, and let us see." For Mr. Knight spent some years right in the midst of the wild avocados and when he came to California and found avocados growing in favor he slipped back to Guatemala on a still hunt for the best varieties. When he returned with budwood he wore a self-satisfied smile which up to date he still holds. He budded his new sorts into seedling trees and has an orchard that for size of trees is remarkable for four years of age. His varieties are yet untried except by a few growers and no official report has yet been made upon them, though some are the largest yet grown in the local field. The list includes Linda, Queen, Knight, Rey, and Kist, the latter the newest. Other growers believe the Queen and Linda are best in order named, but Mr. Knight says, to quote Browning, "Grow old with me, the best is yet to be."

There are other growers in that section, but of lesser acreage or younger orchards. Nearly all about Yorba Linda are growing a few trees for home use and many are of varieties not herein named. Some bear inferior fruits, some bear light crops, others will not grow but remain strangely

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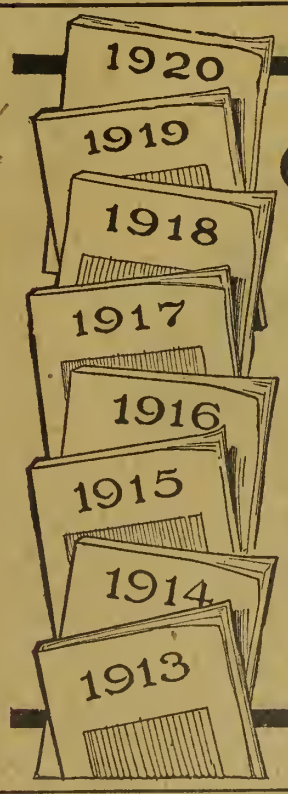

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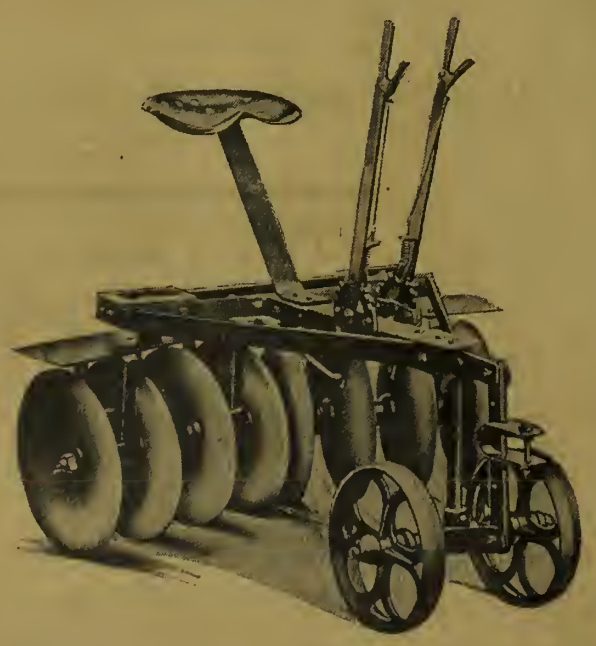

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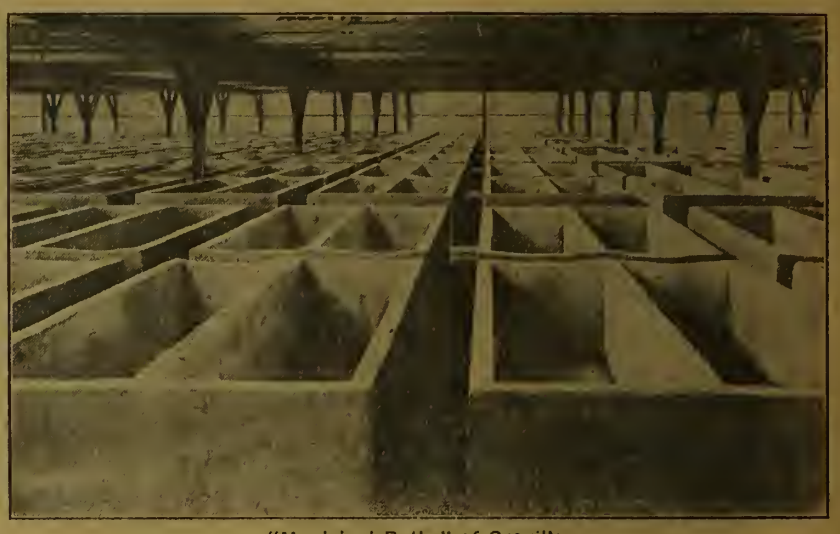
dwarf. Certain varieties have seeds out of proportion to size of fruit and some trees are short lived, dying after three or four years of fine crop production. The Dickey is one of the latter class and none should plant it. All experienced growers warn the public that a fruit is not of necessity ripe because it is mellow. A ripe fruit should become soft enough to eat in one week after being picked. If it goes more than two weeks it was picked too green and all avocados should not be judged by such immature specimens.

HAVE A HEAD AND USE IT

(Continued from Cover Page).

growth which was slightly headed back the next year when we cut away another quarter of the main limbs. This plan was repeated for five or six years as limbs too small to cut away the first year became large enough after four years more growth.

"My old orchard is now renewed with bearing top varying in age from one to five years. This orchard has often made 1,000 tons of green fruit of good quality. For the last four years it has yielded an annual crop of nearly 1,000 tons and promises another bumper crop, as the buds are large and thickly set all over the trees. Most of it is on apricot root from my own nursery and of the Royal variety. Last year was the first time it ever had any irrigation water."



"Municipal Baths" of Oroville

A section in the vat room of the Mt. Ida Packing Company. There are 1100 of these small tubs or vats which have a capacity of 500 tons of olives at one filling. They may be used twice, some of them three times during the season, so that the seasonal capacity is in excess of 1,000 tons of California processed olives. And this plant is only one of several in Oroville.

USE OF ALKALI WATERS FOR IRRIGATION

In February, 1918, at the citrus institute held in San Bernardino, Dr. W. P. Kelley of the University of California gave an address on the deleterious effects of some of California's irrigation waters. As he remarked in his prefatory talk, he did not wish to cause anybody undue concern, but felt that the matter was worthy of being brought to the attention of California orchardists.

That article appeared in the California Cultivator of July 12 and 19, 1919, and caused some comment, and we note now that the matter has been taken up by the Utah agricultural college, which has issued a bulletin upon the use of alkali waters. It is written by F. S. Harris and N. I. Butt. The opening statements of the bulletin as given in the first two paragraphs are:

Because of the scanty rainfall of arid regions, the soluble materials in the rocks and soil are not leached out as they are where the rainfall is high. As a result, the accumulation of excessive quantities of soluble salts is likely to be a menace to arid soils. Farm practices must be directed toward preventing this condition.

One possible source of contamination is from irrigation water which may carry in solution large quantities of soluble salts. Water passing over or seeping through alkali land gradually dissolves the alkali which it retains in solution. Drainage water coming from land that is high in soluble salts should therefore be thoroughly examined before being used for irrigation.

After discussion covering nearly 40 pages the following summary of the findings is given:

Since there is more land in arid regions than can be irrigated with the available water, it becomes necessary to utilize all water that can be obtained. This means that water containing large quantities of soluble salts is sometimes used, but if the salt content is too high crops are killed and the land is ruined. It is very important, therefore, to know the highest salt content that can be safely used.

In this paper the important literature on the subject is reviewed and the results of several experiments by the authors are given.

So many factors enter into the toxicity of alkali that it is impossible to give definite limits of salts in irrigation water. The nature of the soil, its drainage, the kind of crop, the amount of water necessary to apply to produce crops, the soil moisture content, the methods of handling the soil, and a number of other factors enter into the problem.

In experiments herein reported, the dry matter produced, the height of plants, the number and weight of leaves, the number and length of culms, the number of heads and spikelets, the turgidity of the plants, and the general appearance of the crops were all found to be useful indicators of the effect of alkali water.

Results in different soils show that wheat should not be irrigated with water containing as much as 1,000 parts per million of sodium carbonate and that even 500 parts per million will, in a short time, reduce the growth of the crop. More than 1,000 parts per million of sodium chloride and more than 4,000 parts per million of sodium sulphate proved to be harmful after two or three years. A mixture of the three salts—sodium chloride, sodium carbonate and sodium sulphate—was not so harmful as the most toxic but was more toxic than the least toxic individual salt. More than 4,000 parts per million of the mixed salts proved to be dangerous. Dilute concentrations of the salts often stimulated plant growth.

On land irrigated with alkali water for only one year, or with but a single irrigation, much stronger concentrations than mentioned above could be endured; but for regular irrigation water, any concentration above about 500 parts per million of sodium carbonate, 1,000 parts per million of sodium chloride, 4,000 parts per million of sodium sulphate, and 4,000 parts per million of the mixed salts may be considered as dangerous.

Temporary control for the common house fly costs the United States annually $12,000,000; $10,000,000 for screening the houses and $2,000,000, for "fly-traps," "sticky paper," "poison paper," etc. This is like placing a bucket under a leaky roof to catch the drip when it rains. Let us mend the roof and do away with the bucket. Proper disposal of refuse from the kitchen, hen house and barn, will remove the breeding places and materially assist in the control of this pest.

Observations on a number of vegetable seeds over a period of years has shown that the majority of them germinate and grow well when several years old, thus showing that seeds grown and harvested under favorable conditions may retain their vitality for a number of years.

Fruit at Your Kitchen Door

THE ideal fruit garden or home orchard should contain several different kinds of fruits, represented in many cases by a considerable number of varieties ripening one after another over a long period. Large yields, good shipping quality, and attractiveness in appearance, which are aims of the commercial grower, may be made secondary to high dessert quality or special excellence for cooking purposes.

The home fruit plat should be planned carefully and, in general, with a view to supplying fruit continuously throughout the year either in the fresh state or canned or otherwise conserved. Throughout a large part of the country one may grow in the same garden, if he so desires, the following fruits: Apples, pears, peaches, plums, cherries, quinces, strawberries, raspberries, blackberries, dewberries, currants, gooseberries, and grapes. In the warmer parts apples, currants, gooseberries and certain varieties of several other fruits fail because they are not adapted to the long hot summers and mild winters. But in these warmer regions, Japanese persimmons succeed, and figs and certain other fruits can be planted successfully. Therefore, one of the most important features of the plan for the home fruit plantation is the selection of kinds of fruits and varieties of those kinds which will do well in the given locality and which will serve best the purpose for which they are desired.

The location of the land on which the fruits are planted, other things being equal, should be convenient to the house. It should be well drained, since fruit trees cannot thrive in poorly drained soil. The air drainage also must be good. Cold air settles to the lowest levels, and if a site is so located that cold air settles over it from some surrounding higher elevation, the fruit blossoms are likely to be killed by untimely spring frosts or the fruit may be injured by freezes in the autumn when sites located on the sides of slopes or at points which are higher than the surrounding area escape such injury.

Most fruits can be grown on a great variety of soils, but where possible it is better to avoid light sandy soils and heavy clays. A deep subsoil, which is friable and porous enough to permit a ready penetration of the roots and a free movement of soil moisture, is desirable.

Good nursery stock of suitable kinds and varieties is fundamental to success in fruit growing. While many of the long established nurseries sell their stock largely through agents whose integrity is unquestioned, many other nurseries have no traveling agents, but sell direct to purchasers. It is better, as a rule for a grower to deal directly with a nurseryman than through an agent.

If the prospective planter prepares the soil where his fruits are to stand as thoroughly as he should prepare his garden before planting vegetable seeds, the subsequent growth of his trees will amply repay him. Where the site selected is in sod, it is advisable to cultivate it during one season at least after the sod is plowed under, in order that the grass roots may decay before the fruits are planted.

Where the fruit plantation occupies a garden site, usually it should receive about the same tillage that is given a vegetable plat. In the popular mind this represents a high standard of excellence. Frequent tillage to maintain the surface soil in the condition of a fine dust mulch is preferable in most cases to any other method of treatment. The tillage of fruit trees should be continued until midsummer in the North, but it may be kept up to good advantage somewhat later in the South. Strawberries, as a rule, should be cultivated until the approach of cold weather.

Under most conditions the same methods of maintaining the fertility of the soil which are followed in a vegetable garden are successful with fruits.

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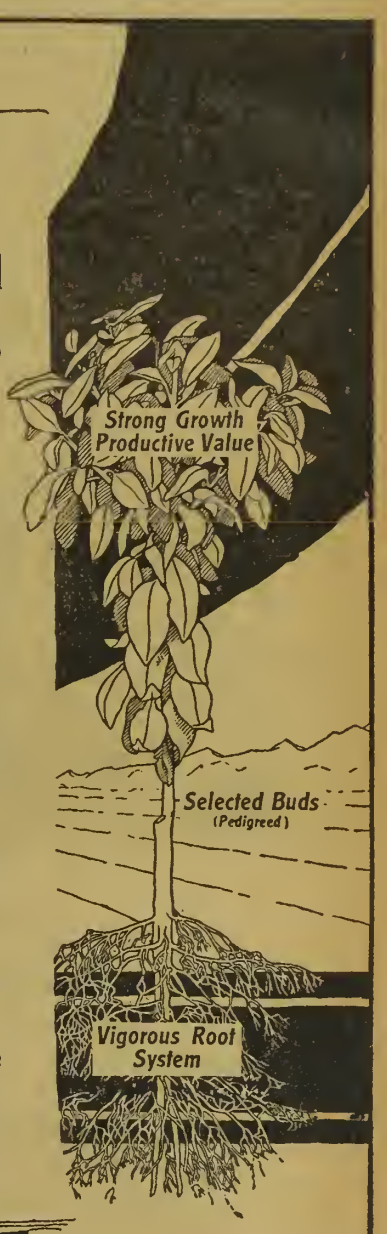

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Grafted Trees Long Lived

By F. D. Garrison, Tennessee State Horticultural Society

Often we hear people make the remark that the grafted and budded trees of today are not nearly so hardy and do not live to such age as the seedling trees of a generation or two ago. Granting this to be true, we wonder if they have tried to find out the reason why and have set themselves to work to help nature in her effort to stamp out the wrongs, correct the mistakes and summon whatever forces there may be toward the development of longer lived, hardier trees and more nearly perfect and delicious fruit.

When our grandparents and great-grandparents were setting their first fruit trees, occasionally in the very heart of the mountain fastnesses, they came upon great old apple trees. The seeds of these were probably dropped by some lone traveler as he climbed the dim mountain trails, little dreaming that from the hills and valleys where he then stopped to hear the occasional call of wild birds there would in future years come the merry voices of rosy cheeked children as they bore baskets of fruit in harvest time. Far be it from us to think of robbing these trees of their just praise and tender sentiment, or of dimming or marring any of that almost sacred love and reverence with which we look back uopn the old home orchard planted by grandparents or great-grandparents. But in justice to our trees of today let us bear in mind a few conditions.

As a general rule only a limited number of trees were in each of these old orchards, and as the orchards were widely separated, diseases or the spread of diseases would necessarily be less evident. Today we have not only our small home orchards to be considered, but there are also thousands upon thousands of acres of commercial orchards with infinitely increased numbers and kinds of insect pests, fungous diseases and bacterial infections, many of which have been imported into this country within the last four decades. Blotch and bitter rot have cost the United States in a single year the total of $12,000,000. Until these are relentlessly fought and controlled, we shall still have short lived trees. In many instances we have worked contrary to nature and made mistakes in selecting the proper stocks and scions or the improper varieties for different localities.

With proper care and attention there is no reason why budded and grafted trees will not be as long lived as old time varieties. The earliest definite history of a grafted tree is a Summer Boncretien, from Europe, planted by Governor Stuyvesant at New Amsterdam in 1647. The trunk of this tree remained standing in New York City on the corner of Third Avenue and Thirteenth Street until 1866, when it was broken down by a dray running over it. Here we had a grafted tree standing at the ripe old age of 219 years. This seems to us to prove that the longevity of a tree is not necessarily determined by whether it is grafted or a seedling.

MAY GROW ALL OUR FIGS

It is not improbable that this country will soon produce all the figs it needs. This statement is made by the chief of the bureau of plant industry in his report on the progress of Smyrna fig culture in California. Much of the success of this enterprise has been due to the fact that the department has been able to maintain a caprifig orchard at Loomis, from which caprifigs have been distributed free to growers. Before this distribution was arranged for many small growers of Smyrna figs became discouraged and some even dug up their orchards. The relationship between these two varieties is that the Smyrna fig is fertilized by an insect which lives on the caprifig. When Smyrna figs and caprifigs are planted together the caprifigs do not bear enough fruits to caprify the crop properly until several years after the trees begin to bear. For this reason a young orchard is dependent on importing the needed caprifigs during the first few years. It was to supply this need that the fig orchard at Loomis was leased by the department. Many new varieties of caprifigs have been brought to light, some of them very important in commercial Smyrna fig culture. Many thousands of seedling figs have been distributed to cooperators in the fig growing regions of California, Arizona and Texas, and some promising new varieties have been originated by a proper selection of male pollen.

In the fall of 1917 the fig insect was established in some old seedling caprifig trees in Brunswick, Georgia, and since then a number of caprifig trees have been similarly treated. The result is that it has been possible to caprify and bring into bearing many sterile Smyrna fig trees growing in the Southeastern States. Some of these trees bear a very high grade of fruit, promising for use as fresh fruit or for canning. It is still doubtful whether figs can be grown in the Southeastern United States to advantage in a commercial way, but it is a matter of much interest and of some economic significance that many old sterile fig trees in this region are really Smyrna seedlings. Approximately half of the trees are Smyrna figs, and the others are caprifig varieties.

* * *

The above is taken from a report of the department of agriculture, and while a little credit is given to California as the fig producer of the country, there is a hint that the southeastern part of the United States will not be a great factor in production of a commercial fig crop. We take it the blastophaga, or "fig insect," was taken from California. When all is said and done, we think it will be proved that California's great central valley will be the country's fig producer.

WHITEWASH YOUR TREES

Winter injury shows in several forms—sour sap, winter die-back, killing of the inner bark, mostly at the surface of the ground, unhealthy stock, and devitalizing effects. Young trees are especially subject to injury, largely on account of imperfect ripening in the fall. This may be due to excessive vigor resulting from very favorable conditions; to tender growth following injudicious summer pruning; to debility from various unfavorable conditions, such as excessive drouth in fall and early winter; or to early frost killing the leaves before the twigs are fully ripened. The injury results largely from drying out of twigs and invisible starting into growth by winter sunshine.

A good coat of whitewash reflects the heat instead of permitting it to be absorbed by the twigs, so that the interior of the whitewashed twig remains cool. The whitewash thus prolongs the winter rest period and lessens evaporation. Great care should be exercised to guard nursery stock from drying or excessive wet and from the slightest frost. In addition to whitewash, very tender plants will need protection such as wrapping with tules or cornstalks, mounding up the earth, etc. Wherever possible young trees should be irrigated now unless rains have fallen before this is published.

A good whitewash can be made as follows: Quicklime, five pounds; salt, one-half pound; sulphur, one-fourth pound. Slake the lime slowly with water and add the salt and sulphur while it is boiling. Add enough more water to make a good wash. The trunks and so far as possible the whole tree should be covered.

THE PERSIMMON

I. J. Condit is the author of Bulletin 316, "Kaki or Oriental Persimmon." The bulletin may be had by writing Agricultural Experiment Station, Berkeley. We quote the first paragraph:

"The kaki or Oriental persimmon was introduced into California about 1870 and is now to be found to a greater or less extent in nearly every county in the state. The tree is easily grown, is free from serious diseases and insect pests, and is in most cases

A Quality Combination

THE **International 8-16 Kerosene Tractor** is a tractor of character and personality. The first note of appeal is the graceful, trim design, the general compactness and the good balance of the tractor, with just the right distribution of weight on the front trucks and drive wheels. The next thing that strikes you is the absence of exposed working parts; everything is enclosed as protection against the grinding action of dust and dirt.

And you are impressed by the flexible range of the drawbar, making it possible to pull a harrow, plow, binder or wagon with equal advantage and by the convenient pulley so placed that the tractor can be backed into the belt in a hurry, with no chance for the belt to drag on the ground or rub against any part of the tractor.

And coming down to more technical but nevertheless very important details—there is the throttle governor that regulates the fuel to the load; removable cylinder sleeves in the engine so that if a cylinder should become scored through the use of poor lubricating oil, for instance, a new lining can be put in at once, renewing the cylinder; centralized auto-type control, making this tractor as easy to handle as an automobile.

These are only a few of the desirable characteristics of the **International 8-16 Kerosene Tractor.** The catalog that we have ready to mail you will give you the rest. Or, see your International dealer and examine his sample 8-16 for yourself.

International Harvester Company of America
(Incorporated)
Billings, Mont. Crawford, Neb. Denver, Colo. Helena, Mont.
Los Angeles, Cal. Portland, Ore. Salt Lake City, Utah
San Francisco, Cal. Spokane, Wash.

Since 1902

Pomona
DUPLEX-PLUNGER
Pumps

One Pump Will Do Your Work

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

Send for Catalog 103

Pomona "Made Right" Irrigation Gates and Valves

PRICES RIGHT-QUALITY RIGHT
SEND FOR BOOK C.

POMONA MFG. CO.
POMONA, CAL.

GET TO THE BOTTOM OF THE DITCH

where there is grass and weeds, and silt and *TROUBLE.*

Down at the bottom of this space is the machine that does away with both the trouble and the causes — quickly and economically.

The Martin O.D.&G. Co.

A tool for farm use. It makes new ditches —cleans old ones. It builds or tears down borders, dykes and terraces. It grades roads, and moves snow. It works in any kind of soil any place pulling power can be applied.

For HORSE or TRACTOR USE

All-steel construction. Reversible and adjustable blade. A size for every requirement. Each size has wide range of work.

COMPLETE CATALOG FREE. Tell us your earth-moving troubles. We can help.

Owensboro Ditcher & Grader Co., Inc.
1590 Wazee St. Denver, Colo.

America's Pioneer Dog Medicines

BOOK ON
DOG DISEASES
And How to Feed
Mailed free to any address by the Author
H. CLAY GLOVER CO., Inc.,
118 West 31st Street, New York

MACHINERY
OF EVERY DESCRIPTION
Bought, Sold and Rented
BUTTRESS & McCLELLAN
205-7 N. Los Angeles St., Los Angeles

exceedingly prolific. The fruit is very attractive in appearance, ships well to both local and distant markets, and is almost universally liked if eaten in the proper condition. Why then has the persimmon remained one of our minor fruits rather than taken its place among the leading fruits as it has in Japan? Various reasons may be assigned for its lack of popularity, chief among which are the following: the general lack of knowledge among consumers as to the value of the fruit and its proper condition for eating; the failure of the growers and the marketing agencies to advertise the fruit and educate the public in regard to its proper use; the grower's lack of attention to the subject of varieties, pollination, natural and artificial ripening; the failure of growers to develop the industry in by-products such as dried persimmons. There is little doubt that persimmon culture can be made a much greater industry in California if some of the points just mentioned are carefully studied and understood."

PROCESSING THE JUJUBE

At the time of the recent state fruit growers convention at Chico the delegates made a visit to the Plant Introduction Gardens. After an inspection of the orchard of jujubes the delegates were all invited to the home of the superintendent, R. L. Beagles, where Mrs. Beagles served delicious "Chinese dates" or jujubes. We have asked Mr. Beagles for information as to curing and have the following letter:

In regard to the processing of the jujube, our method is to pick the fruits when they are firm and well colored on the trees. They are put over a pricking machine so as to perforate the skin, then boiled one hour in a solution of sugar and water, one cup sugar to one cup of water. After the boiling they are laid out to dry. When sufficiently dried, they are then in a condition to be packed for use. This is the process which we have followed for several years: in fact, it is the only one I know of being used.

CAULIFLOWER IN CALIFORNIA

(Continued from Page 123)

have at least half a hundred horses, the hay does not leave the ranch.

These growers have much improved several standard makes of implements used on the ranch, but H. E. Williams has perfected and patented a seed sower that has revolutionized the business, for the saving over the old method is as ten to one. Heretofore the sowing has been by hand drills, a row at a time, and all other operations were separate. The new machine plows the furrows, smoothes and packs by wooden rollers, and plants, covers and firms the soil of four rows. Lettuce, which is the crop now being planted, is sown in double rows on ridges, and this machine makes perfect and uniform work, which also simplifies cultivation and harvesting. As indicating the expense connected with the vegetable industry, Williams Brothers let the contract for thinning this lettuce crop for $14 an acre.—E. B.

HOME FRUIT GROWING EXPLAINED FOR BEGINNERS

Well ripened sound fruit is healthful. It is also a valuable food. It should form a part of every meal, fresh when possible, or dried, canned, or otherwise preserved. Home grown fruit is desirable because it reaches the family fresh and in the best possible condition. Because the family has fruit of which it would be deprived if it had to be purchased. Because, if the proper varieties be selected, a continuous supply of fruit of superior quallty may be secured, regardless of market prices. Because any surplus may be sold without difficulty, or may be canned, evaporated or otherwise conserved for use when fresh fruit is not available. Because the care of the home fruit garden provides for spare time congenial and profitable occupation which is in reality recreation for those who enjoy seeing things grow.

Information that will be of practical help to the beginner in fruit growing is furnished in concise form in Farmers' Bulletin 1001, "Growlng Fruit for Home Use," recently lssued by the United States department of agriculture, Washington, D. C.

Heider
No Gears to Strip

Think of the freedom from worry, delay and expense! By the Heider Patented Friction Drive the power is taken directly from the flywheel by two big discs—forward and reverse. Clutch transmission and bevel gears all done away with.

Rock Island One-Man Outfits
Heider Model D 9-16 with No. 9 Rock Island C T X two-bottom Power Lift Plow directly attached. Below, Heider Model C 12-20 with Rock Island No. 19 C T X two-three bottom Power Lift Plow. Foot-lever control. Automatic power lift.

The Heider Has 15 to 20% Fewer Parts

More power goes into pull—steady, flexible power, as much or as little as you need. The superiority of Heider construction is proved on leading farms in every part of the country by

12 Years Actual Field Work

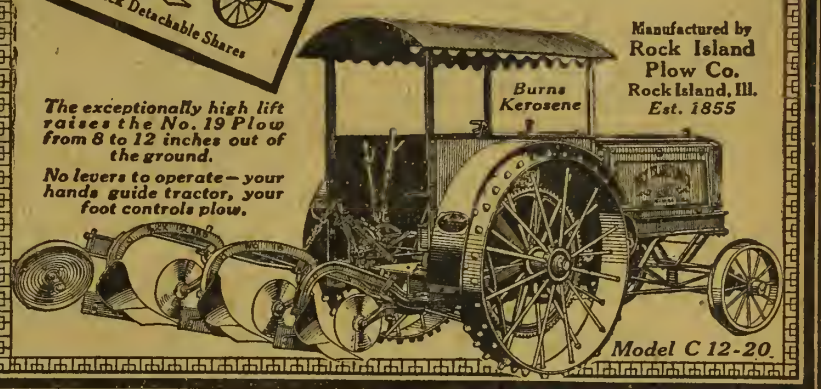
That is the answer to every argument. For 12 years it has done every kind of traction and belt work. Its great reputation for success is built strictly on performance. You do not have to take a demonstration of one or two days as your guaranty. Ask any owner.

Two Sizes, 12-20 and 9-16

Write for Catalog of Heider Tractor and Rock Island Tractor Tools; the famous Rock Island Tractor Plows, 2, 3 or 4 CTX bottoms, and the Rock Island No. 38 one-man Tractor Disc.

No. 12 Tractor Plow
Rock Island
Successful behind any tractor. Front furrow wheel lift equipped with 2, 3 or 4 Rock Island C T X bottom.
With Quick Detachable Shares

E. P. BOSBYSHELL
Los Angeles, Calif.


The exceptionally high lift raises the No. 19 Plow from 8 to 12 inches out of the ground.
No levers to operate—your hands guide tractor, your foot controls plow.
Burns Kerosene
Model C 12-20

Manufactured by Rock Island Plow Co. Rock Island, Ill. Est. 1855

We pay you all that your furs are worth —*and you're the judge*

Send your furs to us and get top prices for them. We are manufacturing furriers—the largest in the West—and give you highest prices on raw furs.

Most furs shipped to us are made up by us—therefore, no deductions for commissions and grading. The price we quote you is the price we pay you.

We pay all Parcel Post and Express charges

Hundreds of trappers send us their furs every year because they know that we give them fair and square treatment. Pack up your furs today and ship to us. If our check isn't large enough —send it back and we'll return your furs at our expense. Is that fair? Write for price-list—today!

H. LIEBES & CO.
175 POST STREET, SAN FRANCISCO

Ship your furs to the nearest market —and get your money quick!

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

San Jose Scale

I have Delicious apple trees covered with light colored scale and they die down to the roots. Will you tell me what the trouble is and what spray should be used for the scale?—Subscriber, Long Beach.

This seems to be a serious infestation of San Jose scale. Secure at once commercial lime-sulphur solution and dilute according to directions, presumably about nine gallons of water to one of the solution. Owing to this being a serious infestation we believe we would give a second spraying somewhat later.

Redwood for Trays

I have some redwood which I am figuring sawing into shakes and drying trays. Is there a market for apple boxes and packing boxes of redwood? —Subscriber, Visalia.

Redwood would not make desirable orchard or packing boxes, at least it is scarcely ever used for that purpose. It is too easily split and does not hold nails as does pine. We have known of trays being made of redwood shakes, but white or sugar pine is usually preferred. The best information in this line would be to get in touch with the California Peach Growers Association, Fresno; Associated Raisin Company, Fresno; California Prune and Apricot Growers Association, San Jose, or other large dryers of fruits.

Cleaning Oil Tank

Can you tell me how to treat a galvanized iron tank that has been used for storing smudge oil so that it can be used for a water tank for domestic use?—Subscriber, Santa Ana.

We fear this would be a hopeless task. The only suggestion we would have would be liberal use of caustic, possibly preceded by thorough swabbing out with gasoline. The operator should bear in mind, however, that poisonous gases generated in these tanks where these oils have been stored make it necessary to use great precautions in entering them.

Manure Pit

I am thinking of building a manure bin in my corral to keep manure for fertilizing. What would you suggest as the best size to build and what material would be the cheapest? I believe they are mostly made of cement but would it be advisable to make one out of something else? About what would it cost to build one of cement, and would one get enough benefit on a 50 acre orchard to pay for putting one in to save from two or three horses? Also would it be better to put it close to the stable under the eaves so rain would run in the manure or should it be placed some other place?—Subscriber, Simi.

If the orchard is near the stable we would by all means distribute as fast as the manure is made. This is quickly and cheaply done by drawing the "stone boat" with high sides next to the stable and throwing in the manure as fast as made. As soon as filled or at convenient season haul to trees and distribute. In any case do not leave under the eaves during rainy season. The loss from leaching would be a serious matter. If it could be worked into the soil with disks soon after distributing, it would be well, though the loss from evaporation is slight, that is, excepting where there has been subsequent moisture to cause it to heat, which drives off the ammonia which is rich in nitrogen. Where there are a large number of animals the cement pit with drainage so that liquid may run away to tank and be distributed directly in the orchard is desirable, but with a few animals this expense would not be justified.

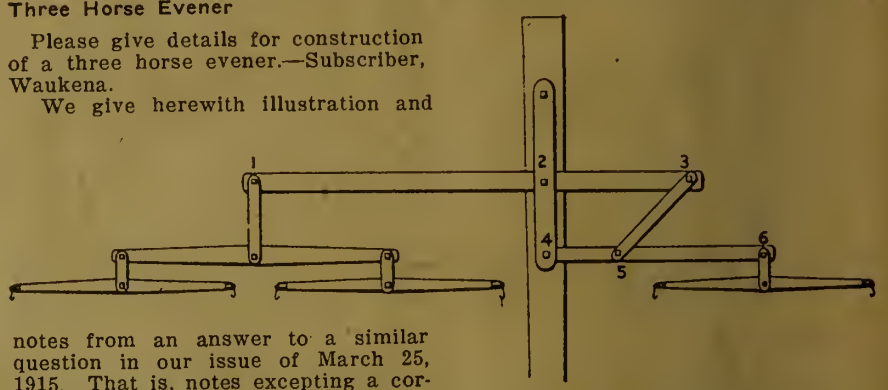
Three Horse Evener

Please give details for construction of a three horse evener.—Subscriber, Waukena.

We give herewith illustration and notes from an answer to a similar question in our issue of March 25, 1915. That is, notes excepting a correction furnished to our paper by A. M. Jones of Modesto. We also give an explanatory note added by Mr. Neff:

"Two feet from 1 to 2; one foot from 2 to 3; two feet from 4 to 6; eighteen inches from 5 to 6; six inches from 4 to 5; six inches will do from 2 to 4. Get your pieces straight and measure distance from 3 to 5. Have square holes cut in irons for bolts, so they can be easily removed. In this cut the nigh horse walks next to tree; should you wish to drive the off horse next to the tree, you can reverse the plan. You must place the double tree part back six inches from the place where you would hitch two horses, or shorten traces. I am using one on a disk and do not notice much side draft."

This was submitted to J. B. Neff, and he writes: "The load at 3 is twice that at 1 and consequently the load at 5 in twice the load at 1. If one horse is to handle this load against two horses at 1 the horse at 6 must have a leverage of four times the distance from 4 to 5. If this is six inches then the lever from 4 to 6 must



be two feet long. Any desired length of evener can be used by remembering to have the ratios as stated above."

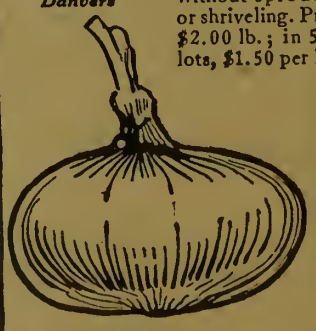
Walnuts in Northwest

An out of the state subscriber wishes information as to possibilities

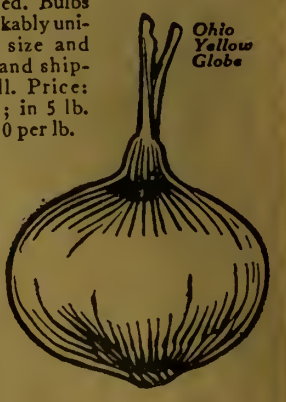
Right now is the time to get onion seed because the time of planting is at hand. And remember: C. C. Morse & Co. are onion seed specialists. You can rely on Morse's seeds to grow and produce; true strain, soil-tested! Here are three varieties we particularly recommend:

Australian Brown, a very early, hardy variety; does well in California. Should be planted early on low, wet ground. Skin is thick; color a rich brown. Keeps late into the spring without sprouting or shriveling. Price: $2.00 lb.; in 5 lb. lots, $1.50 per lb.

Ohio Yellow Globe is the best of the yellow varieties. Skin is bright, glossy orange-yellow; the flesh is white and fine-grained. Bulbs are remarkably uniform in size and shape; stand shipping well. Price: $2.50 lb.; in 5 lb. lots, $2.10 per lb.



Yellow Danvers is the best known of the yellow flat onions; extra hardy and a heavy yielder. Bright orange yellow; flesh white and firm. A standard market variety. Price: $2.25 lb; in 5 lb. lots, $1.75 lb.



Order all your seeds from Morse at once and make ready for planting. Write today for quantity quotations on the seeds you need. Write today for the 1920 Garden guide, a practical manual of Pacific Coast planting. It will help you—and it's free. A post card mailed today brings it.

C. C. MORSE & CO.

Operators of the World's Largest Seed Farms

733 Front Street, San Francisco

Morse's Seeds are obtainable in 5c packets where you do your trading

of growing walnuts in Idaho or Wyoming. This question was referred to J. B. Neff who answers:

There are but few extended areas in the United States where the Perslan walnut will succeed and produce profitable crops. These are almost wholly on the Pacific Coast and close enough to the ocean to be under the influence of the coast winds. Varieties may be developed which will be adapted to the inland conditions, but we do not have them now. The varieties now grown commercially requlre a long growing season with the absence of late frosts in the spring and early frosts in the fall. However there are walnut trees growing in many of the states and under conditions whlch are very unfavorable but unfortunately we have no records of production, though we are often told they are producing crops. There are a few large trees in Washington, District Columbla, one of the largest being in the capitol grounds. Numerous individual trees are to be found in Maryland and in southeastern Pennsylvania. There are some small orchards near Lockport, New York, and trees at Rochester, New York. Some planting has been done in southern Indlana. Very few trees are found in Washington east of the mountalns and the same may be said of Oregon. The varlety grown in western New York would be more likely to succeed in the colder states than any that are grown in Californla.—J. B. N.

Seed "Novelties"

Here is an advertisement which I have taken from daily paper advertising novelties in seeds of fruits, vegetables, etc. Are these of any value and should one invest at these large prices? Think thls is the same advertiser that put out the "butter bean" a few years ago.—Subscriber, Oroville.

The novelties advertised in the clipping sent included "vegetable peach," "preserving melons," etc. Regarding these we have no knowledge and if of same style as the butter bean offering, which as the subscriber suggests was nothing more than a gourd, it is well to pass them up. Where one wishes to keep in touch with latest novelties there are usually offerings made in the catalogues of established and responsible seed houses. These are usually offered for what they are worth and their true name may be given to them. Like gambling, if one has time to throw away a little gardenlng with these might be harmless.

Slobbers

My rabbits seem to have something seriously the matter with them. They at first appear to be sleepy then the nose runs and after a day they begin to foam at the mouth. Some of them have already died. What is the cause and what can be done to remedy the trouble?—Subscriber, Saratoga.

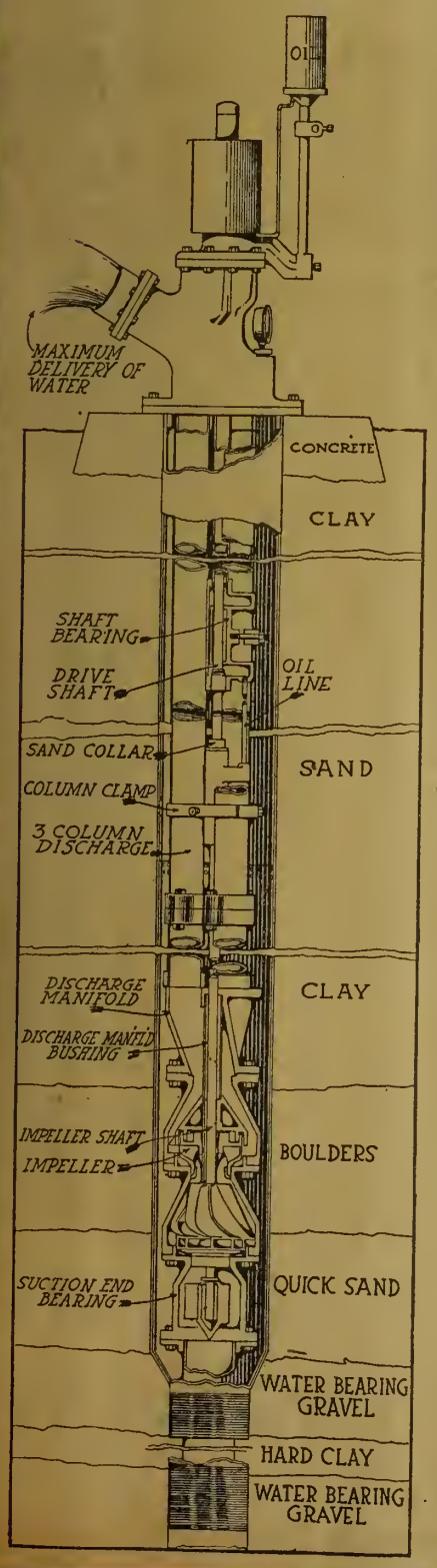
This may be a severe cold; more probably it ls slobbers. We refer the subscriber to the article written by Mr. White on page 493 of our issue of October 11, 1919. In a word: give thorough cleansing to hutches, prevent drafts and feed only dry clean hay with clean grain.

Bantams for Eggs

Would be greatly pleased if you could glve me some information about chickens. Have recently moved into town and have not a great deal of room for chickens, nor do I want to go to much expense for houses, etc., as I am simply renting. So I thought of bantams. Would lt pay to keep a few bantams for egg production? That is for a home supply? What breed ls the best layers? How much feed would they require in proportion to Leghorns? Do you know of any breeder near here? I enclose stamp for reply and thanking you for same.—Subscriber, Santa Rosa.

So far as I can learn, bantams are kept only for exhibition or as pets. Undoubtedly they do lay, and some of them, I know, lay quite well, but if you want merely eggs for the home table, you will find the little White Leghorn the cheapest blrd to keep. That, at least, is the reputation she bears. Six Leghorn hens, kept ln a covered wire pen six feet square or smaller, with a dry goods box to sleep in, and fed on dry mash, some kind of hard grain, and your table scraps, ought to keep an ordlnary family well supplied with eggs. You are in a great Leghorn district and should be able to pick up a few good layers at a reasonable price—J. A. K.

BEAN Turbine Pumps do NOT infringe upon any patent



Important NOTICE

Bean Spray Pump Co. has always respected the rights of others as represented by the ownership of patents.

Bean Spray Pump Co. themselves owners of a number of valuable patents do not manufacture any machinery that is in any way an infringement of the patents of any other company.

No suit has been filed against Bean Spray Pump Co. for infringement of patents, and no suit can or will be filed because Bean Turbine Pumps do not infringe upon the patents of others.

No purchaser of a Bean Turbine Pump or other Bean machinery has ever been sued by anyone on the ground of ownership of machinery infringing upon the patents of others because Bean Turbine Pumps are not an infringement of patents belonging to others.

Bean Deep Well Turbine Pumps are the product of a careful, painstaking organization of pump builders having had many years of experience in the manufacture of pumps of all types.

Different water levels or varying water levels, together with other causes determine the kind of pumping plant that may be profitably installed, and the experience we have gained through constant application to the problems met in the process of irrigating in the West, qualify us to be of real service to the man who has irrigating problems to solve.

Because we manufacture and have for sale all types of irrigating machinery we are placed in a position to recommend and install the kind of plant that is best adapted to the needs of any particular person. We are not forced to recommend and sell one type only.

Our Turbine Pumps are the product of careful engineering, they slip into the well with full control at the surface. No pit, no loss of priming, no valve troubles. This method of installation guarantees a minimum of pump troubles. The pump may be lowered in the well, if this becomes necessary, without the trouble, danger and expense of lowering the pit.

The Bean Deep Well Pump being built with three discharge columns, arranged and clamped together in the form of a triangle, with the drive shaft being held firmly in bearings each 5 feet along the whole length of the pump from the bowls to the discharge head, forms a peculiarly rigid type. Any strain or bend that might occur is distributed along the whole length of the pump rather than in one place.

The drive shaft not being placed in direct contact with the discharge, water is protected in this manner against the sand that is carried in suspension in such water, and which would, were it allowed, cut out the bearings.

Each bearing (placed at five foot intervals) is provided with a flanged collar placed above which prevents any sand or grit entering the bearings, through the medium of water that might come into the well from above.

The Bean Turbine Pump is accessible—perhaps the most accessible deep well pump ever made. If the necessity should arise to get at the pump, or if the water level lowers and you are forced to put in an additional section, you can do it by pulling the pump up one section only, breaking it at this point by taking the nuts off of six bolts, unscrewing the drive shaft, inserting gaskets and a new section, taking up the six bolts again, connecting oil line and drive shaft, and the pump is ready to lower in the well again.

Simplicity and accessibility are valuable features in a turbine pump and they are pre-eminently Bean features.

Investigate this Bean Turbine Pump. Many of them have been installed. Let us send you our literature showing some of our Turbine installations. Twenty years of pump experience is your guarantee of satisfaction.

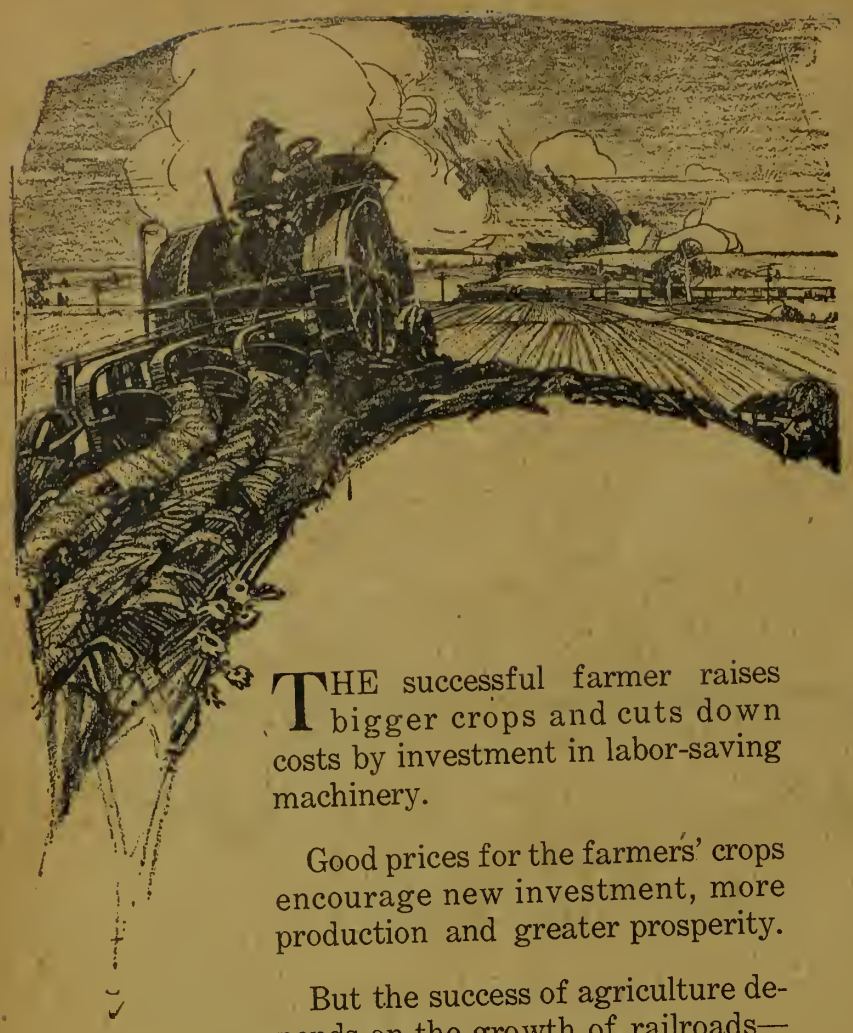
Bean Spray Pump Co.

97 W. Julian St. **San Jose**

Factory Branches { **1321 J. St. Fresno, Cal.** / **131 N. Los Angeles Street Los Angeles**

CLIP AND MAIL

BEAN SPRAY PUMP CO., 97 W. Julian St., San Jose, Cal.
Gentlemen:
Please send without obligation to me, your Turbine Pump Bulletin 29B.
Distance to water below surface of ground in my well is ..... Volume
Probable distance to water when pumping ..... Inches .....
of water desired G. P. M. ..... Its depth.....
Is well straight and true ..... Will you need to use gas
diameter ..... engine or electric motor.....
Name .....
Address .....
Rural Route .....
Box .....



THE successful farmer raises bigger crops and cuts down costs by investment in labor-saving machinery.

Good prices for the farmers' crops encourage new investment, more production and greater prosperity.

But the success of agriculture depends on the growth of railroads—the modern beasts of burden that haul the crops to the world's markets.

The railroads—like the farms—increase their output and cut down unit costs by the constant investment of new capital.

With fair prices for the work they do, the railroads are able to attract new capital for expanding their facilities.

Rates high enough to yield a fair return will insure railroad growth, and prevent costly traffic congestion which invariably results in poorer service at higher cost.

National wealth can increase only as our railroads grow.

Poor railroad service is dear at any price. No growing country can long pay the price of inadequate transportation facilities.

Out of accumulated capital have arisen all the successes of industry and applied science, all the comforts and ameliorations of the common lot. Upon it the world must depend for the process of reconstruction in which all have to share.
—JAMES J. HILL.

This advertisement is published by the Association of Railway Executives.

Those desiring information concerning the railroad situation may obtain literature by writing to The Association of Railway Executives 61 Broadway, New York.

About Tractors and Trucks

By James De Camp

SEVERAL years ago the mere ownership of a tractor was a mark of distinction. Today they are more numerous and commonplace than profiteers or amendments to the peace treaty.

Tractor operation has developed a science all its own. Stated simply, the problem is merely this, to get the most results with the minimum expense for fuel, upkeep and time. The fellow who would not take the trouble to apply a little gray matter to his tractor problems dropped out of the game long ago. The farmer who has puzzled out short cuts, time savers and labor minimizing devices for his particular conditions is reaping returns from the most ravenous market the nation has ever known.

A practice now followed on many large California ranches is that of towing a trailer carrying drums of fuel, water and lubricating oil and a supply of cup grease, tool kit and other necessities to the field where the tractor is to work. Thus tanks may be replenished and repairs and adjustments made in the field with a minimum loss of time. When leaving for the scene of the day's work the tractor can tow its own garage, moving the equipment about at will as needs dictate.

When working upon a schedule that calls for the utilization of every minute some operators rush the game along a bit by descending from the machine on long, straight stretches and making the rounds of the grease cups and oil holes while the outfit is in motion. This, of course, is not feasible with plowing, but works out very nicely with harrowing, dragging and similar operations.

Ten hours of work per day with the consumption of 25 gallons of distillate, one gallon of cylinder oil, five gallons of crude oil and five cents worth of cup grease is the average reported by S. A. Stanley who is operating a large, caterpillar type tractor on land leased by Henry Boos near the Pasadena Sewer Farm. This acreage will be devoted to growing vegetables for Boos Bros. cafeterias.

Mr. Stanley and his tractor hire themselves out for agricultural work of all sorts and have become the best of pals. The owner claims that but one hour per week is required for tightening up the mechanism and making adjustments. During last year this outfit plowed 1,085 acres; subsoiled 44 acres, leveled for 40 days and worked down, disked and harrowed 62 acres. This work was completed with no mechanical expense except the replacing of a bearing which burned out because of clogging of the oil pump.

A scraper operated by air pressure from the driver's seat on the tractor is a feature of Mr. Stanley's equipment. These outfits consist of an air compressor attached to the tractor proper with a hose connection to the pressure tank on the implement and are designed to be operated by a laborer riding on the scraper. In this instance an ingenious control, much like the air brake applicator on a street car, has been rigged up convenient to the right hand of the tractor operator. Thus the wages of one man are saved and the unsatisfactory shouting of directions above the noise of the motor is eliminated.

Owners of caterpillar type tractors state almost universally that their chief source of trouble is clogging of the tread. This bother can practically be eliminated if a few minutes are devoted each day to inspecting this important part of the machine. Some makes provide tanks to feed crude oil to the tread as it revolves and present a barrier to dust and grit. If these are allowed to become empty or run low trouble is inevitable. The tractor tread is similar to the horse's feet or the automobile's tires. Occasional inspection and attention are a positive necessity.

Several transfer and motor trucking concerns have added livestock trailers to their truck equipment and are advertising that they have the facilities to take animals to market. This is a coming business. Direct loading of stock from barnyard and direct delivery to market cannot be compared with the railroad method of waiting for a load to be made up and then running the risk of underfeeding and costly delay and paying extra delivery charges at the other end of the line.

A Great Power Project

Under the war demand for fuel conservation the hydraulic engineers of the United States geological survey served in a field study of power problems.

A power survey of the United States was begun, and at the end of the war Secretary of the Interior Lane asked of congress two appropriations, one of $50,000, for continuing this power survey over the whole United States, and the other of $200,000, for an intensive survey of the industrial zone of the East, where power requirements are most congested. At present in the central power plants of the country water power carries only about 40 per cent of the load, while the total fuel requirement for steam-generated power, including that of the railroads, is not less than 800,000 tons daily. A power program that calls for the immediate and full development of every available and feasible water power, moreover, means saving both in coal and in man power, and with this purpose of securing the double conservation, the investigation has been proposed. The first step is to get the facts for the country as a whole and particularly for the North Atlantic industrial district.

This "super-power" project, which engineers agree seems wholly practicable but which can be regarded as now only in the vision stage, is to pool the power supply for the whole industrial area between Boston and Washington, in which is concentrated one-fourth of the power-generating capacity of the country. Such a unified power system would tie together properly located steam-electric and hydro-electric plants—old plants that are efficient as well as new plants—in a great power main from which would flow the energy to serve a score of railroads, hundreds of public service companies, thousands of mills and factories, and millions of homes.

The subject is necessarily one for interstate investigation and is linked with the national problem of providing adequate transportation facilities. Electrification of our railroads would effect fuel economies of more than 50 per cent in coal consumed, not to mention the greater efficiency of electric traction through increasing road capacity. Equally important, moreover, is the relation of cheaper power to American industry. As stated by Secretary Lane in a letter transmitting the estimate for this appropriation: "Only by increased economy in the production and distribution of power will it be possible for our manufacturers to decrease their production expenses and compete successfully in the world's markets, maintaining at the same time the American standard of wages and living."

LIGHT BURNING IN CALIFORNIA FORESTS

That the forest service is unalterably opposed to the practice of "Piute forestry," or the so-called light burning of timberlands at frequent intervals, is stated emphatically by Colonel Henry S. Graves. California, according to the chief forester, appears to be experiencing a wave of propaganda for "Piute forestry," a term given to the frequent burning over of timberland because this practice was followed by the Indians many years before the advent of the white man.

"The advocates of light burning," said Colonel Graves, "claim that by burning the woods every few years the forest will be kept clean of inflammable debris without injuring the merchantable timber. Hence serious conflagrations which, fed by such growth, underbrush and litter, run

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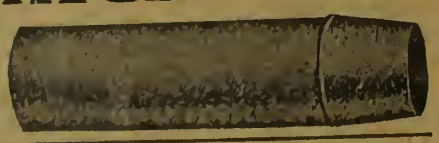

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into the tree tops and kill the large timber supposedly would be rendered impossible. As a matter of fact this process of repeated burning, beginning back in the Indian days, has steadily depleted the forests.

"There are today nearly 2,000,000 acres of land in the national forests of California which were once heavily timbered but now have been reduced to barren brush fields by fire. This is not the work of one fire, or a few fires, but of repeated burnings, extending over 50 or 100 years.

"It is impossible to fire the pine woods of California on any extended scale without destroying with every burning at least a considerable portion of the small growth and at the same time eating out little by little the butts of the old trees. The next fire, whether following in one year or several years, extends this destruction. Every traveler through the Sierra is struck by the openness of many of their pine forests, by the patches of brush encountered everywhere from which trees have disappeared. Many a fine sugar or yellow pine has been burned out at the base until the wind toppled it over. 'Piute forestry' was steadily wiping out these forests until they were placed under federal protection.

"The practical results of protection may be seen on hundreds of thousands of acres of pine forests in the federal holdings, where fires have been kept out successfully for 12 or 15 years. These areas afford a striking contrast to the 'clean' land where light burning has been practiced. Instead of there being no vestige of young growth, the open spaces have been filled with thickets of pine saplings. In these forests future timber crops are assured. This is the kind of forest which the state of California needs for the protection of its irrigation and water power sources, for insuring a perpetual supply of lumber for its intensive agriculture, and for safeguarding its whole economic and industrial future. California can have such forests if no quarter is given to the light burning idea and all interests get behind a real program of fire protection."

DWARF GRAIN SORGHUMS

As the result of long continued experiments in the production and improvement of grain sorghum varieties in the dry and elevated portions of the southern Great Plains, the United States department of agriculture announces the following conclusions:

Many varieties produce well in favorable seasons. Only well adapted varieties produce well in the less favorable and in unfavorable seasons, which comprise about three-quarters of the total number.

Earliness is the most important single factor in the varietal adaptation of grain sorphum crops to the conditions obtaining on the high plains of the Texas Panhandle.

Dwarfness is the next most important factor in the adaptation of these crops.

The combination of earliness and dwarfness is extremely efficient in insuring adaptation to environmental conditions which include frequent periods of drouth.

Dwarf milo, Dawn (dwarf) kafir, and Sunrise (early) kafir are well adapted varieties.

Dwarf milo and Dawn kafir are meeting with wide approval on the farms of the high, dry plains.

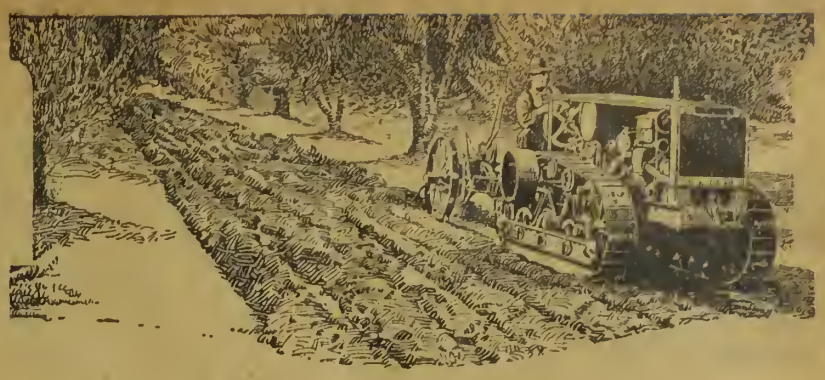
Germination and stand are governed largely by local conditions at sowing time.

Tillering, or the production of suckers, is a varietal or group character to some extent. In part, it is correlated with stand and seasonal conditions.

The production of erect heads is largely a group or varietal character, but is influenced by the same factors as tillering.

The eggs of the tent caterpillar are deposited in masses around the small branches of apple trees and the winter is passed in this stage. Watch for them while pruning your orchard and cut out these egg masses and burn them. This will prevent future loss and effect a complete control.

The most effective method of controlling the melon or cucumber aphis is to destroy the infested plants as soon as the pest occurs.



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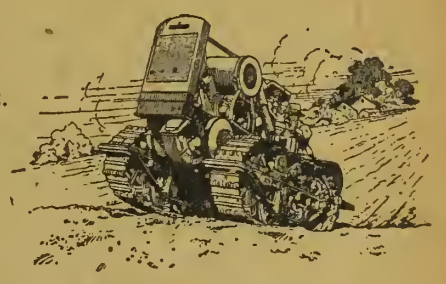

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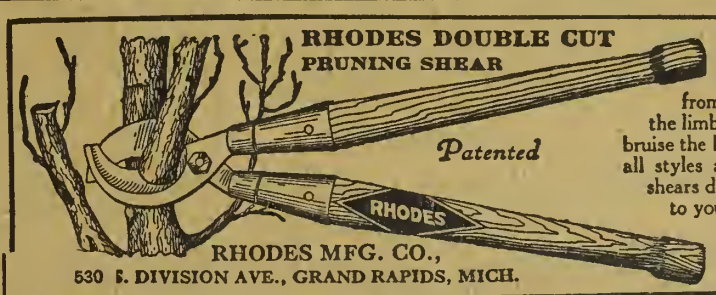

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Relative Resistance of Crops to Alkali

THE experiment station of the Utah agricultural college has issued a bulletin largely made up of charts showing relatlve resistance of various crops to alkali. The bulletin was written by F. S. Harris and D. W. Pittman. As noted, lt is mostly glven up to charts showing action of various crops under various percentages of different soluble salts, especially alkali, which is credited with being the chief limitlng factor in crop growth. From the summary, or discusslon of results, we quote:

Discussion of Results

These experiments show tests for 14 varleties of oats, eight varleties of wheat, three varieties of barley, rye, seven varieties of corn, three varieties of millet, five varieties of the sorghums, eight types of forage legumes, four varieties of beans, seven varieties of grass, five varieties of vegetables, sugar beets, buckwheat, hemp, flax, and rape.

On comparing the different varieties of oats, it is found that a considerable similarity exists in the resistance of the different varietles, Boswell Winter, Red Rust Proof, Black and Wbite Tartar, and Colorado No. 9 in the order named being more non-resistant than the othcr varieties. The lower concentrations of salts usually produced stimulation in growth. This stimulation contlnued up to about 1,000 parts per million of the chlorides, about 2,000 parts per million of the carbonates, and about 3,000 parts per milllon of tbe sulphates. When the concentrations were made higher than the amounts given there was a rather rapid decline in the yield and number of plants germinated.

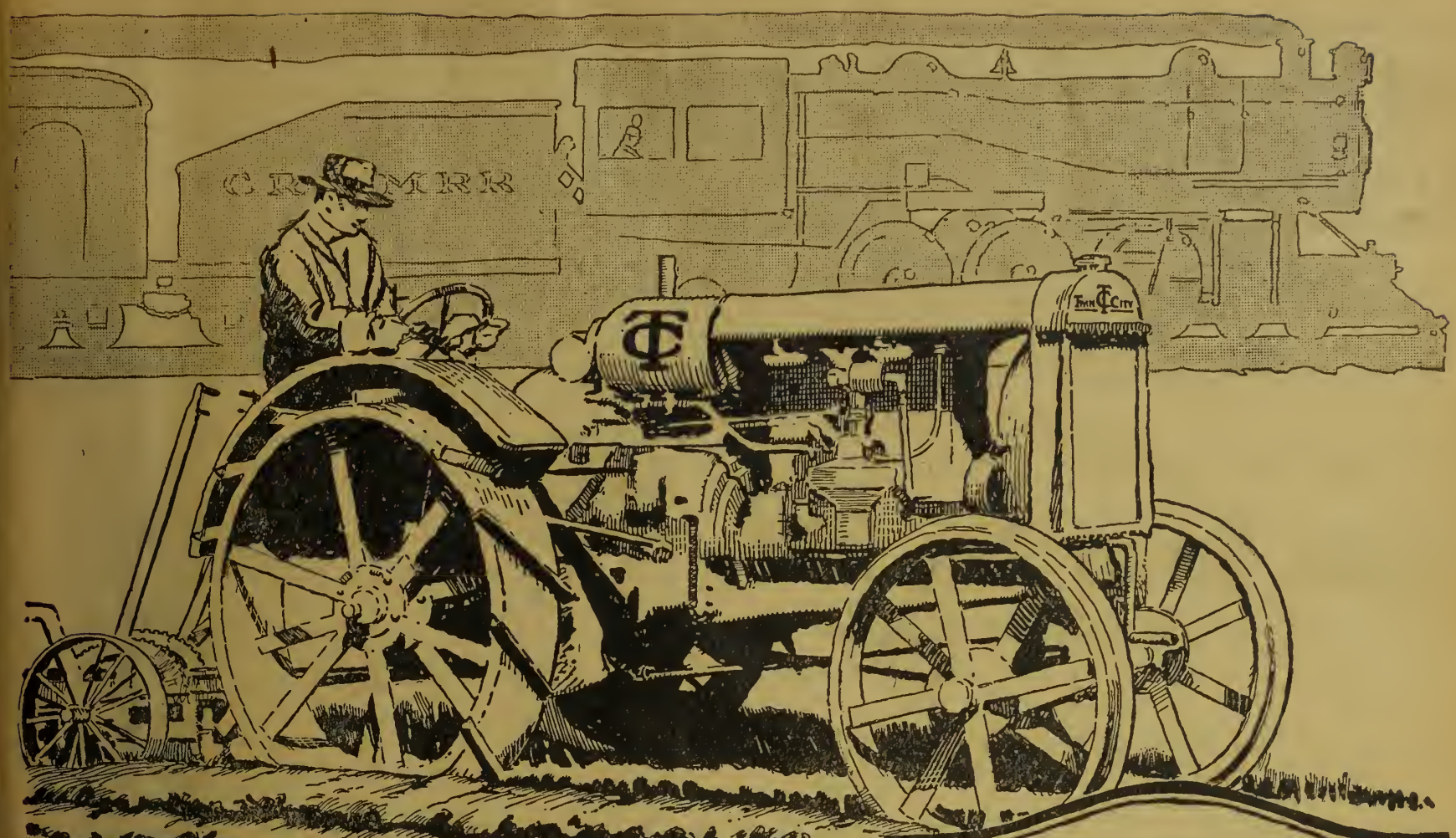
The varieties of wheat showed about the same conditions that were noted between tbe varieties of oats, Turkey Red being the most resistant and Velvet Don the least. Elnkorn was slightly less resistant than most of the varieties of wheat. Of the tbree varieties of barley testcd, Black Hulless was most resistant and Utah Wlnter least. Only one varlety of rye was tcsted; this was among the most resistant of all crops undcr investigation. Corn began to show toxicity at low concentrations but some crop was produced even at the highest concentrations tbat were used. In comparison with most other crops, corn seemed to be affected relatively more by the chlorides than by the carbonates or sulphates. Mllets in general showed about the same resistance as corn, although German millet was less resistant than any of the corn varieties with the possible exception of White Rice popcorn. Of the sorghums, Collier's was most resistant and milo least. Milo was among the most sensitive plants tested wltb the exceptlon of some of the grasses. Halry vetch showed relatively greater tolerance for chlorides in comparison with other crops. The growth of alfalfa was prohibited by slightly lower concentrations than that of sweet clover. Neither of these crops shows unusual resistance in the seedling stage. Tbe larger seeded plants in general seemed to be able to germinate better In alkali land than the small seeded ones. There are, however, some exceptions to this rule. The growtb of beans was stimulated by small quantities of alkali, although growtb was entlrely prohibited at the higher concentrations.

Of the grasses under investlgation, the rye grasses were more tolerant than other varieties. Kentucky Blue grass was the least tolerant of all crops under investigation Orchard grass was only slightly more resistant. Rape showed much greater resistance for the chlorides tban for the carbonates or sulphates. If chloride was used as the indlcator rape would be placed among the most resistant crops, whereas if the carbonates were used it would be considered one of the most tender. Sugar beets on the other hand were stimulated by lower concentrations of carbonates but were affected very deleterlously by the sulphates and somewhat less by the chlorides. Kohlrabi showed great resistance for the lower concentrations of sulphates but was decidedly affected by even the lower concentra-

(Continued on Page 153)

Frost Protection Scenes

While there has been no extreme freeze this season the weather has been so cold on many mornings that as a matter of safety many orchardists have started the heaters. The upper scene shows oil storage tanks near Claremont, Los Angeles County. The tower in background has been used in the making of observations by experts of the weather bureau of the department of agriculture. The lower roadway scene shows method of banking heaters along the upper side of the Willis Jones orchard near Claremont. Mr. Jones cooperated with the department experts in making observations which have been of great value to citrus orchardists.



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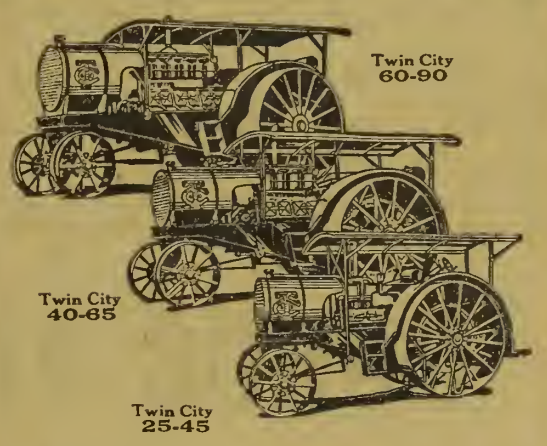

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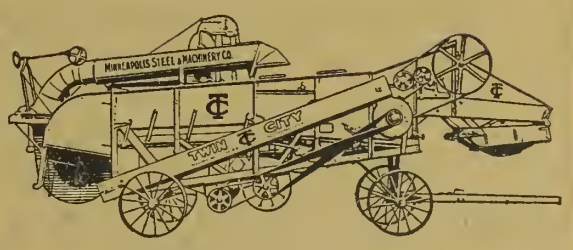

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The sows in this sale are outstanding as to type and individuality and have proven prolific and good mothers. The opportunity of purchasing at public sale proven sows such as these rarely presents itself.

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The Greatest Event in California Duroc History

The best 40 bred sows ever sold in the West bred to the greatest sire on the coast,

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Sale Ring Ethics

CALIFORNIA livestock interests should be congratulated over the fact that to date very few, if any, of the common practices that have been permitted to develop in the auction business in the older sections have been introduced in local sales. The Cultivator has always felt that there was no real reason why livestock sales should not be conducted on a dignified basis and we have never seen any real reason for using as many men in the ring as is often the custom in Eastern sales. Besides adding unnecessary expense to the breeders' cost of selling the practice adds confusion to the buyer who is really interested in the sale. Not long ago the editor of The Shorthorn in America commented on the number of "ring men" used in some sales and his remarks have been widely reprinted. With the hope that the suggestions offered may serve to steer some of our own breeders away from the practice we take the liberty to quote as follows:

"There is a growing impression that the methods employed in auction sales of pure bred cattle, in fact of all breeds of livestock, might be improved upon somewhat. A practice, originated nearly a score of years ago as an aid to the auctioneer when the crowds were large, has its usefulness, but it has also its limitations and objections. It is the practice of the use of ring men who solicit bids. As we say, this plan is not without its merit nor its shortcomings. With the expansion of the business the practice has become general on the theory possibly that if a little was good more would be better.

"Not infrequently now do six or seven men take their places in the ring for the purpose of soliciting bids. In some instances the ring is so small as to render it not only inconvenient for the men in the ring, but the procedure becomes inconsistent with the needs of the sale.

"We have in mind one instance where seven men worked in a space so limited that the bidders could scarcely get a view of the cattle offered. The confusion resulting from this number of solicitors who were energetically urging the crowd to 'come across' caused the sale to take on an aspect far removed from the ordinary conception of an auction.

"We recall that one of the bidders, a veteran cattle breeder, finally stood up and requested on behalf of the bidders and those who were interested in the success of the sale that a part of the 'selling force' in the ring be withdrawn and that those who remained proceed with less noise and confusion. His request was timely, for these had been frequent duplication and misunderstanding of the bids and the auctioneer in the box scolded the stockmen present for causing so much confusion, a condition that was caused not by the stockmen but by the solicitors in the ring.

"Perhaps this feature is a factor in disseminating livestock, but after a rather long experience and broad observation we are inclined to believe that it more often works to the injury of a sale. We do not question the motives of those who offer their services in this way. We know a number of press representatives who have repeatedly rendered useful service in the sale ring, and who acted upon the urgent request of those holding the sale.

"We are well acquainted with a number of auctioneers who are very proficient in this particular field of activity, but we also recognize that it is being overdone. The seller's interest and the buyer's convenience and purposes are in many instances alike jeopardized. Bids are often misunderstood.

"Two men claim the same bid and in the rush of the sale one or the other becomes irritated. Occasionally disputes arise, and all this makes for the injury rather than the benefit of the sale. It is important that the sales be conducted on an orderly plan. It is not desirable that bidders be urged beyond reasonable limits. A man may be a bidder and still be human. He may be obliged to remain within the scope of his credit. He may have well defined purposes. Perhaps he has a little judgment of his own.

"We heard this rather interesting comment recently concerning two auctioneers. In referring to one the speaker said, 'His trouble is that he knows values too well, and when an animal reaches or goes a little beyond its value he knocks it off, but the other auctioneer has little conception of values and consequently keeps on fighting for bids and is, therefore, of more value to a sale.'

"We will admit there is something in this, but in the main there is a limit to values, and there is always danger of causing disappointment and possibly ill-feeling when a bidder is urged too far. As a rule these efforts are good natured and are accepted in that spirit, but after all there is among our people a good deal of sentiment Courtesy plays its useful part, and there is a certain dignity about the business deserving recognition.

"These suggestions are not made with any attempt at criticism, but rather to aid in working out a plan that may be more popular and more appropriate. Our sales have been singularly free from the effects of the methods indicated—yet not entirely free. We draw into this business many men of broad business experience, and it is important that they should regard an auction sale in its true light and not gain the impression that bedlam prevails or that a man is liable to be 'bullyragged' or 'strong-armed.'

"We have purposely stated this rather in the extreme to draw attention to a practice which has its usefulness and its drawbacks. We recognize the need of a little check on this practice before it assumes larger proportions.

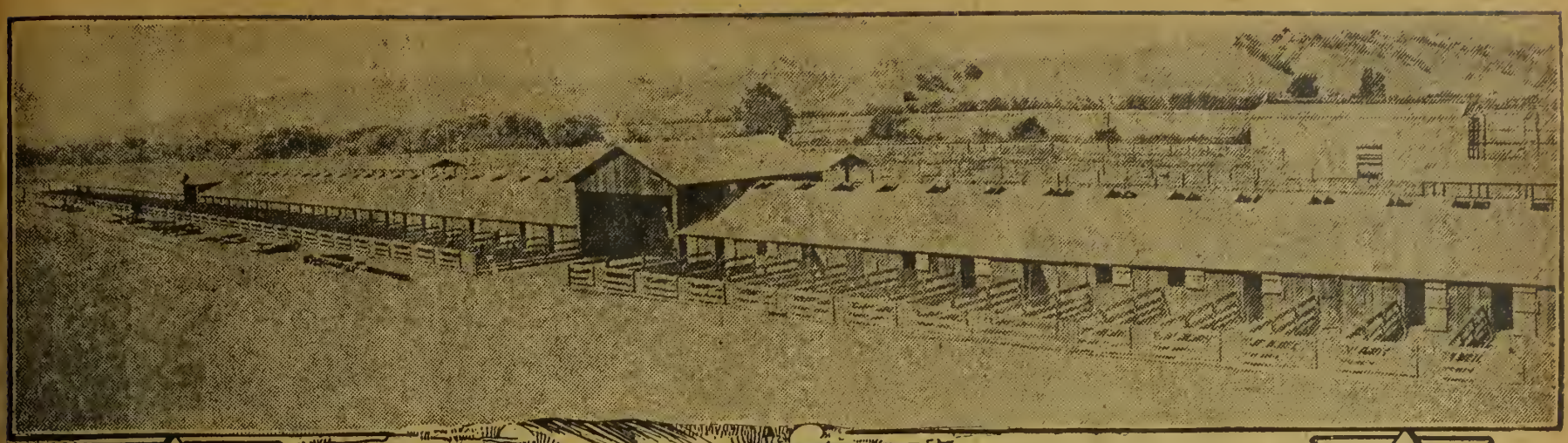
"We are confident that the auctioneers would be glad to see such an improvement brought about. We know the press representatives would be glad to be relieved of a rather arduous and strenuous task. We believe the bidders would welcome some little change in the methods. We realize that the seller's interest would be better safeguarded thereby."

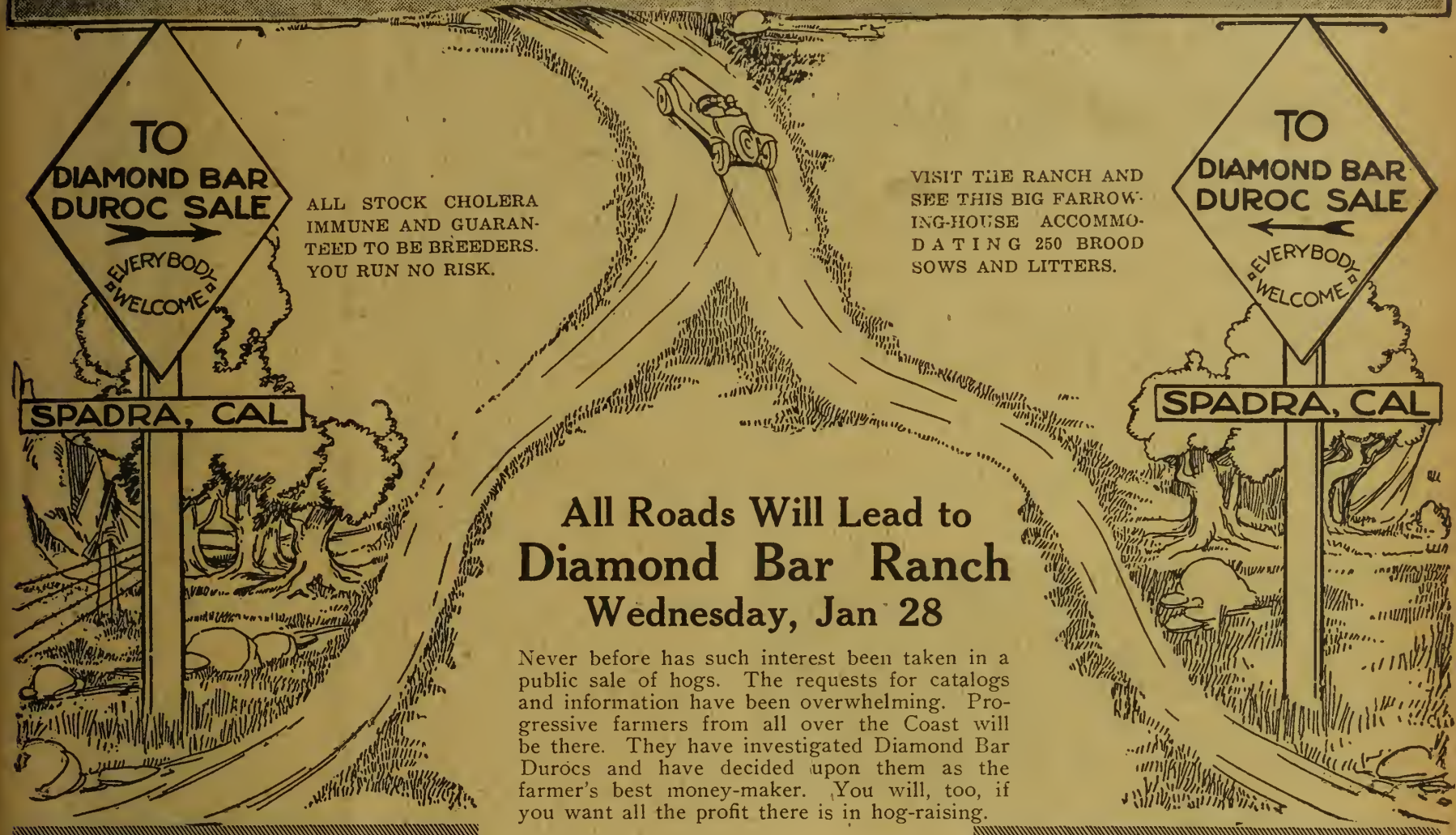
Along the same line, and suggested by the article just quoted, R. J. Evans, secretary of the American Duroc-Jersey Association, writing in a recent number of tne Duroc Bulletin, raises the question as to whether some Eastern breeders are running public auction or side shows. He says in part:

"We repeat what we have so often written—one good auctioneer who who knows something of his business, knows the breeders and knows something of values, is worth more than a dozen, and one assistant in the ring is better than more. We wish the breeders would just one year manage their own business. Figure out just what constitutes good business management of a sale, hire their auctioneer and contract for advertising on the same basis as would a good level headed business man. If the majority of breeders would do that just one season, there would be some candidates for other jobs than bleeding breeders of pure bred hogs. Who wants to sit at the ringside and have his eardrums cracked by a lot of ballyhooing, seesawing and unnecessary, noisy begging for the bidders to bid just once more?

"If men and women want that sort of thing they hunt it up at the carniva and the circus when their whole mind is free from business and noise is a part of the program. There ought to be more dignity to the public sale business, not only in the cattle rings but in hog auctions. They smack too much of boys' play and not enough of business methods employed in sales held on a higher plane.

"We need not sit with long faces as if at some obsequies, but there is a middle ground where men can meet at the ringside, their minds on a business transaction, the auctioneer and acting as if they were really human, the sale conducted quietly and earnestly, without the 'bullyragging' and 'strongarm' method. Truthful description of animals catalogued, followed by a dignified sale, where only legitimate bids are used, will in the long run net the seller more satisfaction and year in and year out add more to his bank account and his reputation as a breeder and a man, than





All Roads Will Lead to Diamond Bar Ranch Wednesday, Jan 28

Never before has such interest been taken in a public sale of hogs. The requests for catalogs and information have been overwhelming. Progressive farmers from all over the Coast will be there. They have investigated Diamond Bar Durocs and have decided upon them as the farmer's best money-maker. You will, too, if you want all the profit there is in hog-raising.

California's Greatest Duroc Sale

Here is your opportunity to get corn-belt stock at Coast prices. Do you know that the leading Eastern breeders are expecting to shatter all former records for high averages at their sales this winter? Why? Because they will offer Pathfinder, Sensation and Wonder stock—the kind that is in such great demand.

That is the breeding we are offering in our sale. There will even be litter-mates and half sisters to these animals that are establishing world records in both sale and show rings. Wouldn't it be good business for you to buy one of these sows bred to a champion boar and have the same blood lines in your herd? Then, as you read of these whirlwind records that will be made this winter, you can sit back and say: "They haven't a thing on me. I have the same breeding." Remember—every sow in this sale was sired by a champion boar and bred to one.

40
Bred Sows and Gilts

A Wonderful Offering

10 TWO YEAR OLD and SENIOR YEARLINGS—By Model Chief 2d, Model Triumph and Councillor.
10 YEARLING SOWS—By Pathfinder, Great Wonder I Am, Pathfinder's Wonder, A Top Pathfinder and Creator.
10 FALL GILTS—By Bark's Premier Gano, King's Col., Golden Col. and Creator.
10 SPRING GILTS—By California Great Wonder, the undisputed Champion of 1918.

Bred to Champion Boars

ACE OF PATHFINDERS—Grand Champion at Los Angeles and second to the World's Champion at National Swine Show.
MAMMOTH SENSATION JR.—Reserve Grand Champion at California State Fair and largest junior yearling shown.
GREAT SENSATION 2nd—Winner in his class in 1919. Grandson of Great Wonder I Am and a sure future champion.

Last Call---Be There
January 28

Sale will be held under cover, rain or shine, commencing at 12 o'clock. The ranch is near Spadra, on the Valley Boulevard, 28 miles east of Los Angeles and 4 miles west of Pomona. See big sign at gate. The Orange Belt Line (A. R. G. busses) and White Bus Line run motor stages every half hour from the Union Station, Fifth and Los Angeles streets, Los Angeles. Similar schedule from Pomona.

SEND FOR YOUR CATALOG TODAY.

Diamond Bar Ranch

Where Size is the Fashion and Quality Reigns Supreme

Walter T. Gatton, *Superintendent Swine Dept.* **SPADRA, CAL.**

Send mail or telegraph bids to the auctioneer or to Ralph P. Royce or Bruce S. Bennett, California Cultivator field men, care of Diamond Bar Ranch. They will be given every consideration.

Fresno District
Duroc-Jersey Breeders Sale
FRESNO, CALIF.

Wednesday, Feb. 4 1920

-40-
"Regular" Bred Sows and Gilts
with Size, Bone, Conformation and Quality

The offering has been selected with care from the following herds:

Fitzwilliam Ranch, Burrell; J. P. Mallory, Fresno; Guy McClune, Fresno; J. W. Schmitz, Madera; J. G. Roberts, Madera; H. H. Bereton, Sanger; Harry Hill, Riverdale; R. H. Lewis, Riverdale and Hillcrest Farms, Caruthers.

Therefore this sale affords an opportunity to select at one time stock from widely separated herds. The management of the sale has been particular to catalog only such sows and gilts as was felt would be appreciated as representative of the best in Durocs. Special emphasis has been laid on size, bone, conformation and quality.

California Durocs at Chicago

The breeding represented in the offering includes sows and gilts either sired by or bred to the following well known California boars: Col. Golden by Col. the King, Crimson Orion Cherry King by Joe's Orion Cherry King, California Trailfinder by Col. Trailfinder, McClunes Preceptor by Big Preceptor, a son of Orion Sensation, Great Select by Orion's King E., Sunkist Winner by Big Preceptor and Hillcrest Wonder. Surely in such an array of bloodlines the wants and needs of any man can be taken care of.

There's a Reason for Raising Durocs!

1. Durocs fill every demand of the practical hog raiser.
2. Durocs are prolific.
3. Durocs mature rapidly.
4. Durocs breed uniformity in size, type, conformation and color.
5. Durocs are vigorous, hardy, good rustlers and good mothers.
6. Durocs are profitable.
7. Durocs outnumber any other breed.

The Sale will be held at
The Fresno Fair Grounds
Lunch will be served

For Catalog, address the Secretary
H. H. BERETON, SANGER, CALIF.
Geo. W. Bell, Auctioneer

all the padded bids and ballyhoo methods he can hire the auctioneers and fieldmen to use.

"Let us acquit ourselves as men pursuing a calling that has no superior if conducted on the right plan. Let our transactions be open and above suspicion. We will win in the end."

DUROC ASSOCIATION SALE A SUCCESS

The first consignment sale of bred sows and gilts to be held under the auspices of the California Duroc-Jersey Breeders Association was held at the university farm, Davis, January 14, and resulted in the fine average of $166.50 on the 36 head sold. The sale was organized as part of a broad plan of breed promotion work that the association has undertaken and the offering has been carefully selected from a number of the leading herds of the state. The sale was widely advertised with the view of inducing new men to take up the breeding of pure bred hogs and the large crowd in attendance indicated the marked interest that California ranchers are manifesting in better livestock of all kinds.

S. E. Whiting of Sacramento, who entered the Duroc business last summer, was the heaviest buyer, securing 16 head of the tops. J. P. Walker of Visalia secured the top sow, Big Queen, a granddaughter of Golden Wonder and out of a Chief Invincible dam consigned by F. M. Johnson of Napa, at $550. The same buyer also secured Pathfinder's Queen 2d, a February gilt by Pathfinder's Likeness, at $310. Whiting got Reggie's Delight of Mossdale, consigned by J. E. Thorp, for $355, the second highest price. Lincoln White of Sacramento took six head at good prices.

For the most part it was felt that the top animals could have fetched considerably more money in view of the bloodlines and individuality represented, but the consignors were generally well satisfied.

Col. Ord L. Leachman of Sacramento was the auctioneer.

Consigned by J. E. Thorp, Lockeford
1. L. White, Sacramento, $135.
2. S. E. Whiting, Sacramento, $355.

Consigned by Greenwood Farms, Live Oak
3. S. E. Whiting, $110.
4. Boston Land Co., Westhaven, $150.

Consigned by H. P. Slocum & Son, Willows
5. S. E. Whiting, $170.

Consigned by W. M. Way & Son, Visalia
6. H. M. Berglund, Dixon, $100.
7. L. White, $110.

Consigned by R. C. Sturgeon, Tulare
8. Bowden & Bacon, Hughson, $230.

Consigned by Winsor Ranch, Bonita
9. S. E. Whiting, $230.

Consigned by Donald H. Graham, Lancaster
10. S. E. Whiting, $175.
11. S. E. Whiting, $225.

Consigned by Hollingshead & Sons, Orland
12. L. White, $135.
39. S. E. Whiting, $135.

Consigned by Elmer Lamb, Ceres
13. S. E. Whiting, $220.
14. S. E. Whiting, $160.

Consigned by J. Boyd Harrold, Dixon
15. L. White, $115.
16. E. G. Stone, Modesto, $100.
40. L. White, $115.

Consigned by University of California, Davis
17. E. Crane, Davis, $160.

Consigned by V. F. Dolcini, Davis
20. F. Trueblood, Sacramento, $200.

Consigned by George A. Spencer, Sacramento
21. S. E. Whiting, $90.
24. S. E. Whiting, $90.
25. L. White, $90.
26. L. White, $90.

Consigned by S. E. Whiting, Sacramento
22. L. White, $135.
23. F. Trueblood, $150.

Consigned by F. M. Johnson, Napa
27. J. P. Walker, Visalia, $310.
28. J. P. Walker, $550.
29. S. E. Whiting, $250.
30. S. E. Whiting, $200.
31. S. E. Whiting, $210.

Consigned by J. D. Rowe & Son, Davis
32. Hollingshead & Son, $100.
33. S. E. Whiting, $115.
34. Greenwood Farms, Live Oak, $100.
35. S. E. Whiting, $95.
36. B. K. Howatt, Davis, $90.

CHANCE FOR DAIRYMEN

Burr Farm, Los Angeles, will offer at public auction Tuesday, January 27, at their farm, East 26th Street, Los Angeles, 100 dairy grade cows and 20 pure bred registered Holstein bulls. The bulls are all young, ranging in age from one month to one year. The sale starts at 9 a. m.

A DUROC-JERSEY DAY

The numbers of Duroc-Jerseys in the southern end of the state are indicative that that breed is becoming a great favorite south of the Tehachapi. One of the larger breeding ranches has been located near San Diego. It is known as the Winsor Ranch. The manager, R. K. Walker, spent much of last summer in different Duroc producing sections of the East and at this time he selected 86, all fine spring and fall gilts. Some of these, together with other home bred animals, will be offered at public sale January 29. The sale will be made at Exposition Park, Los Angeles. Regarding the offer, Mr. Walker writes:

"The sows are sired by such boars as Great Orion Sensation, Orion Sensation, Great Model, Great Wonder, Great Wonder I Am, Orion Fancy King, Grand Model 8th and Grand Models Type.

"The sale hogs will be bred to Winsor's Giant Orion, the largest boar on the Coast, and a boar which we think will be pronounced the greatest sire ever in the West when his pigs, now being grown out in several herds in the state, are shown at the fairs this fall. They are the extreme big type, but combine with their size feeding qualities that are exceptional for such large animals.

"Winsor's Giant Orion himself is sired by the world's grand champion Orion Cherry King Jr., who sold lately for $16,500 when over six years old. In winning his world's championship he defeated 11 state fair champions and grand champions.

"A few of the sows in the offering will be bred to Great Sensation 3rd, an outstanding fall boar by Great Sensation, and a few to the well known Winsor Ranch boar Great Model."

The WESTERN BERKSHIRE CONGRESS
is preparing a
PUBLIC SALE
OF
20 Bred Sows and Gilts
and 5 Young Boars

From which any
Farmer can buy at
His own price.
Outstanding animals
Of the kind that
Have made Berkshires
The popular hog the
World over.
The sale will be held
At the

University Farm
DAVIS, CALIF.
Wednesday, Feb. 18, 1:30 PM
For Catalog write the Secretary
Frank B. Anderson
Box 724 SACRAMENTO, CALIF.

Westrobac
Los Angeles, Calif. 618 So. Spring St.
San Francisco, Calif. 440-442 Sansome St.

Geo. W. Bell

The Auctioneer

Tulare Sale Dates

Saturday, Jan. 24

H. D. McCune's Big Type Poland Chinas. Hanford

This will be one of the most attractive offerings to be sold this season. King's Massive Orange, and a son of the great Surprise Prospect, also a son of Giant Buster heads the herd.

Monday, Jan. 26

Grand Champion Sale. Fresno

Giant Bob the greatest Poland China boar, west of the Rockies heads this herd of 65 head. All Big Type and Eastern bred. A complete dispersal sale at Fresno Fair Grounds. Chas. Gatewood.

Wednesday, Jan. 28

Big Type Sale of Poland Chinas

Here is a class of brood sows—the breeders of California are greatly in need of blood lines of winning families. Sale at ranch four miles north of

MODESTO. Hale Marsh

Thursday, Jan. 29

The Kings Day in Polands

King's Big Bone Leader, is my name. I set the pace in this sale. I am the highest priced Poland Boar ever sold in California at public sale, and I am permitting my owner, Mr Les McCracken, to sell some of my daughters and an extra good lot of sows that will farrow pigs, that look like me.

Meet me at my home, Sale Day, one mile north of

RIPON

Friday, Jan. 30

Holstein sale of 46 head registered cows and heifers, 25 high grade cows, part of them just fresh, balance will be soon. Pure bred herd bull. Parties desiring good cattle should be with C. F. Mohnike.

ANGIOLA, Old Dixie Ranch

California Breeders Sales and Pedigree Company. C. L. Hughes, Mgr.
Cols. Rhoades and Bell, Auctioneers

Saturday, Jan. 31

Big Free Beef Barbecue. Spanish Beans

150 head, Horses and Mules, consisting of 60 mules just ready to go to work, or market, good size, young, nicely mated; 90 Horses, suitable for all kinds of work. Horses from 1050 pounds for saddle and light work horses, to horses that weigh 1900; a few good mares. Sale at my barns in

TULARE. J. D. Faught

Monday, Feb. 2

Dairy Sale. Palms Ranch

TULARE

165 head high grade Holsteins, 50 cows, all young, and just fresh, in last four weeks, heavy milkers, nicely marked. 40 choice cows, that are due to freshen in from 10 days to four weeks. 25 dandy heifers to freshen soon, 50 feeder hogs.

W. A Duncan

Tuesday, Feb. 3

Closing out ranch sale. Cows, heifers, hogs, horses, implements. One-half mile east and one-half mile north.

CORCORAN T. E. Cochrane

Wednesday, Feb. 4

Duroc-Jersey Hogs

Consignment sale of Fresno Co. Duroc Breeders Association, 50 head tops from the herds. Bred sows and gilts. Blood of the breed's most noted sires.

FRESNO. Fair Grounds. H. H. Bereton, Secy.

Thursday, Feb. 5

Mammoth Sale of Stock, 500 Head

Account having sold ranch we will sell our high grade herd of Shorthorn cattle, headed by our registered bull we bought in Iowa. We have eight head of registered Shorthorn cows and bulls. Our stock consists of two pure bred bulls, six pure bred cows and calves, 1 carload fat steers and cows (30 head), 25 coming yearling bulls, heifers, extra good, 120 head cows, calves, steers, heifers. 2 carloads fat hogs, ready for the market, corn fed and smooth. 100 head feeders weighing about 125 pounds, 20 brood sows and pigs, work horses, 75 tons of hay, implements.

G. C. Snyder. Sale 4 miles north east DELANO

Friday, Feb. 6

Big Type Poland Chinas

Catalogs are out telling about 60 head that will fill the bill. Bred sows that are mated to the outstanding sires of the Pacific Coast. Blood of the highest priced Polands in the United States will be sold in Tulare.

Consignment Sale Tulare County Poland Breeders Association
H. C. Shinn, Secy.

☞ Meet me at my Sales. Let us get acquainted. I might be able to make you some money on your sale.

Geo. W. Bell

The Master Sale

Castleview Ranch announces it's first annual Public Sale of strictly high class

BERKSHIRES

at Santa Rosa, Feb. 14th, 12.30 P.M.

Rain or Shine

25 Actually Bred Registered Sows and Gillts, including The Grand Champion Sow of America

Rookwood Lady 100th

The Only National Grand Champion of Any Breed, in California

This sale affords the first opportunity to secure prize-winning animals bred to our great English blood boar, "ACHIEVER," a grandson of "Epochal."

Every animal in this sale is sired by a Grand Champion Boar, of National reputation, such as,

Rival's Champion Best, Grand Leader 2nd.
Baron Duke 201st, Ames Rival 102nd. Mayfield Rookwood 2nd.

If you cannot attend the sale in person, send mail bids in care of the California Cultivator, Rural World or Rural Press, or the Auctioneer, Col. Ord L. Leachman, Sacramento, Calif.

Catalog is Ready Now. Send for Onh

Castleview Ranch, Santa Rosa, Cal.

Home of World, National and State Grand Champions

A Profitable Date to Remember

Tulare, Cal.

Thursday, Feb. 12, 1920

50 Bred Duroc-Jersey Sows and Gilts

10 to 15 Open Gilts

will be sold in the sale to be held by the

Tulare County Duroc-Jersey Breeders Association

It is our belief that a better bred lot of sows and gilts have never been offered on the coast. They come from not only the herds of the Tulare breeders, but from the representative herds of the state, as well.

The demand for good Duroc-Jerseys is so heavy that the supply is limited and we trust you will appreciate the offering. Recent sales indicate a strong demand for bred Duroc-Jersey sows and gilts. You will find them in this sale. Sale will be held in sale pavilion, Tulare, and will start at 12:30 P. M. Lunch at 11:30.

Geo. W. Bell, Auctioneer

Tulare County Duroc-Jersey Breeders Association

Allen Thompson, Pres. Tulare, Cal. R. C. Sturgeon, Sec'y

Catalog Sent on Request

Make More Money on the Farm

To do this it is necessary to raise more livestock—better livestock—better livestock means pure bred livestock. Get your start now—come to my public sale of

Bred Poland China Sows and Gilts

Modesto, Cal.

January 28th, 1920

I will sell 35 carefully selected young sows of highest blood lines and bred to boars of unquestioned merit. This is the sale where size will predominate.

Special Notice to Breeders

My sale will contain some of my very best big type sows—sows of size, bone and type and that have proven their ability to farrow and raise large litters.

You will not be disappointed in these animals.

Sale will be held on my farm six miles north of Modesto and under cover.

Lunch at 11.30 A.M. Sale at 12.30 P.M.

Geo. W. Bell, Tulare, Auctioneer

Hale I. Marsh

Modesto, Cal.

I want every farmer and dairyman who reads this to be my guest sale day.

Bred Gilts For Sale

11 SPRING GILTS—5 Tried Spring Yearlings

STRICTLY BIG TYPE POLANDS

Bred for Early Farrow to

The Westerner by "Big Bob" (The Immortal)
And
Calibuster, Carrying the Blood of "Giant Buster" and "Big Bob."
The Spring yearlings are by Kansas King.
The Gilts by Kansas King and King Jones Over.

Mr. Breeder— Pig Club Boy— Mr. Farmer:

There will be few like these offered in the sales this Spring—Breeders who have this kind are not selling them—wherever one is offered, they will mob the auctioneer to get her.

We are pricing them reasonably, and don't forget—they are bred to the two best boar prospects in the state.

Come and see them or write your own guaranty, and we will ship on approval. Cholera Immune.

McCarthy and Starkweather

Route C., Box 384
MODESTO, CAL.

What Counts With You Hog Raisers?

Are you raising hogs for profit or show ring records—I raise Poland China hogs that mature quick and make a profit—I sell the same kind for breeding purposes. My herd boar BIG MODEL FELLOW was reserve grand champion at the State Fair—proof I can win in the hottest competition. Write me or attend my bred sow sale, February 21, 1920, if you want this kind.

J. F. McSWAIN Merced, Cal.

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. **Los Angeles**

When Writing Advertisers, Mention the Cultivator.

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
January 27, Burr Farm, Los Angeles.
January 30, C. F. Mohnike, Angiola.
Thursday, March 25, Guaranty Sale, Sacramento.
April 8, Breeders Sale, Tulare.
Wednesday, April 21, A. M. Bibens, Modesto.
Wednesday, May 12, Leeman & Kilgore, Dispersal, Ripon.

Herefords
During last week of February, Pacific Coast Hereford Cattle Breeders' Association.

Shorthorns
April 17, Butte City Ranch, Butte City.

Berkshire Swine
February 14, J. Francis O'Connor, Santa Rosa.
February 16. Muddux & Son, Sacramento.
February 18, Western Berkshire Congress, Davis.
April 17, Butte City Ranch, Butte City.

Duroc-Jerseys
January 28, Diamond Bar Ranch, Spadra, Los Angeles County.
January 29, Winsor Ranch, Bonita, sale in Los Angeles.
January 30, Ireland Ranch, Owensmouth, Los Angeles County.
February 4, Fresno County Duroc-Jersey Breeders Association, Fresno.
February 10, Glenn County Duroc-Jersey Association Sale.
February 18, Tulare County Duroc-Jersey Association Sale.

Poland Chinas
January 26, Chas. Gatewood, Fresno.
January 27, Geo. V. Beckman and Sons, Lodi.
January 28, Hale I. Marsh, Modesto.
February 6, Tulare Poland China Breeders Association, Tulare.
February 11, Fresno County Poland China Breeders Association, Fresno.
February 12, San Joaquin Poland China Breeders Association, Lodi.
January 13, Glenn County Poland China Breeders, Orland.
February 21, Merced County Poland China Breeders Association, Merced.
February 21, J. F. McSwain, Merced.
February 26, California Poland China Breeders Association, Davis.
February 28, Kings County Poland China Breeders Association, Hanford.
February 29, Les McCracken, Ripon.
March 13, Haag & Bernstein, Hanford.

Shetland Ponies
April 17, Butte City Ranch, Butte City.

Shropshire Sheep
April 17, Butte City Ranch, Butte City.

The world's record for milk production was dangerously threatened when Zarilda Clothilde 3d De Kol, a Holstein cow owned by Colony Farms, Essondale, British Columbia, completed a year's test in which she produced 33,153. pounds milk and 1,194.17 pounds butter. Tilly's record performance stands at 33,424.8 pounds milk and 1,332.25 pounds butter. The Canadian cow is the only cow in the world besides Tilly Alcartra to average 31,000 pounds of milk for three years.

John A. Bunting, secretary of the Pacific Coast Hereford Breeders Association, writes that the entries coming in for the fourth semi-annual sale to be held at the university farm, Davis, assure the highest class offering yet made in an association sale. About 40 bulls and 40 females will be consigned from the leading herds of California and Nevada. The sale will be held the last week in February and will be managed by the California Breeders Sales & Pedigree Company.

Ten Duroc-Jersey breeders of Fresno County will consign 40 head of bred sows and gilts to the sale to be held at Fresno February 4. Those whose herds will be represented are: Fitzwilliam Ranch, Burrell; J. P. Mallory, Raisin City; Guy McClune, Fresno; J. W. Schmitz, Madera; H. H. Bereton, Sanger; Harry Hill, Riverdale; R. H. Lewis, Riverdale; Hillcrest Farms, Caruthers. The Duroc is proving very popular in the Fresno district and it is expected that the forthcoming sale will serve to increase the interest.

January 6, Mousel Bros., Cambridge, Nebraska, sold 60 head of Hereford bulls and females for $265,800, an average of $4,430. Superior Mischief, a son of Beau Mischief, sold for $22,000, and the 25 bulls in the sale averaged $4,888. A daughter of Beau President, Bright Duchess 77th, topped the female division at $8,000.

In a sale of Herefords recently held in North Dakota, 121 head of bulls and females sold for an average of $1,011. A feature of the sale was the high average obtained for cows from ten to 17 years of age. Twenty-one cows averaging 12 years sold for an average of $1,280. Two cows 17 years old sold for $875 and $850 respectively. The top price was fetched by Petunia 26th, an 11 year old daughter of Paladin, that sold for $3,350. Beau Dugal, an eight year old son of Beau President, sold for $6,500; Beau Comrade, a six year old son of Beau President, sold for $5,100, and Beau Victory, another nine year old son of Beau President, sold for $5,300. The high average obtained was due to the fact that the older bulls and females were bred by Gudgeil & Simpson, the most constructive American breeders of Herefords, and whose efforts are more appreciated now than when their herd was in existence.

Alex. M. Wilson, superintendent of the swine department of the Italian Vineyard Company, Guasti, has purchased from E. J. Barker, Thorntontown, Indiana, 17 bred Berkshire sows, six open gilts and two young boars. Included in the lot were two boars and two gilts sired by Real Type; ten sows sired by Superb Emblem and one sow by Dukes' Champion 12th. Mr. Wilson secured Real Type's Lucindy 5th, first prize and junior champion at the 1919 Indiana state fair. Purchases were also made from the Lovejoy herd in Illinois.

Ed K. Brown, acting for Miller & Lux, has purchased six yearling Aberdeen-Angus bulls from W. B. Seeley, Mt. Pleasant, Iowa. The bulls will be used at the Dos Palos ranch.

On account of the large number of dairy cattle being shipped into Southern California to be sold and the difficulty in handling them, the firm of Rhoades & Rhoades of Los Angeles has leased the well known E. A. Rogers dairy ranch at Clearwater and is completing erecting stockyards capable of caring for 400 head of dairy cattle at one time. A sale pavilion is being built in order that all sales may be held under cover. Comfortable seating arrangements will be provided; in fact, every convenience for the buying public will be provided. Clearwater is in the exact center of the Southern California dairy district. Another important feature is the fact that the unloading pens of the Salt Lake Railroad adjoin the ranch, making it very easy to unload cattle. The Southern Pacific line to Compton is only three miles distant. Every facility in handling the cattle until time of sale will be rendered the seller. There are separate corrals with plenty of shade for each lot of cattle.

A. A. Jenkins of Tulare writes: "I wish to report the following sales of Jersey bulls, all made this past week. To Peacock & Good, Bakersfield, Gertie's Lad's Heir, a son of Gertie's Lad. This bull is a great individual. His full sister, Gertie's Lad's Rosy, has a record of 506 pounds butter with her first calf. To Mrs. Cora Townsend of Bakersfield a son of Gertie's Golden Victor and Ida Fern Smith, who is a granddaughter of Imp. Golden Fern Lad. To O. F. Collins of Tulare a son of Gertie's Golden Victor and Gertie's Lad's Foxy Marjoram, also a daughter of Gertie's Lad. This is a wonderfully bred bull, carrying as he does the blood of the great Gertie of Glynllyn on so many lines. He is also strong in the blood of Pedro."

One of the attractive sales of Polan Chinas that will be held next week is that of Hale I Marsh, Modesto. Mr. Marsh states that what is particularly pleasing to him is the interest being displayed by the farmer and dairymen, as indicated by the requests for catalogues. Thirty-five bred sows will make up the offering, and they will be bred to Big Model. Modesto King and Blue Valley Big Bone. Mr. Marsh has recently built a combination farrrowing house and sale pavilion on his farm and the sale will be held in this building.

The forthcoming sale of bred Duroc Jersey sows and gilts that will be held on Ireland Ranch, near Owensmouth, January 30, will be a combination sale selected from the herds of three breeders. Ireland Ranch will sell 30 sows and gilts, including Defender's Fancy S 2nd, a granddaughter of Cherry King, Cardinal Lady C and Ireland's Lady A, first prize six months pig at Southern California Fair. Donald H. Graham will sell three daughters of his premier herd boar Orion King Gano, while E. Avery Newton sells six daughters of Crimson Col

Warranted to Give Satisfaction

Gombault's

Caustic Balsam

Has Imitators But No Competitors

A Safe, Speedy, Positive Remedy for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs and Lameness from Spavin, Ringbone and other bony tumors. Cures skin diseases or Parasites, Thrush, Diptheria. Removes Bunches from Horses or Cattle.

As a Human Liniment and Antiseptic for external use it is invaluable.

Every bottle of **Caustic Balsam** sold is warranted to give satisfaction. Price $1.75 per bottle. Sold by druggists, or sent by parcel post, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

Size and Type

Are combined in the unusual lot of Poland Chinas I am now offering. Both sexes and all ages. I readily refund the money to any dissatisfied purchaser. Write me what you want—I have it—priced reasonable.

R. J. Yates, Orland, Cal.

The Leading
Live Stock
Auctioneers

Col. Ben A. Rhoades
Harold B. Rhoades

Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References. The leading breeders in the state. Write or wire for dates and terms.

Rhoades & Rhoades
1501-3-5 South Main St.
Los Angeles, Calif.

GUERNSEYS

QUALITY distinguishes Guernsey Products

The highest natural golden yellow color, delicious individual flavor, and high content of butter fat combine to make Guernsey milk in greatest demand by discriminating consumers. Write for our free booklets.

QUALITY ECONOMY QUANTITY

THE AMERICAN GUERNSEY CATTLE CLUB
Box C 39 Peterboro, N. H.

Some of the finest
GUERNSEYS
in the West are at
Hollow-Hill Farm
Colton, Cal.
Only Bull Calves For Sale

BREEDING DATE BOOK---FREE

We have issued a covenient little book for the keeping of breeding dates of cattle, hoping to aid the breeder and cattle owner in maintaining accurate records. We will gladly mail you a copy free if you request it. A postal will do.

CALIFORNIA BREEDERS SALES AND PEDIGREE CO.
C. L. Hughes, Sales Manager.
Sacramento Cal.

JERSEYS

3 BULLS	No. 1 born Mar. 1, 1919. Sire, Our Noble May-fair Hero.	3 BULLS
No. 2 born Oct. 1, 1919. Sire Our Kathie's Eminent.	All from high record cows in Arden herd.	No. 3 born Dec. 20, 1918. Sire same as No. 2.

ARDEN DAIRY CERTIFIED, EL MONTE, CALIF.

has been the aim of these three breeders to make this sale representative of their breeding herds and it is their opinion that the offering will meet the requirements of either breeder or farmer. Due to the position occupied in the Duroc-Jersey field by these three breeders, their offering will no doubt meet with a hearty response.

F. M. Johnson, one of the prominent Duroc-Jersey breeders of this state, has sold his farm near Napa and is now looking for a suitable location for his herd. Mr. Johnson has been responsible for bringing many high class Durocs to this state, and at the recent sale held at Davis he had the distinction of selling the top consignment. Five head of bred sows and gilts from his herd averaged $309.

V. F. Dolcini, June Acres Stock Farm, Davis, took advantage of the crowd of Duroc breeders attending the Davis sale and had his new boar, Choice Wonder 3d, on exhibition. Choice Wonder 3d was secured in Iowa last fall and was counted one of the best boars of his age to sell. California breeders expressed keen appreciation of the youngster, many declaring that he was the largest and heaviest boned spring boar they ever saw.

H. C. Witherow of the Greenwood Farms, Live Oak, attended the Davis sale and announced that he had recently purchased a half interest in Western Pathfinder from his owner, F. M. Johnson of Napa. Mr. Witherow has lately purchased additional land adjoining Greenwood Farms for his expanding Duroc business.

During the past 18 months El Dorado County has developed into quite a prominent Duroc-Jersey center as a result of the promotion work of Leroy J. Anderson, farm adviser of that county, and nearly 100 El Dorado County farmers attended the sale at Davis.

L. J. Whittier, a veteran breeder of Duroc-Jerseys from Columbus, Ohio, is visiting in this state and attended the Davis sale in company with Elmer Lamb of Ceres. Mr. Whittier has been familiar with the development of the Duroc breed for many years and says that he has never seen a section that appealed to him as being better suited to the production of livestock than this state. He expressed more or less wonder at the backwardness of the industry in California and told the breeders that they should set about developing more size and bone in their breeding herds.

Press reports tell of a spotted Poland China boar, Chief's Best, that sold for $35,000 in an auction sale held at Noblesville, Indiana. This record boar was owned by Frank Wise and was purchased by an Iowa breeders association. Forty head sold for an average of $1,609. It will be remembered that last week we reported a Wisconsin sale that averaged $1,555. And so the race for record prices goes merrily on!

Joe Levy, the Hampshire sheep breeder of Manteca, has returned from a buying trip through Idaho, Montana, Nevada and Utah, where he selected 200 head of Hampshire ewes.

J. E. Phillips of Fresno, owner of the Allana herd of Holsteins, has commenced improvements on his new ranch near Dixon and he expects to transfer his herd from Fresno to Dixon about May 1. Phillips has been studying the best dairy plants in this state and will embody the best features of each in the building now under way.

H. F. Bridgford of Patterson recently visited the leading Holstein herds of Washington and it is reported that he purchased a shipment of very high class females to add to his herd.

For the first time in its history the California Poland China Association will hold a consignment sale of bred sows and gilts at the university farm, Davis, February 26. Notwithstanding the fact that a large number of breeders will hold private sales this season, word has been sent out that each herd is expected to reserve one or more top animals for the Davis event, and many breeders who are not planning

58 Head Big Type Polands

Second Consignment Sale

Tulare County Poland China Ass'n

At Tulare Sales Pavilion, Feb. 6th

16 Tried Sows 25 Bred Gilts
15 Open Gilts 2 Boars

This offering has been selected by our sale committees from some of the best herds in California. Only the best individuals go in the sale. They are the big, easy-feeding, utility kind that can not be surpassed as producers of pork or breeding hogs.

Animals in this sale sired by Boulder Buster, King of Golden Gate, Giant Bob, King's Big Bone Leader, King's Timm, Bridges Bob Wonder and others. And bred to such boars as Rex of Sunnyside, The Californian, King of Golden Gate, California Big Bone Leader and others.

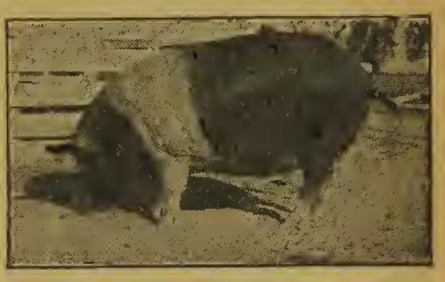
Consignors: R. F. Guerin, W. E. Martin, J. K. Macomber, V. U. Dubell, C. L. Weaver, Z. M. Dickey, A. J. Elliott and Hugh C. Shinn.

Luncheon served on the grounds at 11.30. Sale promptly at 12.30

Write for Catalog to
Hugh C. Shinn, Sec.
Geo. W. Bell, Auctioneer

The Poplars---Hampshire Headquarters

Our reserve grand champion sow Wavelet at the big Los Angeles show is the mother of 8 little Wavelets—a flourishing family. We won 1st on boar and 3 sows bred by exhibitor, also 3 other herd prizes. We were in the money on aged boar, twice on junior yearling boar, and once next the top on junior boar pig. All young stock the get of our great boar, The Harvester Again. Write us your wants.



C. J. Gilbert Lancaster, Cal.

If you are interested in this very great breed you will find it worth your while to visit the

Ortega-Underhill-Rancho O. U. R.

Registered Hampshires

Thos. T. Dinsmore, Manager Santa Barbara, Cal.

You will find there some of the best blood in the country and a truly great herd in course of construction.

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows.

HARVEY'S CHOICE
Grand Champion Boar
at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair
SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

A. E. Harvey, Manager Redlands, Cal.

PACIFIC NEW AND RE-NEWED PIPE SAVES MONEY

Renewed screw casing costs from one-half to two-thirds less than standard pipe. Large savings on standard pipe, fittings and valves; special fittings made to order. Pacific Pipe is thoroughly tested and guaranteed for 150 pounds working pressure; asphaltum dipped; serves every purpose. Let us save you money. Write

PACIFIC PIPE CO. 237 HOWARD STREET SAN FRANCISCO

Fresno County
Poland China Breeders' Association
Annual Bred Sow and Gilt Sale

Fresno Fair Grounds **Wed., Feb. 11**

40 BIG TYPE MONEY-MAKERS

Do Your Hogs Make Money?

The time is past when the California rancher and farmer can figure on making money with scrub hogs. With fixed values of land, equipment and feed, the profit depends on lowering the cost of production. Pure bred Polands of the big type will make more econmical gains than any other breed—that is the reason that the 40 members of the Fresno County Poland China Breeders Association—all practical farmers—are raising that kind. And their hogs are profitable. They have proved it for themselves—they will prove it to you. For the sale to be held at the Fresno Fair Grounds on the above date, 40 head of the best young sows and gilts from the herds of the members of the association have been selected. All are bred to high class boars.

Watch the Cultivator for future announcements.

For catalog, address the secretary.

SALE AT NOON. FREE LUNCH AT 11:00 A. M.

Fresno County Poland China Breeders' Association

Alfred C. Bucklin, President. Route E, Fresno.
Walter C. Ficklin, Secretary. Route A, Box 189, Fresno.

Geo. W. Bell, Tulare, Auctioneer.

Holstein Opportunity
50 Registered Holstein Cows and Heifers
For Sale at Private Treaty

The females in offer are well bred, nicely marked, of good individuality and all have A. R. O. records. All are fresh or springing and are bred to a 32-lb. bull. They must be moved quickly and are priced accordingly. This is a real opportunity to be taken advantage of quickly. Also offer a few high producing grade Holsteins.

For particulars, address

V. L. Heath **Lodi, Cal.**

For Rent; Cattle Ranch in Central California

2,000 acres completely equipped for general farming and stock. Four excellent houses, all necessary buildings. Also 10,000 acres summer range. This property will successfully handle a large number of cattle, has abundance of water. Address

J. S. Bordwell, Riverside, California

sales of their own are taking advantage of the sale to consign the best they have to offer. Poland China breeders who are interested in the sale should communicate with the secretary, A. D. McCarty, 324 Insurance Exchange Building, San Francisco.

H. M. Barngrover, Hereford breeder of Santa Clara, reports the safe arrival of the young bull recently purchased in the East. The calf was sired by the noted bull Bonnie Brae 8th and is out of a Domino dam. He therefore combines some of the best producing bloodlines of the breed.

In a recent letter from Walter C. Ficklin, secretary of the Fresno County Poland China Breeders Association, he announces that the members of that organization will sell 40 head of bred sows and gilts at the Fresno fair grounds, February 11. He says that the reason for the delay in announcing the date was that the committee in charge was determined to accept only high class consignments and that some difficulty was experienced in inducing the breeders to part with even a few of their top animals because few breeders felt that they could afford to cut deeply into their herds. Other breed organizations have had the same trouble and it would seem to indicate that what is needed throughout the state is either more herds or larger herds of all breeds.

White & Terry, Sacramento, owners of the Glenwood herd of Shorthorn cattle, recently sold two young bulls to Wm. E. Gerber, Sacramento banker, for his place near Gerber.

Twenty sows and gilts bred to Matchless Big Bob and Chief Defender's Choice and 20 open gilts will be the offering next Tuesday, January 27, of Geo. V. Beckman and sons, Lodi, in their first public sale of Poland Chinas. Included in the offering is a young boar by the famous Glover boar, Liberty Bond, and many in the offering will be bred to a son of Chief Defender's Choice, the boar that made such an excellent record in the Meharry herd.

Manager Hill of Toyon Farm Association reports recent sale to the Sonoma State Home of Eldridge, of Toyon Bertram Valdessa, a young son of our herd sire, Finderne Soldene Valdessa, out of Bertha Boskadel, one of our most promising young cows, who has already made a two year old record of 456.67 pounds butter from 19,352.2 pounds milk in 272 days and has also made a record of 21.616 pounds butter from 467.8 pounds milk in seven days.

In keeping with the annual custom, the Western Berkshire Congress will hold a public sale and meeting at the University Farm, Davis, on Tuesday and Wednesday, February 17 and 18, the sale being on the afternoon of the second day. The first day of the session will be taken up with judging contests for women and students, the annual business meeting and election of officers with a banquet in the evening, and on Wednesday the sale hogs will be judged for prizes in the morning and the sale held in the afternoon with Ord L. Leachman officiating. Consignments are being made for a sale of 20 bred sows and gilts and five young boars. Frank B. Anderson, secretary of the Congress, Sacramento, announces that he will soon have the catalog ready for mailing.

The Les McCracken sale of Poland Chinas scheduled for February 29 has just been recalled. This Ripon herd, with the blood of the grand champion at the National Swine Show, is still increasing the number of high type Polands, however.

GREAT SALE OF POLANDS

A wire is just received regarding public sale at Kansas City of Poland Chinas from the Lester Glove herd. The sale was made on Monday. Forty-nine Poland China sows and gilts sold for $127,000. The topper was Fashion Girl, selling for $17,200.

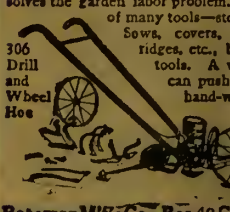
IRON AGE GARDEN TOOLS

Answer the farmer's big questions: How can I have a good garden with least expense? How can the wife have plenty of fresh vegetables for the home table with least labor?

This Hill or Drill Seeder and Wheel Hoe Combined

solves the garden labor problem. Takes the place of many tools—stored in small space. Sows, covers, cultivates, weeds, ridges, etc., better than old-time tools. A woman, boy or girl can push it and do a day's hand-work in 60 minutes. Many combinations and prices. Write for free booklet today.

306 Drill and Wheel Hoe



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Distributors:
Arnott & Co. Los Angeles, Cal.
Pacific Implt. Co. San Francisco, Cal.

Place Your Order NOW for Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or steamer, January, 1920.

O. HENRY SMITH, General Agent
Pacific Coast and Hawaiian Islands
611 California St., San Francisco.

Better Calves

AN-FO Calf Meal in winter alone, feeds calves well.

AN-FO Calf Meal supplies fat when added to skim or butter milk. No scours.

Feed Dealers or Animal Food Co. Oakland, supply.

AN-FO BRAND CALF MEAL

Brighton Farm Herds

Registered Shorthorns and Berkshires---Both Sexes

H. L. & E. H. Murphy

Perkins, Cal.

Whittier State School

Registered

BERKSHIRES — HOLSTEINS

Only one kind—the good kind
Young Bulls Bred and Open Gilts

Duroc-Jerseys

Bred and raised under right conditions. Correct as to type and size.

D. C. Cummins & Son

VISALIA, CALIF.

Duroc-Jersey

Registered Big Type Bred Gilts

California George Junior Republic
Chino, Cal. P.O. Box 157

Westrobac

Los Angeles, Calif. 618 So. Spring St.

San Francisco, Calif. 440-442 Sansome St.

If you want cows that will be a *pride* to your farm — get Jerseys.
If you want *prize* cows of unquestionable, pure-bred breed and championship calibre — get Jerseys.
If you want cows that feed for their udder, the profit part of a cow, and not for beef and bone — get Jerseys.

JERSEYS
The Pride-Prize-Profit-Breed

Jersey Milk is the richest, averaging 5.37% butter fat. Jerseys thrive in any climate. Butter and cheese made from Jersey Milk is the world's finest and makes big money for farmers.

Write today for "Profitable Facts About Jerseys."

The American Jersey Cattle Club 324-C W. 23rd St., New York, N. Y
An institution for the benefit of every Jersey owner

Venadera Herd
Register of Merit Jerseys
Senior herd sire Altama Interest sire of 12 cows in Register of Merit. Junior herd sire Jap's Perfection Owl, a line bred Spermfield Owl bull.
Guy H. Miller, Modesto, Cal.

All My Records
Are made under ordinary dairy conditions
The Farmer's Cow is
The Jersey
YOUNG BULLS FOR SALE
C. D. Hayworth
Modesto, Cal.

Young Jersey Bulls
For Sale
One at the head of your herd will pay big dividends on his cost. Write to
W. J. Hackett
Modesto Cal.

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right.
S. F. Williams
Chico, Cal.
Member Orland Jersey Cattle Club

200 Bred Duroc-Jersey
sows and gilts bred for spring litters. All carefully selected from Glenn County herds. They are the kind that will make a profit on any farm. All are priced at exceedingly low prices. Bargains for car lot buyers. Get busy and write or come and see us immediately as they won't last long at the price.

H. P. Slocum and Son
Willows, California
Breeders of Duroc-Jerseys. The Key Herd of the Pacific Coast.

The Greatest Duroc Boar of His Age!
Choice Wonder 3d
winner at the 1919 Iowa State fair, sired by the great boar, Mahaska Wonder, and a itter mate to the first prize junior boar of Iowa, heads our herd. He is the largest, eaviest boned, best footed boar in the state and he is being mated to the sows that ave made this herd famous for futurity winners. Get your order in early for his igs. Prices are most moderate. Satisfaction guaranteed.
JUNE ACRES STOCK FARM V. F. Dolcini, Davis, Cal.

YOUR FUTURE DEPENDS
on your selections now. In Duroc-Jerseys we have some gilts and boars of type, breeding and conformation that we guarantee to satisfy and at reasonable prices. Write for full description.
Greenwood Farms
H. C. Witherow, Mgr. Live Oak, Sutter Co., Cal.

Look For These in the Duroc Sale
IRELAND RANCH SALE, Owensmouth, Jan. 30
Three extra choice and desirable gilts sired by Orion's King Gano and bred to a on of Gano, and one by California Orion Cherry King and bred to Orion's King Gano. These kind don't grow in bunches—but they are the Graham kind. Look for them.
Donald H. Graham Lancaster, Cal.

Special Notice to Duroc-Jersey Breeders
leave for the East in January. Several breeders have given me orders to buy bred ows and gilts for them. I will be pleased to purchase for you anything you want. Will personally select them. Write me what you want and the blood lines. I'll tell ou just what I pay for them.
Clayton Slocum Willows, Cal.
N.B.—Write me at once

Hauser's Organic Fertilizers
Built for
California Conditions
Send for Booklet, "Fertilizer Efficiency," Tells You Why.
Hauser Packing Company
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Why we seal and stencil the bag
—to positively insure your getting the genuine — Germain's PROVEN Hairy Peruvian Alfalfa Seed.

You take no chances when you buy Germain's PROVEN strain. The seeds are carefully grown and recleaned, scientifically tested and **true to name.**

The name "GERMAIN" on the sack is a mark of quality—backed by a half century of highly specialized seed production and merchandising.

Send for free booklets on Germain's PROVEN Hairy Peruvian Alfalfa Seed. Also, get our FREE 1920 SEED CATALOG.

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Established 1871
Seed & Plant Co.
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Los Angeles, Cal.

"FEEDFINE" FEEDS
are scientifically compounded in proper proportions for dairy and all livestock feeding, of the following ingredients with the most economical results always in view.

YEAST	A concentrate high in PROTEIN and FAT content, sterilized and predigested.
CANE MOLASSES	The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.
ALFALFA MEAL	Gives body to the ration and supplies the mineral matter which is absolutely essential to all animals.
	The greatest known combination for health, strength and productiveness.

YEAST, CANE MOLASSES and ALFALFA
Mason By-Products Co.
No. 2 Pine Street
SAN FRANCISCO
Factory:
Sausalito, Cal.

Next Tuesday, Jan. 27
is the Big Poland China Sale of
Geo. V. Beckman & Sons, Lodi, Cal.
20 Bred Sows and Gilts 20 Open Gilts
Everybody Come
They are the Money-Making Kind

RED HOGS DE LUXE

The other day we visited a hog ranch. It was some ranch. That is, in its arrangements we have never seen one to equal it. Lest one may take it from the title above that this ranch is equipped with fittings of polished brass and hanging tapestry, we hasten to call attention to the fact that it is not these fittings we refer to in the title, but the animals. Its owners call it "The ranch where size is the fashion and quality reigns supreme."

But first, as to the fittings: It is a practical all around modern day equipped farm. There are some two and one-half or three miles of standard gauge railway There are small type railway locomotives for handling cars and moving feeds and supplies as needed. It is almost correct to say that there are miles of corrals and hog houses. There are hundreds of fine youngsters of the Duroc breed.

Regarding equipment on hand, an engineer may take his train of two or three cars down the track between pens, automatic traps set to release any amount of feed required for that particular pen accomplishing the work of feeding. The train moves along at the speed of about two miles per hour. The engineer of the train is the feeder. Little labor, big results. The ranch is built on the plan of saving labor at the expense of equipment. Labor is the most expensive thing on earth and is gone forever at the end of the day.

This ranch will hold a great "at home" day next Wednesday, January 28.

Big sales are being made in the East and California has been showing wonderful interest in Durocs. Pathfinder, Sensation, Wonder and Col. breeding will lend interest to this California sale. Superintendent Gatton inivites all to make it a point to be at Diamond Bar Ranch, inspect a modern, up-to-date farm and see some of the finest of Durocs.

The ranch is 28 miles from Los Angeles on the main highway from Los Angeles to Pomona, both the Southern Pacific and the Salt Lake, passing through it and bus line passes the gate. See a farm with broad guage railway plan of work.

"So make it a point to be at Diamond Bar Ranch, Wednesday, January 28, 1920.

BUSTING THE DAIRYMEN

A. A. De Ligne, general counsel for the Associated Dairymen of California, Inc., commenting on Attorney General Webb's opinion in regard to the quo warranto proceedings sought to be brought, says:

"The public does not understand the facts about the milk fight. You have seen one side in the newspapers. It is now our duty to make some plain statements in order to clear the air and have you understand what we are fighting for and whom we are fighting.

"Attorney General Webb rules that any cooperative association organized as a non-capital stock association may not have working capital or may not manufacture or pack the products of the farmers. This strikes directly at such associations as the California Fruit Growers Exchange, the Walnut Growers Association, the Almond Growers, the Lima Bean Association, the Alfalfa Growers, the Pear Growers, the Honey Producers, the Vegetable Growers, and other organizations formed under the laws of California, which permit the organization of these non-profit associations.

"In other words, Attorney General Webb throws down the gauntlet between the producer in the country who is seeking cost and a reasonable profit for his work and the city consumer who, through ignorance of rural conditions, does not care whether the farmer prospers or fails.

"The issue cannot be any more stringently drawn than Attorney General Webb now seeks to have it presented to the courts. In holding that milk associations are monopolistic, he distinctly disregarded the statement that of the total amount of milk handled in California, the plants of the various associations handled less than one-fourth. He also omits to make any mention of the fact that the California Central Creameries alone handles approximately as much milk as the entire California association of milk producers. If the milk associations are monopolies, how about the other company?

"The dairymen will fight and they will fight for the right of collective manufacturing and collective bargaining. This issue has been made all over the United States against dairymen. The people of the cities may as well understand that the dairyman in the country, who has to pay high wages to his employees and has to pay every item of the increased cost of living, must either have this right to bargain collectively and to manufacture or he will most decidedly go out of business and engage in something more profitable.

"Attorney General Webb evidently does not realize what 'reconstruction' means, although he uses this term in his opinion. Reconstruction means that the economic condition of the farmer is no longer going to be that of a serf and that no longer will the farmer be at the mercy of the manufacturing concerns that have instigated these actions."

BIGGEST YEAR IN MEAT INSPECTION

The federal system of meat inspection, which is conducted by the bureau of animal industry of the United States department of agriculture, recorded its biggest 12 months in the last fiscal year. The number of animals slaughtered under federal inspection was 20.6 per cent greater than the preceding fiscal year and 21.6 per cent greater than the average for the last 12 years.

The total number of animals inspected was 70,708,637.

The ante-mortem inspection resulted in the condemnation of 2,588 live animals on account of 18 different diseases and conditions.

Post-mortem examination revealed 40 different diseases and conditions resulting in the condemnation of 21,245 carcasses and 603,050 parts of carcasses.

The seven meat inspection laboratories which are a part of the service made more than 60,000 analyses of products. Analyses revealed 306 violations of regulations.

Employees in the meat inspection service number about 2,500, including veterinary inspectors, experts in sanitation, laboratory inspectors, lay inspectors, clerks and others.

The number of establishments at which inspection was conducted in the year was 895, located in 263 cities and towns.

There were certified for export 3,492,070,795 pounds of meat and meat products.

The total amount of meat offered for importation was 179,911,142 pounds, of which, upon inspection, 842,000 pounds were condemned or refused entry.

The inspection of meat for the military and other departments of the government amounted to 288,248,000 pounds, of which nearly 10,000,000 pounds were rejected.

In connection with actual inspection of meats and products, numerous investigations were conducted to develop and improve tests of various kinds and to perfect the system generally.

CLEANING MILK UTENSILS

The best results in cleaning milk utensils are secured when they are first washed in cold or lukewarm water and then with hot water. J. Keithley, dairyman for the North Dakota agricultural college, states that the reason for this is that hot water hardens the casein and albumen and makes them stick while they are soluble in cold or lukewarm water. The high grade of glue is made from casein due to its good sticking qualities. It takes hot water to remove the fat and boiling water, or better yet live steam, to kill the bacteria. So the order of washing should be first with lukewarm water then with hot water and finally a rinsing with boiling water or live steam. A brush should be used rather than a rag. Milk cans should be washed as soon as emptied. If let stand the acid formed by the milk left souring will hasten rust and the casein hardens when it dries making it hard to remove. The s

18,458 lbs. Milk

in a year is the record of this fine Guernsey. Records are worth trying for; but health is an absolute essential.

So Easy to Put Your Dairy On a Good-Health Basis

To be satisfied with anything less than top-notch health in your cows is a foolish waste of milk income. Most cow sickness is preventable—or curable. With the aid of KOW-KURE, the great cow medicine, such troubles as Abortion, Retained Afterbirth, Barrenness, Scouring, Bunches and Milk Fever can be eliminated from your herd. KOW-KURE acts on the digestive and genital organs—where nearly all cow diseases originate, and aids nature in inducing normal, healthy action. No dairyman who has used KOW-KURE will be without it.

Sold by nearly all druggists and feed dealers; 60c and $1.20 packages.
Write for our big free book,
"THE HOME COW DOCTOR."
It is full of facts every dairyman ought to know, and tells just how to treat cow diseases of all kinds.

Dairy Association Company
Lyndonville, Vermont

the utensils that have contained ilk or been in contact with it are ashed the easier the job will be, the ore thoroughly it can be done and ie utensils, if of iron or tin, will st longer.

ETTER BOARD FOR COWS GETS RESULTS

Proper feeding of the dairy herd eans more profits. The cow testing sociation paves the way to determin- g how to feed to the best advantage. he moral seems clear—join a cow sting association and learn how to ed.

In one instance a cow increased her tter fat production from 29 to 44 unds, or more than one-third. Her ner had been feeding barley, but by ding a variety of protein feeds and silage and providing drinking cups s able to see immediate results. Oil al is being purchased cooperatively some of the association members, d more feeding of balanced rations being done than before.

ENN COUNTY POLAND CHINA BREEDERS' SALE

The first sale of the Glenn County land China Breeders Association s held in Orland, January 13. For- two head, consisting of 21 bred sows d gilts, two herd boars, nine gilts d ten fall pigs were sold. An aver- e of $115.15 was made on the en- e offering, while the bred sows and ts made the fine average of $162.85. The top of the sale was the sow ss Wonder, by Glenn Chief and out Miss A. Wonder, from the consign- nt of J. A. Miller, J. N. Cook, Or- d, being the buyer at $525. Mrs. M. Goodfellow, Willows, secured a mber of the good sows, including ss Big Orphan, by Hather's Big Or- an, from the Yates consignment, $300.

E. A. Stopher, Anderson, who is es- blishing a herd, in addition to a mber of sows and gilts was the rchaser of the young boar A. Buster, Long Jumbo, dam Miss Stella, for 0. Due to the efforts of R. J. Yates, pioneer Poland China breeder of enn County, a breeders association s organized last spring. The high erage secured is a true indication the high quality of the animals of- ed, as well as the manner in which st of them had been developed. In sale held in California the past r has a better lot of sows been d, and if the standard set in this le is maintained, Glenn County will n rank as one of the foremost Po- d China counties in the state. Following is a detailed report of imals selling for $75 or more. Ord Leachman of Sacramento was the ctioneer:

BOARS

J. Yates Consignment

E. A. Stopher, Anderson, $400.
Mrs. J. M. Goodfellow, Willows, $300.

BRED SOWS AND GILTS

J. Yates Consignment

Mrs. J. M. Goodfellow, $300.
Mrs. J. M. Goodfellow, $210.
E. A. Stopher, $150.
R. M. Rankin, Orland, $120.
McKaig & Ferguson, Orland, $135.
0. J. N. Cook, Orland, $100.
1 R. M. Rankin, $200.
0. Chas. Templeton, Orland, $125.
1 E. A. Stopher, $135.
2. E. A. Stopher, $260.

M. Rankin Consignment

3. J. N. Cook, $230.
4. Geo. V. Beckman & Sons, Lodi, 0.

nfield Bros. Consignment

5. C. L. Van Schaick, Chico, $75.
6. C. L. Van Schaick, $85.
7. Les McCracken, Ripon, $100.
8. C. H. George, Williams, $80.

A. Miller Consignment

6. J. N. Cook, $525.
7. E. H. Warnock, Orland, $175.

K. Burnett Consignment

8. E. A. Stopher, $75.

rguson & McKaig Consignment

6. Mrs. J. M. Goodfellow, $100.
7. J. N. Cook, $90.

BERGLUND'S DUROCS TO NEW MEN

t takes more or less nerve to be pioneer in holding a pure bred e in any community, but Harvey Berglund of Dixon had the courage his convictions and succeeded in aking much new ground, February when he held his first Duroc-Jer- bred sow and gilt sale. The Berg- d sale was the first pure bred hog e ever held in Solano County by individual breeder and the results this initial event will have import- t influence uopn the development of the livestock business in that community for many years to come. Thirty-two head were cashed for an average of $118, many of the offering being spring gilts. The top of the sale was reached by Western Lady, an aged sow, purchased by H. P. Slocum & Son, Willows, for $275. R. Sale of Red Bluff secured an exceptional bargain in an open gilt at $190. Elmer Lamb of Ceres picked one of the same kind at a similar price. F. M. Johnson of Napa selected an outstanding open gilt at $200. Winsor Ranch, Bonita, also got a good buy in an unbred spring gilt at $125. A feature of the sale was the number purchased by Solano County ranchers—14 head going to local buyers.

While the general average could have been higher, Berglund has the satisfaction of distributing a lot of well bred, well grown Durocs that will prove profitable investments for the purchasers.

Col. Ord. L. Leachman of Sacramento was the auctioneer and was assisted in the ring by Col. Harris of Dixon.

1. H. P. Slocum & Son, Willows, $275.
2. S. E. Whiting, Sacramento, $160.
3. Brownell & Marshall, Woodland, $170.
5. R. Sale, Red Bluff, $190.
6. H. P. Eakle, Woodland, $185.
7. S. E. Whiting, Sacramento, $150.
8. H. Shultze, Dixon, $125.
9. Winsor Ranch, Bonita, $125.
10. F. M. Johnson, Napa, $200.
11. E. Lamb, Ceres, $190.
12. H. Schultze, Dixon, $75.
13. H. Schultze, $100.
14. H. Schultze, $90.
15. H. McFadden, Dixon, $90.
16. Brownell & Marshall, $120.
17. J. W. Doty, $135.
18. Brownell & Marshall, $95.
19. C. Phillips, Dixon, $100.
20. R. J. Dixon, Isleton, $115.
21. J. N. Doty, $85.
22. J. B. Harrold, Dixon, $80.
23. Geo. T. Jeffrey, Vacaville, $100.
24. C. Phillips, $60.
25. H. McFadden, $75.
26. H. Schultze, $65.
27. C. Phillips, $80.
28. Geo. F. Jeffery, $90.
29. Geo. F. Jeffery, $65.
30. F. M. Johnson, $75.
31. Brownell & Marshall, $125.
32. R. J. Dixon, $100.
35. S. E. Whiting, Sacramento, $85.

EXPIATION

"What do they do to a woman in this country when she kills her husband?" asked the foreigner.

"Oh," replied the American, "they sentence her to six weeks in vaudeville or a year in the movies."—Cincinnati Enquirer.

Prince Walker Cornucopia

The Highest Record Son of Prince Gelsche Walker

His dam ALBA SADIE CORNUCOPIA CREETA has just completed official records of 36.26 pounds butter from 516.7 pounds milk in seven days. Her previous records were as follows:

At seven years—
Milk 338 days 13,849.40
Butter 864.23
At six years—
Butter seven days 34.13
Milk 532.40
At five years—
Butter seven days 28.85

She is a daughter of Sir Sadie Cornucopia, son of the first 30 pound cow, Sadie Vale Concordia.

Over 60 of our best females are bred to PRINCE WALKER CORNUCOPIA, and he will be given the fullest opportunity in this herd. Put one of his young sons at the head of your herd.

Santa Anita Rancho
Anoakia Breeding Farm
Santa Anita, California
Anita M. Baldwin, Owner W. H. Taylor, Supt.

DON'T FORGET
The
Burr Farm
Public Sale
Jan. 27---Tuesday
100 High Grade Cows
20 Pure Bred Holstein Bulls
at
Burr Farm, E. 26 St., Los Angeles

Recent Sales

both public and private have demonstrated the value of animals bred on Sunnyside Farm. Our experience in breeding Holsteins and Poland Chinas might assist you in making the right selection.

R. F. Guerin Visalia, Cal.

When Writing Advertisers, Mention the Cultivator.

Dispersal Sale of Good Holsteins

C. F. Mohnike Herd, Angiola, Tulare County, Cal.
(on the old DIXIE RANCH)

Friday, January 30, 1920

Although no official testing has been done in this herd, and it has never been given any publicity to make it widely known, it is nevertheless a collection of very attractive Holsteins, bred in substantial lines, of better than average type, and in excellent physical condition. For a herd of its size it contains many more individuals of first class promise than are usually found, and it is a foregone conclusion that buyers will secure some extra good values here on sale day. The entire herd consists of

45 Registered Holstein Cows, Heifers and Bulls 45
20 High Grade Holstein Heifers and Cows 20

The herd of choice females is headed by CREAMCUP FIDESSA CORNUCOPIA LAD, a five year old bull of very desirable type, and strongly bred. He is by a son of the 33.53 pound cow Fidessa Bloom, and out of Anselogess of Sleepy Hollow, 32.68 pounds butter in seven days, 897.08 pounds butter from 2,751.7 pounds milk in one year. Thus it will be noted that he has an average of 33.10 pounds butter in seven days for his dam and sire's dam, and that his dam ranks as one of the leading yearly record cows of California. He will be sold, together with 11 of his young daughters, and his offspring stamp him as a sire of much promise. Owners of good registered herds may well look this bull over carefully.

THE REGISTERED FEMALES include a daughter of Juliana King of Riverside, a daughter of Anselmo, two granddaughters of Ignaro De Kol, a granddaughter of De Kol 2nd's Butter Boy 3d, and others of representative breeding.

THE GRADE COWS AND HEIFERS are an unusually good lot, and will meet with the approval of the most exacting buyer.

WE WILL ALSO SELL 30 Poland China feeder hogs, two teams of good mares, and a new No. 17 De Laval Separator with 1 h. p. motor.

Every registered animal guaranteed to be a breeder; no animal tuberculin tested.

PLACE OF SALE: Mr. Mohnike's place was formerly the well known DIXIE RANCH, one half mile east of Angiola, on main line of Santa Fe, nine miles south of Corcoran. Sale begins at 10 A. M. Catalog free on request.

Management
California Breeders Sales and Pedigree Company
J. M. Henderson, Pres. C. L. Hughes, Sales Manager,
Sacramento, California
Auctioneers—Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare

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The direct selling method from producer to consumer, and a clearing house for over 35,000 readers, weekly.
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POULTRY

BROODERS

We are offering to the California public, the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in, and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

We Are Specialists in production of high grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strain of America's choicest Leghorns fill our pens, and my personal attention is given to all details, assured each customer of highest grade stock. All baby chicks guaranteed and only healthy baby chicks shipped; if not satisfactory on arrival your money returned. Catalogue free. F. C. Rhode, Vineburg Hatchery & Poultry Yards, Vineburg, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY (Electric), Box 122, Artesia, California.

Ever Increasing Trade finds us better prepared than ever before to take care of our Day Old Chick business. New concrete building—100 Jubilee machines hatching eight breeds. We sell Hyde's W. L. Cockerels from trapnested stock. Great stuff—shipped on approval; $5.00 to $7.50. Some Buff Orpingtons also. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

For Sale—Baby Chicks from my thoroughbred carefully selected flock of S. C. White Leghorns. Orders accepted now for spring delivery, at $15.00 for 100 chicks, $140.00 per 1,000. Every order receives my personal and most careful attention. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Thoroughbred Barred P. Rocks—Egg records 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 5599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

Thoroughbred S. C. White Leghorn Chicks—In 100 and 1000 lots from our Hoganized and Trapnested Stock. Order now for spring delivery. Inventors and Distributors of "Forbros" Separator and Trapnest combined. Write for circular. Forster Brothers, 2918 Otis Street, Berkeley, California.

Quality Barred Ply. Rocks and White Leghorns. A western bred strain of utility merit and demonstrated world's winning strength. Guaranteed hatching eggs and vigorous breeders for sale. GOLDEN RULE POULTRY FARM, Penn and Stamelen, Porterville, California.

White Leghorns—Breeding Stock, Hatching Eggs. Bred to standard and to lay. At 1919 Oakland Show won 2nd and 4th cock, 4th hen, 4th and 5th pullet, 2nd pen. 178 birds competing. All curves, white plumage, vitality, high egg production. MAHAJO FARM, P. O. Box 597, Sacramento, California.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Just Rite Chicks from selected eggs. Barred Rocks, R. I. Reds, Black Minorcas, Brown-White Leghorns. Prices just rite, shipped just rite. We deliver free. Willow Glen Poultry Yard, 582 So. 9th Street, San Jose.

Newton Poultry Farm — White Leghorn Baby Chicks from our well known, carefully selected stock. Best strain. Big plant. Order now, any number, and get them when you want them. Los Gatos, California, Dept. 2.

"Watch Us Grow" Baby Chicks. Booking orders now for January and February deliveries. Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

Heavy Laying Strain S. C. Red and 223 to 279 egg strain White Leghorn cockerels of good exhibition quality, $10.00. I guarantee satisfaction or money back and pay all expressage. W. M. MARQUAM, Bishop, California.

For Sale—Pure bred Buff Orpington Cockerels, $5, $7 50 and $10 each. Pure bred Bronze Turkeys, toms $12, hens $7. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

White Leghorn Baby Chicks and Hatching Eggs from trapnested, line bred high producers. Every male used from dams producing over 200 eggs. Waldeck Ranch, Burbank, California.

White Minorca Baby Chicks and Hatching Eggs—Dark Cornish and Silver Campine Eggs. Folder. Leech Poultry Yards, Baldwin Park, California.

Pure Bred Barred Rock, White Rock, Blue Andalusian; 280 egg strain Runner Ducks. Settings $2.00, hundred $10.00. Cedarhurst Ranches, R. D. No. 2, Sacramento.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS

We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

Sly's Single Comb Rhode Island Reds prove their quality by winning at Los Angeles, 2 firsts, 4 seconds, 2 thirds, 2 fourths, 2 fifths, 2 shape specials, 2 color specials, 1 gold special, 3 silver cups. A top notch exhibition and utility strain. Send for Catalogue. A. G. Sly, 1642 E. Middleton Place, Los Angeles.

Day Old Baby Chicks—From mature hen eggs—February—White Leghorns $17.00 per 100; Black Minorcas, Barred Rocks, Rhode Island Reds $22.00 per 100—March $2.00 per 100 less. Terms. One-third cash with order. T. C. Hawley, 504 East Elm Street, Lodi, California.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Buff Orpingtons, Black Minorcas, Anconas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306. San Jose, California.

Baby Chicks—Hatched every week. Booking now for entire season. White and Brown Leghorns, R. I. Reds, Barred Rocks. All strong youngsters. Safe arrival guaranteed. Write for free circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

I Won More First and special prizes on S. C. R. I. Reds at the recent Oakland Show than all other exhibitors combined, 188 Reds competing. Hatching eggs from prize birds for sale. F. M. Lail, 6 Lupton Ave., San Jose, California.

For Sale—Thoroughbred White Wyandotte settings, $2.50 for 15 eggs, also, choice White Wyandotte cockerels from $5.00 to $8.00 each. Apply Gordon O. Tetley, 190 Edgewood Place, Riverside, California.

Booking Orders in limited numbers for hatching eggs of S. C. Rhode Island Reds, Buff Orpingtons, Pearl Guineas, White Holland Turkeys, White Muscovy ducks, Toulouse Geese. E. A. McKinley, R. F. D., Ukiah, California.

White Leghorn Baby Chix—Heavy laying, hoganized stock. March $15.00 per 100; April and May $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Reds for Sale—Large R. I. Red Cockerels, ready for mating; famous winter-laying strain. W. LLOYD COATES, Cedarville, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

Big, Strong, Vigorous Plymouth White Rock cockerels from excellent stock. March and April hatch. Price $5.00. Only a few left. Geo. E. Dierssen, Box 913, Sacramento, Cal.

Chicks—Eggs; Hoganized Standard Stock. White and Buff Leghorns, Buff Minorcas, B. Rocks, Reds, L. Brahmas, cockerels. S. Martina, R. 2, 627, Santa Cruz, California.

Baby Chicks and Hatching Eggs from Standard S. C. White Leghorns. We sell only strong, hardy chicks from heavy laying parent stock. Tacker's Poultry Ranch and Hatchery, Escalon, California.

"Eastman's Bred-to-Lay." Hoganized and trapnested Barred Plymouth Rocks, Eggs, Cockerels. JANUARY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks, thoroughbred White Leghorns. No weak ones charged for. Schellville Hatchery, Schellville, California.

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S. Reservoir, Pomona, California.

S. C. R. I. eggs for hatching, from heavy laying strain, $1.50 per 15. Fawn Indian Runner duck eggs, $1.00 per dozen. W. L. Lutz, R. 3, Santa Ana.

Barred Plymouth Rocks—"Nothing better in poultry." Prize winners and wonderful layers. Stock for sale. Charles H. Vodden, Los Gatos, California.

Baby Chicks, standard varieties, high quality, low price. Catalog now ready. Can fill large orders. Madera Hatchery, Madera, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C, Ceres, California.

For Sale — 500 laying Pullets for sale, $20.00 per dozen. H. R. Barney, Fairfield, California.

For Sale—Guaranteed Day Old Pullets, S. C. White Leghorns. We tell the sexes. Eureka Hatchery, Petaluma, California.

For Sale — White Wyandotte eggs $2.00 per setting, $8.00 per hundred. Mrs. F. A. Cox, R. 1, Buena Park, California.

For Sale—Choice Silician Buttercup cockerels. May To'la, Orland, California.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES
Orland, California.
BRED GILTS FOR SALE.

"ACHIEVER" the BOAR

An outstanding son of ONWARD 4th, a son of the famous "EPOCHAL." His dam, Escalon Fashion Princess, one of the best sows ever owned by A. B. Humphrey, was a Grand Champion and sold for $500.00.

CASTLEVIEW RANCH,
Santa Rosa, Cal.

Home of big boned, good footed Berkshires.

BARON DUKE 201ST PIGS are in demand. They have consistently won during 1919 the highest honors in the show ring. Baron Duke 201st is a Grand National Champion. He is the sire of champions. His 15 months old son was Grand Champion at Sacramento and San Francisco. The San Francisco judge said he was the best boar of his age that he had ever seen. I have 3 of his spring boar pigs for sale. SANDERCOCK LAND COMPANY, 703 Market Street, San Francisco. In charge of Natomas Land Sales.

BERKSHIRES

are bred on the Lark Meadow Ranch for big bone, strong backs and the right type to produce profit for the purchaser. Bred and open gilts from most popular strains for sale now.

GEO. A. STINGLE, El Monte, California

Grape Wild Farm Berkshires—Guernseys—spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. R. Humphrey, Prop., Escalon, California.

Solano Berkshires. Choice stock for sale, service boars of varying ages, bred gilts, unrelated pairs and trios. Reasonable prices. Write for information. R. C. Gruhlke, Dixon, Solano County, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

DUROC-JERSEYS

Duroc-Jersey Swine for Sale. Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Registered Duroc-Jersey Hogs for Sale—Spring gilts at pork prices, open or bred to prize boar of Grand Champion stock. Also a fine lot of weaned pigs and a few bred sows. For further particulars write to Green Canyon Ranch, Fallbrook, California.

I Will Offer a dozen first class young Duroc sows bred for spring litters to my crack yearling boar Nutmeg Gana 292547. Worth investigating. L. R. Hitchcock, Van Nuys, California.

Big Type Durcos; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

I Will Offer For Sale four young Duroc gilts four months old, dam Model Julia, sire Joe's Orion Cherry King 5th, also one boar from same. Price $40 each. C. W. Townsend, Bakersfield, California.

Great Duroc-Jersey Pigs, both sexes, real pigs for herd prospects. $20.00 each. Send check. Write for what you want. Durocs and Polands. R. A. Chapman, 413 Owl Building, San Diego, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

Weanlings—Gilts open or bred to a son of Great Wonder I Am. Service boars. Derryfield Farm, Capital National Bank Building, Sacramento, California.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For High Class Durocs write Leest & Mounier, Van Nuys. Blood of Orion King Cone

For the Best in Durocs write June Acres Stock Farm, Davis, California.

WANTED

Young Man, Agricultural College Graduate, experienced in all branches of agriculture open for position as ranch manager or field superintendent. Last season was Irrigation and Rice Superintendent on 2000 acres of rice land in Sacramento Valley. Education, training, experience and references furnished. Address Box 517, Care of Y. M. C. A., Sacramento, California.

Wanted for Mountain Fruit Ranch—single or married—middle aged or elderly man—with good intention of doing right. Right party will find real home and good layout. Address: C. J. Mosier, P. O. Box 65, Julian, California.

Competent Caterpillar Engineer would like permanent work in Los Angeles, Orange or Riverside Counties. References P. O. Box 38, Altadena ,or telephone Pasadena Exchange, Colorado 5334.

Wanted to Buy second hand hay press, Eagle or Star preferred. State best cash price. Write: E. W. Boyd, 1226 East 52nd Street, Los Angeles.

Wanted Position on Ranch as foreman. Reference given if requested. Harry A. Knight, Tulare, California.

POLAND-CHINAS

Wondergerst, California's leading Polan China sire—big himself, bred big a his pigs show the same qualities. H dam was Glantess Wonder, his sire B Jones—both big, both winners—a comb nation of the greatest blood of the bree Breed big type Polands. Start right using this blood. Write for special off A liberal consignment made to the Tula Poland China Associated Breeders' s held Tulare, October 21st. OXBOW Herd Poland Chinas, Tipton, California

For Sale—Registered Poland China, o brood sow Daisy Girl $110, two year o one brood sow Belladonna $75, one y old; one boar Wonderlust $50, one y old; all from Orange Blossom and A Wo der. Address route 2, Box 62, Van Nu California.

The Best in the West—California Ger dale and President's Equal are my h sires. Fall and spring boars now rea to move; each one a corker. Dr. J. Crawshaw, Hanford, California.

Big Type Poland Chinas—900 lb. gra champion El Profit heads herd—1 bred Big Timm. Viola L. Renwi Santa Barbara, California.

Pure Bred Poland-China pigs for s J. R. Carhart, Fullerton, California

SEEDS AND PLANTS

The Garden Beautiful in California Ernest Braunton; a 200 page book f illustrated tells you how to beautify y home grounds and the proper trees shrubs to plant; also best methods gardening. Cloth binding $1.00 postp Cultivator Publishing Company, 115 Broadway, Los Angeles.

For Sale — Millions of Stone To Plants from seed selected by my and guaranteed. Liberal discount on ders placed before February 15th. O now and make sure—ran short last y L. C. Johnson, Pomona, California. P 2987.

For Sale—A few hundred sacks of W Rose Seed Potatoes grown from Selected Seed. Clean and high pro tion per hill. A. J. Mueller, Satlcoy Saugus Avenues, Van Nuys, or Van Hotel.

RYE GRASS
Domestic Rye Grass, Italian sp 10c per. lb. f. o. b. Stockton. Also Clover Burrs. Aurora Seed Mill, St ton, California.

For Sale — Guaranteed Stone To Seed, hand selected by myself; c stock, fresh, $4.00 per pound. Refer any bank Pomona. L. C. Johnson, mona, California. Phone 2987.

Get Cory Thornless Mammoth Bl berry plants direct from Cory's Pass Ranch, $3.00 per dozen, post G. S. Wills, Jamestown, California.

R*O*S*E*S 50c per dozen. Fruit an namental trees, plants, vines, Write for catalogue. KAVAN BRO CURRIER, San Bernardino, Californ

Write the Amount and kind of S wanted. Four kinds alfalfa. O filled promptly. Wanted, Sudan in loads. Box 501, Fowler, California.

Rhubarb Roots—1 year old roots, per hundred; 50c per dozen. Two old roots $1.00 per dozen. Currier Company, Santa Cruz, California.

For Sale — Blackberry and Straw Plants. Write for description prices. Albert H. Leavitt, Clove California.

Avocado Seed Wanted—Mather's Av Nursery, P. O. Box 585, Pasadena, fornia

For Sale—4500 Zante Currant; 5000 Emperor. W. M. Burton, Box 43, terville, California.

Orange Seed, Florida sour and Cali sweet. Order early. Milo Hunt, tier. Phone 250.

TURKEYS

For Sale — Turkey Eggs, from Wil mestic crosses. Raise more tu Introduce wild blood into your flock hardy, vigorous poults. Mammoth B eggs also. Write for circular with tions how to raise 90 per cent of a hatch. Orders booked now for Feb eggs and 5 day old poults. The Domestic Turkey Home, R. D. Box Hemet, California.

For Sale — Breeding Toms. Pure White Holland Beauties $12.00 Orders booked for White Holland shipped in laying season. 50 cents Order early, supply limited. Mrs. Robinson, Hemet, California.

For Sale—Turkey Breeders Take N Thoroughbred Mammoth Bronze. Eastern Toms. You run no risk. bird guaranteed to be as represent not, return at once. C. O. D. Dodge, R. D. 2, Bakersfield, Califor

We advise our customers wantin key eggs from utility or prize to place their orders now. Eggs $3 each; 25 per cent deposit re Paradise Valley Poultry Ranch, N City, California.

Write for Prices on Turkey Eggs "Thoroughbred" Turkey Cockerels. inson Turkey Ranch, San Dimas, fornia. Covina Phone 902. Mentio tivator.

Fine Bourbon Red Toms, at $ each. No hens. Edward Mulick lows, California.

GOVERNMENT LAND

300 Million Acres of "Free" land S. "The New Homeseeker" a 10 book describing millions of acres cant public homesteads, timber, m grazing lands contains township and illustrations. Founded on h facts. DOES NOT MISLEAD. warnings "official," eliminates land agents. Tells the whereab government land in Arizano, New Nevada, California, Idaho, Oregon tana, Washington, Utah and Old Describes water, soil and climatic tions, all the principal U. S. lan A marvelous publication just press. Mailed anywhere, $2. "THE HOMESEEKER," Dept. M Floor Grant Bldg., Los Angeles, fornia.

FARM LANDS FOR SALE

200 ACRE MISSOURI FARM
$6500, WITH PAIR HORSES,
9 head stock, complete farming implements, near R. R. town, creamery, etc. Productive tillage in rich bottom soil, also 40 acres bench or second bottom; good woodland, saw timber, several acres orchards. 6 room house, barns, corn houses, etc. Aged owner to sell at once sacrifices, $5500 for all, easy terms. Details page 88 Strout's Catalog Farm Bargains 23 States; copy free. E. A. STROUT FARM AGENCY, 831 A. G. New York Life Bldg., Kansas City, Mo.

For Sale or Exchange—6 acres Washington navels, 4 miles east of Porterville. In frostless area. Never has been damaged by frost. 2¼ acres 12 years old; 1½ acres 8 years old; 1 acre 4 years old. Ideal home place. Reason for selling, living outside of state. Write Chas. Wentworth, 1721 Faraon Street, St. Joseph, Mo.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

For Sale—Ten or twenty acres Apple Orchard, 10 inches abundance water. Varieties Wine Saps and Jonathans. Three miles south of Bishop, Inyo County. Famous Apple Belt. John A. Liedy, Bishop, California.

Fine Alfalfa Land Northern Los Angeles County, easy water lift; $55 an acre, one-fifth down. Write for our alfalfa circular. Lippincott Company, Fay Bldg., Los Angeles.

For Sale—320 acres of unimproved good land in the Palo Verde Valley, one mile south of the new town site Ripley in Riverside County, California. Terms easy. G. W. McFee, Rannells, California.

For Sale—8 acre Poultry Ranch with chickens. New up-to-date buildings and equipment. Easy terms. Near town of Olvang, California. P. P. Hornsyld, Solvang, California.

Interested in securing farm lands or have same for sale write me. John G. Lee, St. Helena, California.

TREES

Washington Navel, Valencia, Marsh Grapefruit, Eureka and Libson Lemon trees. Sour stocks. One year old buds. We used "Supply Company" buds only. Nurseries Riverside, Puente. Frank A. Gidley & Son, 405 Eighth Street, Riverside.

Nursery Stock. Apples, pears, peaches, cherries, prunes, plums, berries, etc. OURS IS MAIL ORDER SYSTEM. IT SAVES YOU MONEY. Write us now for planters' list. 20 years in business. Carlton Nursery Co., Carlton, Oregon.

Walnut Trees Wanted—Anyone having or knowing anyone who has walnut trees, that on account of the dry weather they are not going to plant and want to sell, write Henry Harmoore, Van Nuys, California.

Wanted—Black Walnut seedling nursery. Will buy or graft on shares. Have my own scions, Eureka and Placentia Perfection. The Walnut Nursery, W. A. Litten, Mgr., Whittier, California. Phone 6294.

Budded Avocado Trees—We grow all varieties. W. P. Sherlock Avocado Nursery, R. D. No. 2, Puente, California. Sales yard on Third Avenue between El Monte and Puente.

For Sale — Seed Bed Stock, sour and sweet. Budded Valencias, navels, lemons. Paul B. Magee, R. F. D. No. 2, Box 4, Pasadena, California.

You Want To Plant GOOD olive, persimmon, and citrus trees; thornless blackberries, etc. Bishop's Nursery, Highland.

For Sale—Valencia Late and Eureka Lemon Trees, one and two year buds. Choice stock. W. V. SKILLMAN, R. F. D. Box 387, San Fernando, California.

For Sale—200 Eureka Walnut trees which have been planted in orchard two years. Call and see them. J. M. Koller, Puente, California.

For Sale—3,000 select orange trees. Also 1,000 lemon trees; first class trees; 20,000 seedbed stock. A. R. Rideout, Whittier.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited.

Citrus Seed Bed Stock, 1, 2 and 3 yr. Valencias, navels, grape fruit, lemons. R. No. 2, Box 404, Pasadena.

For Sale—Eureka Walnut Scions. R. D. No. 2, R. M. Fay, Anaheim, California.

Lime Trees—30, 35 and 40c. Cash Nurseries, Sebastopol.

MACHINERY

Tanks, Pumps, Windmills, Ranch Tools rebuilt, guaranteed do same work as new, save half. No profiteering. Compare prices and material. Make new galv. tanks, 100 to 2000 gals., save 20 per cent. Why pay more? See bargain prices ads P. A. Sunday papers. DEMMITT CO., Chairs. 120 N. Main. Los Angeles.

For Sale—Holt 60 Caterpillar, good condition and 6 disc Sanders engine plow, new belt power attachment. Write for further information. Roy Lux, Route 1, Box 14, San Diego County, Encinitas, California.

Tile of Redwood. Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $1,100 cash. J. N. Thille, Santa Paula, California.

For Sale—2 de Laval Silos, Calf-way milking machine, De Laval separator Lodi Mills Orchards Corporation, Hamilton City, California.

For Sale—Good pump, capacity 20 in. Phone 57227. R. H. Jones, 6530 DeLongpre Ave., Hollywood.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for book on patents.

MISCELLANEOUS

Closing-out Sale—$350 Victoria Canopy Top Surrey at $70.00 or crated F. O. B. Santa Fe, $80.00. Popular latest style surrey; a $200 rubber-tired Pony Buggy at $95.00. Last two jobs remaining from our large stock of horse vehicles. WICKERSHAM IMPLEMENT COMPANY, Fullerton, California.

Red Leaf Tobacco—Homespun aged in bulk. Chewing or Smoking—6 pounds $3.30; 10 pounds $5.00. Postpaid. Murphy Company, Martin, Tennessee. REFERENCE, People's Bank.

5,000 ft. of 8-in. and 10-in. surface irrigation pipe, $38.75 and $45 hundred feet. Don't wait month and expect order filled—very little new pipe in country. DEMMITT CO., 120 N. Main St., Los Angeles.

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For Sale—Fine fresh Almonds, 35c per pound. I G. M. B. Turkey hen, $7.50 or exchange for 1 thoroughbred Bourbon Red Turkey hen. Mrs. G. E. Rasdall, Shawmut, Tuolumne Co., California.

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BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Third sale at the Ranch—all breeds—April 17, 1920. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale—Registered Nubian Goats, buck and several does, beauties, excellent milk stock, rich in cream. Miss B. Stocker, R. 4, Sebastopol, California.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast Redlands

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Beat the Butcher—Raise your own rabbit meat and know it is healthy. Our magazine tells you how. One year for 12 one-cent stamps. After January 1st 25c so get it now. SANDERSON, Eagle Rock, California. Dept. CC.

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beeching, 1578 W. 46th Street, Los Angeles.

SORGHUM SYRUP

Pure unadulterated sorghum syrup, $1.50 per gallon, 5 gallon $8.00 including can. Cooking syrup 10 per cent cheaper. Ray C. Robinson, Mfgr., 930 West Fifth Avenue, Pomona, California.

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Caldwell's White Muscovy Ducks, quackless, hardy, rapid growers. Eggs, Ducklings, Breeders. Free circular. Caldwell Farm, Box 274, Los Angeles.

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16 Jersey Cows For Sale—Seven head registered Jersey cows, six milking, one coming fresh. Nine head 2 year olds, practically purebred but cannot be registered, sired by a son of a Grand Champion Jersey bull, six just fresh, balance springing, all solid color, fine udders, a high class bunch; short of feed, will sell reasonable. Also two young registered Jersey bulls. Call or write. F. W. Elleby, Carver Road, Modesto, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome. Information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California

For Sale—Young Registered Jersey Bull, ready for service, of best breeding in state. Tribble Bros., Lodi, California.

Sunshine Farm Jerseys—No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California

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If you wish to be sure of having your orders for eggs from our wonderful imported prize geese, filled in the spring, order now, giving us a 25 per cent deposit. Eggs $1 each. Paradise Valley Poultry Ranch, National City, California

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Alfalfa Growers will find that an application of AGRI GYPSUM will greatly increase the amount of available sulphur so much needed by this valuable crop and ordinarily the increased yields will bring returns amounting to several times the cost of AGRI GYPSUM and its application.

AGRI GYPSUM increases alfalfa yields and is beneficial to cover crop, land and grove.

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Beets	Cabbages	Barley
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Peas	Vetch	Deciduous Fruits
Potatoes	Melilotus	Milo
Cotton	Peanuts	Cantaloupes

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An application of AGRI GYPSUM on alkali soil neutralizes the alkali, rendering it harmless to the growth of vegetation.

Considering costs of nitrates, phosphates and other crop producing elements you can save money by alternating fertilizers with AGRI GYPSUM and obtain equally good, if not better, results at a saving to you and benefit to your land.

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Signed .....
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City State

The neighbors say that I have such "good luck" with my hens. But Biddy and I know better, **we know that it isn't luck.**

Luck won't take a brood of fluffy, delicate little chicks successfully through the critical period when they are so susceptible to the ravages of disease; on through the growing stage, building strong, healthy birds—the birds that eventually make the good layers that return a full egg basket for the care and feed expended on them.

The biggest part of the "luck" is in knowing the kind of feed that gives the best results, and why. Biddy and I know that our success is principally due to Globe "A-1" Mashes and we know that they are different and better because of the dry buttermilk in the feeds.

The Dry Buttermilk in the Globe "A-1" Poultry Mashes is one of the important factors in unusual results with chickens from the baby chick stage to the productive hen.

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A booklet of simple and complete directions for feeding of baby chicks will be found in each bag—really more than feeding directions, this booklet is a manual for the proper care of baby chicks.

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"Money's Worth or Money Back"—a guarantee as sound and as liberally made as are **Globe A-1 Feeds.**
If you are not pleased to have our Product, we are not pleased to have your money.
Your Dealer cheerfully backs this guarantee.

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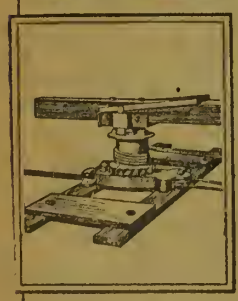

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To Tell the Age of Hens

By Jean A. Koethen

IN response to the request for information regarding a Canadian method of telling the age of hens, which appeared in this column some weeks ago, William S. E. Raines of Waukena, Tulare County, very kindly sends a bulletin describing the method. It is written by Victor Fortier, assistant dominion poultry husbandman, and published by direction of the minister of agriculture, Ottawa. In his introduction the director of the dominion experiment farms says: "The information . . . in the accompanying bulletin is the result of much study and close observation on the part of the author. While such knowledge is not likely to be of very great value to the average person who keeps a few hens, it should be, nevertheless, of much use to judges, breeders and fanciers of good poultry."

The bulletin indicates five points to be considered in determining the age of a fowl—the spur, the leg, the down, the skin and chiefly the wing. The first four do not always give reliable evidence, but the last can nearly always be depended on.

The Spur

As the female rarely has a spur, study of this portion of the body is limited to the male. The older the cock bird, the longer his spur. At seven months old the spur measures about one-eighth inch in length. At 11 months it is about five-eighths of an inch and is generally straight with a rounded end. At two years the spur measures from one inch to one and one-eighth inches and curves downward or upward. At three years the spur measures one and three-eighths to one and one-half inches and is decidedly curved with the end generally turned upward. The growth of the spur continues during the whole life of the bird. After the third year it is not so smooth, not so regular in shape, it becomes thinner, harder and grows much more slowly.

The Leg

The general color of the leg varies with age—a black leg becomes bluish, a yellow leg becomes pink or white, a gray or mottled leg becomes blue, a pink leg turns red in the turkey, the leg, black at first, reddens conspicuously with age. At first the scales which cover the leg and toes in young birds are very smooth, shiny, fine, hardly visible and very soft to the touch, and they adhere firmly to the leg. At each molt they become wider and longer, then they rise little by little, become gradually more marked, tough, hard and comparatively rough.

Skin and Down

"If the flank feathers of a young hen are pushed apart, one may see a silky, long, light, extremely thin down, growing fairly regularly between the other feathers which cover all parts of the body. The skin, of a uniform tissue, fine and pink, is covered with a network of very fine bluish veins. When the hen is more than one year old, the down and veins have disappeared and the skin is of a dull white color, dry, not so smooth or elastic, and somewhat mealy." Here Mr. Fortier quotes a great French breeder, M. Voitellier: "When the spur is lacking, the color of the legs and beak, which is never so bright, never so deep, in an old bird, may supply indications; little red trails appear in the ears; white, yellow or red feathers are seen in a plumage that does not admit of such, silver tinges become yellowish, brindled feathers become more white, the eye becomes dull, especially in waterfowl."

The Wing

Most important because most reliable, as an indication of age, is the wing. The wing, let me remind the beginner, consists of three groups of feathers—the ten primaries, or large flight feathers, which are set at the extremity of the wing; the ten secondaries, or wing bay, which form the wide part of the wing; and the thirdaries or small quill feathers, which grow close to the body and when the wing is closed cover part of the other feathers. It is the secondaries which are to be studied in this connection. "The author is positive that all the great secondaries are renewed every year, just like all the other feathers. However, at each molt some of these feathers are modified, always in the same way, and these modifications are the characteristic markings on which the following theory has been based.

The number of short secondaries that are found in the wing indicates the number of molts the bird has gone through, or in other words, tells its age. These feathers are shorter than the rest, more rounded at the extremity, with a nearly central quill, and they end in a short, straight point, slightly projecting."

That is to say, if you grasp a hen's wing firmly with one hand and with the other draw back the ten long flight feathers, you will notice, if the hen is more than a year old, that one or more of the secondaries are shorter than the others. These shorter feathers are nearest the flight feathers. If the hen is in her second year the first will be shorter than the rest; if in her third year, two will be shorter and so on. After a hen has molted four times, four short feathers may be seen between the flight feathers and the other six secondaries. The best time for this examination is in spring or early summer, when one molt is entirely completed and the next not commenced.

* * *

I am sure we all appreciate Mr. Raines' thoughtfulness in giving us a chance to study this very interesting bulletin. This column should be a clearing house for all the information any of us possess.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, December 29 1919. Report for the week ending December 26.

That birds will show the telling effects of a severe week of cold weather is evidenced by the lowering of the egg production for the eighth week of the laying contest. This reaction was caused by the cold wave during the seventh week. The total production for all pens amounted to 1,253 eggs, which is 347 eggs less than the five year average and is a 17.[illegible] per cent production. By laying 4 eggs for the week a pen of White Wyandottes belonging to Langford Poultry Farm, Langford, British Columbia won first place for the week. Pinecrest Orchard's pen of Rhode Island Reds, which have been leading the contest for the past several weeks was a close second with a production of 40 eggs.

The department oftentimes receives inquiries as to why, at this time of the year, there is a large number of so called "out eggs" or "floor eggs" credited to each pen. (An egg laid outside the trap nest by one of the birds in the pen is known as a out egg.) There are several reasons for this—first, the birds are unaccustomed to their new quarters and not being familiar with the trap nest some birds as a result shy from the nest and lay the egg in the deep straw litter of the floor instead. As the attendants enter the pen on the average of once every hour, the birds that lay out eggs are soon identified and put in the trap nest to lay. After once laying in the trap nest the bird never as a rule lay on the floor again. The biggest number of out eggs at this time of the year, however, do not come from this cause, but are eggs found on the dropping boards in the morning when the pen is fed and watered, the eggs being laid at night. The reason for this laying is simply this—the organs of egg production are not functioning as rapidly during this time of the year as in the natural laying period, and as a result oftentimes the egg is manufactured and laid during the night. This is because of the short days and long nights, the birds not having time before going to roost to produce the egg. This reasoning has been proved to be correct by the electric light experiments carried on at this experiment station. The pens having the lights during the early hours of the morning and night seldom lay an egg during the night on the dropping boards, while in the check pens lo

under similar conditions but without lights many eggs are found on the dropping boards at night.

The three best pens in each of the principal varieties are as follows:

Plymouth Rocks

Merritt M. Clark (Barred), 175; Ingleside Farm (Barred), 167; Rock Rose Farm, 149.

White Wyandottes

Langford Poultry Farm, 210; Merrythought Farm, 200; Herbert L. Warren, 193.

Rhode Island Reds

Pinecrest Orchards, 355; Charles H. Lane, 260; Jacob E. Jensen, 235.

White Leghorns

Merrythought Farm, 278; George Phillips, 263; Meadowedge Farm, 228.

Miscellaneous

H. P. Cloyes (Buff Wyandottes), 259; A. L. Anderson (R. I. Whites), 235; A. E. Hampton (Black Leghorns), 78.

NATIONAL EGG LAYING CONTEST

By T. W. Noland

December report from Missouri Poultry Experiment Station, Mountain Grove, Missouri.

The contest hens laid 3,921 eggs during December, making an average of 13.07 eggs per hen. Pen 45, S. C. Reds, from Missouri, won the cup for December by laying 131 eggs during the month.

The ten leading pens for December are as follows: S. C. Reds, Missouri, 131 eggs; Barred Rocks, New York, 128; S. C. Reds, Alabama, 124; Buff Orpingtons, Missouri, 119; Buff Orpingtons, Missouri, 116; Columbian Rocks, Missouri, 110; R. I. Whites, Missouri, 109; White Wyandottes, Missouri, 109; Barred Rocks, Ontario, 106; S. C. White Leghorns, England, 105; Black Langshans, Missouri, 104.

Following is the number of hens laying 25 eggs or more during December: S. C. White Leghorn hen, 26 eggs; S. C. White Leghorn hens, 25; Columbian Rock hen, 25; Barred Rock hen, 30; Barred Rocks, 26; White Rock hen, 26; White Rock hens, 25; Silver Wyandotte hen, 25; S. C. Red hen, 29; S. C. Red hens, 28; S. C. Red hens, 27; S. C. Red hens, 26; S. C. Red hens. 25; R. I. White hen, 26; Buff Orpington hens, 28; Buff Orpington hen, 27; Buff Orpington hen, 26; Buff Orpington hen, 25.

Sales value of eggs average bird for December, 68 cents, sales value of eggs average bird to date, $1.16; sales value of eggs best pen for December, $6.91; sales value of eggs best pen to date, $13.73; average price received for eggs during December 63 1/3 cents.

ASAFOETIDA FOR COLDS

The poultry husbandry division of Clemson College, South Carolina, has found asafoetida useful in treating both colds and limberneck. For colds a piece the size of a walnut is dropped into a gallon of drinking water. For limberneck a piece of gum asafoetida the size of two peas for a mature fowl, of one pea for a fryer or of one-half pea for a chick is given every three hours. Three doses are said to be sufficient in most cases to effect a cure.

Two of the large poultry interests of Southern California are to be combined in the Martin-McConnell Poultry Farms, Inc., at Garden Grove. The McConnell Black Minorcas have made for themselves a name familiar to fanciers throughout the big show circuits and the Martin White Leghorns have won every first prize, as well as championships in both male and female classes at the P. P. I. E. Both have found the trapnest the key to success. The new plant is to be newly equipped and made a show place that will always welcome visitors.

The Artesia Hatchery (electric) began with one incubator ten years ago; today 225 are installed. This means 100,000 egg capacity, and the owner, F. W. Foster, has built up a big business in the day old chick.

The loafing hen must go. No longer will she be allowed to stick about the barnyard and devour perfectly good milo maize if she does not turn out regularly her share of those 90 cent orbs of nutrition.

SEES GOOD FUTURE FOR BEE-KEEPING

If American beekeepers are able to meet increasing demand, the enlarged American consumption of honey will continue, says the annual report of the chief of the bureau of entomology. During the war our exports of honey to the allied countries increased at least ten times, and the domestic use also went much higher. The increased export demand has continued since the end of hostilities, and the bureau sees reason to expect that this market will continue to be an important factor in American beekeeping.

Local sales of honey near the points of production have increased more rapidly than sales in the larger markets, but this can readily be remedied, according to the report, by the further development of the business of bottling honey.

The tendency to collect the bees of the country in the hands of commercial beekeepers is viewed as a wholesome sign for the development of the industry. Prevalence of two destructive brood diseases, and especially the necessity of careful study of beekeeping problems in order to obtain maximum crops, make it almost impossible for the person having only a few colonies to give the care essential for good beekeeping. Only the man who makes beekeeping his chief work may expect to get proper returns.

BETTER FOR HER

"How's your husband getting along, Mrs. Fogarty?"

"Well, sometimes he's better an' sometimes he's worse, but from the way he growls an' takes on whin he's better, Oi think he's better whin he's worse."—Boston Transcript.

DANGEROUS PROCEEDING

A woman and her daughter were at sea during a terrific storm. After a silence of some time the mother asked:

"Are you seasick, dear?"

"No, I think not, mother," replied the girl, "but I'd hate to yawn."—Nebraska Awgwan.

GOOD REASON

Sunday School Teacher: Why did the Lord command us to love our neighbors.

Little Hazel: I guess it was because we can get along with most everybody else.

AUTOCRATIC INTERFERENCE

"I guess we'll cut out that line of my speech," said Senator Sorghum, "about my being a public servant."

"It is a good old phrase."

"Yes, but it has had its day. As household relationships go just now, claiming to be a servant sounds just a trifle bossy."—Washington Star.

The Pride of Petaluma

KRESKY'S 1920 VENTILATING brooder stove forces proper ventilation in spite of the operator and sweeps the room with FRESH AIR. PETALUMA'S latest sensation and result getter. TRY it. Keep it if you like it, or send it back if you do not.

Catalogue No. 3, free for asking.

KRESKY BROODER STOVE CO.
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Winter Layers Need Help—get more eggs

Off-set winter conditions—get eggs when prices are highest—supply the natural elements that stimulate egg-making.

Dr. LeGear's Poultry Prescription is especially prepared to insure the vigor and vitality so necessary to thrifty, profitable winter laying. Thousands of poultry raisers bank on feeding this remedy for bigger winter egg yields.

Better Laying Guaranteed

Dr. LeGear's Poultry Prescription is the best conditioner and tonic that you can provide for your flock. It positively makes your hens lay more eggs and gain most in flesh from the feed consumed. For twenty-seven years a practicing graduate veterinarian, Dr. L. D. LeGear propounds his own prescriptions and guarantees results. Sold on a money back guarantee by over 40,000 dealers—never by peddlers. See your dealer today.

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768 Howard Street St. Louis, Mo.

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Just completed, 128 pages. A most comprehensive treatise on the care and treatment of Stock and Poultry. Written by Dr. LeGear after 27 years experience as a practicing graduate veterinary surgeon and poultry expert. Send 10c to us today—we will mail it postpaid.

Dr. LeGear's Poultry Prescription

"Cash in" now when eggs are high

HAVE eggs to sell—plenty of them—*all through the season.* There's a nice profit in table eggs, so making money is only a matter of healthy hens—assured by the use of

Pratts Poultry Regulator

Tones up the digestive system and keeps layers and breeders in a normal natural condition so that they keep on laying. Used by thousands of successful poultrymen and farmers all over the world. Always sold with this guarantee:

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For Sick Chickens

Preventive and curative of colds, roup, canker, swelled head, sore head, chicken pox, limber neck, sour crop, cholera, bowel trouble, etc. Mrs. T. A. Morlay of Galien, Mich., says: "Have used Germozone 17 yrs. for chickens and could not get along without it." Geo. F. Vickerman, Rockdale, N. Y., says: "Have used Germozone 12 years; the best for bowel troubles I ever found." Frank Sluka, Chicago, Ill., writes: "I have lost but 1 pigeon and no chickens in the 3 yrs. I have been using Germozone." C. O. Petrain, Moline, Ill.: "I never had a sick chick all last season." Bernard Hornfng, Kirksville, Mo., says: "Cured my puniest chicks this spring." Ralph Wurst, Erie, Pa., says: "Not a case of white diarrhoea in 3 yrs. I raise over a thousand a year." Good also for rabbits, birds, pet stock.

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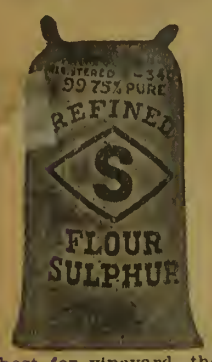
Inland Poultry Journal, Dept 53, Indianapolis, Ind

SULPHUR



It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards SIX times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphur that money can buy; the best for vineyard, the best for bleaching purposes, LEAVING NO ASH.

VENTILATED sublimed Sulphur—Impalpable Powder, 100 per cent pure, in double sacks, for Dry Dusting and making Paste Sulphur.

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food, drill into the soil 100 to 400 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR 100 per cent pure. This has increased various crops up to 500 per cent.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 DEGREES BE., Fungicides and Insecticides.

Carried in stock and mixed to order.

San Francisco Sulphur Co.

624 California Street, San Francisco, Calif.

We are equipped to make immediate shipments. Send for "ILLUSTRATED BOOKLET," also booklet "NEW USES FOR SULPHUR." Price List, and Samples.

Please state for what purpose you use the sulphur, quantity needed, and date of shipment preferred.

BIG SEED COMPANY NOW DISTRIBUTING NEW CATALOG

Aggeler & Musser Seed Company of Los Angeles Issues 27th Annual Book Finest Yet Published

The largest seed company in Western America is now distributing broadcast its 1920 seed catalog. The big Annual will exceed all previous ones and it is said is a complete course in agriculture, with several hundred interesting illustrations.

There is something of interest to the Home Seeker, the Stockman, Dairyman, Rancher, Orchardist, Poultryman and Gardener, for there are departments on Home, School, Field and Demonstration, Garden Work, More and Better Potatoes, correct tools and implements to use for best results. Marketing notes on each subject, telling how and where to market. Hints on poultry, spraying, fertilizing and the use of insecticides. The whole book of 112 pages is most interesting, entertaining and instructive—in reality it is several books in one, for it includes the important "Garden Manual." Over 1000 questions are answered.

The catalog is absolutely free, and should you have not already received it, write immediately to the Aggeler & Musser Seed Company, 620 South Spring Street, Los Angeles, California. Its city store is in the center of the shopping district and its location is a great convenience to rural customers. There is a special "Call" Department to accommodate customers in town for a short time on business. Orders left on arriving are ready when called for. The big Mail Order Department and General Offices are situated at the city store, while the General Milling, Cleaning and Warehousing is situated at the big Warehouse at Sixth and Alameda. Be sure to secure a copy at once. Write today.

PIPE

100,000 FEET OF NEW AND SECOND-HAND PIPE AND CASING

PIPE—Practically all sizes from ⅛ to 15 inches.

CASING—Practically all sizes from 3 to 14 inches.

All pipe and casings have good threads and couplings on each joint.

RIVETED PIPE — 4 to 12 inches, as good as new.

We also carry valves and fittings.

MAIL ORDERS GIVEN PROMPT ATTENTION

Write, phone or wire for quotations.

ADAMS PIPE WORKS

Bay and Mateo Sts. Los Angeles, Cal.

Shasta daisies make fine specimen plants in a shrubbery and furnish excellent cut flowers.

Los Angeles Markets

Los Angeles, January 21, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 61 cents.

Dairy Exchange prices last week on extras:

Jan.	14	15	16	17	19	20
'20 ...	64	63	61	61	61	61

CHEESE

Brokers' prices:

California, fresh, lb., 31; price to retail merchants, 31@33.

EGGS

Fresh extras, Produce Exchange closing price, 55 dozen; case count Produce Exchange closing price 56 dozen; pullets, Produce Exchange closing price 52 dozen.

Dairy Exchange prices last week on extras:

Jan.	14	15	16	17	19	20
'20 ...	58	58	56	56	55	55

POULTRY

Price to producers: Hens, lt. 35; heavy 35; colored over 4 lbs., 37; broilers, 25@33; fryers, 35; roasters, 35; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hen turkeys, live, 40; dr., 41; squabs, 45@47.

Belgian hares, 3 to 3½ lbs. live, 17.

LIVE STOCK

Los Angeles, Jan. 20. — Weighed and delivered off cars without food or water:

Hogs (hard-grain fed), 125 to 150 lbs., 14.50; 150 to 175 lbs., 15.00; 175 to 225 lbs., 15.50.

Cattle (on foot, gross weight), steers, good, 11.00@11.50; medium, 10.50@11.00; heifers, good, 9.50@10.00; fair, 9.00@9.50; bulls and stags, 6.00@6.50; calves, 125 to 150 lbs., 12.00, 1.75 to 225 lbs., 11.00.

Sheep, ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock January 20, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Eight cars California, one car Idaho, three cars Oregon arrived. New stock: Stockton, Burbanks, fancy and special brands, 5.60@6.00 per cwt.; few, 5.35@5.50, Idahos: Russets, 5.60@5.75; Rurals, 5.10. Local: Lug boxes, 1.65@1.80; local White Rose mostly 5.25.

Sweet potatoes: Market steady. Lugs, 1.25@1.50; best, 1.65.

Carlots: Demand and movement slow, market weaker, supplies limited, straight cars, too few sales to quote; mixed cars 4½ per lb.

Onions: Demand and movement moderate, market strong. Home grown and Stockton: White Globes, cwt., 6.00@6.25: mostly 6.00; Yellows and Browns, mostly 6.00.

VEGETABLES

These are the actual prices obtained January 20, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Beans, green, lb., best, 15@17; other 8@9.

Beets, doz., 45@50; lb., 4@5; sk., 2.75@3.25.

Brussel Sprouts: Per lb., 10@12; best shipping stock 14@17, mostly 17.

Cabbage: Market strong. Per lb., 4@5; per cwt., best, 4.50@5.00; sacks, 3.50@4.00.

Carlots: Demand strong, movement moderate, supplies scarce. Winningstadt and Cannonball, in straight cars, very few sales, 90.00@95.00; in mixed cars 95.00@100.00, crates extra.

Carrots, dozen, 35@40; lb., 3; sk., 1.50. best, 1.15@1.25; others, 70@75; field crates, 1.75@2.00; best high as 2.25@2.50.

Cauliflower: Local stock, per dozen, best, 1.15@1.25; others, 75@1.00; field crates, 1.75@2.00; best high as 2.00@2.25.

Carlots: Demand good, movement moderate. Half Early and Pearl, straight cars 1.30@1.35; few best high as 1.40; mixed cars 1.35@1.40.

Celery: Market steady. Local and northern, per dozen bunches, 1.25@1.50; poorer low as 60; cr., 6.00@6.50; fancy shipping stock, 7.00@8.00; mostly 8.00.

Carlots: Demand and movement moderate, market firm, supplies limited. Per dozen, straight cars, few sales. No. 1's, 1.00@1.05; No. 2's, 90@95; mixed cars, No. 1's, 1.10@1.20, mostly 1.10; No. 2's 1.00; No. 3's, 90.

Cucumbers, hothouse, 1.00@2.00 doz.

Chicory, dozen, 45@50.

Eggplant: Florida and hothouse, 25 per lb.

Peas, local, lb., mostly 10@13.

Lettuce: Local stock: Market firm. Per dozen, 40@45; crates, 1.25@2.00; other 75@90; best shipping stock, 1.75@2.00.

Carlots: Demand and movement moderate, market firm, little change in prices, wide range in quality and condition, generally fair. California: Crates Los Angeles market (Iceberg), straight cars 1.85@2.00; mixed cars, wide range 2.00@2.25, mostly 2.00@2.15. Imperial Valley, 2.50@2.75 crate.

Parsley, doz., 35.

Peppers: Supplies very light, lug boxes, wide range. Bells, 15@22 per lb., Chilis, best 15@16; Florida Bells, 30@85; Chili, 22@25.

Parsnips: Lugs, 80@1.00; sacks, 2.25@2.50; others, 1.65@2.00; per dozen, 50.

Rhubarb: Local stock scarce, bx., 1.15@1.30; few best, 1.50.

Squash: Hubbard, cwt., 2.75@3.00; lb., 2@3½.

Tomatoes: California: Lugs 1.50@1.65; Mexicans: Lug, 4.00; crates, 3.50@3.75.

Turnips, doz., 40@45; sk., 2.00@2.25.

FRUITS

These are the actual prices obtained January 20, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: California: 4-tier, Beliefleur, 2.00@2.25, mostly 2.10; 3½-4½ tiers, 1.75@1.85, loose, 3-4½ per lb. Glen Seedlings 2.25. White Pearmains and Yellow Newtown Pippins 2.00@2.35 box, mostly 2.15@2.25; some fancy high as 4.25@4.50. Delicious 2.50@2.75 box; some fancy, large sizes, 3.50@4.00; loose 6@7 per lb. Rome Beauty, 2.00@2.25. Newtown Pippins, per lb., 5@6; Pearmains, 5@6; Winesaps, 6@6½. Northern: Jonathans, loose, per lb., 7@7½. Spitzenbergs, extra fancy and fancy, 2.75@3.00; choice 2.50; per lb., 6½@7½. Delicious, boxes 4.00. Ben Davis, per lb., 5. Pippins, 5@6. Winter Bananas, extra fancy and fancy, box 2.00@2.50; loose, 7 per lb. Rhode Island Greenings, 2.25@2.50 box.

Bananas, 8@8½.

Cranberries: Barrels, 15.00@18.00; best shipping 18@20 per lb; Oregon, boxes, 4.00@4.25.

Pears: Winter Nells, 3.50; lb., 6; Seckel, lb., 7.

Pineapples, lb., 15@16.

Lemons: San Fernando Valley stock, 2.00@2.50. Local: Packed, 2.50@3.00; loose, 2.00@2.25 box, lb., 3.

Oranges: Navels, 4.50@5.00 box. Local stock: Packed, 3.50@4.00; Tangerines, 8@9 lb.; poorer, 5@6.

Grapefruit: Arizona: Seedless, per box, 4.00; California: Porterville and Imperial Valley stock, per box, best, 3.25@4.25. Local: 2.00@2.75 box.

HONEY

Demand and movement good, market steady. Carloads f. o. b., usual terms, per lb.; white orange blossom, mostly 19; white sage 19@20; extra light amber sage 18½; light amber sage, supplies cleaned up; light amber alfalfa, 16½. Beeswax, local lots, 40@43.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.

1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6: Limas, 14½; baby, 13.

GRAIN AND FEEDS

Price bid local grain exchange, January 20:

Barley, 3.60@3.65.
Corn, Yellow, 3.50; White, 3.35@3.47½.
Eastern Kafir, 2.90.
Wheat, 5.30@6.30.
Milo, 2.93¾@3.02½; Eastern No. 2, 2.80.
Eastern milo, 2.71¼.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	24.00@27.00
Barley	20.00@25.00
Alfalfa	23.00@28.00
Barley Straw	10.00@12.00

San Francisco Markets

San Francisco, January 20, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	59½
Prime Firsts	65½

Jan.	13	14	15	16	17	19
'20 ...	66	62	61	58	56½	59½
'19	66	63½	64½	63½	..	

Rects. wk. ending Jan. 19, 3,647 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	30@31
Cal. Flats	33½
Cal. Y. A.	36
Ore. Y. A.	37
Oregon Trip	34

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	62
Extras, pullets	65½
Undersized	50

Jan.	13	14	15	16	17	19
'20 ...	67½	61½	62½	62	62	62
'19		57	56½	56½	58½	..

Rects. wk. ending Jan. 19, 223,530 dozen.

POULTRY

Wholesale prices are:

Leghorn, 36@37; small, 36@37; large, 37@38; roosters, young, 35@37; old, 21@23; broilers, 38@40; fryers, 33@34; turkeys live, 38@40, dressed, young, 52@53; Ducks, Indian Runner, 25@27; Pekin, 28@32; geese, 30@32; Squabs, 50@60.

Belgian hares, live, 18@20; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company are:

Cattle: Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 11½@12¾; do, 1,200 to 1,400 lbs., 11@11¾; do, second quality, 10@10½; thin, 8@9.

Cows and Heifers—No. 1, 9@10; second quality, 8½@9; common to thin, 5½@6½.

Calves—Light weight, 13½@14; medium, 12@12½; heavy, 9½@11½.

Lambs—Yearlings, 10@11½; milk, 11½@12½.

Sheep—Wethers, 10@11½; ewes, 8½@9.

Hogs—Weighing 100 to 225 lbs., 15½; 225 to 300 lbs., 15; 300 to 400 lbs., 14.

Morgan & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle—Good steers, 1000 to 1200 lbs., 12@12¾; good heifers, 1000 lbs. and over, 9@10; good cows, 1000 lbs. and over, 8½@9; canner cows, 5@6; good bulls, 6@7.

Calves—Light, 13@14.

Hogs—Top packer, hard and well finished, 150 to 225 lbs., 15½; 225 to 300 lbs, 15; over 300 lbs. 14.

POTATOES

Wholesale selling price:

Potatoes: Per 100 lbs.: Rivers, fancy, 4.50@4.75; choice, 4.25@4.50; Idaho, Gems, 5.00@5.25; Salinas, 5.20@5.50; sweet, 5@5¼ lb.

ONIONS

Wholesale selling price:

Onions: Onions, fancy brown, 5.00; choice, 4.50@4.75; yellow, 5.00@5.25; white, 5.00@5.50.

Garlic, 22½@25 lb.

VEGETABLES

Wholesale selling price:

Artichokes, cr., 15.00@20.00; doz., 1.00@1.25.

Beans: String, 15@20; Lima, 12½@15.

Brussels Sprouts, lb., 8@9.

Carrots, per sack, 1.00@1.25.

Cauliflower, doz., 1.25@1.45.

Cabbage, doz., 40@50.

Celery, doz. bunches, 45@50; cr., 5.00@6.00.

Eggplant, lb., 15@20.

Lettuce, cr., 1.75@2.00.

Pumpkins, lb., 2@2½.

Radish, 7@9 doz. bunches.

Tomatoes: Southern, cr., 1.50@2.00.

Spinach, lb., 2@3.

Squash: Hubbard, sk., 1.25@1.75; Summer, bx., 1.50@2.25.

Peppers, Bell, lb., 15@20; Chili, lb., 10@15.

Peas, lb., 10@15.

FRESH FRUITS

Wholesale selling price:

Apples: Bellflowers, 1.50@2.00; Newton Pippins, 1.75@2.25; Spitzenburg, 2.00@2.50 ch.; fy., 3.00@3.50; Baldwins, 2.00@2.50.

Bananas, 7½@8.

Cranberries, 5.50@6.00 per standard box, barrel, 11.00@12.00.

Olives, lb., 8@12½.

Pears, box, 2.50@4.00.

Persimmons, box, 1.25@1.75.

Pineapples, doz., 2.75@3.50.

Pomegranates, 1.00@1.50 bx.

CITRUS

Wholesale selling price:

Per box: Lemons, fancy, 5.00@5.50, choice, 4.50@5.00; standard, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00@2.50; grapefruit, fancy, 2.50@3.00, choice, 2.00@3.00; navel, 4.00@5.00; limes, 1.50@1.75 per crate; tangerines, 1.50@3.25 per crate.

BEANS, PEAS

Jobbing price per cental:

Beans: Small white, 6.50@6.75; large white, 6.50@6.75; cranberry, 7.50@8.00; red Mexican, 8.00@8.50; pink, 7.00@7.50; California Bayou 9.25@9.75; Blackeye, 6.25@6.50; red kidney, 12.00@13.00; Lima, 13.50@13.75; Garvanza, 9.50@10.50; Kotenashi (in bond), 5.35.

Dried Peas: California, 6.50@7.00 per cental for green, recleaned.

ALMONDS

California Almond Growers Exchange opening prices:

Nonpareil @32½, IXL @31½, Ne Plus Ultra @30½, Drake @23½.

HONEY

Jobbing prices: Extracted, Water White and White, 18@20 lb.; Light Amber, 16@18; Amber, 14@16½; Comb, 25@28 for White and Water White and 20@22½ for Wh. Amber.

DRIED FRUITS

Prunes:

Prune prices announcel by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.

For "practically peeled" add 1½c per pound (any grade).

Prices above are all bulk basis.

For packing in 50 pound or 25 kilo boxes add 1 cent per pound.

25 pound or 12½ kilo boxes, all 1¼c per pound.

10 pound boxes, add 2c per pound.

Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.

Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.

Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:

Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:

White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.35; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in

WANTED

any reader of this paper who has or knows who has Walnut Trees that they are not going to plant on account of the dry weather, write

Henry Harmoore, Van Nuys, Cal.

50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:

Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

Raisins:

California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅝; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12⅛; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾. Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown, flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown, tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, 2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

GRAIN

Wheat: The prices are based upon federal grades and standards at the terminals in San Francisco Bay and Los Angeles, and are as follows, per bushel of 60 pounds:

Hard White—	Per Bushel	Per Cental
No. 1	$2.20	$3.66 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.09	3.48½

The above are minimum prices.

For sacked grain add 4½ cents per bushel of 60 pounds to above prices. Deductions of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.30@3.35; black, 3.50.

Corn: California yellow, 3.25@3.30 per cental; Egyptian white, 3.75@3.80; mile maize, 3.25@3.30.

Barley: Spot feed, per cental, 3.60@3.65; brewing, 3.65@3.75.

HAY

Under date of January 17, Scott-Magner & Miller says:

Receipts past week, 1,724 tons, mostly of the medium grades and has arrived both by rail and water in equal quantities. Scarcity of cars throughout the country is about over. Owing to the continued dry weather, as well as the small stocks of hay on hand, the hay market is taking quite a jump and is considerably higher. Demand from the country districts continues without abatement and although this demand is mostly for stock hay and alfalfa, yet considerable horse hay of No. 1 wheat or red oat is in demand. Trade is somewhat light in the city but the country demand more than makes up for this. Weather continues clear and cold and practically no grass is growing on the ranges at this time. Many are speculating on a dry season but as a rule rain always comes in this state in time to produce at least part of a crop if not more, and it is safer to figure so. Alfalfa is still moving in from Nevada in large quantities. Although up to this time there has been practically no demand for straw, yet considerable has been sold of late, mostly for stock feeding purposes.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses are to be added according to conditions:

Fancy Wheat Hay (light 5 wire bales)	28.00@30.00
No. 1 Wheat or Wheat and Oat Hay	25.00@29.00
No. 2 Wheat or Wheat and Oat Hay	24.00@26.00
Choice Tame Oat Hay	27.00@30.00
Other Tame Oat Hay	24.00@27.00
Wild Oat Hay	23.00@26.00
Barley Hay	23.00@26.00
Alfalfa Hay	25.00@30.00
Stock Hay	20.00@23.00
No. 1 Barley Straw	.50@ .80

Citrus Markets

Los Angeles, January 21, 1920.

The blizzards have caught some fruit in transit and this frozen stuff has been thrown on the market at low prices. Good stock which has gone through safely is still commanding fair return. On the whole the market is looking much better. F. o. b. prices shipping point are ranging from 3.50@4.00.

First class lemons are also receiving good demand.

Shipments

Shipment of oranges from Southern California to date since November 1, 1919: Oranges, 4,842 cars; lemons, 816 total, 5,658. To same date last season, Oranges, 3,430; lemons, 1,404; total, 4,834. Central California: Oranges, 3,387; lemons, 143; total, 3,530. To same date last season: Oranges, 2,183; lemons, 163; total, 2,346. Northern California: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 232.

AT THE AUCTIONS

January 14

New York: 13 Nav., 2 Val., 1 Blood. Nav. 1.80@5.65. Val. 2.40@3.70, Bloods 2.00.

Boston: 6 or., 1 lem. Nav. 2.70@4.80, Val. 2.35@2.50, Lem. 1.50.

St. Louis: 2 or. Nav. 3.25@3.95.

January 15

New York: 11 Nav., 2 Val. Slight improvement. Nav. 1.95@6.00. Val. 1.60@2.70. Lem. 1.20.

Boston: 4 cars. Nav. 3.25@3.95. Val. 2.70. Bloods 2.40.

January 16

New York: 10 Nav., 1 Val. Nav. 1.60@1.35, Val. 1.90@2.15, Seeds, 1.85.

Boston: 3 or., 1 lem. Nav. 3.05@4.45, Val. 2.45, lem. 5.10@5.85.

St. Louis: 5 or., 1 mixed or. and lem. Nav. 2.55@4.75, lem. 4.55.

January 19

New York: 13 Nav., 7 Val. Best grade Navels slightly higher. Nav. 1.65@6.15, Val. 1.55@2.55.

Boston: 11 or., 2 lem. Nav. 1.85@5.15, lem. 1.90@5.85.

St. Louis: 3 cars. Nav. 1.95@4.70, lem. 4.20@5.60.

January 20

New York: 11 Nav., 1 Val. Nav. 1.30@4.65, Val. 2.40, lem. 65.

Boston: 4 or., 1 lem. Nav. 2.20@4.10, Val. 1.80@2.65, lem. 1.25.

Philadelphia: 1 car. Nav. 1.45@4.70.

Carlot shipments of peas are now moving from Carlsbad, San Diego County, about five per week. The present unseasonably hot weather has not been best for development of the crop, but it is not believed that the yield will be affected. Quality reported excellent.

Imperial Valley cantaloupe growers encouraged by favorable weather, have planted early acreages and are protecting plants from frost with paper covers. Main planting season does not begin until about February 1, continuing until March 15 with some planting even later. It is probable that the acreage will be close to 20,000 but no definite figures are available for sometime and late acreage will be affected by ability to dispose of lettuce crop.

RELATIVE RESISTANCE OF CROPS TO ALKALI

(Continued from Page 13)

tions of carbonates and practically no growth was made in concentrations higher than 3.000 parts per million.

Taken all together these results show that salts added to the soil in higher concentrations than 4.000 parts per million of chlorides, 8.000 parts per million of carbonates, and 12,000 parts per million of sulphates are entirely too high to allow a satisfactory yield of the ordinary crops. These figures would have to be modified if they were obtained from analysis of alkali soil, since the relation between salts such as chlorides and carbonates is not the same for "salts added" and "salts extracted."

As crops for alkali land, the cereals would doubtless be among the best of those investigated, and the grasses the poorest.

Of the forage crops, vetches, cow peas, alfalfa, and sweet clover are doubtless superior on alkali land to the grasses. Timothy and alsike clover, which are recognized as good crops for wet land, are shown to be relatively non-resistant and probably should not be included among the forage crops for wet alkali land.

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Household Department

THE BABIES' BEDTIME

Sweet are children in the morning, in the afternoon or night,
In their dainty frocks of red and blue or gowns of simple white;
In their play up in the playroom, in the yard or on the lawn,
But they're sweetest when it's bedtime and they get their "nighties" on.

Little ghosts of white a-romping o'er the bed and through the room,
In the season of a lifetime they're the rosy month of June;
Little ghosts of white a-marching to the music of their laugh
And the one who e'er would miss it sees in life its minor half.

Little curls a-dangling, frowsy—to the head a fitting wreath,
Little gowns a-hanging loosely and the peeping feet beneath;
Merry monarchs of the household and their love as is the fawn,
And they're sweetest when it's bedtime and they've got their "nighties" on.

Oh, the clear notes of their laughter and the patter of their feet,
As they romp and chase each other in the game of hide and seek—
Gives a hint of faint suspicion of the world that is to be,
For the Master taught us, saying: "Suffer these to come to me."

Soon fatigue o'ercomes the players, and the white brigade is still,
And the "Now I lay me" whispered with a pleading and a will.
Oh, the wee tots are in slumber and their dreams are in repose.
For the clearness of a conscience rivals beauties of the rose.

And the white upturned, sweet visage adds to innocence the charm
Of the soul reposing trust upon the guardian angel's arm;
Oh, the sweetest-scented nectar flowing from this life is gone
If you can not see the babies when they get their "nighties" on.—Indianapolis Press.

THE DESERT FEUD

By M. E. Bemis

(Continued from last week.)

Before beginning the long, slow, overland journey, an organization had to be effected. The caravan that crawls slowly across the desert and mountains, far from civilization and in constant danger from the attacks of hostile Indians, is as much isolated as the ship that sails the ocean, and consequently much depends upon the executive head of such an expedition. We were fortunate in having with us Captain Mark Sprowle, of the —th Texas Cavalry. Captain Sprowle was not only a capable executive but knew the country in a rather general way and the trail in an intimate way, having twice made the journey. After thoroughly canvassing the available men who could be trusted to take the train across, Captain Sprowle was unanimously chosen to command. To this happy choice may doubtless be attributed the averting of what would have been one of the greatest tragedies of the desert, for Sprowle was a commander who insisted on absolute discipline, but one from whom in matters of dispute one might expect unbiased judgment.

We left San Antonio early in February of the early 70's, presuming that at that season of the year there would be an abundance of feed and water for the stock. The first part of the journey was uneventful so far as encountering difficulties was concerned. Very early in the journey, however, there developed a situation that so far as I know was unheard of among desert trains, and one which but for the dominating spirit of Captain Sprowle and the event which I am about to describe would probably have resulted in the worst of tragedies.

It was only natural that John Brent and Mary Andrews, being the only two unmarried young people, should seek each others company. It was just as natural perhaps that Mary should not fail to remind Brent that he was of the North and that he had taken an important part in the struggle which had practically destroyed the South and with it the fortunes of her father as well as many others. This was at a period when feeling was still high, and it required but little to kindle a little fire of sectional wrath into a serious conflagration. Quarreling between the pair became almost constant, and—although on the part of Brent—it was begun more in a teasing manner and wholly without resentment, one word and then another led him to say more bitter things in repartee than was discreet under the circumstances.

The culmination of the quarrel came when we had been out maybe two or three weeks and Brent (and I blame him now for it, for he should have had better judgment), called the attention of Captain Sprowle to the fact that all the women had their special work to do with the exception of Mary Andrews who sat idly by and watched the women prepare the meals and perform other tasks whenever camp was made. Brent insisted that it was but fair that all should take part in the work as all the men did with the work of driving, herding the cattle, cutting wood, etc. Obviously this was none of Brent's business, although it was equally obvious that he was entirely right. Looking back, I think he was actuated more, considerably more, in fact, by a sincere wish to see the better qualities in the girl brought out, to see her learn to become better prepared to meet the hardships of the pioneer. If I were writing a novel I would not be permitted to admit that my hero made mistakes or had any faults, but in relating facts I do not care to gloss over the mistakes even of those whom I loved and admired.

Well! the conversation of Brent and Sprowle was overheard and reported to Major Andrews, who promptly accused Brent of insulting his daughter, and through a young man who had served under him in the army, acting as his second, he challenged Brent to a duel. Although opposed to duelling on general principles, Brent just as promptly accepted the challenge and chose pistols at ten paces as the weapons and the time the following morning at sunrise.

An effort was made to keep the matter secret, but it was soon reported to Captain Sprowle by some one who learned of it through accident. As soon as supper was over that night and while the women were clearing up after the meal, the captain called all the men to a conference out of earshot of the women He said: "A serious situation has arisen among us. I understand on good authority that a duel between two of you men is to be fought tomorrow morning at sunrise. I have only this to say: Your private quarrels are as much your own affairs as your purse or any other property. It is not my purpose to prevent any of you from settling any differences in any court that you may choose, whether it be the courts of law as prescribed by men or the courts of the gunmen, but while I am in command of this expedition I shall insist, and back my demands with every force available, that there be no weakening of our numbers while we are going through a country where danger from hostile Indians is imminent and when death or crippling of one or more of our men means so serious a matter. You are to consider all quarrels off until we reach the end of our journey. I take this action entirely as a measure of safety to the women and children and to the members of this party who have placed their lives under my protection. You, each of you, owe something to the others, and you have no moral right to take any steps which will make you a burden upon the others as one crippled would be, and you owe to the others the protection which you can render and which obviously you would be unable to render if you were killed I expect you men to forget this unfortunate affair, at least until we are across the Indian country."

All recognized the force of his logic, and through the seconds of the two principals it was agreed that the challenge and acceptance should stand until the end of the journey. Naturally such a situation resulted in more or less discussion, and discussion of a matter of this kind, and particularly in an isolated train such as a slow moving expedition of settlers, could only be productive of hard feelings and the final division into two groups, one supporting John Brent and the other Major Andrews, for this was at a time when, as I have said, sectional feeling was high and it took but little to start again the fires that had fed the long drawn out struggle of the Civil War. Those who at the beginning of the journey had promised to become the best of friends gradually shunned each others company. Little by little two camps instead of one were formed; true, at night all were

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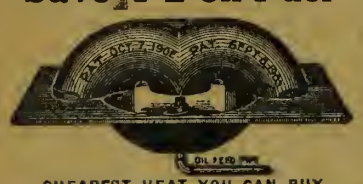

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RHUBARB

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gathered within the protective circle of camp wagons; true, there was an exchange of civilities, but underneath there was a restraint that grew and grew each day, a restraint that was gradually drawing within its spell every man and woman of the party.

You have seen a smouldering fire of green wood upon which had been thrown a dash of coal oil. You have watched the smoke gradually getting more yellow and more dense and waited for that instantaneous flash of flame that you knew was bound to follow as soon as the oil had turned to gas and should become ignited from the coals of live fire.

That was the situation.

(Continued next week.)

THIS WEEK'S PATTERNS

Some exceedingly practical models are shown this week. The child's romper suit is fascinating, as is the little girl's dress-up dress 2921. This latter offers suggestion for putting together two materials or prolonging the usefulness of an outgrown dress. In wool or dainty cotton it is charming. The good old-timer Mother Hubbard nightie pattern will appeal to many, especially for warm cotton flannel. The lady in lower right corner in trim housedress, who has just received a box of roses from the florist, suggests rather to the California eye a home gardener with box of plants ready for setting out in her own backyard or frontyard. Let's raise our own vegetables as far as possible this year to help cut more corners. And such a serviceable dress as 2912 may as well be an attractive feature of your garden life.—R. P. D.

> Mends are service stripes these days. — Anna Lenington Heath.

ECONOMY LETTERS FROM READERS

The Cultivator had not intended to publish until the issue of January 31 any of the letters from household readers on cutting the corners on the high cost of clothing, but so many letters have been received that there will be enough for two weeks' issues, and they are so excellent and helpful that we decided not to hold them back. Awards will be announced in issue of January 31 as previously announced.

THE FIGHT WITH OLD H. C. OF L.

By Anna Lenington Heath, Pomona

Dear Friends of the Household Department: In the fight with old H. C. of L., I have found these three things helpful: thoughtfulness in buying, good workmanship in making, and fair treatment in using.

Buy the very best you can afford; anything cheap now is bound to be poor. In ready made garments choose simple, conservative styles that may be worn long without looking too out of date. Avoid the fussy, much trimmed coat or dress; it grows shabby over night, almost. Use the same care in buying yard goods. Get a staple brand, firm and of good weight, if white, and of fast dye if colored. This last is not always possible, but most blues, reds, pinks, tans and yellows fade less than lavender, purple, green or cerise.

Insist on good workmanship in any ready made garment. A poorly made one is never satisfactory and gives little service. In making things at home take time to do a thoroughly good job. Make everyday underwear, work dresses and aprons simply. Machine stitching, a little crocheted lace or a fancy wash braid are trimming enough. No bones will be broken and a few pennies saved if no trimming at all is used.

Keep all coats, skirts and one piece dresses hung on hangers when not in use. Brush out any mud or dust before hanging away. Keep the buttons on and sew up promptly any rips in seams or linings. Give like care to tub garments. When they come to actual mending, darn or patch neatly. Mends are service stripes these days. Rancher's work shirts usually break first across the back. When this happens slap on a patch from shoulder to shoulder and down about to the waist line and the shirt will carry on for a fortnight or so longer. Having the good man's shirts for every day all one color and material is helpful as the worst worn one can be used to mend the others. This is true too of kitchen aprons.

Careful home washing will lengthen the life of any garment and will make Methuselahs of some stout ones. The average laundry kills them off in infancy or early childhood. And beware the too hot flat iron. A scorch soon becomes a hole.

There is much difference in patterns. Some leave the cloth cut into wasteful, illshaped pieces that are of little use except for patchwork, and others, just as attractive in design, allow the use of almost every inch of material. A little study of the layout of the pattern on the back of the envelope before buying will often effect the saving of from half to three-quarters of a yard of material.

The combination undergarment, known for some inscrutable reason as a "Teddy-bear," I find more economical than corset cover and drawers. The four pieces that cut out under the arms may be pieced together to make a petticoat for the baby, the princess sort that buttons on top of the shoulders. Often several short pieces of different weight muslin can be pieced together to make underwear, putting the heaviest weight where the hardest wear comes. Fell the piecing seams neatly and the effect is not at all bad.

As for socks and stockings, buy as many good ones as possible, change often, wash gently and keep your toe nails cut. Mend the little holes before they grow to big ones. Some of the deadly runners can be avoided by wearing a moderately tight elastic below the knee and slightly loosening the corset garters when doing work that requires much stooping or bending.

Care in buying, making and using, these three, but the greatest of these, like love, is care in using.

Yours for lessening the cost.

"SHREDS AND PATCHES"

By Linda W. McNeil, San Jacinto

When my house dresses began to wear out I cast about to see what I could do. In looking over odds and ends I found a black cloth skirt of excellent material, but way out of date. This I shortened at both ends, took out some of the superfluous fullness in the back, and the result was a very serviceable garment.

And now, please don't laugh at my waists. I had been saving the goodman's khaki shirts for rugs. An idea came to me. The bodies of the shirts were good, the sleeves only being worn out. Out came my pattern and I found that three bodies would furnish material for one waist.

I made them plain shirts down to waist line and finished with a two inch attached belt. The result was a semi-middy easy to get into, the belt coming down well over the band of the skirt and obviating the necessity of a second belt. One is all yellow and another has body and cuffs of yellow with a black stripe, with belt and trimmings of plain yellow. They look very well, considering their origin.

I colored some sugar sacks for lining for a quilt and found there was one too many. They were a dark blue. A belt converted it into an apron which the goodman pronounced "gay," a failing which is growing less noticeable with repeated launderings. The skirt of an old indigo blue wrapper furnished another, and so I have put off for a season the evil day of buying 40 cent gingham or 25 cent calico. Black silesia, a former dress skirt lining, furnished ruffles for the ragged edges of black petticoats.

Another discovery was that quite presentable handkerchiefs could be made from the fronts and sleeves of old tailored white linen waists. Hemmed with care and fine thread, and smoothly ironed, they are white and soft and comfortable to a tender nose when colds are raging.

I am nearing the end of the "shreds and patches," but for a time longer I am furnished with "the raiment for daily wear."

PERMANENTLY LOCATED

"A rolling stone gathers no moss."

"Yes," answered the man who doesn't care much for proverbs; "but that's no great satisfaction to the animal that gets stuck on a piece of flypaper."

The Cultivator Patterns

BE SURE TO SEND SIZE

3100. Set of Infants' Clothes. Cut in one size. It will require 2⅝ yards of 36 inch material for the Dress, 2¼ yards of 27 inch material for the Petticoat and 2 yards of embroidery for the ruffle. The slippers require ⅜ yards of 18 inch material and the Barrie coat ⅝ yard of 27 inch material for Band, and 1 yard 40 inches wide for Skirt. Price, 10c.

3120. A Smart Coat Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 4½ yards of 44 inch material. Width of dress at lower edge is about 1⅞ yard. Price, 10c.

2921. Girls' Dress. Cut in 5 sizes: 4, 6, 8, 10 and 12 years. Size 10 will require 2¾ yards of 44-inch material for the dress and 1⅛ yard for the jumper. Price, 10 cents.

3118. Ladies' Night Dress. Cut in 7 sizes: 36, 38, 40, 42, 44, 46 and 48 inches bust measure. A Medium size will require 4¾ yards of 36 inch material. Price, 10 cents.

3098. A Comfortable Play Garment. Cut in 4 sizes: 1, 2, 3 and 4 years. Size 3 will require 3¼ yards of 27 inch material. Price, 10 cents.

3111-3106. A Good Costume for Mature Figures. Waist 3111 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3106 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. It will require 5½ yards of 36 inch material for this costume for a Medium size. The width of skirt at its lower edge is 1¾ yards. Two separate patterns, 10 cents for each pattern.

3124. Girl's Dress. Cut in 4 sizes: 8, 10, 12 and 14 years. Size 10 requires 3⅛ yards of 40 inch material. Price, 10 cents.

2912. Ladies' House Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5 yards of 44-inch material. Width of skirt at lower edge, is about 1⅝ yards. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest Chicago styles, all pattern orders are filled in Chicago. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles.

A FEW EXPENSE SAVERS

By Mrs. E. A. Follensbee, Chino

I have adopted a few expense savers at a few years ago I wouldn't have ought I could possibly do, but they ay be of help to someone else in ese times of high prices.

For kitchen aprons take a piece of ble oilcloth of the best grade. Cut shape like a butcher's apron; bind ges with cotton tape, lengthening e stitch of the machine, using the pe for ties and around the neck. I ke the width for length, so only buy length what I wish for apron width. his can be wiped off with a damp oth every day.

My tablecloths had gone beyond re-ir, so I bought a good grade of eached sheeting for every day use ere.

There must be a new floor covering r the sitting room and $75 looked etty large just now, so we invested denim through which very little rt seems to work. Later on I shall ve it woven into a rug as I find ere is a firm which will color it y color desired.

Lastly, I had one pair of cotton ankets and one of wool, too badly orn for further use, so cut them in ro, slipping them sidewise to make em wide enough for quilt paddings. his makes them double over the bed t single at the edge for tucking and with pieced tops their ex-nse was very small. Mine were d. The wool one is heavy enough r a comfort and both can be washed thout ripping.

HE JUJUBE—ORIGINAL TESTED RECEIPTS

By Forest E. Grow

rocessing

The fruit should be processed as on as possible after picking, while m and unwrinkled.

Sort fruits according to sizes, that large, medium, and small, and pro-ss these sizes in separate pans.

Make a sugar syrup by dissolving e pound sugar in one-half cup hot water, or in this proportion for quantity needed. Water should be added as required to keep syrup at about original consistency. It was found that bar sugar made the best product.

Wash fruits in cold water and place enough jujubes of uniform size, to cover pan (one layer only).

Simmer over low fire for two hours. Do not allow syrup to boil up or skins will split and make fruits imperfectly shaped and ragged when finished.

Remove fruits from syrup with skimmer, drain and place on plates or enameled pans. For small quantities place fruits in sunny window, with window open, so that air and sun will dry the sticky coating. For large quantities we constructed a box on legs and placed a window sash over it. Jujubes were placed in this glass box and "sun baked" for about two or three days or until no longer sticky.

Remove fruits from plates or pans and place on oiled paper (sticky side up). We use lath trays, such as are used for drying apricots.

As soon as no longer sticky, usually about three days, the fruits should be pierced many times with a broad pointed steel needle; only the long, narrow varieties may be slit with a knife, without making an undesirable ragged product. The round or oblong fruits cannot be satisfactorily slit; they must be pierced.

For second processing, add one teaspoon strained honey to each quart of syrup, or to the taste. Place jujubes in this honey flavored syrup and boil slowly from ten to 20 minutes according to size of fruits.

Remove fruits from syrup, place on pans and dry in air or sun, or "sun bake" for one or two days according to weather conditions.

Place fruits on oiled paper again, and when sufficiently dry pack in one-half pound candy boxes. If not packed tightly and covered with oiled paper, the fruits dry out quickly. It is advisable also if fruits are to be kept any length of time to wrap the box in oiled paper.

Stewing Fresh or Dried Fruits

Wash fruits and place in kettle of cold water (just enough to cover or float fruits), and with lid on kettle let come to a boil slowly. Then simmer until plumped out and soft.

Place fruits in cold water for a few minutes and then peel.

Make a medium sugar syrup of about two parts hot water to one part sugar (about like honey or syrup). Drop peeled fruits in syrup and simmer until thoroughly cooked through.

Note: After washing dried fruits pierce or slash skins with a sharp pointed knife.

Jujube Paste

Follow directions for "Stewing Fresh or Dried Fruits," up to point of making the sugar syrup. After peeling as directed, remove seeds, or rather remove pulp from seeds as the jujube is a clingstone type.

Cook pulp slowly and stir frequently to prevent scorching.

Prepare a hot syrup composition in another pan, as follows:

Three ounces (ten cents an ounce) gum arabic dissolved in five fluid ounces (ten tablespoons) water. After dissolved add three ounces cane or bar sugar.

Evaporate to a very thick consistency or until syrup is clear and almost ready to sugar. When paste thickens and commences to leave pan then add the hot syrup composition. Then cook mixture until thick and ready to leave pan. Pour out on plate or oiled paper and cool.

Jujube Syrup

(Maple syrup's only rival). When processing syrup becomes thick and dark colored. It may be put in containers (baking powder cans preferred), in the thick state. Add a few drops of pure glycerine to prevent syrup from candying.

When wanted for use, thin to proper consistency and use as maple syrup, with which it vies in flavor, if not superior.

Canned Jujubes

Follow directions for "Stewing Fresh or Dried Fruits" up to point of making the syrup. Proceed to prepare the same as when canning peaches or any other fresh fruit in a light sugar syrup. They keep perfectly and are of excellent flavor.

RAINDROPS, ORANGES AND BEANS

The gentle rain descended
Upon the dusty earth;
Some hearts by it were gladdened,
Some faces showed no mirth.

The heavy raindrops falling
Caused one man to rejoice;
His neighbor took to swearing,
With anger in his voice.

A lesson from the rainfall
The writer thereby gleans;
What's good for thirsty citrus land
May raise the deuce with beans.

So as through life we journey,
We find it works the same;
And what brings one man honor,
May bring another shame.

The rain brings one a blessing
With healing in its drops;
And to another damage great,
Depending on their crops.

What helps one bunch of people
Another bunch sure "cleans";
If one man has a citrus ranch,
And the other guy grows beans.
—William Hamilton Miller in Fillmore Herald.

NUT SHELLS

A Methodist Centenary speaker at Ohio State University began an address to the students the other morning in this way:

"Now, I'm not going to talk very long, but if you get what I'm going to say in your heads you'll have the whole thing in a nutshell."

ANOTHER MEANEST MAN

The meanest man on earth has been discovered. He had a rooster that woke his neighbor up at 4 o'clock every morning for two years, and the very night before the neighbor wanted to catch an early morning train he killed the rooster.

SOME PULL

Casey: Finnegan got his loife insured last June an' he's dead so quick.

Cassidy: Shure, he must hov had a pull wid de insurance company.—Boston Transcript.

—and welcome for three splendid reasons, especially in these days of soaring costs—because Calumet gives three big positive helps in reduction of living expense.

You save when you buy it—moderate in cost. Leaves you more money with which to buy other things. You save when you use it—has more than the ordinary leavening strength—therefore you use less. You save materials it is used with. Never fails.

CALUMET
Baking Powder
"BEST BY TEST"

Makes Most Palatable and Sweetest of Foods

Produced in largest, finest, most sanitary Baking Powder Factory in the World. Contains only such ingredients as have been officially approved by United States Food Authorities. The first choice of millions of housewives for a third of a century. Order from your dealer.

THE refreshment tray can always thank Ghirardelli's Ground Chocolate for its magic aid. Creamy hot chocolate to drink; cakes with possibly a chocolate filling and frosting; waxy squares of chocolate fudge—not to mention countless other "goodies"—appear in a twinkling when the hostess summons the ever-ready can of Ghirardelli's.

Never sold in bulk—but in cans only.
In ½ lb., 1 lb. and 3 lb. sealed cans—
at the store where you do your trading.

Say "Gear-ar-delly"

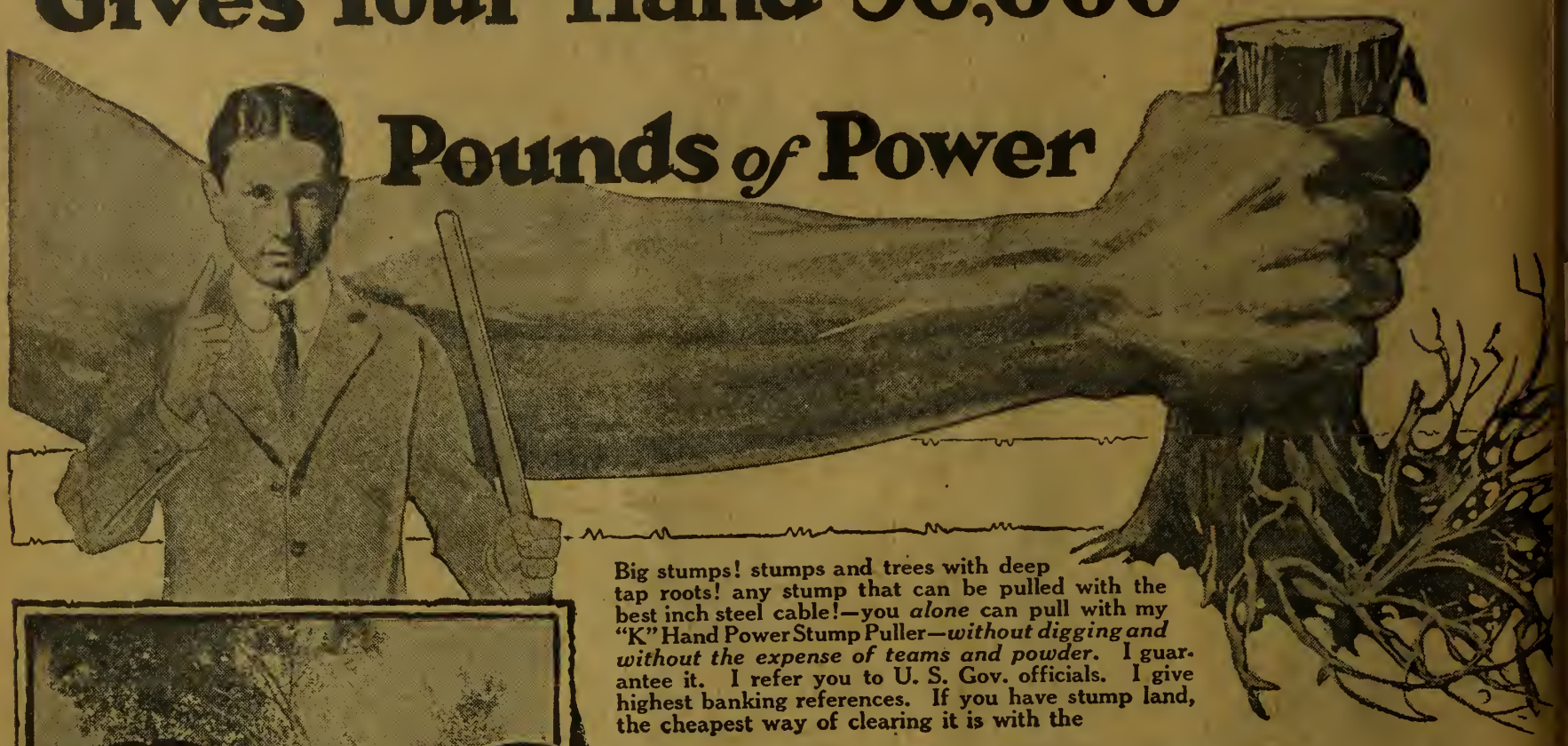
D. GHIRARDELLI CO.

Since 1852 San Francisco

(F2)

GHIRARDELLI'S
Ground Chocolate

My K Hand Stump Puller Gives Your Hand 96,000 Pounds of Power



Big stumps! stumps and trees with deep tap roots! any stump that can be pulled with the best inch steel cable!—you *alone* can pull with my "K" Hand Power Stump Puller—*without digging and without the expense of teams and powder.* I guarantee it. I refer you to U. S. Gov. officials. I give highest banking references. If you have stump land, the cheapest way of clearing it is with the

HAND POWER

K Stump Puller

Frank Hance, a *one-armed* farmer of Bowie, Md., pulling a double silver maple 3 ft. 8 in. in diameter at the ground, with deep tap roots. This is an easy pull for the "K," as the cable can be hitched high and the leverage is consequently greater.

How the "K" Pulls Biggest Stumps

The "K" works on the leverage principle of the ordinary lifting jack, except that the power is applied on a cog-wheel instead of a standard. 100 lbs. push on the lever develops a 48-ton pull on the stump—all an inch steel cable will hold. One man operates it alone—no teams to pay for—no walking.

A Mechanical Wonder

Made of finest steel—guaranteed against breakage. Weighs only 171 lbs.—easily carried or hauled about on its own truck wheels. Has two speeds—60 feet per minute for hauling in cable or for small stumps—slow speed for heavy pulls. *Works equally well on hillsides and marshes where horses can not* work

Owners Praise It

H. Sinclair of the Dept. of the Interior, a U. S. Gov. official, writes: "The stump puller is a wonder."

Ernest Thompson Seton, author and naturalist, declares the "K" "a great success."

Hundreds of owners write in, telling of pulling six- and seven-foot stumps, of pulling faster and pulling bigger stumps than by any other machine.

Special Offer We are making a special offer to get a "K" Stump Puller introduced in every neighborhood. Write us today for full information and for free book on Land Clearing and about our Wonderful Drag Saw.

The Fitzpatrick Products Corp.

Box 17 99 John Street, New York
Box 17 182 Fifth St., San Francisco.

H.G. Hunzicker of Foster, Wash., pulling a 24-inch fir stump with deep tap roots out of hard ground, without using powder or cutting any roots.

Tear Out and Mail Today

The Fitzpatrick Products Corp.
Box 17 99 John St., New York
Box 17 182 Fifth St. San Francisco

Send me full particulars on your special offer and your free booklet on Land Clearing.

Name_____

Address_____

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — January 31, 1920 — No. 5

Why Does the Dairyman Raise Prices?

THE policy of the Irishman who took his shillalagh to Donnybrook fair and knocked everybody over the head seems to be the policy of interests which are able to command powerful influence.

It may be that effort to discourage cooperation in the marketing of the products of the farmers of California will result in lower costs of living. Our guess is that it will be quite the reverse, for when production is discouraged and lessened prices will naturally skyrocket still more.

State Market Director Weinstock gives a parting salute to the backers of the present effort to destroy the milk producers association. Mr. Weinstock says:

The private creamery owners and milk product manufacturers of California for years had their grip around the throats of the dairymen, exploiting them to the degree that many of them were forced out of business, with consequent reduced milk production.

Now comes Mr. Preston, representing these private creamery owners in a statement published in the press, and points out what purports to be a delinquency on the part of the state market director, because he spoke from the same platform with President Jas. M. Henderson, Jr., of the Associated Dairymen of California, Inc.; and made an appeal to the dairymen to organize as a matter of self preservation, cooperative marketing associations.

If Mr. Preston knew the law, he would know that the state market act expressly provides that the state market director shall aid the farmers of the state to organize cooperative marketing associations, in order better to preserve the productive interests of California.

When the state market director stood on the same platform with President Henderson of the Associated Dairymen of California, Inc., appealing to the dairymen to organize, he was acting simply in accordance with the law and performing his official duty.

Evidently Mr. Preston is also ignorant of the fact that in encouraging and aiding the farmers of the state to organize for marketing purposes, California is simply following in the footsteps of the federal government.

Secretary Houston of the United States department of agriculture is doing on the broadest scale throughout the land precisely what California, through its state market commission, is doing in a modest way within the boundaries of the state in organizing its farmers.

It may further interest Mr. Preston to know that if I were not confined to a sick bed at this time, I would be out today, and tomorrow and the next day, doing with all the energy at my command the very thing that he condemns, that of organizing the farmers for their good, for the consumers' good by insuring more production on the part of farmers, and for the good of the state by increasing through organizatin, agricultural prosperity.

Mr. Preston endeavors to besmirch President Henderson of the dairymen's association because of the work he is doing in connection with the dairy interests of the state. I happen to be very familiar with the work of Mr. Henderson and I want to take this occasion to say that I regard Mr. Henderson as one of the most valuable citizens of the state of California.

The work that Mr. Henderson has done and is doing in freeing California dairymen for all time from the clutches of the clients of Mr. Preston and in building up and developing the great dairy interests of California is worth to the state the interest on untold millions of dollars. I also happen to know that Mr. Henderson, a dairyman himself, at great personal sacrifice is doing this work as a public service.

If any one sufficiently interested will but take the trouble to investigate, they will— (Continued on Page 174)

Get These Amazing Facts on "Fruit-Fog" Spraying

SEND the coupon today Read the story of "Fruit-Fog" Spraying now. Learn why Fruit-Fog, after the severest tests by experts, Experiment Stations, Fruit Growers and Farmers, is today publicly pronounced a wonderful success. That is because this vaporous, fog-like super-spray is the ONLY spray fine enough to reach the millions of tiny, UNSEEN *hidden* pests that infest microscopic niches in bark, buds and foliage—where no coarse, heavy, low-pressure spray can reach. These hidden pests wipe out millions of dollars' worth of fine fruit each year. They cost Fruit Growers an appalling toll. Yet Fruit-Fog positive *thoroughness* will exterminate every one of them. This explains the fact that thousands of Fruit Growers and Farmers now credit their clean orchards, mighty yields and record-breaking profits to Fruit-Fog Spraying. Send the coupon and get the complete story today.

HAYES FRUIT-FOG SPRAYERS

Fruit-Fog Spray is produced by the Hayes 300 lbs. guaranteed high pressure and the scientific Hayes nozzle. Fruit-Fog, because of its vapory fineness, has wonderful *adhering* power. No drops form—no solution wasted—no buds or leaves knocked off—as with a heavy, coarse, low-pressure spray.

Hayes Sprayers are famous for combining speed with utmost thoroughness and lowest consumption of solution. They are skillfully made and every part is positively standardized to the closest limits of accuracy. Thus is obtained enduring service and greatest efficiency under high pressure. The famous Fairbanks-Morse "Z" Engine assures Hayes users the best possible service.

Sprayers for Every Purpose

Hayes Sprayers are made to meet every Orchard, Field, Garden, Park, Disinfecting, White-Washing and Cold Water Painting need. No matter what your sprayer requirement from our great Triplex Fruit-Fog Power Sprayer to the smallest Garden Atomizer, we make it.

Send for New Book and Spraying Guide FREE

Tell us how many trees you want to spray and how old they are on the average. Also what other uses you have for your sprayer. We'll tell you where and how you can get the style of Hayes Sprayer best suited to your needs, and its price. We'll also send our Big New Book of Hayes Sprayers and our Valuable Sprayer Guide FREE. Send the coupon today

HAYES PUMP & PLANTER COMPANY

Department GALVA, ILLINOIS

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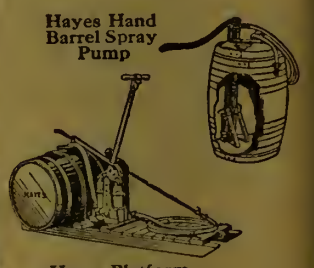
HAYES Fruit-Fog Gun

Send coupon for FREE BOOK and see why this is the world's fastest spraying apparatus A simple twist gives long spray for tall trees, or wide spray for close-up work, or shuts off tight. Prevents waste of solution between trees. The only gun which combines great speed with the thoroughness of Fruit Fog. Enables one man to handle the capacity of big power sprayer. Get the book for full details.

Hayes Hand Barrel Spray Pump



Hayes Platform Duplex Hand Sprayer

Hayes High Pressure Triplex Power Sprayer

Nation-Wide Service

Users of Hayes Power Sprayers are within only 24 hours of a service station at all times. In case of accident at a critical time this quick service may save your fruit crops. Hayes Power Sprayers, Engines and Repairs are distributed by

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Atlanta, Los Angeles, Jacksonville, Portland, Salt Lake City, San Francisco, Denver, Seattle, Spokane

We Also Maintain Stocks at

Flora Dale, Pa., Kansas City, Grand Rapids, Philadelphia, Little Rock, Albion, N.Y.

Hayes Hand Sprayers are distributed by Hardware, Implement and Seed Jobbers.

Hayes Pu
& Planter
Dept. Galva

Gentlemen:—Please send, F
and without obligation, your
New Sprayer Book and your V
ble Spraying Guide.

Number of trees..... Average age.

Other uses .....

Name .....

P. O. .....

State..... R.F.D.....

California Cultivator

ol. LIV, No. 5 Los Angeles, January 31, 1920 One Dollar Yearly

s First Consideration Due American or Japanese?

By C. B. Messenger

MERICANIZATION has won one victory in the campaign to preserve California's lands for Americans. The im-rtation of women to act as farm la-rers, a movement which is contrary the agreement made with Japan, s been, or rather will be, terminated soon as the large number of women w contracted for can be landed in s country. It took a hard fight, and, range as it may seem, it has caused me little contention on the part of r own people, to bring this about. ere are many other steps which st be taken before America can be nsidered safe for Americans. But nator Phelan says: "When the ople are informed they are always ht." So it seems the only way to se-re our own protection is by a cam-ign of education.

As to "picture brides" Mr. Phelan marked in a recent address:

"It is true that I have agitated the bject and have done so from the ginning, because I believe that pub-opinion is the great force in Amer-an political life. What was the re-lt? When I visited the immigra-n station at Angel Island and saw e Japanese 'picture brides' flocking in violation of the 'gentlemen's reement' and going into the fields th the men as laborers and increas-g the birth rate to enormous propor-ns, I helped to arouse that public inion which resulted the other day the abolition of the 'picture bride' il. When the evil was understood e moral forces of the community re aroused to the extent that the kio government beat a hasty re-at. The only way of getting any rther concession or to compel a rict enforcement of the law is to ep agitating. When the people are formed, they are always right. They w know that it is a matter of self-eservation.

"In December, 1916, when the last migration bill was under considera-n, by amendment I safeguarded it far as possible from preventing any cession by the Japanese of their reement to keep out coolie labor, d I am now pressing my own bill absolutely exclude Japanese labor-s, believing that the 'gentlemen's reement' is inadequate. I have suc-ssfully worked for appropriations r the bureau of immigration to pro-ct our greatly exposed border and w, as the final thing to be done, I ve urged my constitutional amend-ent, which denies citizenship to Jap-ese children of American birth by niting such citizenship to white, ack and red races.

"There is now pending a new im-igration bill which I believe I can eatly strengthen as the disposition congress is ripe against the further vasion of the Pacific Coast. I urge e people of California to at once itiate the necessary legislation. We ve won one victory by cutting off e 'picture brides' and we can win other victory by preventing the rther absorption of the soil, and rhaps recover what we have lost."

Senator Phelan has been doing some od work and it is receiving the en-rsement of the great majority of r people, but there are occasionally ose who oppose it—we believe peo-e who are lacking in vision and in preciation of the trend of these rld movements. We doubt not one the strongest supporters of the panese in their fight to colonize in is country is John P. Irish. Com-enting on our recent editorial and quotation which we made from the s Angeles Times, Mr. Irish writes:

By John P. Irish

Your San Diego correspondent, who avoids responsibility by concealing his name and identity, reports that an educated Japanese told him that the word of the Japanese was not to be relied on and that Americans cannot hold real estate in Japan. Will your correspondent please give us a bill of particulars? Who was the educated Japanese who impeached the honor of his countrymen and released so much misinformation?

As a matter of fact, Americans do hold real estate in perpetuity in Japan, just as real estate is held here; that is to say, as long as they pay the taxes on it, and their tax is the same as that paid by Japanese.

You quote the Los Angeles Times, accusing the Japanese of controlling the food production here and so causing the high cost of living.

Do you not think it better to get accurate information before writing on this subject, and then tell the truth?

Japanese raise 23 per cent of our green vegetables, 20 per cent of our potatoes, 13 per cent of our beans, 10 per cent of our rice and 9 per cent of our corn.

Potatoes are high, but in Minnesota and Michigan, for the week ending January 5 the farm price of potatoes was $3.80 per cental. In Colorado and Idaho it was $3.85 to $4.10, as reported by the Market Reporter, published by the agricultural department at Washington. See your own market report, issue of January 17—Idaho potatoes in Los Angeles $5.35 to $5.60 per cental. These prices extend east to New York, Philadelphia and Boston, for potatoes that no Japanese ever saw. You must remember that I am a farmer and in 1919 my ranch produced 500 acres of potatoes, and it is my business to know things about that useful crop.

Again the Times says that in spite of the gentlemen's agreement the Japanese come in by tens of thousands yearly to the agricultural districts of California. Where does the Times get that stuff? Certainly not from the official reports of the federal immigration service. In 1918 just 2,604 Japanese laborers came into this country, including those returning from a visit to Japan and the parents and children of those already here.

Verily, Ananias was not the only man who could make figures lie. There are in California 7,973 Japanese farmers and 15,794 farm hands and 5.070 so called picture brides. This is the "horde" against which the politicians, who eat their bread in the sweat of the taxpayer's face, are organizing just such a pogrom as the Russians start for the purpose of murdering the Jews.

Japanese births—see report of the board of health—are seven per cent of the births in the state. There are 1,000,000 white women of breeding age in California to 5,070 picture bride Japanese. I bet on the white women winning.

The last official report I got shows in 1917 in the eight Southern California counties 19,182 white and 1,642 Japanese births.

The Times is logical in one respect. It has a solution of the Japanese and farm labor problem by bringing in a million Chinese coolies to work on the land. Let me correct the Times in this, that Chinese coolies do not work on land and would be worthless here for that purpose.

We once had Chinese farmers here and the same breed of ill smelling politicians that are now lying about the Japanese started an anti-Chinese pogrom. We then proceeded to rob the Chinese. We destroyed their property. We murdered them in our streets. We burned to death 120 of them in one night like rats in a straw stack. We closed these fine proceedings by grossly violating our treaty with China and expelling and excluding them. Does the Times know what followed? It was a shortage in farm labor and an economic vacuum which drew in the Japanese. Something else happened, for 568,943 acres of farm land that had produced food was abandoned and its tillage ceased. The Japanese here have not filled the vacuum caused by our inhuman treatment of the Chinese. The Times is not wise. It is helping on an anti-Japanese pogrom that will end in expelling those people and the abandonment of more farm land, and it will not get the parasite politicians to consent to admit Chinese."

Mr. Irish says the Japanese raise 23 per cent of "our" green vegetables. Just what he means by "our" we do not know. But if he will turn to the cover page of the Cultivator of January 17 he will note the statement that 85 per cent of Los Angeles' vegetables are grown by Japanese. What the percentage is for the city of San Francisco, for the state of California, for the Coast, or for the whole country we have no figures available. To an extent we are influenced by our own immediate surroundings, and noting our own danger we endeavor to arouse our people to the danger which confronts the entire country.

Also we note Mr. Irish gives no dates for these figures other than in referring to the labor question he says he gathers his figures from federal immigration report for 1918. But on that point he writes. "The Times says that in spite of the gentlemen's agreement the Japanese come in by tens of thousands yearly—where does the Times get that stuff? Certainly not from the official records of the federal immigration service."

Most assuredly the Times did not get these figures from that service. In fact, that was exactly the point that was being made in that editorial, that the wonderful rapidity with which the Japanese population of California is increasing is little realized by the people generally because the increase is not known by immigration officials. But Mr. Irish is not in the class which fails to realize this fact notwithstanding his efforts to hide behind federal "statistics." If Mr. Irish had read the California Cultivator of October 25 he would have seen there a statement given to the federal senate by Commissioner on Immigration Caminetti and signed by John W. Abercombie, assistant secretary of labor, to the effect "that during the 12 months ending June 30, 1919, the agents of the federal government apprehended 9678 Japanese who were in the country illegally and secured their deportation." This we followed with a bit of pertinent comment by McClatchy of the Sacramento Bee:

"Those figures refer to the ones caught and convicted; it is fair to assume that at least an equal number escaped detection and were added to the constantly swelling Japanese population of the Pacific States. No account is taken of the number of picture brides who arrived and are diligently following the biblical injunction to be fruitful and multiply."

Americans do not fear a square honest fight, but do dread an insidious foe who steals upon us in the guise of amiability and friendship. We are informed that no foreigner can obtain title to land in Japan. In 1913 a law was passed providing that foreigners may acquire land in fee simple in Japan—if citizens of countries which permit same right to Japanese. These rights were to be determined by reciprocal treaties. This law has never been put in force by Imperial edict. Foreigners may lease agricultural lands for 25 years only.

IMPERIAL VALLEY A JAPANESE PROVINCE!

"Peaceful penetration" is penetrating more and more every day, excepting in the case of some people's heads. A score of yars ago the Imperial Valley was perhaps the most absolute of all American deserts. Through American capital and American pluck it has been reclaimed and made one of the richest producing sections of California. It is now fitted to the needs of the Japanese, and they want it and are trying to drive a shrewd bargain by agreeing to remain away from other sections of California if they may be given exclusive privileges there. At least, here is the statement made by Senator Phelan:

"Just before I left Washington, an American, representing powerful Japanese organizations, and said to be backed by the Japanese government, proposed as a solution of the Japanese question, that Americans be ousted from the Imperial Valley, all Japanese in California and along the coast be segregated and shipped to the valley and allowed to own and till its fertile lands.

"He said the Japanese, being accustomed to hot weather, would thrive in the valley where it is too warm for white men; that if I would give my approval to the plan he would be glad to take it up with the interests he represented and that this scheme appealed to him as being practical and sensible.

"Just exactly how he planned to dispossess the large and small farm owners and depopulate the cities of the magnificent valley, he did not make clear. In fact it was a feeler, as I see it, to determine the attitude of the people of the valley through me.

"My attitude on this subject is so well known that I was amazed to think he should approach me on the subject. Naturally, I told him emphatically that such a plan was absurd on the face of it and that this offered not the slightest way out of the Japanese problem. However, I think it is interesting in view of the present agitation on the coast against the Japanese as a land holder and business man."

Agricultural News Notes of the Pacific Coast

Northern California

Owing to the drouth many cattle are being forced onto the market.

Los Molinos, Tehama County, has organized a farm loan association.

Antioch and Walnut Grove are shipping out about 20 cars of celery daily.

University farm officials report beneficial results from summer fallow.

Butte County wool growers recently made shipment of 21,000 pounds of wool.

The markets of San Francisco report that during 1919 $9,000,000 worth of eggs passed through that city.

Tehama County is planning to extend its rice acreage, several immense pumps having been installed for irrigation.

There has been more trapping in this state for fur bearing animals during the past year than any preceding year.

Many Alameda County wineries disposed of their entire stock before January 16 and closed their doors forever.

A large acreage of Sutter Basin will cease to be grain bearing land and hereafter bear Bartlett pears and prunes.

Farm picnic at university farm, Davis, will be held Saturday, April 24. Fifteen thousand were present at 1918 pienic.

Farm advisers of Butte, Glenn, Tehama and Shasta recently met at Chico and discussed the marketing problem.

Chico, Butte County, high school is planning practical farm operation, one of the features already secured being a tractor.

Mr. Negley, a promoter of cow testing associations in Wisconsin, will soon establish large dairy near Escalon, San Joaquin County.

Fifty Eldorado County farm bureau people recently called at the state farm at Davis and investigated practical agricultural conditions.

Owing to inabiltiy to secure nursery stock many planters are contracting for next year's and even the following year's delivery.

Rice men of the Sacramento Valley are endeavoring to secure more perfect harvesting machinery and better warehousing to prevent great loss of grain.

The chamber of commerce of Livermore, Alameda County, has an active committee at work investigating possibilities of reclaiming large acreage through irrigation.

Sonoma County's board of supervisors is going after people careless with fire and will require permits for all brush and trash fires from the period of June 1 to December 1.

Sacramento County Cow Testing Association has been competing for prizes totaling in value nearly $3,000. Awards were made at a banquet recently held at Sacramento Y. M. C. A.

Warehousemen in the rice growing portions of the Sacramento Valley have agreed to prices which will be accepted by the growers and the matter will probably not go before the railroad commission.

The supreme court has reversed decision of a lower court in the matter of fence laws. In effect the supreme court has ruled that the owner of stock which causes damage on another's property is responsible for such damage.

Central California

1920 Raisin Day will be April 30.

Bakersfield is planning for a big Kern County fair next October.

Kern County farm bureau is conducting a membership campaign.

Fresno chamber of commerce has issued a bulletin on cotton planting.

One Fresno County grower of persimmons is finding sale for his dried fruit.

Madera County's farm productions for 1919 aggregated more than $11,000,000

California will precede all states in establishment of a soldiers' settlement. This is located at Delhi, Merced County.

Madera County anticipates a great increase in its output of Thompson Seedless grapes.

Kern County hog raisers held a meeting at the court house at Bakersfield last Monday.

Some Valley growers will attend the Western Fruit Jobbers Annual which will be held in San Francisco next week.

Cotton growers of five San Joaquin Valley counties are taking steps looking toward the formation of a permanent association.

Tulare County fat hog auctions have been bringing around $15 per hundred, which is a slight increase over earlier prices.

Alviso, Santa Clara County, apple growers do not like the restrictions of the standardization law and will contest its constitutionality.

Grape growers at Dinuba are buying carloads of old ships' hawsers which are cut up and reduced to their strands and used in tying grapevines.

An organization has been formed in Sacramento looking toward Asiatic exclusion, the first step being to secure special session of the legislature.

The fig institute recently held at Fresno organized a fig marketing association with F. W. Yoakum, president and Ward B. Minturn, secretary.

G. A. Turner has retired from the presidency of the California Bean Growers Association. J. Lee Mendenhall has been elected to succeed him.

Tulare County farmers are taking steps to compel Japanese farmers who have purchased lands in the name of Japanese infants to prove the legality of their guardianship.

The farm bureau cow testing department of Stanislaus County is testing 975 cows, with one passing the 80 pound mark per month and many of them producing better than 70 pounds.

Great extension of irrigation pumping in San Joaquin Valley has made extension of power plants imperative and the San Joaquin Light and Power Company is asking permission to increase rates.

Farm bureau auction sales in Kern County: Wasco, February 7; McFarland, 14; Bakersfield, 21; Wasco, March 6; McFarland, 13; Bakersfield, 20; Wasco, April 3; McFarland, 10; Bakersfield, 17.

Tulare creameries paid producers: L. A., 79 cents for churning cream, 81 sweet cream, 92 basis for whole milk; Dairymen's Coop., 71½ fat (total amount fat handled during month 84,686 pounds); Good Luck, sweet cream 81, churning 77, whole milk 92.

Southern California

Almond trees are blooming in Banning, Riverside County.

Northern Orange County is planning for associated chambers of commerce.

One Hemet grower netted $104 per ton for fruit delivered to cooperative cannery.

The California Walnut Growers Association reports all first grade walnuts sold.

Riverside is suggesting the planting of cotton along the lowlands of the Santa Ana River.

Farm bureau directors of Riverside County will make exhibit at the National Orange Show.

The Covina Citrus Growers Association has determined to work this season on the one pool plan.

W. W. Van Pelt has been re-elected secretary and manager of the Southern California Fair at Riverside.

A branch of the California Lima Bean Association has been established at Van Nuys, Los Angeles County.

Riverside city council will appoint a tree warden, or forester, to have control of all street and park trees.

General extension and improvement of pumping plants and irrigation lines is being made because of the continuation of the drouth.

The citrus experiment station at Riverside will make most comprehensive exhibit at the coming orange show February 13-23.

Commissioner Ryan of Los Angeles County is making general campaign on gophers, and the county farm bureau is aiding in the campaign.

Elsinore, Riverside County, is fighting the proposition to drain the lake near that town. Certain irrigation interests are pushing the drainage plan.

Walnut growers of Southern California plan erection of headquarters and packing building which, with equipment, will cost around $2,000,000.

The Santa Ana Canyon highway built by Riverside and Orange Counties is now closed to heavy trucking pending the laying of concrete foundation.

Anaheim, Orange County, has a citrus expert who offers his services in inspecting, advising and helping the grower to make his grove a money maker.

A new highway from Santa Monica north along the ocean front through the Malibu ranch is being constructed under direction of the state highway commission.

The manager of the California Lima Bean Association is in the East investigating marketing conditions. But little over 20 per cent of the Limas have been sold.

Francis Cuttle has been re-elected head of the Tri-Counties Reforestation Committee. This committee does effective work in Orange, San Bernardino and Riverside Counties.

Citrus growers are finding that while their crop will be smaller than last year the quality is exceptionally good and they are hoping for long prices keeping up the total returns.

The farm school made possible by act of the last state legislature has finally secured a site in Riverside. A tract comprising 300 acres has been secured, and first payment of $20,000 has been made.

The Coast and General

Idaho potato growers are holding at $100 per ton.

Oregon has almost 1,000,000 acres under irrigation.

Roseburg, Oregon, is to erect a $20,000 prune packing plant.

Oregon produced about 6,000,000 pounds of cheese in 1919.

Eastern Oregon and Idaho onions are selling at $140 per ton.

Grain growers of Washington met at Pullman, January 21-22.

Pacific and Northwest milk dealers meet at Portland February 3-5.

Western Washington is conducting an egg laying contest at Puyallup.

The first big public sale of Durocs is scheduled at Salem, Oregon, February 4.

Wool producers of Washington mee in state convention at Walla Walla this week.

Oregon has called a special session of the legislature to enact anti-Japanese laws.

Oregon farmers are appealing for a law which will protect buyers o commercial feeds.

Loganberry growers of Marion County, Oregon, have sold their 1920 crop at eight cents.

Yakima Bartlett pear growers received $1.91 net per box, or $86.90 per ton for their 1919 output.

Whatcom, Washington, cow testing association is being reorganized with a membership of 600 cows.

The Oregon State Drainage Association recently met at Corvallis. A. T Harris was elected president.

The Duroc-Jersey breeders of Oregon are planning for a big show and state convention to be held in Salem February 4.

Arizona oranges and grape fruit are to be exhibtied at the National Orange Show to be held at San Bernardino February 13-23.

Cotton growers of Tucson, Arizona are organizing. It is expected that the acreage in Pima County will be about 8,000 for next year.

Seattle, Washington, recently forwarded its 21st car of fresh eggs for New York. Shipping stock is now reported exceptionally scarce.

Reclaimed swamp lands in Washington are difficult of cultivation because of the continual coming to the surface of logs buried long years before.

Sugar beet growers of the West convened in Denver Monday, January 2 It is hoped that a country wide organization was formed which will enable beet farmers to cope with the trust

Two weeks' instruction in farm engines and use of farm power will be given at Washington state agricultur college at Pullman beginning Saturday of this week and continuing until February 14.

San Saba County, Texas, market this season over a half million dollars worth of pecans. One hundred carloads have already been shipped. One tree produced this season $295 worth of nuts.

Farmers of Washington are complaining bitterly because of the ruling of the Great Northern Railroad in refusing to give cars to transport apples to Pacific ports in order to secure water shipment.

Truth in Fabric Law Introduced in Congress

By National Sheep and Wool Bureau

HON. Burton L. French of Idaho introduced the "Truth in Fabric" law in congress January 7. This act would make it compulsory to identify shoddy cotton in cloth and clothes, and would free the wool grower from unfair competition with shoddy and would protect the public against those who would sell shoddy as virgin wool and charge virgin wool prices for it.

The following table graphically shows the root of the cause of the present exorbitantly high prices of clothes. This table also shows why fabric manufacturers divert from the wool grower to the shoddy and rag industries the people's demand for virgin wool.

The Truth in Fabric law introduced by Mr. French would right this wrong.

Why Clothes Are So High

Showing how the fabric manufacturer, by failing to tell the wholesale merchant to whom he sells the fabric that the fabric contains shoddy, is able to secure from wholesale cloth merchant the unjust price of $15 for an all wool woolen suit length of three and one-half yards containing 80 per cent of shoddy, which, because it contains 80 per cent of shoddy instead of being all virgin wool, the fabric manufacturer could have profitably sold for $10 and for which the wholesale cloth merchant would not have paid more than $10 had he known that the cloth was 80 per cent of shoddy.

Also showing how, without any profiteering on the part of the wholesale cloth merchant or the retail merchant, the unjust price of $5 charged by the fabric manufacturer more than doubles by the time the public is reached.

Please note that the same percentage of markup, 60 per cent, is used in the case of both basic prices on which computations are made, namely:

1. The fabric manufacturer's price of $10, which is the legitimate price he should have charged the wholesaler.

2. Fifteen dollars, the unjust price, which he was able to secure only because he permitted the wholesaler to believe the fabric was made exclusively of virgin wool.

Price at which suit length could have been profitably sold by fabric manufacturer to wholesale cloth merchant	$ 10.00
As an example—if normal and legitimate markup of wholesale cloth merchant were	60%
	$ 6.00
	10.00
Wholesale cloth merchant's price to retail custom tailor	$ 16.00
As an example—if retail custom tailor's normal and legitimate percentage of markup were	60%
	$ 9.60
	16.00
Retail custom tailor's legitimate price to the public	$ 25.60

Unjust price which fabric manufacturer was able to secure from the wholesale cloth merchant, only because he permitted the wholesale cloth merchant to believe he was purchasing a fabric made exclusively of virgin wool	$ 15.00
As an example—if normal and legitimate markup of wholesale cloth merchant were	60%
	$ 9.00
	15.00
Wholesale cloth merchant's price to retail custom tailor	$ 24.00
As an example—if retail custom tailor's normal and legitimate percentage of markup were	60%
	$ 14.40
	24.00
Retail custom tailor's legitimate price to the public made necessary by the $5 excess and unjust price of fabric manufacturer	$ 38.40

The Truth in Fabric law not only would free the people from the monstrous deception and wrong of being forced to buy shoddy against their will and being forced to pay virgin wool prices for it—this act would also emancipate the wool grower from the shoddy deception and wrong which has had sheep husbandry by the throat for the past 20 years.

The following was passed unanimously at the annual meeting of the Fleece Wool States Growers Association, held Tuesday evening, December 2, at the Stock Yards Inn, Chicago, Illinois:

Whereas, a large part of the raw material used in manufacturing woolen fabrics and apparel sold as all wool is shoddy, and not virgin wool as the public believes;

Whereas, the public does not suspect that the term all wool may mean wool that has previously been used in cloth;

Whereas, the term all wool is a mere general term that may include shoddy;

Whereas, even the most inferior shoddy may be all wool;

Whereas, the term all wool, because it fails to distinguish between shoddy and virgin wool, places both the public and the wool growers at the mercy of fabric manufacturers; deprives the people of their right to choose between shoddy and virgin wool; deprives the people of the knowledge of whether they are purchasing shoddy or virgin wool—the knowledge that is the people's sole protection against those who would charge virgin wool prices for shoddy; and thus robs the public and wrongs sheep husbandry;

Whereas, the unrevealed presence of substitutes, especially shoddy, in fabrics and clothes abrogates the law of supply and demand, places a premium on deceit and profiteering and violates economic law and outrages moral law;

Therefore, be it resolved, that this Association of Fleece Wool States earnestly urge, in the interest of truth and justice, and for the protection of both the public and sheep husbandry, that the United States at the earliest possible moment enact legislation making it compulsory to make known the presence of substitutes for virgin wool, especially shoddy, in fabrics purporting to contain wool and apparel made from such fabrics; and in order that this worthy object may be speedily accomplished in the interests of all the people, we request the earnest cooperation of all who desire to see right prevail and honest practice established in all branches of business.

Grape Mealybug

TONS of grapes were discarded and serious loss suffered by table grape growers of the San Joaquin and Sacramento Valleys last year because of the depredations of the grape mealybug. The matter was discussed by R. L. Nougaret at the last state fruit growers convention, and at that time he gave a most hopeful view of methods of control which would be devised. This is the period of the year when the habits of this pest should be thoroughly understood, for control measures at this time are worth far more than at harvest season. Prof. Nougaret is now with our state department of agriculture, but in 1918 when he was with the federal department, but stationed in California, he furnished to the state commission of horticulture an article touching upon life history of the mealybug, effect of the honeydew upon the grape and control measures. This was published in the monthly bulletin of the commission, Vol. VII, No. 9. We quote:

By R. L. Nougaret, Formerly Deciduous Fruit Insect Inventigations, Bureau of Entomology, U. S. D. A.

This species of mealybug is commonly found on grapes in the Counties of Fresno and Kings, and to a lesser extent in Tulare. Some few instances of infestation have been discovered in Merced and in San Joaquin Counties, and one as far north as Red Bluff.

With a view to controlling this pest, the United States bureau of entomology has had this subject under investigation for some time, and while some of the experiments have given satisfactory results, others, under similar conditions, have failed to do so, and at this time no method sufficiently tried and reliable can be recommended as a control. Nevertheless, so far enough has been accomplished to offer suggestions as to conditions to be avoided to curtail the spread of the insect, and to uphold the standard of excellence of the table grapes for shipping purposes, which is the aim of the California fruit standardization act, while awaiting final and conclusive experiments for a practical means of combating this pest.

Notes on Life History

A brief outline of the life history and habits of this insect will explain its classification as a pest, and the nature of the damage caused to the grape which may be said to be strictly commercial and but slightly horticultural. This species of mealybug is not particularly adapted to the grape. It is omnivorous, and apparently thrives well on a number of plants. Among these may be cited, citrus trees, pear, walnut, and some ornamental plants grown in open air as well as in hothouses. It also thrives well at times on certain species of bulbs, and on roots, when exposed above ground, and as this insect is strictly aerial, does not go below the surface of the ground.

This mealybug is better known to the grape grower and the casual observer when in the adult stage, because of its diminutive size when first hatched and when young. From the time it is hatched, until adult, it changes but very little in form and appearance. The almost mature, and adult stage, of one brood closely corresponds to grape picking time. This is especially true for the Malaga and Muscat grape and those varieties of the same ripening period.

It overwinters in the larval stage. It begins hibernating immediately after hatching in September-October, and remains the same size until it begins feeding in March-April, during the period of the ascension of the sap in the vine. It hides in crevices and under the loose pieces of bark where it has access to the cambium layer on which it settles down and feeds. It does not move about unless disturbed, or after molting, when it often moves away to a place quite distant from where it remained during the previous instar. The individuals of this brood attain maturity in June, oviposit during this month, and the larvae hatching from these eggs are the first brood of the year. They feed on the green tender canes and leaves and are found in the bunches of grapes when adult, or when almost full grown. The individuals of this brood far outnumber those of the over wintering one.

This species of mealybug is oviparous. The eggs, an average number of 125, are deposited within a white mass of silky threads termed ovisac or egg-sac, from one-fourth to five-eighths of an inch long, and about one-third as wide as long. The egg is pale orange yellow in color almost always with a more intense orange coloring at one end, when first laid, which blends gradually into a uniform coloring of the eggs of a slightly darker hue. The egg is 0.4 mm. or 16/1000 of an inch in length. The eggs hatch ordinarily in from a week to ten days after being deposited, but in the fall, they may take as long as two weeks. There are two distinct generations a year. Oviposition occurs in the periods June to July and September to October.

Honeydew is an excrementitious product of the mealybug. It is colorless, viscous, of the consistency of honey, but slightly more fluid, and very sweet. It is adhesive, and collects in drops varying in size from a pin point to that of very small shot. On the surface of a leaf it will sometimes spread as a coating, but rarely does so on the surface of the berries.

The mealybug causes little or no damage to the vine, although it is a sucking insect, nor can stunting, or

(Continued on Page 165)

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914

Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday Jan. 31, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

WANTED: SPUDS

Wanted: a thousand cars of seed potatoes. Planters are continually asking: "Where can we get seed?" The seed dealer shrugs his shoulders, holds his hands high and answeres: "Where?"

NEW HEAD U. S. D. A.

President Wilson has made a change in his official family, David F. Houston being retired from the agricultural portfolio and made secretary of the treasury. The new secretary of agriculture is Edwin R. Meredith of Des Moines, Iowa. Mr. Meredith has been for many years owner of one of the larger farm papers of the Middle West. He has been connected with the present administration in the treasury department.

MORE ABOUT OLIVES

For once we have a common sense investigation. The food department of the state of Pennsylvania became concerned regarding rumors of the poisonous qualities in certain canned olives, so it investigated and investigated thoroughly. Hundreds of cans of California ripe olives were opened. Not the faintest indication of anything of a poisonous naturo was found. In a word, the decision rendered hy the Pennsylvania health board was: "Eat California ripe olives."

DOWN IN JAVA

Dr. Creamer of the Island of Java is investigating fruit growing, or rather agricultural conditions, in California. He is enjoying our climate and we would we might enjoy some of the climate of Java—in California—for a short period. There the rainfall sometimes is 50 feet per year, and now and then in a case of extreme good fortune the precipitation has reached two meters, or nearly 80 inches, in a period of 36 hours.

Oh for a transfer of some of Java's climate for a few minutes.

COOPERATION WINS

The campaign for new members which has been conducted by the California Prune and Apricot Growers, Inc. has won, and hy a safe margin. This is a compliment to the management, a greater one to the members who have allied themselves with this movement which had saved the prune industry and been a great factor in the stablizing of the apricot industry. But, as strong as the organization was, the original members became tired of holding the sack while the industry was saved, so they demanded and secured a recognition of the principle of cooperation on the part of those who were remaining outside the organization.

PLANT A GARDEN

During the war we planted gardens. Lawns were spaded up; flower beds eradicated in order to grow a few ears of green corn, a few radishes or heads of lettuce, or sometimes, even to grow weeds. So far as we can figure the matter out the patriotic urge is as great today as it was during war activities, and certainly the H. C. of L. was never stronger. When one sees at the roadside market, cauliflower heads little larger than a goose egg marked five cents and a really respectahle head marked 25 cents it is time to plant a few seed, and tomorrow it will be time to hoe and to irrigate and to care for the tiny plants. So plant a garden and then till and water.

MILLIONS FOR TRIBUTE

Friend Richardson, California's state treasurer, will soon be unpopular with the politicians of the state. He has a peculiar idea that in the matter of economy the state of California is not different from an individual:

"The individual must, if he avoids insolvency, live within his income. Many people desire, but few can afford to ride in Pierce Arrows. The state is no different from an individual. The champagne appetite of the prehprohibition era must be avoided by the state. .The state has not an unlimited fund to draw upon. State thrift is as necessary as individual thrift.

"Now is the time to call a halt on state expenses. If new sources of revenue are found, the fight of those who believe in a wise and economical expenditure of state funds will only be made harder, and the greed of those who look upon the state to finance their private schemes will he greater."

The demands on the state treasury last year called for the handling of more than $100,000,000. Of course, another ten or 20 millions added next year means but little, but at the same time some of us are foolish enough to suggest to Mr. Richardson that he continue his campaign and give us some more facts.

Somewhere else in this issue there is a suggestion that when the people are informed they are usually right. Let us be informed on some of our state's expenditures.

IRRIGATE

Hundreds of thousands of fruit trees all over Belgium and in eastern France were destroyed during the war. While those countries purchasing power will not be great they must have some fruit. Thousands of acres of Eastern peach orchards have given way before the dread yellows. California is planting new orchards, so far as she can secure the trees, but she is not giving as much careful attention to preservation of the old orchards as she should. We do believe, however, that so far as permitted by the shortage of labor, the orchards of the state never had the careful attention they are receiving today. Unless greatest care is exercised, it now appears many a tree will suffer from want of moisture before the coming fruiting season has passed.

This is a good time to store moisture in the soil. Where wells will permit or where streams have sufficient flow waters should be applied. Heavy winter irrigation will not only save the crop but possibly the life of the tree. Irrigate deeply and hold the moisture with perfect tilth.

GASOLINE SHORTAGE

One has only to take a Sunday afternoon ride or stand by the roadside and observe the continuous procession of automobiles to wonder when the supply of gasoline will be exhausted. Even now it is becoming difficult for truck and tractor operators to secure a sufficient supply of distillate. Gasoline is still to he had and kerosene is plentiful, but very few of the engines are fitted for burning kerosene. Now comes the secretary of the interior and director of geological survey with warning that a most precarious situation confronts the users of farm power. Gasoline is being marked up in several of the Eastern centers.

In part the present situation is due to confiscatory decrees of the Mexican government. In effect these prevent all American companies from sinking more wells unless they agree to Mexican government ownership of the entire properties of the company. The importations to this country from Mexico have been reduced by 200,000 barrels daily, and the production in Mexican petroleum fields has been reduced more than a million gallons a day. As 90 per cent of the fuel oil used on the Atlantic and Gulf oil consuming vessels has been derived from the Mexican fields, it is plain that disaster confronts users of farm power and the industries unless the Mexican situation is quickly cleared. And here is a significant fact of interest to farmers: "The country today uses more gasoline than do the cities; the rural pouplation is its biggest buyer."

SALES AND SALE VALUES

Perhaps no one thing marks the growth of the pure bred livestock industry in this state during the past two or three years more than the lengthening sale list of the current season.

The large number of public sales is made possible by the quickened demand for a more efficient class of livestock on the part of the ranchers of the state who have been convinced of the practical value of better blood. This demand is certain to continue and the surplus produced by the breeders must be disposed of in two ways, namely, by private treaty and puhlic vendue. Which method is the best suited to the seller will depend upon local conditions. It matters little which method is used as in the end the principles of selling are the same—success in either case coming to those who are honest with their customers and who give value received.

Because of the very nature of the auction, being conducted in public, the seller needs to be scrupulously careful that nothing occurs to cast reflection upon himself or his herd.

A long observation of puhlic sales is convincing that the seller who has truthfully advertised his offering need have no misgiving that the average crowd can be depended upon to set true values. It is possihle that the values so estahlished may not equal the seller's idea, in which case it is more than likely that an exalted opinion as to values has clouded the vendor's judgment.

We simply mention the above in passing as a caution to sellers who may be disappointed at the apparent lack of appreciation that may be manifested at a few of the sales.

SALE RING PRACTICE

Speaking of sales, we hope the livestock interests read the two quoted articles under the heading of "Sale Ring Ethics" in the Cultivater of last week. The articles in question, written by men of wide experience, were pleas for the introduction of more business like methods in Eastern sales.

The public sale is a business transaction and nothing more and there is no real reason why sales of livestock should not be handled on a plan acknowledging as much.

Some men may attend sales to be entertained by the flashing ? wit of the auctioneer and assistants in the ring—but those men seldom buy, and the real buyers prefer an auctioneer who commands respect because of his ability and knowledge of values. Again, few buyers care to be surrounded and importuned by a half dozen "ring men" whose sole claim to such designation is the fact that they are permitted within the ropes.

So far, California sales have not been cursed with such tactics, and at the first sign of the ring man epidemic the breeders should take a positive stand—limit their sale force to one good auctioneer and not more than one assistant. The buying puhlic will appreciate such a stand and the selling expense be held within bounds.

GET ACTION

The Cultivator has referred so many times to the necessity for forest and watershed protection that it may seem superfluous to urge it further, but as the season so far has appeared somewhat dry there is at least a bare possibility of enormous losses being visited upon California unless every step is taken to protect from the fires which come even in the best of years. Effort should be made by every California well wisher to secure greater care in this fire prevention.

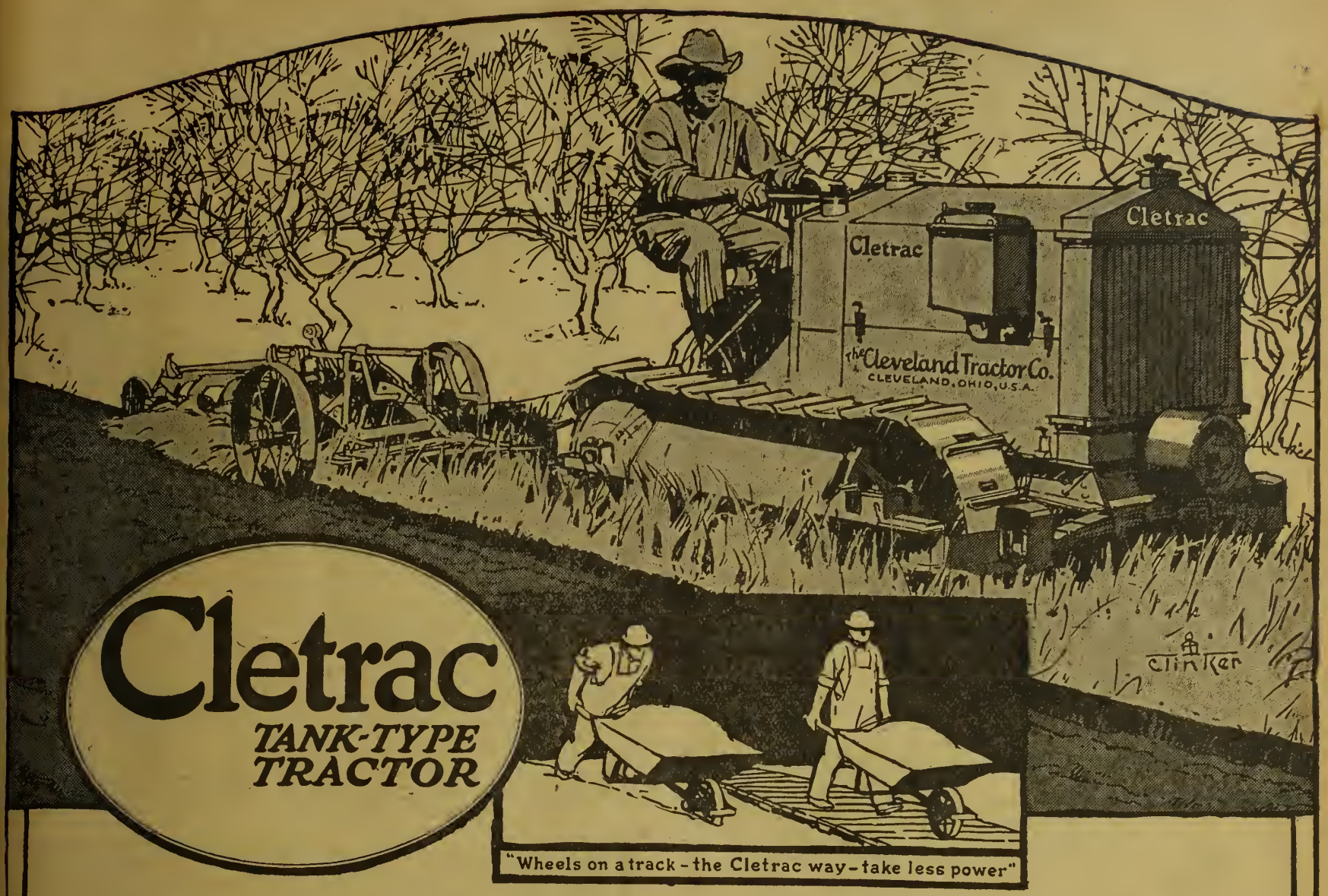
The state board of forestry recently met in San Francisco and has made other recommendations which will advance the state's welfare and wealth Here are four specific recommendations as the result of that meeting:

Appropriation by the state legislature of sufficient funds for the prevention and suppression of forest, grair and pasture fires outside of nationa forests.

Acquirement of logged off areas both in the redwoods and pine forests as a nucleus of state forests for future timber supply.

Acquirement of watersheds necessary for the conservation of water fo domestic and irrigation purposes.

Renowal of forests on logged of areas and watersheds that are in nee of reforestation.



In the Orchard—with a Cletrac

Plow your orchard better this year—put a Cletrac on the job.

Small, powerful, easy to run—working every day, 24 hours a day if necessary—the Cletrac plows closer to trees, quicker and at a lower cost.

Laying its own endless tracks, the Cletrac travels the orchard floor with a light, sure foot and a strong, steady pull.

Low-hung, with no projections—it weaves in and out and around trees without injuring bark or branches. Turns short—gets the corners, works in the sticky places—goes everywhere, with power to spare.

The Cletrac rides on top of the soil—doesn't pack it. That's why it's so good for discing and other mellowing jobs.

Spraying, ditching, fertilizing, road building, operating cooper shops and cider mills—these are but a few regular Cletrac jobs. All the year around—any time, anywhere—it does all your haulage and belt work. Operates perfectly on distillate or kerosene.

The Cletrac costs less to operate than any similar power unit or the six or eight horses it replaces—works more hours a day and more days a year, too.

Be ready when the rush comes—get your Cletrac now.

Write today for that interesting booklet, "Selecting Your Tractor"—it's free

The Cleveland Tractor Co.

LARGEST PRODUCERS OF TANK-TYPE TRACTORS IN THE WORLD

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"You wear out more spades, Jim, than any other man in the county. I'll bet your back's worn out too. Digging holes to plant trees is all right if you need the *exercise* or if you *like* to spend your money for hired help but if I were you I'd cut out the hard work and keep my money in the bank by *blasting* the holes for my young trees with

HERCULES DYNAMITE

"Look at Bill, there. He's got the right idea. He's bought dynamite from me for the past fifteen years. Now he's got one of the biggest and best orchards in the state. And he has a fine fat bank roll, too—all because he uses Hercules Dynamite to help him with his work.

"Send to the Hercules Powder Co. for their 68 page illustrated book, 'Progressive Cultivation.' This book tells all about using dynamite for tree planting, clearing the land of boulders and stumps, blasting ditches, subsoiling, cultivating your bearing orchards by blasting between the rows and hundreds of other ways of using explosives to help in heavy farm work.

"Take my advice, and send for this book. *It's free* to ranchers and fruit growers."

Hercules Dynamite is for sale at leading dealers.

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Gentlemen: Please send me a copy of "Progressive Cultivation."

I am interested in dynamite for_____

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Planet Jr. Seeders, Wheel-Hoes and Cultivators will enable you to do as much work as three to six men using ordinary, out of date tools. They cultivate thoroughly, rapidly and properly. Planet Jr. tools are made with scientific accuracy, and of the best materials. Fully guaranteed.

No. 25 Planet Jr. Combined Hill and Drill Seeder, Double and Single Wheel-Hoe, Cultivator and Plow sows all garden seeds from smallest up to peas and beans, in hills or in drills, rolls down and marks next row at one passage and enables you to cultivate up to two acres a day all through the season. A double and single wheel-hoe in one. Straddles crops till 20 inches high then works between them. A splendid combination for the family garden, onion grower or large gardener.

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No. 17 Planet Jr. is the highest type of single wheel-hoe made. It is a hand machine whose light, durable construction enables a man, woman or boy to cultivate the garden in the easiest, quickest, and best manner.

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Cooperation Again a Winner

THE California Prune and Apricot Growers Inc. determined either to fish or cut bait, so they proceeded to cut bait, and now they are fishing. In other words, the campaign for adding to the membership 20,000 acres of prunes and 6,000 acres of apricots has proven successful and on January 20 the association announced it would continue to function as a growers non-profit selling agency. Commenting on the campaign President Coykendall says:

"The prune and apricot growers of California have saved cooperation and prosperity for themselves by guaranteeing the continuance of the California Prune and Apricot Growers, Inc.

"The majority of the growers in the state always have been in favor of cooperative marketing. It was a small minority who were standing in the way of the success of this association and who had to be convinced in the recent campaign of the necessity of supporting this organization. If they had so willed the minority had it in their power, by refusing their support to overthrow the efforts of the majority to establish a growers non-profit marketing organization which would insure all the growers of the state a square deal and a fair price for their fruit.

"This state association of the prune and apricot growers has done more for the industry in less than three years of existence than had been done by scores of well intentioned local organizations since the beginning of the industry. At the time this organization was founded prune acreage could be bought for $500 an acre. Today this same land is selling at $1,500 an acre or more. This year the prune and apricot growers of the association will receive about $25,000,000 for their crops. Five years ago they would have been lucky to get one-third this amount for the same fruit.

"The association has established for the growers more than 250 selling agencies, most of them in the United States, but a score or more located in foreign countries where new markets are being developed for the large crops expected in the next few years The association has launched an advertising campaign which is bound to create a tremendously increased demand for the association's fruit from consumers in the United States. The association has built a by-product plant where small sized prunes and apricots are made into jam, fruit butter and other specialties which will permit the growers to receive a much higher price for very small sized fruit than would otherwise be possible.

"If the growers had turned down their association in the recent campaign and the association had gone out of business as a result all of this prosperity would have been lost to them, and under the shadow of such a catastrophe no one would dare prophesy how long it would have been before another attempt would be made to rebuild a cooperative selling organization of the growers.

"Next to the formation of the association this is the greatest victory the fruit growers have won for themselves. The association is bound to grow stronger from now on, and farmer cooperation has taken a long step forward."

Outlets Found for Wine Grapes

GRAPES from the wine sections of California are likely to find a number of outlets never thought of while the making and selling of wine was permitted in the United States. Several such outlets were indicated by experiences during the vintage of 1919, according to specialists of the United States department of agriculture who recently visited the wine grape regions. The problem, however, is still a big one. Not only are uses and markets to be found for the product of 175,000 acres of wine vineyards, but for the considerable portions of table and raisin varieties that formerly were made into brandy. The leading variety of raisin grape, the Alexandria, usually has a heavy second crop which matures too late for drying, and this was formerly used in brandy making. Of the leading shipping grape, the Flame Tokay, only the best clusters are usually shipped for table purposes, and the inferior clusters were converted into brandy. Now other markets must be found for the culls of raisin and table grapes.

During the past season there was a very heavy demand at high prices for anything that could be called grapes. Only a few growers, therefore, attempted experiments in finding new uses, and these few experiments were incomplete, but they indicate probably satisfactory results when they are more fully tried.

Many Shipments to East

At least 4,000 cars of fresh wine grapes were shipped into the eastern states and made into so-called non-alcholic wines and grape syrup. A gallonage of unfermented juices was made, a large per cent being pasteurized and put up in 50 gallon barrels. Much of this has already been shipped East.

Considerable work was done in sun drying and dehydrating wine grapes, and the product found a ready market at prices much higher than those paid for raisins.

Important grape varieties that have been imported and tested by the United States department of agriculture have paved the way for some new features of the grape industry. Among them are a number of varieties of shipping and storage grapes that are considered superior in every way to the varieties heretofore grown in this country. Some of them ripen at the same time as varieties now grown, some earlier and some later thus offering the opportunity for greatly extending the grape marketing and consuming season. In addition, a much larger demand for table grapes can be created than has existed up to this time, because the new varieties have superior eating qualities. One of these is annually imported from Europe in considerable quantities in late winter and sold at high prices. It thrives so well in California that it could be sold at prices considerably under those of the imported product and still net the grower a good profit.

Large Importations Supplanted.

The work of the department of agriculture has shown also how to fruit the Ohanez, the best keeping variety of all storage grapes. This should make it possible, with California grown Ohanez packed in redwood saw dust to supplant large importations of Ohanez and other Almerian grapes packed in cork dust.

The department of agriculture has also demonstrated that currant grapes can be grown in this country by grafting on resistant stocks and girdling the vines while they are in bloom From 4,000 to 8,500 acres of these grapes would be needed to produce the 34,000,000 pounds of dried currants imported annually during the decade previous to the war. In some districts where raisin varieties are so late in ripening that they can not be dried the currant varieties ripen early enough to be dried and put away before the first rains come. In districts where the raisin varieties succeed currants, it appears probable, can be grown as an advance crop and cured and stored by the time the raisin grapes are ripe, thus furnishing a longer and more profitable period of employment for the labor that must be kept in raisin vineyards.

In the distinct dry wine districts where many of the vineyards are on phylloxera resistant stocks, regrafting can be done with other varieties, where the vines are not grafted too near or below the ground. Where there are vineyard plantings of resistant stocks they can be grafted to such varieties as are found most desirable.—C. C

Pajaro Valley apple growers are finding it necessary under export regulations to wire boxes securely.

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DUPLEX-PLUNGER
Pumps

One Pump Will Do Your Work

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

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Pomona "Made Right" Irrigation Gates and Valves

PRICES RIGHT—QUALITY RIGHT
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POMONA MFG. CO.
POMONA, CAL.

PROFIT comes from fruit, not foliage. On Citrus fruits use

NITRATE OF SODA

which is immediately assimilated by growing trees.

It works while fruit buds are forming.

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Teague Quality
TREES
Citrus & Tropical

The best that can be grown. New Illustrated Price List just out, Free for the asking.

The R. M. Teague Citrus Nurseries
Box A,
San Dimas, Calif.
Founded In 1889.

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OF EVERY DESCRIPTION
Bought, Sold and Rented
BUTTRESS & McCLELLAN
205-7 N. Los Angeles St., Los Angeles

Arcola, Madera County, has formed a farm bureau center.

GRAPE MEALYBUG

(Continued from Page 161.)

suffering, of canes or leaves he detected due to its presence. The grapes appear to be in no way affected in their development, in acquiring normal size, and in percentage of sugar even when heavily infested. In fact, if any bunches of grapes on a vine are infested, they invariably are the ripest, sweetest and best of the first crop. The mealybug is found in bunches of the second crop, as a rule, only when the infestation of the vine is severe.

The damaged caused by the mealybug consists only in a depreciation of the market value of grapes because of the filthy condition of the hunches due to the presence of the insect. The honeydew forms a sticky mass with the white flocculent egg-sacs, and the white cast skins of the second and third or last molt. A few insects only within a bunch gives it a repulsive aspect, and render it unfit for human consumption. Grapes such as these may be dried, but make an inferior raisin. The best use for them is the distillery.

Unless bunches of grapes are heavily infested the insect is seldom seen on the berries of the outside of the bunch, but its presence is detected by the honeydew which it excretes on the outside berries from the position it occupies, settled down and feeding on the pedicel of the berry, lateral stems, or even the main stem of the bunch of grapes. Honeydew even in small quantities is proof of an infestation, hut no indication of how severe a given infestation may be. The degree of infestation can be ascertained only by opening up the bunch, although there does exist, in a way, some relation between the quantity of honeydew on the outer berries and the degree of infestation within the bunch of grapes.

Relation of Honeydew to Packing

Because of the difficulty of judging the degree of infestation of a bunch of grapes by the quantity of honeydew on the outside berries, bunches with only a mere trace of honeydew should be excluded from the pack and should not be disposed of by putting them into the box set aside for culls, but should he taken away from the packing shed without delay. For the same reason, which will be explained later, boxes known to contain "honeydewed" bunches of grapes, if only one, should be refused admission to the packing shed. The task of preventing "honeydewed" grapes from becoming mixed with clean bunches should begin in the vineyard by the growers instructing the grape pickers to be on the lookout for bunches soiled with honeydew and restraining the pickers from putting such grapes in the picking boxes. The infested bunches should be picked and let fall to the ground.

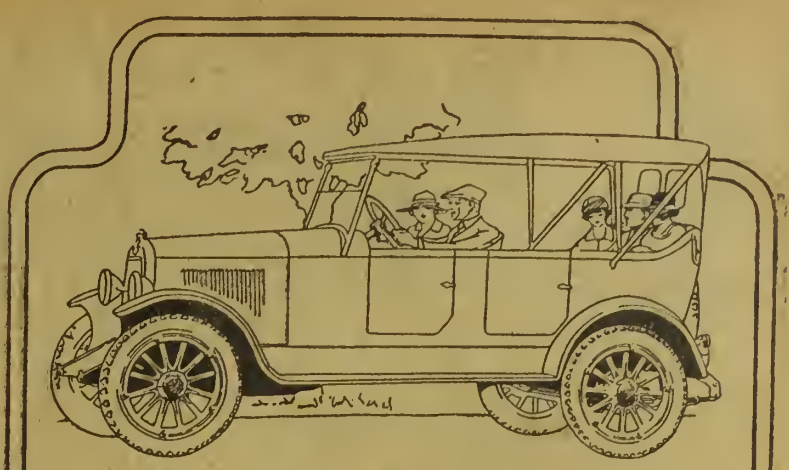
Conditions best suited to the mealybug are, shade and seclusion, and protection from bright light, wind, and sudden change of temperature. These conditions are found under the vine close to the trunk crown, and the bunches of grapes further provide succulent food. When a bunch of grapes is picked, these conditions change, the insect becomes restless and will leave the bunch sooner or later and crawl about in the box; it may hide in some crack or crevice of the hox, or crawl away from it to some other place, or box, when boxes of grapes are piled up in tiers and thus left standing for some time, as is the practice in packing sheds. Picking boxes are the surest and most frequent means of spreading the insect, either to other parts of an already partially infested vineyard, or to new localities as yet free from the mealybug. It will therefore be seen why special attention and precautionary means should be taken in the packing shed.. These may be enumerated as follows:

Exclude from the pack all bunches showing signs of honeydew; because the true condition of the interior of the bunch can not be estimated without spreading the bunch apart.

Boxes containing "honeydewed" grapes should be refused entrance to the shed. If taken in, and later discovered, they should be removed without delay.

In the interest of both growers and packers alike, boxes which have contained "honeydewed" bunches, whether one or more, should be disinfected.

For lack of practical experiments, none as yet having been made for the



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The world-famous Briscoe unit power-plant, which has made such wonderful mileage records for Briscoe owners, is still further refined in the 1920 car.

And it's a car you'll be proud to ride in, too. For Briscoe beauty of design was the talk of the big national automobile shows this year.

See the car for yourself at the nearest Briscoe showroom. Descriptive booklet free on request.

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Keeps your harness flexible

HARDENED leather cracks and is soon on the road to decay. Eureka Harness Oil softens leather, protects it from dust, sweat and moisture, and keeps your harness flexible. Rodents dislike it and avoid Eureka oiled leather. *Eureka saves harness for longer service.*

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that will keep Squirrels, Rabbits and Gophsre from barking your trsss and give parfsct protection from hot sun, sandstorms, barking in cultivation, stc. Tsll us your peet and ws will tell you what kind of a wrap to use. We maks a number of kinde and can savs svery tres for you from psete.

Collapsible Planting Pots

Thess pots are bottomlsss. This allowe you to plant pot and plant, never disturbing your plant nor etopping its growth in transplanting a singls hour.

For etarting early vegetables, such as Tomatoes, Cabbags, Eggplant, Cauliflowsr, Cucumbere, Cantaloupee and Squash; also for propagating Roee Cuttings, Geraniums, Eucalyptue, Olivs Cuttings. It's the only practical pot on ths markst today for propagating work. Writs us for samplse of sither Pots or Protectors. Tell us which you are intsrssted in.

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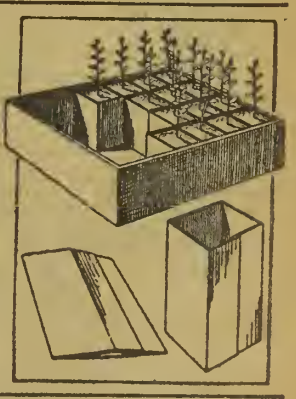

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Select Olive Trees

—with strong roots, will mean success in your planting—investigate thoroughly and you will find that our Olive trees have proven satisfactory in all the large Olive districts and elsewhere. Plant them and you will have no cause for disappointment. Write us for full information and prices.

Send For 1920 Catalog

Just from the Press—Illustrates and describes all best varieties of Fruits, Roses, and Ornamentals. A postal will bring you a copy—Mention briefly your needs.

ARMSTRONG NURSERIES
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Hauser's Organic Fertilizers
Built for
California Conditions
Send for Booklet, "Fertilizer Efficiency," Tells You Why.
Hauser Packing Company
Los Angeles, Cal.

disinfection of boxes, the following suggestions are offered, rather than methods advocated:

Fumigation by means of hydrocyanic-acid gas. One ounce of sodium cyanide per 100 cubic feet of space in gas-tight enclosure. Length of exposure should not be less than two hours.

Dip boxes in boiling hot water, or subject them to a jet of steam so as to reach every crack, crevice and all surfaces of the box.

(We doubt not if Prof. Nougaret were making recommendations today he would say to use liquid gas where it is available.—Editor.)

The use of sulphur fumes has been advocated, but is here mentioned with reserve. Its efficiency as a killing agent for the mealybug should be given a thorough test. Use five pounds of sulphur to 1,000 cubic feet of space. All the sulphur should be thoroughly consumed. Exposure should last several hours.

MEALYBUG FUMIGATION DEMONSTRATION

A meeting was held at Sultana, Tulare County, January 17, by R. L. Nougaret of the office of viticulture, state department of agriculture, with the horticultural commissioners of Tulare, Fresno and San Joaquin Counties and their assistants for the purpose of giving a practical demonstration of how to fumigate with sulphur fumes for the control of mealybugs on grape vines. There was also a number of grape growers who were present.

This mealybug has been spreading during the last few years at a rapid rate and becoming a very serious pest. At grape picking time most of the insects are in the bunches of grapes and the honeydew they produce with other waxy secretions soils the grapes so that they cannot be used for human consumption. In 1918 a great quantity of Malaga grapes was condemned as unfit for table grapes. Much concern is felt about this pest in the southern counties of the San Joaquin Valley.

It is of special importance that fumigation by means of sulphur fumes be carried on at night and with strict observance of certain rules because the fumes are very injurious to plant life. But if carried on as advocated, this method is very simple and trustworthy and practically amounts to an eradication.

PEAR GROWERS ASSOCIATION

At the annual meeting of the California Pear Growers Association held in San Francisco the following board of directors were reelected: R. J. Coggeshall, Courtland; R. C. Dorsey, Courtland; F. A. Edinger, Hood; James F. Elliot, Courtland; Peter J. Huth, Vorden; Henry C. Malone, Napa; R. D. Meyer, Huntington Park; E. C. Rand, Santa Rosa; E. A. Smith, Concord; Frank T. Swett, Martinez; F. A. Wilcox, Santa Clara. Frank T. Swett was reelected president, F. A. Edinger secretary and A. D. L. Hamilton assistant secretary.

The members of the association grew $2,200,000 worth of pears, of which half were sold to canneries, the remainder being dried or shipped East. For the cannery pears an average of $85 per ton was received for the best grade; for Eastern shipments, which were sold at auction, no price being set, from $90 to $100 per ton was received and for windfalls which were dried $35 per ton. The association has encouraged canning and the largest pack of pears on record was put up, a considerable portion of which has been exported to Great Britain.

President Swett in his address called attention to the fact that while in the last ten years an average of 80,000 tons a year have been grown, in the next ten years there will be 150,000 average, and by 1929 over 300,000 tons a year will be produced.

A national advertising campaign is planned to commence as soon as 80 per cent of California pear growers enroll as members, along similar lines to the growers of oranges, prunes, almonds, walnuts and beans.

IMPORTANT GRAPE MEETING

A meeting of grape growers is to be held at San Jose February 7 in the chamber of commerce auditorium from 9:30 a. m. to 4 p. m. under the auspices of the division of agricultural extension of the University of California, college of agriculture, with representatives of the California state department of agriculture and of the Grape Growers Protective Association. The subject of evaporators in connection with the drying of wine grapes will be fully gone into and discussed, and papers will be read.

In view of the problem of disposing of the 1920 wine grape crop, this meeting is of the utmost importance for the wine grape grower and a large attendance should be present.

AVOCADO OBSERVATION

The bureau of chemistry, United States department of agriculture, has under observation at different stations in Southern California crops of avocados, some of which are picked once a month and taken to the laboratory. A general analysis is then made to determine the composition, and the variation of composition from green fruit to mature fruit will be known at the end of these tests. We will then know definitely at what date and stage of development to pick these fruits to get them at their best food value.

Seven varieties have been under observation during the past season, one "official" tree of each which none other than the chemical staff are allowed to touch. These trees and their locations are: Fuerte and Taft, at Yorba Linda; Dickinson, at San Diego; Blakeman, at Altadena; Puebla, at San Fernando; Spinks, at Duarte; Lyon, at Whittier. Another season it is hoped to include the Sharpless, completing the eight varieties first recommended by the avocado association. Doubtless those varieties will then be observed that the association believes promising. All are tested at the citrus by-products laboratory at Los Angeles.—E. B.

CONSERVE THE FLOODS

There is one benefit which may come from this season's rain shortage and that is the possible bringing together of irrigators to conserve flood waters of wet years for saving millions of value in dry years.

Commenting on the Pine Flat conservation plan the Farm Bureau Monthly of Fresno, says:

"The organization of the proposed Consolidated Irrigation District is progressing well. Thousands of acres have been added since the last farm bureau meeting. The Kingsburg district has more than doubled its acreage, also the Del Rey district has done likewise, and other parts of the district have been active in securing signatures during the past few weeks.

"The day before New Years, one man in the Selma district secured over 1,000 acres. Opposition to the district has practically disappeared, and it is now only a question of the solicitors seeing the land owners and they will sign the petitions.

WORTH A BIG FARM
Bale your own and neighbors' hay; 100 days work earns $1000 to $2000 a season with the
A Press for Every Purpose
LIGHTNING LINE

Power Press or Teactor Baler, Junior Belt, Juniors with extension frames, combined press and engines, horse power press, 1 horse baler to heaviest two horse press. The right kind of a press for your needs. Presses bought from us 20 years ago still in use. Send today for complete catalog or write us your needs and we will advise you size of press needed for your work.
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PLANT NOW Growers making $1,000 and over per acre annually. Splendid results in six months. Also berries and small fruit, etc. Write for catalog and price list to the originator, J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Calif.

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Los Angeles, Calif. 618 So. Spring St.
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$1000,000. can be saved every year

Do you know that thrips are capable of doing over a million dollar's worth of damage a year in California to the fruit industry? It's a fact—and what's more, its preventable.

We have absolute proof that thrips can be controlled by proper spraying with Universal Brand Miscible Oil No. 2.

It is a high gravity oil designed for this particular purpose. It has a very high degree of penetration—it goes right into the fruit and leaf clusters—and gets 'em.

Miscible Oil No. 2 will kill thrips better than any other spray mixture — there's no question about it. Ask your neighbors what their experience has been.

And write today for our bulletin on deciduous spraying —it contains much valuable information for your guidance.

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No.2 for Thrips

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THE INEXPENSIVE
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Does the work of one horse at one-quarter the cost. The Original One Horse Tractor—five years on the market.

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Los Angeles, Calif.
618 So. Spring St.

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440-442 Sansome St.

County bee inspectors of California recently met in Los Angeles and organized a state association.

"We have another dry year in prospect, and possibly enough will be lost this coming season, as was lost the last season, to pay for our part of the proposed Pine Flat dam. Therefore, every year we delay this matter only means a multiplication of the losses sustained by the farmers."

WANTED: A NAME

The Oregon Growers Cooperative Association, which controls 16,000 acres of fruit in Oregon, has opened a national campaign for a name. A hundred dollars is offered for the first prize, and $50 for the second prize, for the best suggestion for a brand name. The Oregon Growers Cooperative Association will sell all kinds of fruits, such as apples, prunes, pears, berries, cherries, walnuts, dried and canned fruits. The name must be one which can be applied to all. Since the organization is a state wide organization, the name must not be localized, but must be appropriate to the entire state. The contest will close April 1. All names should be sent in to C. I. Lewis, Organization Manager, 307 Masonic Building, Salem, Oregon.

GRAFTING WORTHLESS WALNUTS

Referring to Mr. Neff's article on walnut grafting, J. M. Colley of Santa Paula writes:

"I have just read your article on walnut grafting, the article in today's Cultivator is of very great interest to me at the present time as we have about four acres of walnuts, set six or seven years ago and interset with apricots. The walnuts have proved to be entirely worthless, as they do not bear, and what few nuts there are have little or no meats in them, and mostly go for blows. There have been several orchards of this variety planted, but have mostly been dug out. I would like to graft them over, as if I could get other trees to replace them, which seems to be impossible this season, they would grow slowly among the apricots; but what is worrying me is that the walnut trees to be grafted come out very late in the spring and are late all season. In your opinion would the trunks hold back the sap and keep the grafted head late or kill off the scion the first season? The trees now in are budded low down on black walnut."

Mr. Neff, who wrote the article referred to, answers:

"The grafting of another variety of walnuts on the present stock will not change the habits of the new scions any more than the trees already growing were changed by being grafted on black walnut roots. The wood of the trees now growing is likely harder than that of the scions you will use. More care will have to be given in placing the scions so as to secure circulation of the sap but otherwise there will be nothing different from the care needed when scions are placed in black walnut or in soft shells."

SELLS CITRUS LAND

The recent public sale of lands on the Yuma Mesa, Arizona, which are described as particularly adapted to the growing of citrus and other semi-tropical fruits, was a decided success. The total of the sales amounted approximately to $1,250,000, and buyers were present from all parts of the country. One tract of 60 acres was purchased and will be developed by army officers from Washington, D. C. About 1,700 acres of the first unit remained unsold at the close of the auction, and Secretary Lane has authorized the reclamation service at Yuma, to receive bids for these farms until June 10, 1920, unless sooner disposed of.

WILLING TO PLEASE

John's father kept a candy store, and the little fellow often brought candy to school to divide with the other children. One morning the teacher noticed a strong smell of peppermint and began to investigate in order to stop eating during school hours. Unable to detect the culprit she bent over small John and whispered:

"John, have you any candy?"

"No, ma'am," he replied.

"Have any of the other boys any?"

"No, ma'am."

As she turned away he touched her hand and said: "I bring you some at **noon."**

TOP DRESSING TALKS, No. 9

FEED YOUR CITRUS ORCHARDS

Dr. C. B. Lipman of California Experiment Station and an authority on the fertilization of the citrus, writes in California Circular No. 170 concerning the soils of San Joaquin Valley and those of the southern valleys of California, as follows:

"The best representative of the high grade nitrogenous fertilizers for the class of soils under consideration here is Sulphate of Ammonia.

"In citrus orchards it is best to apply Sulphate of Ammonia in from three to five applications employing about one pound per tree per application in the months of February, March and April, or similarly January to May."

To increase the profits from your orchards, top dress with the great American Ammoniate

ARCADIAN
Sulphate of Ammonia

It is the only safe and economical carrier of nitrogen for California soils. It will not injure the physical condition of your soil.

FOR SALE BY

CALIFORNIA: San Francisco; Hawaiian Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Pacific Guano & Fertilizer Co., Western Meat Co., California Fertilizer Works, Los Angeles; Pacific Guano & Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Agricultural Chemical Works, Hauser Packing Co., Hawaiian Fertilizer Co., Ltd., Southern California Fertilizer Co. OREGON: North Portland; Swift & Co.

For information as to application, write **The Barrett Company** Agricultural Department

510 First National Bank Building, Berkeley, Cal.

As Sterling is the fixed standard of silver so is the

BEAN Sprayer

the fixed standard among sprayers—a leader of machines of its kind. Long accepted by those having need of spraying machinery as being pre-eminent. Pre-eminent because it combines a maximum of labor-saving and therefore time-saving features.

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258 West Julian St.,
Gentlemen: Please send me your Sprayer Catalog No. 33.
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GRANT SIX

Economy is a relative term. Many people confuse economy with cheapness. But to the thinking man or woman there is little chance for such confusion of ideas. For economy is not cheapness. The things which cost least are often most wasteful. And wastefulness is never economical.

The Grant Six is an economical car. It is a high grade motor car. It delivers exactly what buyers of its type want. It brings you beauty from which springs a feeling of pride in ownership. It brings you satisfactory performance, quick acceleration, marked flexibility, hill climbing ability, ample power.

It brings you riding comfort. It brings you dependability founded on correct engineering and high grade construction. It brings you freedom from worry because of its substantial construction. It brings you freedom from costly repair bills.

Its simple, accessible mechanism requires little time or effort to look after properly. Its makers have incorporated in the Grant Six design every known feature that will contribute to your comfort, pleasure and permanent satisfaction.

Its light weight insures low tire cost, low gasoline cost, and its great strength insures long life.

Therefore, because it brings you what you want at an honest, fair price, because it brings you real value for every cent of your investment, it is a truly economical car.

Write for new illustrated catalogue and name of Grant Six dealer in your community.

GRANT MOTOR CAR CORPORATION
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Krogh Pumps Are Absolutely Water Balanced
No End Thrust Possible — No Set Collars Used

The No Trouble Pump

Krogh Direct Motor Driven Pump

Fitted With Ring Oiling Bearings

Renewable Babbitted Bushings

Ring Oiling Gland

We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

When Writing Advertisers, Mention the Cultivator.

Rat Farming

By F. L. Tomaschke

I WENT to a farmer friend one day to buy some little chickens. He thought over the proposition very seriously for half a minute; then he said:

"No, I don't know as I can spare you any. I've only about three-four hundred. And there's a couple of hawks that have headquarters somewhere 'round here and come to see us most every day. Then there's maybe two dozen rats under the barn. I calculate to keep them well fed up; and I don't know as I'll have any more'n they'll want."

There is doubtless a great deal of pleasure and profit in rat-farming—for the rats. For the farmer and his family and the community at large there is nothing but annoyance, loss and danger. The amount of grain and other feed annually destroyed by rats and mice is incalculable, especially in regions where the farmers and warehousemen still cling to the antiquated sack handling method. For the ugly little pests gnaw into the sacks as they lie in the field, in piles near the buildings, and, worst of all, in the barns and warehouses; and when the sacks are next handled to and from the wagons and cars the contents pour out through these holes. The grain spilled in this way is worse than wasted, for it helps to feed the least useful of birds and to breed and multiply the rats, mice and squirrels.

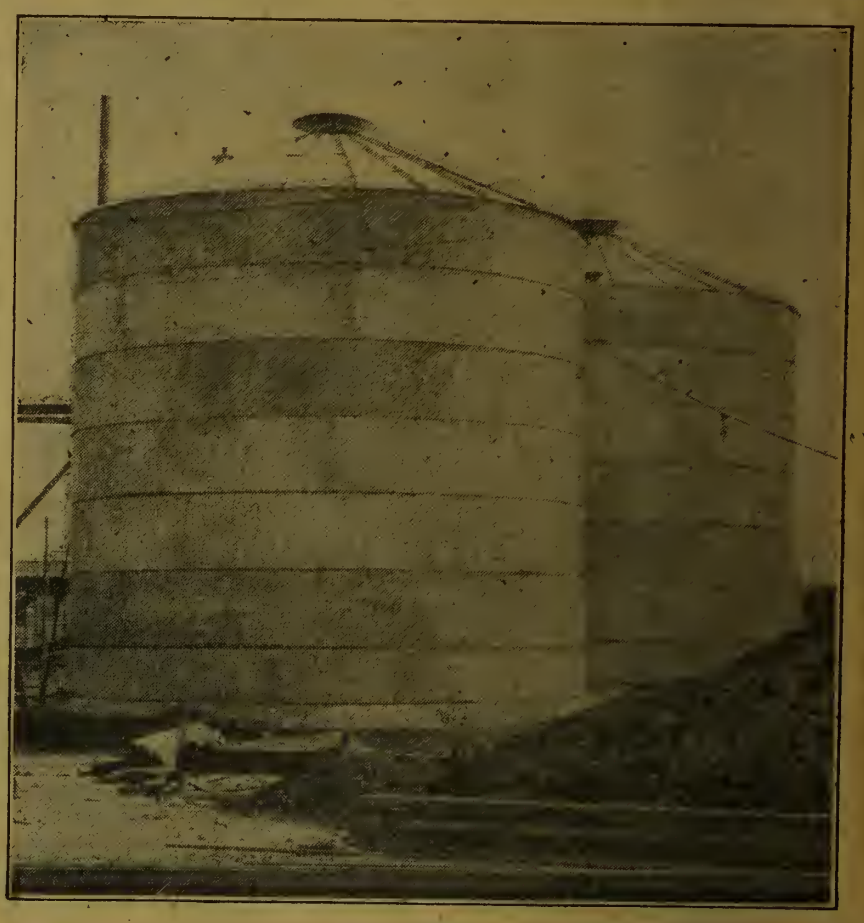
Cats and terriers, traps and poison are all very well as far as they go. The trouble with them is that the rats, especially the older ones, are about as cunning and crafty things as ever go on four legs. They are as cunning as a weasel and as foxy as a fox. In a short time they learn the character of all these devices for bringing them to sudden death and learn to avoid them. Campaigns of this sort are often successful in killing a large number of rats; but among the victims it will be found that the young ones are in the great majority. The sly old veterans remain to rapidly propagate their kind.

Modern science is locating one by one the sources of many of the ills against which humanity struggles in the germ life carried by flies, mosquitoes and other parasites and vermin. Rats and other rodents are found to be a principal means for spreading bubonic plague and also pneumonic plague or Spanish influenza. Plague ridden countries are always rat ridden. Thus methods of extermination become the eager study of medical and sanitary scientists and an important activity of public health departments.

The most effective and permanent methods yet devised are the doing away of breeding and nesting places by concreting or otherwise rat proofing basements, cellars and foundations of buildings, abolishing wooden floors in barns, warehouses and stock buildings which are so placed as to cover a dark, shallow space which affords the nasty little thieves a safe harbor, and placing all grain and other feed in metal bins and containers.

Professor Dixon of the University of California department of zoology points out that neither rats, mice nor squirrels are ever found in large numbers except where food is abundant, and that the use of metal bins and other containers is effective in keeping down the rat and squirrel population in two ways, first, by preventing their rapid propagation, and second, by making them more willing to eat poisoned grain and fruit.

It will probably never be possible to wholly exterminate rats and mice and other vermin pests of the farm. Some wily individuals are bound to escape the most determined campaign, and their breeding season in a favorable climate like that of California is all the year round. It is feasible, however, to keep their numbers down to small limits and to put a wholesome fear of man and his works into the brains of the survivors. This state of affairs will doubtless be found on the wisely conducted farms of the future.



No Rats In Here
Galvanized iron grain bins, Crocker Huffman Land and Water Company ranch at Merced.

EUROPEAN CORN BORER

The experience of the past season with the European corn borer leads the United States department of agriculture to make the statement that, apparently, there is little justification for alarm over the possibility of this insect's becoming a menace to the corn crop throughout the entire country. While the corn borer is a pest to be reckoned with and one that may cause considerable injury to susceptible varieties of corn in certain localities, its effect on the corn crop of the country as a whole, especially in the corn belt, is unlikely to be serious.

These reassuring facts have been discovered as the result of the department's work during the past season:

Up to the present time the corn borer has inflicted considerable damage to corn only in the Boston district where the corn grown is of the sweet and dwarf varieties and where the

AUSTIN

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A machine that will completely solve your drainage problem. It cuts a V-shaped ditch to the depth of four feet. Sides of the ditch slope at an angle of 45 degrees and will not cave in or wash to any extent.

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corn borer, owing to the climatic influence of the gulf stream, is two brooded. After ten years of slow spread the insect has attacked occasional fields of sweet and flint corn, under conditions favoring multiplication of the borer, to the extent of nearly 100 per cent of the stalks and 20 to 50 per cent of the ears. However, in most of the fields in the area now invaded in coastal Massachusetts and New Hampshire, the injury has been negligible. When the corn borer larvae are limited to the stalks, the ears, as a rule, are normal. Even when the larvae enter the ears, the injury is certainly not greater than that caused by the ordinary corn ear worm, which is reckoned at about seven per cent by weight of the kernels of each ear attacked.

The European corn borer is now known to occur over the entire coastal region of Massachusetts, including Cape Cod and adjacent islands, and over several towns in southern New Hampshire, approximately 1,800 square miles; in New York, in the Mohawk Valley between Amsterdam and Albany, about 800 square miles; in western New York, over an area of at least 500 square miles, and the area of known infestation is constantly expanding as the survey proceeds; and over a limited area in Erie County, Pennsylvania.

PERMANENT EXPOSITION

At the annual meeting of the Sixth District Agricultural Association officers for the year 1920 were elected as follows: E. W. Murphy, president; Frank Simpson, vice-president; Albert M. Paul, secretary. The board of directors are E. C. Bellows, R. W. Burnham, Marco Hellman, Clinton E. Miller, E. W. Murphy, Dell A. Schweitzer, Frank Simpson and Walter P. Story.

The state exposition building at Exposition Park in Los Angeles is under the management of this board. Complete, classified exhibits representing the entire state are being installed and when completed the Exposition Building will contain the finest exhibit of the kind in the United States.

Cooperation is being accorded by commercial organizations, resort people, and those who realize the value of having at Los Angeles a permanent exhibit epitomizing California and from which may be gotten a knowledge of actual conditions throughout the state.

MAKING SURE OF BINDER TWINE

The United States has long depended for much of its supply of binder twine on henequen from Yucatan. The uncertainty of the supply during the past several years has caused serious anxiety lest there should not be enough binder twine to harvest the increasing crops of grain in this country, and the United States department of agriculture has been making diligent efforts to find new sources of supply or new regions where binder twine fibers may be produced. The chief of the bureau of plant industry reports encouraging results. The conditions in limited areas, extreme Southern Florida and on the larger keys are regarded as suitable for the production of sisal and henequen fibers, provided the cost of land and of labor is not too high to permit successful competition. Henequen has been cultivated successfully for several years in Cuba and the plantations are being increased, but thus far they produce scarcely enough fiber to supply the cordage mills on the island. Conditions are regarded as favorable for the production of binder twine fibers in limited areas in Haiti and over a much larger area in southern Santo Domingo. Experimental plantings in Porto Rico have resulted in the establishment of a commercial plantation near Yauco and trial plantings near Quebradallas and on Mona Island have given promising growth. In the Virgin Islands excellent conditions for the cultivation of sisal have been found on St. Croix. In the Philippines the introduction of modern fiber cleaning machines has resulted in increased planting of sisal and private capital has bought and installed machines to develop the industry on a larger scale.

A weed is any plant in the wrong place. Vegetables too close together are as injurious to each other as weeds. Thin them out before they are large enough to crowd.

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The Roderick Lean New Century Single Disc Harrow gets down deep and does the work right. It pulls easily at an even depth, slicing and pulverizing each clod, stirring and mixing each foot of ground ***for a perfect job of discing.***

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"THE HOME OF THE HAIRY PERUVIAN"

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Fertilizer for Walnuts

Kindly advise me through the Cultivator as to whether a high grade commercial fertilizer such as is used on orange groves would be beneficial on a nine year walnut grove. Have been advised the walnut association does not recommend it.—Subscriber, Beaumont.

There are some people who find themselves ailing and rush at once to the pill box or the bottle of patent medicine—which will cure everything—and take a dose, often without rhyme or reason. There are even mothers who when the baby cries give it a dose of paregoric; sometimes with benefit, more often, perhaps, with the reverse. There are orchardists, or rather there were a few years ago, who think that if a tree is ailing the application of a few chemicals which contain certain elements will restore the harmony of nature and enable them to harvest big crops, but, unfortunately, this matter of living and doing things has more to do with thinking than with the application of a cure-all. Now what is the condition of the soil in question? Has it had sufficient green manure crops or stable manure to keep the ground in a workable condition, or have years of cultivation deprived it of its humus, or vegetable material? If not, the application of some form of vegetable matter would perhaps prove beneficial. On the other hand, there may be need of application of some immediately available fertilizer, and therein would be benefit if commercial fertilizers could be applied. There is no cure-all for trees; there is no royal road to conducting an orchard. Each grower must learn as to conditions of his soil, know what it needs, then apply it. Meanwhile it is reasonably safe for every owner of a California orchard to apply stable manure or plow under leguminous weeds or other cover crops. As to whether fertilizer intended for use in citrus orchards would be proper to apply to walnut orchards, we do not think there has been any determination so carefully made as to show any great difference in the needs of these trees. The safest proposition is for the grower to have sufficient of every element required by the crop.

Divorced Wife's Claim

An unsigned letter requesting information as to divorced wife's claim on property is not referred to our attorney for the two reasons that it is unsigned and that it is of such a nature that it should be taken to the attorney for a personal answer.

Resistant Windbreak

Will you please give me some advice on an evergreen windbreak. The Montery cypress and the Norway spruce will not do here on account of the hot dry atmosphere. We have plenty of water but the atmosphere is very hot and dry in the summer and cold in the winter. I understand the Arizona blue cypress and the libocedrus decurrens (California Incense Cedar) will do well but I have not seen them growing. I will have two rows of trees one on either side of a wide water ditch about ten or 12 feet apart. Will it be best to plant one row of a tall growing tree, say 100 to 125 feet and the other row a smaller kind, say 50 feet? Would some of the pines be better than cypress?—A. R. S., Lucerne Valley.

The most resistant to both heat and cold of any tall tree is Eucalyptus viminalis, the manna gum. It has passed through severe tests, both summer and winter, on the Mohave Desert. It would seem one row of tall trees should be planted on the side of the ditch where they will draw least food from the crops, if there is any difference; if not plant the lower growing tree on side from which the wind comes, as windbreaks planted in this way are most effective. The Arizona cypress would prove a good one, doubtless, for the shorter tree. It grows amid deep snows in winter and in hot dry air in summer.

Commercial Avocados

What is the best variety of avocado for the market? What month would be the best for budding?—G. B., Escondido.

The most experienced growers are nearly unanimous in declaring Fuerte the most profitable avocado we have at present. March is the best month to bud, but you may bud the trees over nearly all the year, or whenever the bark will slip free.

"Lice" on Cabbage

What can I do for lice on cabbage plants?—Subscriber.

Spray with tobacco extract, using the ordinary commercial extract diluted according to directions on the container, or one may prepare his own by steeping tobacco stumps or refuse tobacco. Perhaps equally as good results may be had by using tobacco dust diluted with, say, 50 per cent kaolin or hydrated lime, scattering freely over young cabbage plants.

Possibly Red Spider or Thrips

I have on my ranch near Pasadena a half dozen Eureka and Lisbon lemon trees and an equal number of limes. These trees are seven years old and all in a flourishing condition but every year just as the fruit begins to ripen it falls off, from no apparent cause as they are in my orange and grapefruit grove and get the same attention. I have two 20 year old lemons 100 yards distant but they do not fall off. Can you furnish any light on the subject?—Subscriber.

This may be caused by red spider or possibly thrips. In any case would recommend treatment for red spider. See article by Prof. Quayle on another page of this issue.

Cleaning Oil Tank for Water

Regarding cleaning iron oil or distillate tank so as to purify for holding drinking water, Mr. Neff writes that the first cleaning should be with gasoline. Give time for gasoline to evaporate then prepare as under directions for treating redwood tank in another query in this issue.

Redwood Wine Tank for Water

I am putting a redwood wine tank into use as a water tank to supply my house. We have scraped off a heavy coating of some crystal deposit from the inside and wish to know the best method of treatment to keep the water from tasting of wine. We are going to paraffine the inside and between the staves.—Subscriber, Winters.

The tank can be prepared so it will not flavor the water by giving it a heavy coating of asphaltum inside Clean the tank thoroughly and let it dry until there is no moisture on the inside of the staves. If the tank is six or more feet in diameter put it in the place it is to occupy before beginning the coating as the moving may crack the asphaltum. Then with hot asphaltum and a stiff brush put a heavy coat of about one-sixteenth inch thick completely over the inside. The asphaltum can be heated outside and away from the tank and passed to the painter by an assistant, or by using a small stove with a small fire inside the tank the asphaltum can be kept hot while using, being careful that it does not get hot enough to take fire Smaller tanks can be prepared and then put in the place they are to occupy. New redwood tanks will not stain the water if prepared in the same manner.—J. B. N.

Spray for Chicken House

Is there any kind of wet spray that one can apply to the interior of a chicken house with a power outfit for the purpose of eradicating lice?—Subscriber, Vacaville.

Lime-sulphur wash is perhaps one of the best commercial mixtures to use in poultry houses. It may be used even stronger than where intended for orchard trees, at this time of the year usually one to nine or ten. Use good pressure and spray into every crevice and crack. One may also use the

home made lime-sulphur solution. This consists of stone lime 50 pounds, sulphur 100 pounds, water to make 50 gallons. Use about 20 gallons of water to slake the lime, add sulphur while lime is slaking, hot water having been used. The remainder of the water, preferably hot, may be added later and when ready for use dilute still further, using about six gallons of water to one of stock solution. The kerosene emulsion or even straight distillate also make excellent poultry house sprays. Perhaps even better than this is either distillate or kerosene used with carbolic acid in the proportion of three parts either distillate or kerosene and one part carbolic acid. Then there is cresol or many others of the regular commercial disinfectants and insect destroyers. These commercial mixtures, also nicotine sulphate, may all be used in the spray pump and be given far more effective application than is possible with the brush.

Spraying Materials

What Sterling means to sliver, Orchard Brand means to spraying materials. It means reliability, good results, effectiveness. It has meant these for many years.

Orchard Brand spraying materials are manufactured in California to meet Pacific Coast conditions. They are the result of years of laboratory experiments by trained chemists, field tests by entomologists, and long use by practical fruit growers.

For every kind of fruit tree, citrus and deciduous, vines and plants, there is a spraying material made to yield results.

To inform you on the subject fully our entomologist, Mr. S. W. Foster, has written a booklet dealing authoritatively with tree and vine troubles and their prevention. Send for a free copy. At the same time write us about the condition of your trees or vines.

Other spray materials, for specific purposes, we recommend are:

Orchard Brand Dry powdered Arsenate of Lead.

Orchard Brand Arsenate of Lead, Standard paste.

Orchard Brand Atomic Sulphur (patented).

Orchard Brand Bordeaux Mixture paste.

Orchard Brand Powdered Bordeaux Mixture.

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Orchard Brand Weed Killer.

Universal Brand Dormant Soluble Oil.

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fires ANY plug, *all* plugs—even those with broken porcelains. Explodes the whole charge with a red-hot visible spark. Works wonders on all cars—Fords especially. Adds "pep," power—SAVES GAS.

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to sell this remarkable invention, and four other quick-selling auto specialties. Exclusive territory. Experience isn't necessary. These five startling inventions sell on sight. Every car owner needs them. It's YOUR opportunity to make big, easy money. Send today for complete information. Don't wait. Write quick—NOW!

JUBILEE MFG. CO. 2803 Station C., OMAHA, NEB.

Walnut Trees Wanted

A subscriber writes without giving address wishing to get best varieties of walnuts budded or grafted in black walnut stock. Wants sufficient for ten acres.

We fear it is too late to buy them for this season. Nurserymen are saying that every walnut tree available has been contracted for and most of them delivered. We doubt not any nurseryman advertising in the Cultivator will be glad to make contract for next year's delivery. It is not too soon to buy next year's stock.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Fence Upkeep

The line fence between the places of neighbor and myself is in poor condition and incapable of holding stock, as the wires are rusted and posts rotted. I have stock and my neighbor has not. Must I repair the fence at my expense to keep the stock out of my neighbor's field? He states he has no use for a fence and refuses to contribute anything for repairs. What proceedings are necessary to compel him to put up one-half of the repair of the fence?—Subscriber, San Luis Obispo.

The code provides that owners of adjoining property are mutually bound equally to maintain the boundaries and monuments between them, also the fences between them, unless one of them chooses to let his land lie without fencing, in which case, if he afterwards encloses it, he must refund to the other a just proportion of the value at the time of any division fence made by the latter. The fences being in place and it being required only to repair them, it would undoubtedly be true that you would be entitled to bring an ordinary action against your neighbor for one-half of the expense to which you have been placed in repairing the fence. In such proceeding you could doubtless attach and have execution against his real property or any judgment therein obtained.

Homestead

Home is in the name of both husband and wife. Some children are married and others at home. In case of death of either of us can the older ones lay claim to the home, or can it be arranged so that in such event the property would revert to the survivor or to be made to take care of the younger ones?—Subscriber.

Property being community property, in the case of the death of the wife the whole of the property would go to the husband without administration. In the case of the death of the husband, one-half of the property would go to the wife and one-half in equal shares to the children. This may be avoided in two ways: If the husband and wife file a joint homestead upon the property, uopn the death of either the survivor will take the whole of the property. Or each can make a will devising all their interest in the property to the other. The filing of the declaration of homestead is, however, recommended as being the least expensive and most effective.

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It distinguishes the only guaranteed oil burning, oil cooled tractor built.

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We are now booking orders for next season's deliveries. Save all of your fruit and vegetables and get Dehydrated prices for them.

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will keep your pigs in condition by acting on the liver, kidneys and blood. Will keep the stomach sweet, expel worms, aid digestion and prevent white scours and thumps.

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For Rent; Cattle Ranch in Central California

2,000 acres completely equipped for general farming and stock. Four excellent houses, all necessary buildings. Also 10,000 acres summer range. This property will successfully handle a large number of cattle, has abundance of water. Address

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For 23 cents you can insure your calves against death from Blackleg by having them vaccinated with PURITY BLACKLEO AGGRESSIN. (The Kansas Germ Free Blackleg Vaccine.) One treatment immunizes for life and there is no danger in introducing Blackleg into healthy herds of cattle. We also manufacture and sell PURITY ANTI-HOG CHOLERA SERUM, PURITY MIXED VACCINE for swine, and PURITY HEMORRAGHIC SEPTICEMIA VACCINES for cattle and sheep. Stop your losses and increase your profits—it's good business. For service that counts, and does not end by selling, write, wire or phone

PURITY SERUM CO., J. L. Thatcher, Manager (Successor to Thatcher Serum Co.)
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When in need of high class auctioneering service I would be glad to have breeders and farmers correspond with me. I have had years of experience, know values and know pedigrees. I am selling for many of the leading breeders of California and am prepared to deliver the same results that have attracted this custom. Terms reasonable. Write, wire or phone.

GEORGE W. BELL Tulare, California

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The Cattle Situation

By A. L. Spellmeyer

CALIFORNIA has had three dry years and 1920 ushered in the fourth drier and colder than any year since 1876-77 for the stockmen. Cattlemen have looked for rains and an early season, and great expense has been put upon them. Sheep men are lambing on old feed with consequent hardships and loss. But there is still time to realize returns from stock to equalize expense and in some cases to pay a profit, providing the rains come followed by warm weather.

Heard states that 22 per cent of the present living cost is for cattle products; Jastro that there never was a time in his 50 years of experience in cattle that it was harder to stay in the business; Fred Colter, that he is certain cows are both scarce and will be high—and believing it purchased a thousand he will need on the Arizona ranches next spring and is holding them on the Rancho Verde near Victorville. Bob Easton says that both New Mexico and Texas are short and advised me to hang on to a bunch up north and feed them with a spoon if necessary to keep them alive.

A survey of conditions in foreign countries, from figures available, shows no prospect of relief, as they are short in producing stock in most countries, and both the Argentine and Australia are finding markets for present production. Only shortage in this country and consequent higher prices would cause importation, but it is probable unless our cattle production is stimulated.

Actual shortage has been a fact in this country but the sacrifice of breeding stock, owing to drouths and high beef prices, has temporarily deferred its effect.

Figures for California show that this state is credited with 1,650,000 beef type cattle and 561,000 dairy cattle valued at over $123,000,000. In this state swine are valued at $18,000,000, sheep at $35,000,000 and horses at $8,000,000. When one figures that the $184,000,000 worth of livestock in this state requires an investment of many times the value of livestock, it is apparent a tidy little sum is involved in the livestock business of California.

January 1, 1919 showed a decrease of ordinary cattle in California of almost 100,000 head, but this is small as compared to facts and what January 1, 1920 figures will probably show. An apparent decrease during the time of close assessment now prevalent is more serious than it appears, and many stockmen who have covered the state thoroughly believe that California is over one-third short on beef type cattle, and facing an increased demand daily from increasing population.

Less than half the available number of cattle are being fed in districts adjacent to Southern California. Los Angeles is killing more than usual, estimated at 14,000 monthly with an approximate 40,000 to draw upon between now and the time spring beef arrives.

In 1907-8 cattle prices started up and possible shortage was realized. In 1900 this country had 89 cattle of all kinds to the 100 of human population. In 1919 this country had 42 cattle to the 100 people.

The following figures are rather startling: Beef type cattle, 1907, 51,566,000; 1918-19, 44,399,000. Cattle slaughtered, government inspection, 1907, 7,621,717; 1918-19, 10,938,287. Calves slaughtered, government inspection, 1907, 1,763,574; 1918-19, 3,323,077. Market receipts, 1907, 5,590,710; 1918-19, 12.936,068. Live cattle exports, 1907, 423,051; 1918-19, 18,213. Live cattle imports, 1907, 32,402; 1918-19, 293,719. Beef, fresh, pickled and canned in 1918, approximate exports equivalent merely to 1,000,000 steers, or 522,000,000 pounds.

If this country did not materially increase cattle numbers since 1907 when slaughter was but 9,000,000 head of cattle and calves how can it stand a slaughter of 14.000,000 head a year? By no means all the cattle are killed under government inspection, and I have seen an estimated slaughtering record giving the total number of cattle killed as 17,000,000 head.

It is impossible for 69,000,000 cattle, beef and dairy, 70,000,000 cattle or 80,000,000 cattle, to maintain loss, and increase with a slaughter of 15 to 17,000,000 yearly of production. Would any cowman expect a herd of 68 cattle consisting of one bull, 20 cows, 16 yearlings, 14 two year old, eight threes steers and nine big calves, to permit a slaughter of 15 to 17 head yearly and maintain numbers against loss and increase. It's a physical impossibility.

The cost of living is the important question today, and 22 per cent to 33 per cent of it is directly connected with meat and livestock production. Production of cattle is hardly profitable today at a time when meat is high to consumers. More production is generally admitted to be the remedy. Cattle production could have stood marketing abuse but it cannot stand low prices for range production, expense considered, drouth and loss combined together with difficulties in financing.

The time has arrived when cattle production must be assisted as it seems we are as a country falling behind, especially as compared to population increase.

CALIFORNIA LAWS RELATING TO ANIMAL INDUSTRY

The division of animal industry recently compiled laws prescribing jurisdiction of the division, together with many miscellaneous acts indirectly related to its activities and enforced by other state officers, such as those relating to cruelty to animals, herding and grazing of livestock, fencing, pasture and trespass laws, commercial feeding stuffs, etc. This is the first time that such a compilation has been made and it is believed that this will prove a convenient manual for all persons who are interested in legal matters pertaining to animal industry. It will obviate the necessity of having numerous individual acts and laws in one's possession which might become mislaid or lost.

Copies of this manual may be procured by addressing State Department of Agriculture, Division of Animal Industry, Sacramento.

If it isn't Germain's—it isn't the genuine PROVEN strain

We introduced HAIRY PERUVIAN ALFALFA to the California farmer—and we naturally feel responsible for its success. Only the genuine, *proven* strain is sold under the name "Germain."

Germain's PROVEN Hairy Peruvian Alfalfa seed is *recleaned* to eliminate waste, and is specially treated to insure quick and easy germination.

Sold only in sealed and stenciled bags. Every Alfalfa grower should read our free folders on Germain's PROVEN Hairy Peruvian Alfalfa.

Send for FREE 1920 *seed and poultry catalog*

Better Sires---Improved Female Stock

THAT the use of pure bred sires is usually a forerunner to ownership of well bred livestock in the various classes and breeds is shown by data on breeding just made public by the bureau of animal industry, United States department of agriculture. The facts and figures compiled are based on records of the "Better Sires—Better Stock" campaign, which at the close of 1919 had been in progress just three months. A greater quantity of data will be needed before conclusive deductions may be made, but the following facts are considered of unusual interest to livestock owners:

Ownership of Pure Bred Females Follows Better Sires

The use of pure bred sires appears to lead automatically to the ownership of a considerable quantity of pure bred female stock.

The use of pure bred sires apparently results also in the culling out of scrub females, judging from the small proportion of scrub females to grade, cross bred and pure bred female animals owned by pure bred sire users.

Of all female stock owned by persons enrolled in the better sires campaign at the end of the year, 71 per cent were pure bred, 26 per cent were grades and cross breds, and three per cent were scrubs.

The scrub females are believed to be the remnants of former inferior stock before pure bred sires were used, since pure bred sires lead automatically to either pure bred, cross bred, or grade offspring, depending on the blood lines of the females used.

Low Percentages of Scrub Females

The percentage of pure bred females found in herds and flocks owned by pure bred sire users was noticeably similar for the various classes of animals. In cattle the per cent of pure bred females was 63.5, in swine 64, in sheep 63.

The per cent of scrub females in the same classes was: Cattle 3.6, swine 2.0, sheep 6.4.

Poultry figures showed the smallest per cent of scrub females in flocks headed by sires of pure breeding, the figure being 1.8.

Similar figures for horses, asses and goats are not presented, as the enrollment of these animals is not considered sufficiently large at this time. Those classes, however, were included in the totals.

Comments accompanying blanks of enrollment indicated that many livestock owners had used pure bred sires for a considerable period, which materially reduced the percentage of scrubs. This is likely to be true of a good many who enroll early in the campaign, but is evidence pointing strongly to the influence of pure bred sires on improvement in quality of herds and flocks.

Shows Results of State Work for Better Bulls

The drive which many states have been waging against scrub bulls was reflected in the enrollment figures. More pure bred bulls were enrolled than any other class of livestock, except poultry.

At the end of December there were enrolled in the "Better Sires—Better Stock" campaign 6,200 animals, and in addition 8,949 poultry.

Facts Obtained With Special Care

Knowledge about the breeding of livestock in the "Better Sires—Better Stock" campaign is obtained with special care. First, the owner of the stock lists his animals kept for breeding on the enrollment blank in accordance with the official definitions for the various classes of animals with respect to their parentage. As the better sires slogan indicates, all males must be pure bred and of good quality.

Female stock may be of any breeding and spaces are provided for the listing of pure bred, grade, cross bred and scrub females. Then the classification is approved by the county agent in the county where the livestock owner lives. In the relatively few cases where there is no county agent, the written indorsement of the blank by two experienced and disinterested livestock owners is required.

Every person agreeing in writing, on the blank furnished, to use only pure bred sires in his breeding operations receives an emblem of recognition issued cooperatively by the United States department of agriculture and the state in which he lives. So-called "red tape" has been reduced to a minimum and the emblems have been issued in most cases the day the blanks were received.

Female Stock Need Not Be Pure Bred

Though pointing out the foregoing observations—and especially the tendency for pure bred sire owners to acquire pure bred females—the department of agriculture does not urge pure bred female stock on the average farm. Whether pure bred females should be kept is a matter of individual judgment, depending on circumstances which the livestock owner is best able to know. The successful breeding of pure bred live stock as a business calls for close attention and considerable experience, both in production and marketing. By contrast, the purpose of the better sires movement is to raise the average quality of all livestock in the United States.

Regulations for Interstate Shipment

Some complaints have been received by the division of animal industry from other state officials relative to mistakes that have at times been made by local veterinarians authorized by the state department to make inspections of interstate shipments of cattle. The division has recently made the following summary of regulation seven, relating to the application of the tuberculin test for cattle for interstate shipment. It is urged that the greatest care be observed by veterinarians doing this work, both in making out reports and carrying out the details of the test. There can be no doubt but that if this work is honestly and conscientiously performed it will result in a large stride toward eradicating tuberculosis from the state.

No tuberculous cattle may be shipped interstate except:

I. For immediate slaughter and under following conditions:
1. Consigned to public stockyards under B. A. I. inspection.
2. Cattle to be marked by
   a. Punching "T" in left ear, or branding "T" on the jaw or tattooing "T" inside of left ear.
   b. Attaching metal ear tag (B. A. I. Reactor. Serial No. —).
3. Certificate by B. A. I. or state inspector, stating:
   a. Cattle are reactors.
   b. Permission granted.
   c. Purpose—immediate slaughter.
4. Not to be in same car with healthy cattle or hogs unless these are for immediate slaughter.
5. Transportation company to indicate on conductor's manifests, wayhills, etc.,
   a. "Tuberculous cattle.'
   b. Car to be immediately disinfected after use under B. A. I. supervision.

II. Reacting pure bred cattle not for immediate slaughter may be
1. Returned to original owner, to point of origin, and within four months of date of original shipment.
2. Not shipped to any state, territory or District of Columbia where no provision for quarantine until death or slaughter.

Note—(All states having adopted the "accredited herd" plan required to have this provision.)
3. Marked as in I-2 above.
4. Certificate as in I-3 above (Original and retest tuberculin test charts to be presented.)
5. Not with other cattle, etc., as in I-4 above.
6. Transportation company to indicate as in I-5 above.
7. Not again reshipped interstate

WHY DE LAVAL Cream Separators Are Best

There's a reason for everything, and surely one for the superiority of DE LAVAL separators.

The DE LAVAL was the first continuous discharge centrifugal cream separator. Invented in 1878, it has led ever since. The great DE LAVAL shops in both America and Europe are devoted solely to the production of centrifugal separating and clarifying machines.

Large staffs of DE LAVAL experimental and developmental engineers, in both America and Europe, constantly devote their time, skill and knowledge to the further improvement of the DE LAVAL Cream Separator.

Every single step of cream separator advancement, for forty years, has been DE LAVAL conceived or developed.

On the other hand, practically every feature of construction ever used in any other cream separator has been one that run-out DE LAVAL patents left free. Such features have then always been out of date in the later improved DE LAVAL construction, and most of them were never quite good enough to have been actually used in DE LAVAL construction at all.

It might aptly be said that DE LAVAL has forgotten more about cream separators than its imitators and would-be competitors ever knew.

And then it must be remembered that the cream separator, with its necessarily high revolving speed, great capacity, ease of operation, simplicity and durability, is a very difficult machine to build right, and can only be built right with long experience, highly skilled employes and a vast amount of special equipment. Hence there is nothing strange about the fact of DE LAVAL Cream Separator superiority.

The De Laval Separator Co.

165 Broadway NEW YORK
29 East Madison Street CHICAGO
61 Beale Street SAN FRANCISCO

50,000 Branches and Local Agencies the World Over

"FEEDFINE" FEEDS

are scientifically compounded in proper proportions for dairy and all livestock feeding, of the following ingredients with the most economical results always in view.

YEAST	A concentrate high in PROTEIN and FAT content, sterilized and predigested.
CANE MOLASSES	The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.
ALFALFA MEAL	Gives body to the ration and supplies the mineral matter which is absolutely essential to all animals.

The greatest known combination for health, strength and productiveness.

YEAST, CANE MOLASSES and ALFALFA

Mason By-Products Co.

No. 2 Pine Street SAN FRANCISCO
Factory: Sausalito, Cal.

California Cultivator Costs $1 per Year

When Feed Is Scarce and High

The Owner of Whitefaces Smiles

Not because of scarcity and high prices, but because he knows that under these handicaps he has the best cattle possible for him to own.

Unsurpassed by any breed under normal feed and range conditions, HEREFORD CATTLE stand out in a class by themselves, during the periods of drought, scant range, or winter hardship, a fact that has been demonstrated year after year on some of the world's greatest ranges, as well as on thousands of smaller holdings.

Since their invasion of the west, HEREFORDS have increased steadily and rapidly in popular esteem, as progressive cattlemen have had opportunity to observe their actual performance under various conditions, and through sheer merit the excellence of the breed has created a demand for pure bred registered breeding HEREFORDS far in excess of the available supply.

One of the good opportunities to purchase registered pure bred HEREFORDS will be made possible by Pacific Coast breeders at

University Farm, Davis, Cal.
Wednesday, February 25, 1920

when they will offer an unusually well bred lot of cows, heifers, and bulls.

THE FEMALES will include drafts from many of the most substantial western herds, and a large number will be safe in calf to the high class sires now in service, presenting to the beginning breeder an opportunity for wise selection of foundation females.

THE BULLS will be an especial feature of the sale, as the breeders will make a real effort in this offering to make available to owners of range herds a class of bulls that will breed HEREFORD quality into their herds in a marked degree.

Write for catalog of sale. Detailed announcements will appear in later issues.

REMEMBER Stockmen's Week, Feb. 24-27 University Farm, Davis REMEMBER

Sale under auspices of

Pacific Coast Hereford Cattle Breeders Association

J. I. Cazier, Pres., Wells, Nev. J. A. Bunting, Sec., Mission San Jose, Calif.
Sale Manager—C. L. Hughes, Sacramento.

ALAMO HERD
(Founded by the Late Gov. Sparks)
Registered Herefords
Herd and range bulls reasonable. Largest Hereford herd in California.
W. D. Duke, Gazelle, Siskiyou, Co., Cal.

Hereford Farms
Geo. Watterson, Owner
Bishop, Inyo County, Cal.
Anxiety, Repeater, and Bonnie Brae breeding. Bred and raised on mountain range.

The Highest Priced SIRE and SON

KING KORNDYKE PONTIAC 20th
and HIS SON
KARLRAY PONTIAC TOLA

King Korndyke Pontiac 20th, our junior herd sire, at $6500, is the highest priced Holstein bull ever sold at public sale in California.
Karlray Pontiac Tola, a three months old son of King Korndyke Pontiac 20th, and the great heifer K. P. Tola Joe, has been sold by Gotshall and Magruder, Ripon, to A. B. Spooner, San Luis Obispo, at a price never exceeded in California for a bull calf at private sale.
In these instances price is a true measure of quality.
Why not put a son of this sire at the head of your herd?
OUR ENTIRE HERD IS TUBERCULIN TESTED
Tulare Holstein Farm
W. J. HIGDON, Owner TULARE, CALIF. H. L. REDD, Herdsman

Holstein Opportunity

50 Registered Holstein Cows and Heifers

For Sale at Private Treaty

The females in offer are well bred, nicely marked, of good individuality and all have A. R. O. records. All are fresh or springing and are bred to a 32-ib. bull. They must be moved quickly and are priced accordingly. This is a real opportunity to be taken advantage of quickly. Also offer a few high producing grade Holsteins.

For particulars, address

V. L. Heath Lodi, Cal.

except for immediate slaughter as in I.

All cattle six months old or over, if not for immediate slaughter, must be tuberculin tested except the following exemptions:

1. Cows and bulls for "feeding only"—on affidavit of owner.
2. To state where quarantined until death or slaughter. (See Note II-2 above.)
3. Heifers (under 3 years—not yet calved) "for feeding" upon certification by owner.
4. Accredited herd cattle.
5. Steers and strictly range cattle, as follows:
   a. Moving entire herd—"for feeding"—exempt.
   b. Moving only a few cows or bulls—"for breeding"—must be tested.
6. When consigned to public stockyards for slaughter.

WHY DOES THE DAIRY MAN RAISE PRICES?

(Continued from Cover Page)

find that the names used as complainants against the dairymen's association in the proposed litigation authorized by Attorney General Webb are mere dummies, and the men holding the sack, who are behind this persecution of the dairymen's association are the private creamery interests whose exploitation of the dairymen is now challenged by the cooperative associations. Such associations are the only protection the individual dairyman, as a rule, has against ruin and the only hope he has for the future.

The dairy associations have done more to keep untold numbers of dairymen from quitting the business, thereby reducing milk supplies and increasing prices to consumers, than any other agency ever created in California.

No one can fairly and intelligently criticize the prices charged by the dairymens' associations for their milk, unless he knows the average cost of producing a gallon of milk. Only with that knowledge can it be determined whether the dairymen's associations are exploiters and profiteers. I challenge any of the glib tongued men and women, who in order to gain newspaper notoriety, have been giving wholesale mis-information and recklessly condemning the dairymen's association prices, to give the cost of producing a gallon of milk that will stand a fair analysis.

Unless these loose tongued critics are in a position to furnish authentic costs of production, their criticisms are worthless and they make of themselves mere slanderers of a group of the hardest working, most industrious, least paid, and most valuable farm producers in the entire commonwealth.

The question as to whether the dairymen's associations are exploiters was thoroughly gone into by a joint committee of both houses of the legislature at its last session. This committee gave it as a result of its investigations that the cost of feed, labor and milk production has increased at a slightly greater ratio than the price of milk, and completely vindicated the producers' organizations.

Whatever advances in price have since become unavoidable, can be shown to any fair minded committee as being simply enough to cover the continued increased cost of production.

GATEWOOD SALE ESTABLISHES NEW RECORD

In the dispersal sale of Poland Chinas held by Chas. Gatewood at Fresno, January 26, a new state and Western record was established when Alfred Buckland & Son of Fersno, together with Z. M. Dickey of Dinuba, paid $5,250 for Giant Bob. This price is the highest ever paid west of the Rocky Mountains for a boar of any breed. Giant Bob was sired by Caldwell's Big Bob, grand champion at the 1918 National Swine Show. His dam was Giantess 2d, a daughter of Big Bone A Wonder and Long Giantess. Giant Bob was grand champion at the 1919 California state fair. The general average of the entire sale was $225. Full details will be found in next week's Cultivator.

THE MUSIC THAT HAS CHARMS

He: Most girls, I have found, don't appreciate real music.

Second He: Why do you say that?

He: Well, you may pick beautiful strains on a mandolin for an hour, and she won't even look out of the window, but just one honk of a horn and—out she comes!—London Blighty.

SANTA ANITA RANCHO

Anoakia Breeding Farm
Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion and Don Castano, five gaited saddle stallion, winner in many prominent shows.

Mammoth Jacks

We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

Poland China and Berkshire Boars

Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited
Anita M. Baldwin
Santa Anita Cal.
W. H. Taylor, Supt.

Facts in BLACK & WHITE

Holsteins Lead as Dual Purpose Cattle

The Michigan, Iowa and Nebraska State Experiment Stations report that in their competitive tests Holsteins made a larger gain per steer at a less cost per pound of either roughage or grain than any of the other breeds. As voluminous and profitable milk producers, and as valuable beef animals when their milking days are over, pure bred Holsteins are firmly established as the world's leading dual purpose cows.

Read the full story in our free booklets.

THE HOLSTEIN-FRIESIAN ASSOCIATION
120 Hudson Street
Brattleboro, Vermont.

Quality Holsteins

Our herd is headed by a grandson of the world's greatest dairy cow, Tilly Alcartra,
Sir Aaggie Korndyke Alcartra
whose dam and sire's dam average:
Butter, one year..... 1096.58
Milk, one year.....27316.60
Females and bulls from A. R. O. dams for sale
All animals guaranteed
Leeman & Kilgore, Ripon, Calif.

GUERNSEYS

Butter Fat at Lower Cost per lb.
No other breed can produce rich golden butter fat as cheaply as the Guernsey. Official yearly records show—one cow has given 24,008 lbs. milk and 1,098 lbs. butter fat. Write for our free booklets.

The American Guernsey Cattle Club,
Box C 40, Peterboro, N. H.

QUALITY ECONOMY QUANTITY

Some of the finest
GUERNSEYS
in the West are at
Hollow-Hill Farm
Colton, Cal.
Only Bull Calves For Sale

Final Awards in the Sacramento-Yolo Cow Testing Association Competition

A. E. Greene, president of the Sacramento-Yolo Cow Testing Association, has announced the following results and awards for the competition conducted during the year ending December 31:

Class A, highest herd of 1 to 20 cows—First prize, cup by Sacramento Clearing House, J. H. Sawyer, Galt, 368.8 pounds butter fat; second prize, merchandise by Patterson Supply Company, J. N. Dimmick, Galt, 308.7 pounds butter fat.

Class B, highest herd of 21 to 50 cows — First prize, cup by Clearing House, A. E. Greene, Hood, 391.9 pounds butter fat; second prize, merchandise by Newbert Implement Company, Adolph Kloss, Franklin, 288.2 pounds butter fat.

Class C, highest herd of more than 50 cows—First prize, cup by Clearing House, John S. Watson, Dixon, 300.2 pounds butter fat; second prize, merchandise by J. N. Blair Company, E. E. Bunnell, Hood, 297.0 pounds butter fat.

Class D, highest herd in each of the above classes headed by grade sire—Pure bred bull by Bonita Stock Farm, J. N. Dimmick, Galt; pure bred bull by F. W. Kiesel, Adolph Kloss, Franklin; pure bred bull by A. W. Morris & Sons, John Herzog Estate, Courtland.

Class E, highest cow under five years (yearly record)—First prize, cup by Clearing House, A. E. Greene, Hood, age three years, 482.2; second prize, cup by Douglas Boswell, A. E. Greene, Hood, age four years, 472.3.

Class F, highest cow over five years—First prize, cup by Clearing House, F. W. Kiesel, No. 5, 673.1; second prize, cup by Sperry Flour Company, A. E. Greene, No. 1, 598.2.

Class G, highest monthly group of five cows in one herd—(Cows winning this once are barred from further competition in this class.)

January, cup by Geo. P. Robinson, A. E. Greene, Hood, cows 16, 76, 66, 75, 11—2.740 fat.

February, cup by Emigh Winchell Hardware Company, A. E. Greene, Hood, cows 1, 45, 4, 77, 38—2.190 fat.

March, cup by Ord L. Leachman, S. S. Hinsdale Estate, Clarksburg, cows 424, 421, 409, 395, 305—1.970 fat.

April, cup by Dr. H. W. C. Lichtenwalter, Hollister Estate, Courtland, cows 390, 227, 325, 315, 380—2.040 fat.

May, cup by Emigh Winchell Hardware Company, E. E. Bunnell, Hood, cows 70, 39, 34, 104-A, 16—1.992 fat.

June, cup by Ord L. Leachman, J. S. Watson, Dixon, cows 206, 214, 514, 431, 504—1.800 fat.

July, cup by News Publishing Company, John Herzog Estate, Courtland, cows 16, 93, 32, 35, 5—1.860 fat.

August, cup by Emigh Winchell Hardware Company, John Herzog Estate, Courtland, cows 271, 316, 393, 392, 249—1.620 fat.

September, cup by Ord L. Leachman, Matt Smith, Franklin, cows 2, 4, 3, 1, 5—1.670 fat.

October, cup by Dr. H. W. C. Lichtenwalter, C. L. Etling, Elk Grove, cows 2, 18, 16, 19, 5—1.970 fat.

November, cup by Emigh Winchell Hardware Company, A. E. Greene, Hood, cows 39, 8, 9, 78, 74—1.946 fat.

December, cup by Ord L. Leachman, Brownell & Marshall, Woodland, cows 167, 193, 166, 182, 174—2.126 fat.

Class H, highest yearly average of grade Jersey herd—Pure bred Jersey bull by Judge Peter J. Shields, J. H. Sawyer, Galt, 368.8 pounds butter fat.

Class I, free-for-all for herd showing greatest improvement during last six months of 1919 over the last six months of 1918 — First prize, cup by California Cultivator, J. N. Dimmick, Galt, 59 per cent, or 68.1 pounds butter fat increase; second prize, boar by Sandercock Land Company, G. W. Foulks & Son, Elk Grove, 33 per cent, or 34.1 pounds butter fat increase.

Class J, free-for-all best herd—Cup by Sacramento Bee (for perpetual ownership must be won three times), A. E. Greene, Hood, 391.9 pounds butter fat.

McCune Sale of Poland Chinas

H. D. McCune held his first public sale of Poland Chinas in Hanford, January 24. The first 20 animals sold for the fine average of $211.50 and the 48 head, including a number of fall pigs and open gilts, sold for $6,072.

The top of the sale was an open gilt by Surprise Prospect and out of Edith Rose, W. D. Trewhitt, Hanford, purchasing her for $610. Her littermate, a boar, sold to T. G. Woodworth, Stratford, for $400. One of the interesting features of the sale was the manner in which her pigs sold, E. S. Almgren, Reedley, paying $155 for a September sow pig by King's Massive Orange. McCune's senior herd boar and a litter sister went to W. L. Haag and Son, Hanford, for $72.50. B. S. Moore, teacher of agriculture in the Hanford high school, secured a sow pig by the Californian for $72.50.

That the offering was attractive was evidenced by the support accorded it by both the breeders and the farmers, especially those living in Mr. McCune's neighborhood. The animals were in good condition, well grown and in the opinion of a number of breeders present a better lot of animals had never been sold in the state. Mr. McCune is well pleased with the result of his first sale. Geo. W. Bell of Tulare was the auctioneer and was assisted in the ring by Cy Clark, Modesto, and Dolash Bros., Corcoran. Following is detailed report of animals selling for $100 or more:

1, L. M. Essick, Stratford, $245.
2, J. W. Creelman, Lemoore, $170.
3, M. Lovelace, Lemoore, $145.
4, J. W. Creelman, $205.
5, Wm. Bernstein, Hanford, $230.
6, W. L. Haag & Son, Hanford, $260.
7, W. D. Trewhitt, Hanford, $150.
9, J. M. Bernstein, Hanford, $185.
10, E. G. Myers, Lemoore, $175.
11, L. M. Essick, $160.
12, Wm. Bernstein, $150.
13, T. G. Woodworth, Stratford, $155.
14, A. J. Elliott, Tulare, $280.
16, A. R. Doctor, Van Nuys, $205.
17, R. F. Guerin, Visalia, $175.
18, T. G. Woodworth, $400.
19, W. D. Trewhitt, $610.
20, Wm. Bernstein, $100.
21, H. I. Marsh, Modesto, $125.
22, A. B. Vroom, McFarland, $105.
24, G. O. Pratt, Lemoore, $130.
26, J. M. Bernstein, $120.
39, M. Lovelace, $100.
49, Sow pig, E. S. Almgren, Reedley, $155.

WESTERN BERKSHIRE CONGRESS MEETING AND SALE

Women admirers of Berkshires will have an opportunity to prove what they know about the points of this breed of swine on Tuesday, February 17, when the Western Berkshire Congress opens its annual meeting at the university farm at Davis. In addition to the women's contest trophies will be given the best student judges of Berkshires. These contests will occupy the morning of the first day of the annual meeting and sale, the afternoon to be occupied with the business session and election of officers, while in the evening the breeders will hold forth in the banquet hall.

The sale this year, in addition to featuring entries from four states, will also be somewhat of a prize contest, as each breeder has been obliged to put up an entry fee which goes into a prize fund from which cash awards will be made for sow, gilt and boar classes.

The consignors to the sale, which will be held on the afternoon of Wednesday, the 18th, are: A. B. Humphrey, Escalon; Anchorage Farm, Orland; Castleview Ranch, J. Francis O'Connor, Santa Rosa; W. F. Sandercock, Sacramento; Hugh Nesbit, Chimacum, Washington; Frank B. Anderson, Sacramento; Silver Glenn Stock Farm, James C. Bonner, Silverton, Oregon; Italian Vineyard Company, Guasti; H. C. Muddox & Son, Sacramento; R. C. Gruhlke, Dixon; George M. York, Modesto; Kounias Registered Stock Farm, Modesto; Calac Orchards, George P. Upham, Martinez; C. P. Warnick & Sons, Pleasant Grove, Utah; R. J. Merrill & Son, Morgan Hill, and E. J. Ferguson, Santa Rosa. Ord L. Leachman will cry the sale.

The Berkshire Classic

Castleview Ranch First Annual Public Sale
Pavilion Building, Fair Grounds, Santa Rosa

Saturday, Feb. 14, 12.30 P.M. Rain or Shine

25 Actually Bred Berkshire Sows and Gilts

including

Rookwood Lady 100th

The 750 pound Grand Champion Sow of America, and the only National Grand Champion of any breed, in California.

This is your first opportunity to secure strictly high class foundation animals of correct type, embodying heavy bone, bred to our English blood boar, "ACHIEVER," a Grandson of the famous "Epochal," the boar that puts Vigor and more pork making qualities into his pigs.

Every Sow and Gilt offered in this sale will carry her own guarantee as to breeding ability.

If you cannot attend the sale in person, send mail bids in care of California Cultivator, or the Auctioneer, Col. Ord L. Leachman, Sacramento, California.

Luncheon Will be Served at Noon
Write Today for Complete Catalog

Castleview Ranch, Santa Rosa, Cal.

BERKSHIRE CHAIN OF SALES

Castleview Ranch, Santa Rosa, February 14
H. C. Muddox & Son, Sacramento, February 16
Western Congress, Davis, February 18

LAST CALL!

Fresno District Duroc-Jersey Breeders Sale

Fresno County Fair Grounds, Wednesday, Feb. 4.

40 Bred Sows and Gilts

H. H. Bereton, Secretary — Sanger, Cal.

Special Notice to Duroc-Jersey Breeders

I leave for the East in January. Several breeders have given me orders to buy bred sows and gilts for them. I will be pleased to purchase for you anything you want. Will personally select them. Write me what you want and the blood lines. I'll tell you just what I pay for them.

Clayton Slocum — Willows, Cal.

N.B.—Write me at once

The Stamp of Approval

has been placed on the get of THE YANKEE JR.

As a sire of superior big type Poland Chinas. He has surpassed all expectations. To own a Yankee Jr. pig is an indication of keen judgment. Write for what you want.

JOHN BERNSTEIN — Hanford, Cal.

Bred Sow Sale, March 13

Live Stock Trailers

1 and 2 head **$110 to $195**
and other trailers of all kinds, **$35 to $300**

AUTO TRAILER CO.
1322 Central Ave. Los Angeles

McCune Thanks You

To the breeders and farmers who attended my sale I express my thanks. It was you who made this, my first sale, such a great success. Again, I thank you.

H. D. McCUNE, LEMOORE, CAL.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

MODERN HOGS FOR MODERN FARMERS

There might have been a time when California farmers could afford to raise hogs that returned little or no profit for the feed they consumed—but that time is past. Today the modern, progressive, wide awake money making farmer finds that only through modern equipment and up to date methods can he expect to make profitable returns on his investment—he is the chap who knows that the old slipshod methods of the early days don't go now. He is the man that figures close and cuts expenses at every turn. He is the man who knows that the only kind of livestock that he can afford to raise is the better kind and he is the man who knows that the only kind of hogs that he can afford to raise are the big, quick growing, early maturing, easy feeding and economical modern kind—the kind to sell in the sale of the

Fresno County Poland China Breeders' Association
Fresno Fair Grounds, Wednesday, Feb. 11th

This sale is authorized and sponsored by the members of the above association and the offering has been selected from the best herds of the county (and there are some mighty good herds in Fresno County).

Forty Outstanding Bred Sows and Gilts

that are right individually and sired by such boars as Rossmead's Big Bob by Caldwell's Big Bob; Favorite's Best, the 965 lb. boar shown at the Fresno Fair; Fresno Sampson, Fred Gatewood's great senior yearling; Giant Bob, the 1919 Grand Champion; President; Young Jumbo; King's Big Bone Leader, the 1918 Grand Champion; Model Fellow, one of the greatest breeding boars ever used in California, and Big Jumbo Timm.

The offering will sell carrying the service of many of the outstanding boars of the breed owned in this state.

And Remember This---

the kind that we are selling are the kind that the modern farmer must raise if he expects a profit. Every ranch in California, no matter how small or how large, should make a start with better hogs and we believe that the best hog for all conditions is the POLAND CHINA. If you don't believe it attend our sale and be convinced.

For Catalog, Address the Secretary

Sale at Noon — Free Lunch at 11.00 A.M.

Fresno County Poland China Breeders' Association

Alfred C. Bucklin, President
Route E, Fresno

Walter C. Ficklin, Secretary
Route A, Box 189, Fresno

Geo. W. Bell, Tulare, Auctioneer

OUT FOR THE MONEY

Down at Bakersfield there is a young Poland China breeder, Ear Ahmann, who seems to have the right idea. He knows when he has got the right kind of a brood sow and he does not intend to let anyone get her unless he pays the price. Last summer he bought a bred gilt from H. I. Marsh, Modesto, and after she farrowed he wrote to Mr. Marsh:

"Thanks to the mother of Big Lady F for her large litters, because my gilt got into that style of big litters too. Well, last Saturday morning my gilt had 11 pigs and still has eight left. She had eight sows and three boars and has five gilts and three boars. Some nice litter, I claim. They averaged two and five-eighths pounds at birth, the largest, a boar, weighing three and one-fourth pounds, the smallest, a sow pig, weighing two and one-fourth. My sow is very gentle and careful. She only laid on one, and two died shortly after birth. Now, Mr. Marsh, you sure are going to have to pay for that sow, because I sure do like her and her litters. How much do you offer to give me for first choice pig at ten weeks of age? I have the record litter of the herd in the club. I remain, the record buster."

BILL OF SALE

J. B. Newsom of the Cattle Protection Board calls attention to the fact that the law now requires, when cattle are sold or transferred, that a bill of sale be given describing the animal, the marks and brands, the date of sale and the place of sale. These bills of sale must be signed by the seller and witnessed by two freeholders and are the only legal evidence of ownership of cattle purchased. It must be shown to inspectors appointed by the division of animal industry of the state department of agriculture at the time the cattle are offered for shipment at the railroad loading chutes or at slaughtering establishments prior to slaughter. Inspectors will not permit cattle to be shipped or slaughtered unless evidence of ownership is established by virtue of bills of sale. Sample forms of a bill of sale will be furnished by applying to Cattle Protection Board, Sacramento. Additional forms can be secured by having some printed by any printing establishment at a small cost.

RABIES DISCOVERED NEAR STOCKTON

A peculiar disease was recently reported by a rancher among his dairy cows. The symptoms described appeared to resemble those of forage poisoning. It was noted, however, that the cows showed decided tendencies to be vicious and would attack other animals and even men when they were approached, although those tendencies were not as marked as is usual in cases of furious rabies. It was reported that a mad dog had been at large in this district some months previous, which had subsequently been killed. Examination of the brain by the state hygienic laboratory showed it to be a positive case of rabies. The brain of one of the cows was submitted to the same laboratory and Negri bodies found.

BOYCOTT MARGARINE DEALERS

What is going to become of our dairy industry in California? There is no money in butter short of 70 cents per pound now. The butter substitutes are coming thick and fast onto the market and are being sold at about half the price of butter. I would suggest that each farm center buy its groceries from a firm that does not handle butter substitutes. It's a common thing for a merchant to tell his customer that he has some very good butter substitute. I say let us discard that kind of a merchant and trade with the one who will handle the dairy product and work for the interest of his customers. The oleomargarine manufacturer surely does not buy very much from the merchants, at least in the outlying towns.

Yours for success to the Cultivator,
S. D. Pruden.

We are not very strong on the boycott, but in consideration of the fact that grocers of San Francisco have hung out their shingle announcing "No potatoes being sold. Boycott potatoes," and various other boycotts have been declared on farm products, perhaps that is the only possible thing for the farmer to do.

Veramont Herefords

HAVE GREAT

Quality and Breed Character

See the sons of PATRICIAN 5th in the February sale at Davis. Young stock for sale.

H. M. Barngrover, Prop.

SANTA CLARA, CAL.

Bunting's Mission Herefords Are Profitable

They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.

JOHN A. BUNTING
Mission San Jose Calif.

DIAMOND G HEREFORDS

are the kind that make good under all conditions. They have the size, bone and constitution that the range operator wants. Herd headed by Don Perfect 2d, one of the best bulls in the West. Correspondence invited and visitors welcome.

H. H. Gable Esparto, Calif.

The Leading Live Stock Auctioneers

Col. Ben A. Rhoades
Harold B. Rhoades

Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References. The leading breeders in the state. Write or wire for dates and terms.

Rhoades & Rhoades
1501-3-5 South Main St.
Los Angeles, Calif.

ABSORBINE STOPS LAMENESS

from a Bone Spavin, Ring Bone, Splint, Curb, Side Bone, or similar troubles and gets horse going sound. It acts mildly but quickly and good results are lasting. Does not blister or remove the hair and horse can be worked. Page 17 in pamphlet with each bottle tells how. $2.50 a bottle delivered. Horse Book 9 R free.

ABSORBINE, JR., the antiseptic liniment for mankind, reduces Painful Swellings, Enlarged Glands, Wens, Bruises, Varicose Veins; heals Sores. Allays Pain. Will tell you more if you write. $1.25 a bottle at dealers or delivered. Liberal trial bottle for 10c stamps.

W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

--Vaughn's Jones--

By Giant Jones out of the $1,400 Daisy A. A Poland China boar of the right type. His pigs show quality and recognized breeders pronounce them the correct type.

Poland Chinas of the Right Type

A. J. Van Cleef Riverdale, Cal.

Beef Cattle Specialist

For 30 years I have been devoting my entire time to pure bred beef cattle. I know the kind of cattle California needs and where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited. R. M. DUNLAP, Hotel Land, Sacramento, Cal.

Whittier State School

Registered

BERKSHIRES — HOLSTEINS

Only one kind—the good kind
Young Bulls Bred and Open Gilts

JERSEYS

3 BULLS — No. 1 born Mar. 1, 1919. Sire, Our Noble Mayfair Hero. — **3 BULLS**

No. 2 born Oct. 1, 1919. Sire Our Kathie's Eminent. — All from high record cows in Arden herd. — No. 3 born Dec. 20, 1918. Sire same as No. 2.

ARDEN DAIRY CERTIFIED, EL MONTE, CALIF.

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

Thursday, March 25, Guaranty Sale, Sacramento.
April 8, Breeders Sale, Tulare.
Wednesday, April 21, A. M. Bibens, Modesto.
Wednesday, May 12, Leeman & Kilgore, Dispersal, Ripon.

Herefords

During last week of February, Pacific Coast Hereford Cattle Breeders' Association.

Shorthorns

April 17, Butte City Ranch, Butte City.

Berkshire Swine

February 14, J. Francis O'Connor, Santa Rosa.
February 16. Muddux & Son, Sacramento.
February 18, Western Berkshire Congress, Davis.
April 17, Butte City Ranch, Butte City.

Duroc-Jerseys

February 4, Fresno County Duroc-Jersey Breeders Association, Fresno.
February 10, Glenn County Duroc-Jersey Association Sale.
February 12, Tulare County Duroc-Jersey Association Sale.

Poland Chinas

February 6, Tulare Poland China Breeders Association, Tulare.
February 11, Fresno County Poland China Breeders Association, Fresno.
February 12, San Joaquin Poland China Breeders Association, Lodi.
January 13, Glenn County Poland China Breeders, Orland.
February 21, Merced County Poland China Breeders Association, Merced.
February 21, J. F. McSwain, Merced.
February 26, California Poland China Breeders Association, Davis.
February 28, Kings County Poland China Breeders Association, Hanford.
March 13, Haag & Bernstein, Hanford.

Shetland Ponies

April 17, Butte City Ranch, Butte City.

Shropshire Sheep

April 17, Butte City Ranch, Butte City.

The next sale of Duroc-Jerseys to be held by the Tulare Duroc-Jersey breeders will be in Tulare, February 12. Fifty bred sows and gilts will be offered and in addition to the animals from the herds of the Tulare breeders, consignment from Greenwood Farms, Mossdale Farm and Conejo Ranch will be included. Previous sales having been successful, strong effort is being made to uphold the standard already set, and for this reason care has been exercised in the selections for this sale. Representative blood lines will predominate in the animals to be sold as well as in the boars to which they will be bred. The Tulare breeders believe they are affording the young breeder an opportunity for securing foundation animals and the farmer for adding a profitable animal to his farm.

Z. M. Dickey, Dinuba, is establishing on his ranch of some 900 acres the Sequoia herd of big type Poland Chinas. For years Mr. Dickey has been a producer of pork but recent experiments convinced him that pure breds paid better than grades. He has recently secured from Thos. F. Walker and Son, Alexandria, Nebraska, as a boar to head his herd, The Sequoian, by Blue Valley Big Bone, dam Miss Big Bone Bob. He states that in the future his livestock operations will be confined to breeding big type Poland Chinas and that all the animals now on the ranch that do not come up to the big type standard will be disposed of as rapidly as possible.

A. Buckland and Son, Fresno, have recently purchased from J. F. Lehman, Lodi, the grand champion Poland China boar at the San Francisco Livestock Show, Golden West King. Mr. Buckland in speaking of his purchase stated that for some time he had been trying to secure a young boar and recently secured one in the East. He returned him as he was inferior to a number he knew he could purchase here in California. He also states that he can purchase better animals at a reasonable price right here at home and is of the opinion that they will attain greater size and have a larger bone in a given time than those bred and raised in the East.

Thos. Caesar and Son, Poland China breeders, Reedley, have recently secured from W. H. Charters, Butler, Missouri, a young boar by King's Buster by Giant Buster and has for his dam Long Giantess 2nd.

58 Head Big Type Polands

Second Consignment Sale

Tulare County Poland China Ass'n

At Tulare Sales Pavilion, Feb. 6th

16 Tried Sows — 25 Bred Gilts
15 Open Gilts — 2 Boars

This offering has been selected by our sale committees from some of the best herds in California. Only the best individuals go in the sale. They are the big, easy-feeding, utility kind that can not be surpassed as producers of pork or breeding hogs.

Animals in this sale sired by Boulder Buster, King of Golden Gate, Giant Bob, King's Big Bone Leader, King's Timm, Bridges Bob Wonder and others. And bred to such boars as Rex of Sunnyside, The Californian, King of Golden Gate, California Big Bone Leader and others.

Consignors: R. F. Guerin, W. E. Martin, J. K. Macomber, V. U. Dubell, C. L. Weaver, Z. M. Dickey, A. J. Elliott and Hugh C. Shinn.

Luncheon served on the grounds at 11.30. Sale promptly at 12.30

Write for Catalog to
Hugh C. Shinn, Sec.
Geo. W. Bell, Auctioneer

Our Position

Lendorris Ranch could not have gained and held the enviable position it now holds as a breeder of big type Poland Chinas if the animals bred did not meet the approval of our customers.

True—Lendorris Liberty Bond and Young Jumbo have proven to be superior sires which accounts in part for our present position. Our sows, of course, have been of material assistance. We will be pleased to answer your inquiry.

W. L. Haag and Son Hanford, Cal.
Bred Sow Sale, March 13

ASK THE MAN

WHO HAS SEEN

Golden West King Grand Champion Poland China Boar at the San Francisco Livestock Show

Blue Valley King by King Big Bone and the Sire of Typical Poland Chinas

about these two Poland China boars. We are willing to accept his judgment. When you want the profitable, big type Poland China it will pay you as it has others to get in touch with us.

A. Buckland & Son, R.F.D., Fresno, Cal.

DON'T BE TOO LATE

Just a few of the prize winning Poland Chinas, that have been the sensations at this year's shows, remain unsold. I am not pricing them unreasonably and much less than you would pay in the east for animals not so good. Write me today what you want and I will send you full particuars.

J. F. LEHMAN LODI, CAL.

Smooth King

is a real Poland China boar—his name signifies just what he is, smooth—and a king. When I can't breed, raise and sell the right kind of Poland Chinas I will quit the business. This is one reason for my success. Pleased customers keep me in. Write me when you want good Poland Chinas.

Eugene Miner Lodi, Cal.

The Practical Test

of any breeder is satisfied customers. Recent sales to old customers indicate to me that my practical herd of big type Poland China sows headed by Forrestview Bob, a son of Caldwell's Big Bob, are producing the kind that satisfy. I will be pleased to satisfy you. Write me.

J. H. Cook Paradise, Cal.

The management of the Weimar Sanatorium, Weimar, Placer County, has purchased a herd of 12 registered Holsteins as a foundation for a large herd that is to be developed at that institution.

Butte City Ranch, Butte City, reports having sold a foundation flock of registered Shropshire sheep to Col. D. A. Shelloe of Glenn.

A. W. Morris & Sons, Woodland, have announced the sale of their home ranch consisting of 1,280 acres to the Conaway Ranch Company, for a consideration of $204,000. Possession will not be given until the Morrises have completed improvements on their new ranch northeast of Woodland.

Dora Pontiac Segis, the first daughter of King Pontiac Netherland Segis 3d to freshen with second calf, has completed an official record of 24.30 pounds butter from 496.7 pounds milk in seven days. She and her sire and dam are all owned by Stalder Bros. at their Rosamaines Rancho, Riverside, where there is a choice group of heifers by the same sire coming on. King Pontiac Netherland Segis 3d is by a proven son of King of the Pontiacs and is out of the twice 34 pound cow, Gerben Abbekerk Maid, a daughter of Sir Skylark Ormsby Hengerveld.

Miss Gelsche Walker Korndyke, whose junior two year old record of 23.17 pounds butter in seven days as a junior two year old was a state record, recently made an official record of 32.76 pounds butter from 708.9 pounds milk in seven days in the herd of Leeman & Kilgore, Ripon. This great young cow had the misfortune to have the end of one of her teats cut off last year and made her present record under that handicap. She is the third 30 pound daughter of her sire, Prince Gelsche Walker. Another excellent record made in the Leeman & Kilgore herd is that of Canary Pauline Sadie Vale, who has 21.12 pounds butter from 401.9 pounds milk to her credit in seven days as a senior two year old. She is a daughter of King Korndyke Sadie Vale 22nd, the herd sire owned by F. Stenzel, San Lorenzo.

Two more registered Holstein cows owned by E. E. Freeman, Modesto, have added to the highly creditable list of official records made in this herd during the past year. Vina Pietertje Hengerveld De Kol 2nd made in seven days 32.28 pounds butter from 844.5 pounds milk, milking as high as 129.9 pounds in one day. Her best seven consecutive days milk was 874.7 pounds. She is still on official test and her best 30 days to date shows 125.57 pounds butter from 3,461.7 pounds milk. Estrella Witkop De Kol, as a junior three year old, made 23.85 pounds butter from 576 pounds milk in seven days, and 90.47 pounds butter from 2,188.1 pounds milk in 30 days.

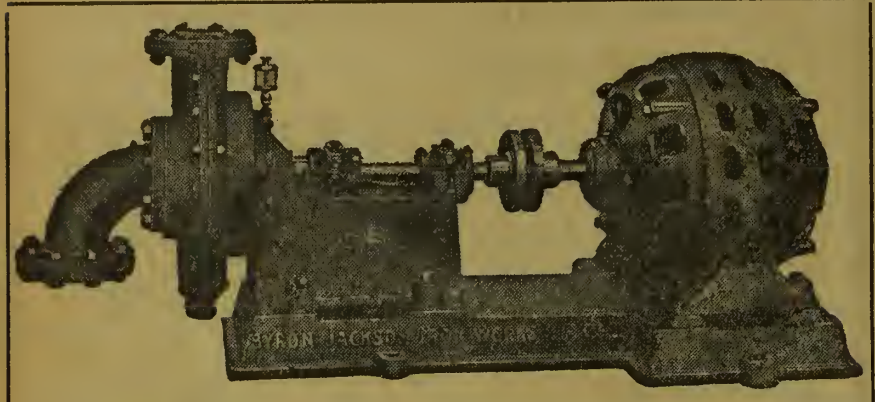
At the 55th annual meeting of the National Wool Growers Association, held at Salt Lake City, this month, the following officers were elected: Frank J. Hagenbarth of Salt Lake City and Idaho was re-elected president; M. J. Powers of Flagstaff, Arizona, Western vice-president; Prof. W. C. Coffey of the University of Illinois, Eastern vice-president, and Dr. F. R. Marshall of Washington, D. C., assistant animal husbandman, secretary, to succeed Dr. S. W. McClure, resigned. F. A. Ellenwood of California was appointed on the executive committee of the association.

The university farm has recently sold to the Durham Cooperative Stock Breeders Association a Romney ram, full brother to the champion ram at the recent Chicago International Livestock Exposition, bred and raised by the University of California on its Davis farm.

Recent sales from Venadera herd, Guy H. Miller, Modesto, are: The yearling heifer Arla of Venadera to H. J. Angell of Los Angeles. Arla was sired by Majestic Noble Lord out of Ila of Venadera, test 319 pounds of fat as a junior two year old, one of the R. of M. daughters of Altama Interest. The yearling heifer Eunice of Venadera to Fred C. Steiner of Hayward. Eunice is also sired by Majestic Noble Lord and her dam is Kerma of Venadera. R. of M. test 284 pounds of fat as a senior yearling, a daughter of Baron Underwood. The bull calf Jap's Humboldt Owl to Frank Ribeiro of Arcata. This calf is sired by Jap's Perfection Owl out of Lucile of Venadera, R. of M. test 329 pounds of fat in a year as a senior yearling. Lucile is full sister to Lora of Venadera, R. of M. test 504 pounds of fat in a year as a junior three year old. Their dam Lorna of Venadera, R. of M. test 588 pounds of fat in a year is a daughter of Marigold's Exile King. The heifer calf Myrtle of Venadera to S. D. Kee of Bodega. This calf is sired by Altama Interest out of Fern of Venadera, R. of M. test 401 pounds of fat, second dam Goldie of Venadera, R. of M. test 598 pounds fat in a year. To P. R. Talbott of Modesto, R. of M. cow Stella of Venadera, test 360 pounds of fat in a year as a junior three year old, sired by Altama Interest out of Anita of Venadera, R. of M. test 440 pounds of fat in a year as a three year old and dam of seven daughters in Register of Merit. The world's record for number of daughters of one cow in the Register of Merit.

CONTRA COSTA COWS

The Contra Costa Cow Testing Association is weeding out a number of inefficient cows because of the records they are making, or, rather, not making. During a recent 30 day period there were seven cows which produced more than 40 pounds butterfat or 1,000 pounds of milk. The topper of this bunch was Theda Bara, who produced 1, 299 pounds milk and 51.96 pounds butterfat.



Have You a Producing Ranch?

IF NOT, WHY NOT?

The difference between a "live" and a "dead" Ranch is "Water" and "No Water."

"Byron Jackson" Pumps meet every water condition

Write us giving your water conditions and requirements.
Our New Catalog No. 60-B for the asking.

Byron Jackson Iron Works, Inc.

Los Angeles San Francisco Visalia
Portland Salt Lake

Will You Profit By Their Experience

AWAY back some 50 years ago the Duroc-Jersey hog was introduced to the American farmer. Today he outnumbers all other breeds. It is a history of success—of increasing success—that has placed him on so many American farms. In this you find plenty of proof of why the Duroc-Jersey farm is a successful farm, a profitable farm.

Ask the Man Who Raises Durocs

Thursday, Feb. 12, 1920, In Tulare, Cal.

The Tulare County Duroc-Jersey Breeders' Association will offer at public sale

50---Bred Duroc-Jersey Sows and Gilts---50

An offering that should be of interest to every modern business farmer, the farmer that desires to eliminate wastes and add more profit to his farm operations. Not only have the herds of the Tulare breeders been drawn upon for this sale but some of the leading breeders of the state have consigned animals to this sale.

The Blood Lines

The blood lines that will be found in this sale will satisfy the most discriminating buyer. Such as **Defenders, Orion Cherry King's, Taxpayer's, Col's Crimson Wonder's, Critic's, King's Col.** Rarely will you find a greater or more popular array of blood lines than will be found in this sale.

The Boars

The boars to which these sows and gilts are bred rank among the state's leading Duroc-Jersey sires. Among them is found **Giant Wonder, Big Model, Joe's Orion Cherry King 5th, Model Cherry Gano, Johnson's Defender Jr., Royal Critic 2nd.** The litters from such matings should prove exceedingly profitable to the purchaser.

By attending this sale you will have the opportunity of securing animals for foundation herds or more profitable pork producers. Bear in mind Duroc-Jersey sows farrow large litters, raise them and they go to market early.

Sale at 12:30 P. M. Lunch at 11:30 A. M. Sale Will Be Held in the New Sale Pavilion.

Geo. W. Bell, Auctioneer

Tulare County Duroc-Jersey Breeders Association

Allen Thompson, Pres. Tulare, Cal. R. C. Sturgeon, Sec'y

PLAN A STATE WIDE LIVESTOCK ASSOCIATION

Professor J. I. Thompson, secretary of the California Swine Breeders Association, has sent out letters to all the state livestock associations requesting that delegates from each association meet at the Palace Hotel, San Francisco, Saturday, February 7, for the purpose of forming an organization of all the different pure bred livestock associations. In the letter calling the meeting Professor Thompson says:

"This association is taking the lead in this simply because its board of directors feels that it is time all of the pure bred interests of the state get together in some kind of an organization. These various associations have accomplished much good but can exert a much greater influence if they can act as a single unit. A number of the organizations that will probably be represented at this meeting are concerned with problems other than pure bred interests and believe that a movement of this kind can best be inaugurated by amalgamating the pure breds first. There are certain laws that are needed for our mutual protection and benefit, and our experience during the meeting of the last legislature in securing a pure feed law would indicate that close cooperation of everyone interested must be secured. Conditions governing the time, place and accommodations and similar details at state and county fairs, and the various livestock shows need attention. California is destined to be the greatest livestock producing district in the entire United States. The time when this will be true will be determined by just how rapidly the various associations concerned get together and accomplish the things that must be done. Let's make a start now and see if we cannot work out something that will be of lasting benefit to the entire livestock industry of the state."

DATE SET FOR HEREFORD BREEDERS' SALE

Wednesday, February 15, is the date set for the spring sale of registered Herefords under auspices of Pacific Coast Hereford Cattle Breeders Association, at university farm, Davis. J. A. Bunting, secretary of the association, announces that the entries are practically completed and it is expected that catalogs will be available within the next two weeks. A feature of the sale will be the offering of bulls, as the breeders have in mind the needs of rangemen and will sell a high class selection of bulls suitable for range purposes. There will also be a notable offering of females, many of them in calf to the best western sires. C. L. Hughes, Sacramento, will manage the sale.

WILL SELL A WORLD'S CHAMPION

The announcement that J. Francis O'Connor, proprietor of the Castleview Ranch, Santa Rosa, will catalog the great sow, Rookwood Lady 100th, grand champion at the 1917 National Swine Show, for his sale to be held February 14, has caused widespread interest. Rookwood Lady 100th has long been regarded as one of the greatest sows of the breed. She is a living refutation to the theory held by many that show animals are not valuable in the breeding herd. Rookwood Lady has a long string of show yard victories and has been a regular breeder, having a record of two litters per year. She will sell bred to Achiever. Including the above sow, O'Connor will sell 25 bred sows and gilts of popular and fashionable blood lines. The sale will be the first public sale ever held by a Sonoma County breeder.

GUARANTY SALE OF HOLSTEINS

Entries have practically been completed for the Guaranty Sale of registered Holsteins to be held at Sacramento on March 25, under management of California Breeders Sales and Pedigree Company. While a final survey of the entries has not been completed, it is safe to say at this time that the Holstein breeders have surpassed all previous efforts to make the best individuals available at public sale. The sale will have the largest list of consignors that has yet appeared in any western sale.

One of the latest and most interesting government crop reports deals with California alfalfa, and it is almost startling in the development shown. The 1919 crop in this state was 143 per cent of the 1918 crop and the price 100 per cent higher. The value of the last alfalfa and other tame hay crop (1919) is given as $73,220,000 and of the wild hay crop, $2,460,000.

One tract of 2,000 acres will be planted to alfalfa near Delhi, Merced County. It will require an entire carload of seed.

35 BERKSHIRES

of the Highest Quality make up the Annual Guaranty Sale of the

Western Berkshire Congress

at the University Farm

Davis, Cal., Wed., Feb. 18 1:30 P.M.

Following the Annual Congress Meeting, Tuesday, Feb. 17

This is the opportunity for the farmer or breeder to secure, at his own price, outstanding animals of the breed that won grand champion pen, and carlot and junior champion barrow over all breeds at the San Francisco Live Stock Show last November, proving them to be the hog the farmer wants—the best pork producer.

Careful selections of 30 bred gilts and sows and five young boars have been made from the herds of the following breeders in four states:

A. B. Humphrey, Escalon, Cal.
Castleview Ranch, Santa Rosa, Cal.
R. G. Gruhlke, Dixon, Cal.
Hugh Nesbit, Chimacum, Wash.
George M. York, Modesto, Cal.
W. F. Sandercock, Sacramento, Cal.
H. C. Muddox & Son, Sacramento, Cal.
Silver Glenn Stock Farm, Silverton, Ore.
Italian Vineyard Company, Guasti, Cal.
Kounias Registered Stock Farm, Modesto, Cal.
Calac Orchards, Martinez, Cal.
C. P. Warnick & Sons, Pleasant Grove, Utah.
Anchorage Farm, Orland, Cal.
R. J. Merrill & Son, Morgan Hill, Cal.
E. J. Ferguson, Santa Rosa, Cal.
Frank B. Anderson, Sacramento, Cal.

Write to the Secretary for a Catalog

Western Berkshire Congress
Pres. A. B. Humphrey, Escalon, Cal.
Sec'y Frank B. Anderson, Box 724, Sacramento

DON'T MISS THESE SALES:
Castleview Ranch, Santa Rosa, Feb. 14
H. C. Muddox & Son, Sacramento, Feb. 16
Ord. L. Leachman, Auctioneer

Brighton Farm Herds
Registered Shorthorns
and
Berkshires---Both Sexes
H. L. & E. H. Murphy
Perkins, Cal.

Duroc-Jersey
Registered Big Type Bred Gilts
California George Junior Republic
Chino, Cal. P.O. Box 157

WITTE ENGINES 2 TO 30 H-P.
Simplest in Construction
Easiest to Operate
Lowest priced High-Tension Ignition Engine ever sold at Factory-to-User Prices. High Tension is the only successful ignition for kerosene. All WITTE Engines are regularly equipped with H. T. battery, or Standard BOSCH Magneto on order. Write for latest prices. Quick delivery.
WITTE ENGINE WORKS
Kansas City, Mo. 3107 Oakland Ave. Pittsburgh, Pa. 3107 Empire Bldg.

San Joaquin County
Poland China Breeders Ass'n
Semi-Annual Sale

Lodi, Thursday, Feb. 12

40 Bred Sows and Gilts

Big Type---Size and Quality

12 Tried Sows:

These sows are just that—they have been tried and proven good producers in some of the best herds in the county. They are big, heavy boned, smooth, deep, motherly sows that represent very choice blood lines. Several of them have produced show winners. Any farmer, breeder or pig club boy can buy such sows for a foundation and be certain of producing the right kind of Poland Chinas.

15 Bred Gilts:

These gilts have been selected from the tops of the following herds: Geo. V. Beckman & Sons, N. K. Horan, J. F. Lehman, Langhorst Bros., Eugene Miner, John Boskovitch, Young & Barton and Young & Clark. A number of the gilts have show records, others are litter mates to prize winners and all are bred to the outstanding boars owned by members of the association.

12 Open Gilts:

The man who has his own good boar and needs a few outstanding brood sow prospects will not need to look further than this sale. Among the lot will be found gilts that will look well in any herd in California. The type is right—the breeding is right.

Make a Start with Better Hogs---Now!
Poland Chinas Are Best!

For Catalog Address
SHERWOOD BECKMAN, Sec'y

San Joaquin County Poland China Breeders Ass'n
Ord L. Leachman, Auctioneer

Experience Has Taught

us that if we make money out of hogs we must have prolific sows bred for quick maturity. They must be of the type producing the highest quality of pork. A careful survey of my herd will convince you that I am breeding the kind you want to breed. I have breeding animals—both sexes—for sale at reasonable prices.

Les McCracken *Ripon, Cal.*

Bred Sow Sale, on farm, Feb. 3rd, 1920

AV-I-A-TOR

represents the highest accepted standard of a Poland China boar. As breeders who have seen him say; he has everything to recommend him—nothing to condemn him. Get a sow bred to him.

Merced County Breeders Sale, Feb. 21

CROSS BROS. MERCED, CAL.

SEQUOIA HERD---Big Type Poland Chinas
—— THE SEQUOIAN ——
by Blue Valley Big Bone, dam Miss Big Bone Bob—Premier Sire. The Sequoia herd will in the future be devoted entirely to the production of big type Poland Chinas.

Z. M. DICKEY, DINUBA, CAL.

When Writing Advertisers, Mention the Cultivator.

GET MORE EGGS.

"Lady Victory"

1918 Champion laid 304 eggs in 365 days. Highest official record of any living hen. She laid 25 eggs in Jan., 27 in Feb., 29 in March.

Milkoline will help make your hens lay more eggs.

Feeding Milkoline will make you more money —reduce mortality of your flock— keep flock healthy and less liable to disease.

Increase Poultry Profits

Any poultry raiser can easily double his profits by doubling his egg production. Feeding **Milkoline** with other feed greatly assists assimilation, keeps digestive organs vigorous and is a wonderful appetizer, tonic and bowel regulator. **Milkoline** contains nutritive elements vital to egg production and not found in grain rations.

13,000 More Eggs

Jas. E. Keyes, Petaluma, Calif., says: "After feeding **Milkoline** for eighteen months to 2,500 hens, I find that worms cannot exist in poultry where **Milkoline** is used. I reduced mortality with laying hens 10 per cent. I increased the egg production of my flock **thirteen thousand eggs** in one year. Feeding **Milkoline** to laying hens keeps them in splendid health thereby preventing disease and derangements of all kinds."

Milkoline

has a base of modified buttermilk with essential fats and acids added. **Milkoline** comes in condensed form. Will not mould, rot or sour. Keeps indefinitely in any climate. **Milkoline** is simply **"Good Buttermilk Made Better for Feeding."** Flies don't bother it.

Lowers Feeding Cost

Many feeders say **Milkoline** lowers feeding cost one-third, because their hens assimilate all feed they eat. Our liberal **Guaranteed 30 Day Trial Offer** enables you to try **Milkoline** at our risk—to prove that it will make you mighty good money.

Prevents Disease

Milkoline is not featured as a cure for anything or a preventative, but due to the acidity in the buttermilk it is a germ destroyer and helps keep poultry healthy, which is the best preventative against disease. **Milkoline** is invaluable as a life saver for baby chicks.

PRICES

These prices are F.O.B. Kansas City or the address of our nearest dealer. Dealers in all parts of the United States.

5 Gal. Keg - $7.50
10 Gal. Keg - 12.50
15 Gal. Keg - 16.50
32 Gal. Barrel 32.00
55 Gal. Barrel 49.50

Prices on smaller packages given in booklet. Buy in barrel lots—it saves you money.

Only 2c a Gallon

For feeding mix one part of **Milkoline** to 50 parts of water (small feeding 5 tablespoons to gallon of water). Feed either with water or mash feed. **Milkoline** keeps their appetite keen and its action is highly essential to normal egg production. When fed as directed **Milkoline costs only 2c a gallon** or less. Trauhaft & Newman, Lankershim, Calif., say: "We would not go back feeding straight buttermilk at any price."

Guaranteed Trial Offer

we will ship you 1 Gallon for $2.25, **express prepaid.** Take 30 days—feed half to your poultry. If not entirely satisfied simply return unused portion and we will refund every cent you paid us. No charge for portion you have used. **Milkoline** is legally guaranteed to be satisfactory. You are always the judge. We suggest ordering larger quantity—you get the benefit of lower price—you risk nothing—you must be satisfied or we refund every cent you paid us. **Make this test now.** The sooner you begin using **Milkoline** the quicker you will be making money.

Milkoline has been producing so many amazing results and we are so certain of what it will do for you that

Send This Coupon

THE MILKOLINE MFG. CO.
575 **Creamery Bldg., Kansas City, Mo.**

In accordance with your guaranteed offer, please ship me .....Gallons of **Milkoline** for which inclosed find $..... I agree to use half, but at the end of 30 days, if I am not satisfied, I will ship back unused portion, if any, at your expense, and you are to return my money.

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Big Book FREE!

A new 42-page book explaining fully how to make more money from Poultry and Hogs sent free on request.

The Milkoline Mfg. Co.
575 **Creamery Bldg.**
Kansas City, Mo.

Distributed By
STILES POULTRY & SUPPLY CO., San Diego, Calif.

Hillview Barred Plymouth Rocks---The Birds of Quality

These birds are the famous Aristocrat strain, Fort Wayne, Indiana. They are bred for heavy laying and exhibition quality.
Every entry won in the late shows: Los Angeles P. B. Assn., and San Diego Exhibitors Club.
Our birds are fed no stimulants or patent mashes to increase egg production. They are fed to produce strong vigorous chicks.

Eggs for Hatching ....$ 5.00 per setting 15 eggs
Special Mating .....$10.00 per setting 15 eggs

State whether you prefer the light or dark matings

Hillview Ranch Box 156, Fullerton, Cal.

SMOKE YOUR MEAT THE "WRIGHT" WAY

Hickory Cured Hams are Best

THAT'S why we use **Seasoned Hickory Wood** in making **WRIGHT'S CONDENSED SMOKE.** If you want some good old fashioned **Hickory Flavored Hams and Bacon** use **WRIGHT'S HAM PICKLE and WRIGHT'S CONDENSED SMOKE.** The **Ham Pickle** is a scientifically prepared sugar cure. A dollar jar and 27 pounds of salt prepares a barrel of meat for smoking. A Dollar bottle of **WRIGHT'S SMOKE,** thirty minutes and a small brush will thoroughly smoke your meat and give it a **Delicious Flavor.** The **"WRIGHT" Way** of curing meat is easier, quicker, cheaper and gives better results. No fooling with fires. No danger of meat spoiling. No drying out or shrinkage.

WRIGHT'S FARM BUTCHERING SET (Nine regular butchers' tools, including saw and cleaver) should be on every farm. We buy in carload lots and resell at cost—**$3.95.**

Send for instructive booklet: *"The New Way of Smoking Meat."*

All Wright's Products Are Guaranteed. Sold By All Drug and General Stores.

E. H. WRIGHT CO. Ltd., Established 1895 804 **Broadway** **Kansas City, Mo.**

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. **Los Angeles**

The Best Brooder

By Jean A. Koethen

NOTHING pleases me so much as to receive a query with real "punch" in it. The following is full of that most desirable article, and I have had to put on my very best thinking cap to answer it. This is the query, which comes from a Van Nuys subscriber:

What is the best way to raise 200 baby chicks? I have no time to heat water jugs.

No, one would hardly wish to heat water jugs to keep 200 chicks warm. It might be managed for 20, but not for 200, surely.

In these days of high prices one must use what he has. If he has a shed or colony house in which a small brooder stove or electric hover can be placed, the best way is to buy such a stove or hover and use it. As between the two there is not much choice. Electricity used to be more expensive, but I doubt if it is now. The electric hovers come in several sizes and can be used in buildings where other heating is not practicable. If I had a place to use it and money to buy it, I should certainly try an electric hover. There is no filling of lamps nor sitting up nights with a stove. You just press the button and the thing is done.

Fireless Brooding

The cheapest brooding, next to that done with hens, is fireless brooding, and since fuel has become such a problem I look to see it employed far more than it ever has been in California. If Mr. Philo could raise Orpingtons in a snowbank in New York without heat it looks as if the lightest breed might be successfully brooded by that method in most parts of California. There is this against fireless brooding, however—it is more work. Chicks are sometimes brooded without heat in brooders containing a hundred chicks, but they do better if not more than 25, or at the outside 50, are placed in one box. When more than 50 are brooded together the greatest care must be exercised to make sure that the chicks are abundantly warm, else they will pile up in a corner. Twenty-five chicks, well covered with soft quilts, with straw and tarred paper beneath, will keep comfortably warm by the heat of their own bodies if their brooder box is built to fit them. But 200 chicks in lots of 25 means eight boxes to begin with and twice that number, or boxes twice as large, after the first month. Training chicks to go into the boxes to get warm is something of a job, and cleaning the boxes daily is a bigger one, but elbow grease is cheaper than gasoline —sometimes—and this kind of brooding has been tried and tried successfully by many people.

I have mentioned more than once a brooder coop I saw in Riverside last year. It was about the size and shape of a piano box, only wider, and its six feet of length was divided by wire into six little runs. Back of each run was a brooder box large enough to contain 50 chicks, and in front of each was a pane of glass. The door was hung at the top and reached to the top of the glass. When this coop was flooded with sunshine no other heat was needed, but at night, after the chicks were tucked away in their boxes under the quilt, light was turned on in a large electric light globe which hung suspended from the top of the coop. This little bit of electricity modified the chill night air considerably, and the chicks thrived amazingly.

Fireless brooders must always be used in some sort of coop, but the coop may be very simple. A dry goods box set on its side facing the sun makes a very good one. An ordinary open front colony coop provided with a curtain which can be closed at night ought to hold 200 chicks, though it might not hold their eight brooder boxes. It is very important that whatever coop is used be placed in a sunny, protected place. The Philo coop, you remember, is a bottomless box six feet by three, with a lid which can be slanted at any angle. Such a coop would be rather expensive now, and it was always hard to handle. I much prefer the open front coop.

I do not know that I have answered the question I started to answer, but it may be some of these suggestions will be helpful to beginners who want to raise chicks with the least outlay for equipment.

Let the Buyer Beware

A Northern California subscriber writes: "Would you kindly supply me with a list of poultrymen who you know do really trapnest their hens and from whom one can rely on getting just what he orders. I want this to apply more especially to White Leghorn breeders. Just yesterday I visited a poultry ranch of considerable proportions in another part of the state, and this ranch advertises trapnested stock. Now, when I got there I found that there is not a trapnest in use on the place. That kind of stuff hurts the poultry business. Something should be done to protect honest poultrymen and the public as well."

There is an old Latin proverb which applies to the purchasing of poultry and eggs as well as to most other business transactions, "Caveat emptor," let the buyer beware. By common consent and general practice most twentieth century advertising goes somewhat beyond the mark and must be taken with a grain of salt. Of course the man who advertises trapnested stock when he hasn't a trapnest on the place never gets anywhere. He may deceive a few honest customers and put a few dollars in his pocket before his dishonest practice is found out, but sooner or later (and it is apt to be sooner) he drops from the ranks of breeders.

When a pedigreed goat is sold the seller is expected to furnish a certificate showing the ancestry of the animal. When one is buying what purports to be trapnested stock a similar certificate should be insisted on, or at least a certified egg record. The thing is not only quite possible, but it is bound to come.

The trouble is that the general public—I mean the egg producing public—is not educated up to the need of egg records nor of trapnests. Of late the poultry press has been flooded with recipes for picking out the layers without trapnesting. However useful these systems may be, they cannot pick out the high producing individuals. A man may increase the production of his flock by such a system of culling, but he can never build up a pedigreed strain. I am mailing you the names of some people who I know do trapnest. I wish the list were longer, and it will be another year, I am sure, for the past fall, when eggs brought 80 cents or more for two months, the trapnesters simply walked away with the poultrymen who guessed.—J. A. K.

AMERICAN EGG LAYING CONTEST

By T. E. Quisenberry, Director

The birds in the American Egg Laying Contest at Leavenworth, Kansas, had a little setback in December on account of some severe changes in the weather, but at this time are showing a marked improvement and the indications are that they are now getting a good start toward a good record in 1920. At the beginning of every contest there is always more or less trouble in getting the birds acclimated and accustomed to their new houses, new methods of feeding and so forth. That period is now passed and we look for splendid records from practically all pens from this time on.

The ten leading pens for December were as follows: White Orpingtons, Ohio, 137 eggs; White Orpingtons, Ohio, 131; Barred Rocks, Kansas, 126; White Wyandottes, Pennsylvania, 122; S. C. White Leghorns, Iowa, 115; S. C. Reds, New York, 114; S. C. Reds, Illinois, 113; S. C. White Leghorns, Pennsylvania, 112; Barred Rocks, Kansas, 110; White Orpingtons, Ohio, 107.

S. C. Rhode Island Reds are in the lead with 205 eggs and the White Orp-

Coulson's
Baby Chick
Milk Mash

The Best Feed
for first six weeks

Write for particulars
Coulson Co.
Petaluma, Calif.

The Pride of Petaluma

KRESKY'S 1920 VENTILATING brooder stove forces proper ventilation in spite of the operator and sweeps the room with FRESH AIR. PETALUMA'S latest sensation and result getter. TRY it. Keep it if you like it, or send it back if you do not.

Catalogue No. 3, free for asking.

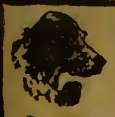
KRESKY BROODER STOVE CO.
Petaluma Cal.

WE ARE PAYING
RECORD PRICES FOR FURS

Trapping is highly profitable—big demand for furs. We pay most liberally and promptly on furs, regardless of quantity. Send for free copy "Trapping for Profit." It tells about trapping and handling of skins. PRICE LIST FREE

E. R. SKINNER & CO.
1121 FRONT ST. SACRAMENTO, CAL.

Raise Guinea Pigs
FOR US
We supply stock and buy all you raise. Laboratories need thousands, big money, easy to raise. Particulars and book 10c, nothing free.
DR. J. A. ROBERTS LABORATORIES
Hollywood, Cal.



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DOG DISEASES
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ingtons in second place with 203 eggs. The best pen in each variety to date: Brown Leghorn, 115; White Leghorn, 198; Ancona, 127; White Plymouth Rock, 173; Barred Plymouth Rock, 154; S. C. Red, 205; White Wyandottes, 198; Rhode Island White, 151; White Orpington, 203; Patridge Wyandotte, 152.

Each pen in the contest contains five birds, each of which are numbered consecutively from one to five in each pen.

FEEDING BEES

There may be abundance of rain yet. In any case it is safest to prepare, and the only way to prepare the bees is to encourage them with sufficient feed to build up fine strong colonies. This may be accomplished by method of feeding which is described by M. H. Mendleson in the January issue of the Western Honey Bee:

"In making syrup for feeding bees it is imperative to avoid having the syrup granulate and consequently be wasted. I use the following method: For every ten to 14 pounds of water, mix 20 pounds of sugar, and a level tablespoon of tartaric acid. Bring the water to a boil. Then dissolve the acid in the boiling water then dissolve the sugar, and bring to a boil.

"It is of great advantage to feed the syrup while warm, but not hot. The warm syrup (at this time of year) helps to warm the atmosphere of the hive, and the bees carry out the syrup more readily. I used to make the syrup without the acid, but now and then the syrup would granulate, in spite of all precautions.

"I use the Doolittle feeder with a float within. I crowd the bees upon a few combs (according to their strength) to prevent their scattering the syrup beyond the cluster, and also to crowd the queen into a small brood space, for economy in the consumption of the syrup. I contract the hive entrance to protect from cold and from robber bees.

"I have the entrance near the cluster; if on the opposite side it entices robbers. I contract the entrance according to strength, from a bee space to enter to one or two inches long. and when spring and warm weather come the entrances are enlarged.

"I find that an empty super (with a cloth underneath), filled with chaff or shavings, and placed on top of the brood chamber, will absorb all moisture from the bees and make them more comfortable for the winter, with less consumption of stores.

"Prolonged feeding will stimulate brood rearing and excessive consumption of stores. So at this date I feed them nearly all they need to carry them over until spring, and force them to carry down the syrup as rapidly as possible. There is now and then a colony which will use up an excessive amount of stores, and out of season at that."

BEE INSPECTORS ORGANIZE

An important meeting of the county bee inspectors of the state was held in Los Angeles a short time ago for the purpose of organizing into an acting unit in securing proper legislation to protect the bee industry of the state. The inspectors were called together by Inspector George De Sellem of Los Angeles County and temporary officers were elected. A second meeting will be held on February 7 for the purpose of completing the organization and electing permanent officers for the year. B. H. Stanley of San Bernardino County was made temporary secretary.

HELPS THE PROCESS

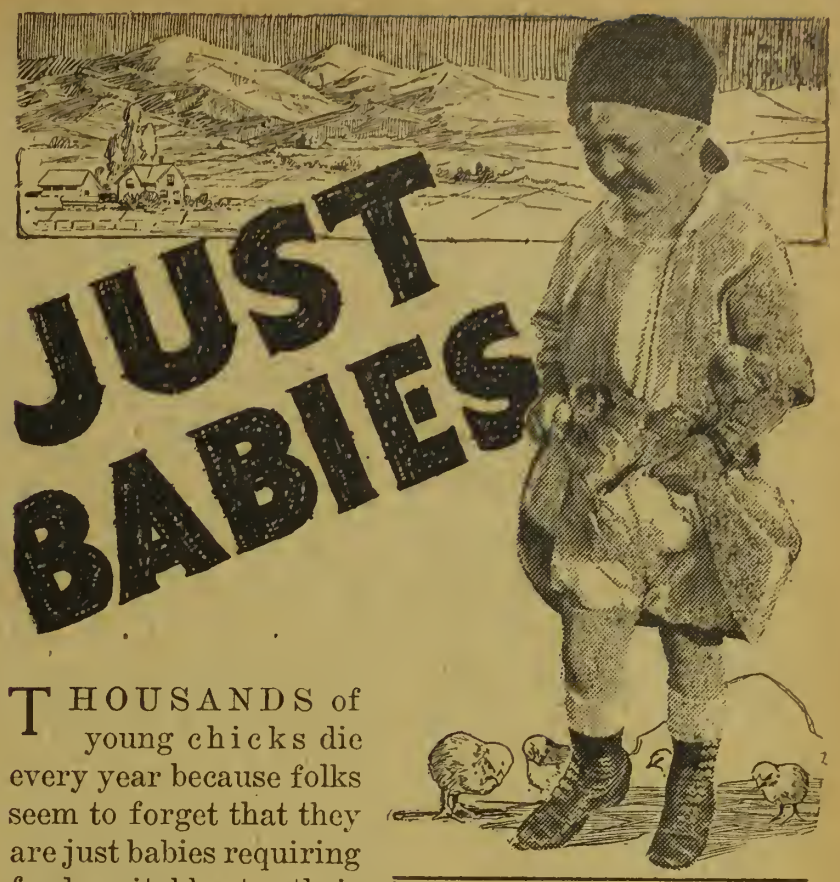
"Stop!" thundered the man in the barber chair, who was having his hair cut. "Why do you insist upon telling me these horrible blood curdling stories?"

"I'm sorry, sir," said the barber, "but when I tell stories like that the hair stands up on end and makes it much easier to cut, sir."

SHE USUALLY DOES

Never confide your secrets to a woman even though you call her dove —she may turn out to be a carrier pigeon.

Kerman, Fresno County, is taking steps to protect its rights to waters of the Kings River.



THOUSANDS of young chicks die every year because folks seem to forget that they are just babies requiring food suitable to their baby bodies.

Give your chicks a fair chance. Start them on Globe "A-1" Baby Chick Mash, *(containing Dry Buttermilk)* and watch the little fellows thrive.

FOR GROWING CHICKS

After your chicks are about six weeks old change the ration to Globe "A-1" Growing Chick Mash (containing dry buttermilk) and when the pullets are five months old begin to feed Globe "A-1" Laying Mash (containing dry buttermilk) and get ready for the full egg basket.

There is practical and scientific knowledge put into Globe "A-1" Baby Chick Mash. It isn't just feed. **It's that and more—a health protector.** The generous quantity of pure dry buttermilk which it contains gives it this invaluable property. The lactic acid content cleanses the baby chick's system, and protects it from the ravages of disease. **(It has proved a preventative of white diarrhoea and coccidiosis).**

Nutritious hearts of grains, meatine, selected whole ground grains, and plenty of pure dry buttermilk,—that's Globe "A-1" Baby Chick Mash.

GLOBE A-1 GUARANTY

"Money's Worth or Money Back"—a guarantee as sound and as liberally made as are Globe A-1 Feeds.
If you are not pleased to have our Product, we are not pleased to have your money.
Your Dealer cheerfully backs this guarantee.

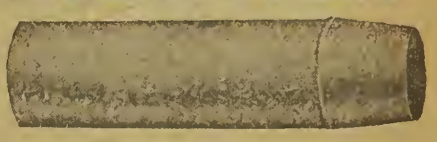
GLOBE MILLS

Makers of Globe "A-1" Flour and all the other good things that bear the Globe "A-1" mark.

San Francisco Sacramento Los Angeles Colton San Diego Ogden

GLOBE A1 Baby Chick Mash

SURFACE IRRIGATION PIPE
Prompt Delivery
Write for Catalog and Prices



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POULTRY

BROODERS

We are offering to the California public, the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in, and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

We Are Specialists in production of high grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strain of America's choicest Leghorns fill our pens, and my personal attention is given to all details, assured each customer of highest grade stock. All baby chicks guaranteed and only healthy baby chicks shipped; if not satisfactory on arrival your money returned. Catalogue free. F. C. Rhode, Vineburg Hatchery & Poultry Yard,s Vineburg, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY (Electric), Box 122, Artesia, California.

White Leghorns, chix and hatching eggs, also a few cockerels from Curtis' heavy layers. We spare no expense to produce heavy layers with strong vitality. Any chick is good enough for some but the progressive poultryman demands the best. Spring orders are being booked now. All our chicks are hatched from eggs laid in our own yards. O. B. Curtis and Son, Gardena, California. Route 1, Box 29.

For Sale—Baby Chicks from my thoroughbred carefully selected flock of S. C. White Leghorns. Orders accepted now for spring delivery, at $15.00 for 100 chicks, $140.00 per 1,000. Every order receives my personal and most careful attention. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Breeding Cockerels—S. C. White Leghorn males furnished with a pedigree showing five generations of line breeding from hens having trap-nest records of 200 eggs or more per year. Pedigreed chicks and eggs also for sale. All other chix sold until May. We trap-nest all the time 300 hens. ENTERPRISE POULTRY RANCH, Henry W. Boone, Chino, California.

Thoroughbred Barred P. Rocks—Egg records 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 5599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

Quality Barred Ply. Rocks and White Leghorns. .A western bred strain of utility merit and demonstrated world's winning strength. Guaranteed hatching eggs and vigorous breeders for sale. GOLDEN RULE POULTRY FARM, Penn and Stamelen, Porterville, California.

White Leghorns—Breeding Stock, Hatching Eggs. Bred to standard and to lay. At 1919 Oakland Show won 2nd and 4th cock, 4th hen, 4th and 5th pullet, 2nd pen. 178 birds competing. All curves, white plumage, vitality, high egg production. MAHAJO FARM, P. O. Box 597, Sacramento, California.

If You Are After Good Layers, buy your Barred Rock, White Leghorns, Ancona, Rhode Island Red, Buff Leghorn and Black Minorca Baby Chicks from the STEVENSON HATCHERY, Watsonville, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Thoroughbred White Leghorns and Mottled Anconas. Eggs from carefully selected stock of high laying strains. The White Leghorn Hatchery, Pomona, California.

Just Rite Chicks from selected eggs. Barred Rocks, R. I. Reds, Black Minorcas, Brown-White Leghorns. Prices just rite, shipped just rite. We deliver free. Willow Glen Poultry Yard, 582 So. 9th Street, San Jose.

Newton Poultry Farm — White Leghorn Baby Chicks from our well known, carefully selected stock. Best strain. Big plant. Order now, any number, and get them when you want them. Los Gatos, California, Dept. 2.

"Watch Us Grow" Baby Chicks. Booking orders now for January and February deliveries. Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

Heavy Laying Strain S. C. Red and 223 to 279 egg strain White Leghorn cockerels of good exhibition quality, $10.00. I guarantee satisfaction or money back and pay all expressage. W. M. MARQUAM, Bishop, California.

White Leghorn Baby Chicks and Hatching Eggs from trapnested, line bred high producers. Every male used from dams producing over 200 eggs. Waldeck Ranch, Burbank, California.

Conklin's Heavy-Laying Strain R. I. Reds, S. C. Light and Dark Brown Leghorns. Eggs reasonable. EVA V. CONKLIN, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

For Sale—Choice Silician Buttercup cockerels. May To'h Orland, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS

We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

Sly's Single Comb Rhode Island Reds prove their quality by winning at Los Angeles, 2 firsts, 4 seconds, 2 thirds, 2 fourths, 2 fifths, 2 shape specials, 2 color specials, 1 gold special, 3 silver cups. A top notch exhibition and utility strain. Send for Catalogue. A. G. Sly, 1642 E. Middleton Place, Los Angeles.

Day Old Baby Chicks—From mature hen eggs—February—White Leghorns $17.00 per 100; Black Minorcas, Barred Rocks, Rhode Island Reds $22.00 per 100—March $2.00 per 100 less. Terms. One-third cash with order. T. C. Hawley, 504 East Elm Street, Lodi, California.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Buff Orpingtons, Black Minorcas, Anconas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306. San Jose, California.

Baby Chicks—Hatched every week. Booking now for entire season. White and Brown Leghorns, R. I. Reds, Barred Rocks. All strong youngsters. Safe arrival guaranteed. Write for free circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

I Won More First and special prizes on S. C. R. I. Reds at the recent Oakland Show than all other exhibitors combined, 188 Reds competing. Hatching eggs from prize birds for sale. F. M. Lail, 6 Lupton Ave., San Jose, California.

For Sale—Thoroughbred White Wyandotte settings, $2.50 for 15 eggs, also, choice White Wyandotte cockerels from $5.00 to $8.00 each. Apply Gordon O. Tetley, 190 Edgewood Place, Riverside, California.

Booking Orders in limited numbers for hatching eggs of S. C. Rhode Island Reds, Buff Orpingtons, Pearl Guineas, White Holland Turkeys, White Muscovy ducks, Toulouse Geese. E. A. McKinley, R. F. D., Ukiah, California.

Big, Strong, Vigorous Plymouth White Rock cockerels from excellent stock. March and April hatch. Price $5.00. Only a few left. Geo. E. Dierssen, Box 913, Sacramento, Cal.

Baby Chicks and Hatching Eggs from Standard S. C. White Leghorns. We sell only strong, hardy chicks from heavy laying parent stock. Tacker's Poultry Ranch and Hatchery, Escalon, California.

Baby Chicks from our Hoganized Utility S. C. White Leghorns, San Jose Poultry Yards, Fiftenth and Margaret Streets, San Jose, California.

White Minorca Baby Chicks and Hatching Eggs—Dark Cornish and Silver Campine Eggs. Folder. Leech Poultry Yards, Baldwin Park, California.

Pure Bred Barred Rock, White Rock, Blue Andalusian; 280 egg strain Runner Ducks. Settings $2.00, hundred $10.00. Cedarhurst Ranches, R. D. No. 2, Sacramento.

For Sale—22 Incubators, 1500 capacity each. Hot air. Fine condition. Personal injury reason for selling. Bargain. Fred Dye, Petaluma, California.

Baby Chicks, thoroughbred White Leghorns. No weak ones charged for. Schellville Hatchery, Schellville, California.

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S. Reservoir, Pomona, California.

S. C. R. I. Reds—Eggs for hatching $7.00 per 100, $1.50 for fifteen. Mrs. A. B. Cobb, R. F. D. B, Box 120, Bakersfield, California.

Barred Plymouth Rocks—"Nothing better in poultry." Prize winners and wonderful layers. Stock for sale. Charles H. Vodden, Los Gatos, California.

Baby Chicks, standard varieties, high quality, low price. Catalog now ready. Can fill large orders. Madera Hatchery, Madera, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C, Ceres, California.

For Sale: Minorca and B. Leghorn pullets, about to lay, $2.25 each. Mrs. G. M. Guerard, R. 2 Box 26, Merced, California.

"Eastman's Bred-to-Lay" trap-nest Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

For Sale—Guaranteed Day Old Pullets, S. C. White Leghorns. We tell the sexes. Eureka Hatchery, Petaluma, California.

For Sale — White Wyandotte eggs $2.00 per setting, $8.00 per hundred. Mrs. F. A. Cox, R. 1, Buena Park, California.

POULTRY

Santa Cruz Chicks—We specialize on very best White Leghorns, hatching many thousands each week; also Brown and Buff Leghorns, Anconas, Minorcas, Wyandottes, Orpingtons, Barred Rocks and Rhode Island Reds. Write for folder. B. W. Archibald, Soquel, Santa Cruz County, California.

Thoroughbred S. C. White Leghorn Chicks —In 100 and 1000 lots from our Hoganized and Trapnested Stock. Order now for spring delivery. Inventors and Distributors of "Forbros" Separator and Trapnest combined. Write for circular. Forster Brothers, 2918 Otis Street, Berkeley, California.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

White Leghorn Baby Chix—Heavy laying, Hoganized stock. March $15.00 per 100; April and May $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

Chix or Eggs—Hoganized W. Legherns—also limited quantities of Buff Leghorns, Buff Minorcas, B. P. Rocks, L. Brahmas, Reds. S. Martina, R. 2 —627, Santa Cruz.

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"ACHIEVER"

The Boar that puts more vitality, more bone and more pork-making qualities into his pigs, is sired by Onward 4th by "Epochal" out of a Grand Champion Sow. An opportunity to purchase Sows and gilts bred to this Boar will be offered at our coming sale, Feb. 14th.

Castleview Ranch, Santa Rosa, California.

ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

3 Long, Stretchy Boar Pigs farrowed in July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St. at Third, San Francisco. In charge of Natomas Land Sales.

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are bred on the Lark Meadow Ranch for big bone, strong backs and the right type to produce profit for the purchaser. Bred and open gilts from most popular strains for sale now.

GEO. A. STINGLE, El Monte, California

Grape Wild Farm Berkshires—Guernseys —spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. R. Humphrey, Prop., Escalon, California.

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Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

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Tanks, Pumps, Windmills, Ranch Tools Rebuilt, guaranteed do same work as new, save half. No profiteering. Compare prices and material. Make new galv. tanks, 100 to 2000 gals., save 20 per cent. Why pay more? See bargain prices ads L. A. Sunday papers. DEMMITT CO., upstairs, 120 N. Main, Los Angeles.

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For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

For Sale—Good power spray pump cheap. Phone 57227. R. H. Jones, 6530 De Longpre Avenue, Hollywood.

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If you wish to be sure of having your orders for eggs from our wonderful imported prize geese filled in the spring, Boultry Ranch, National City, California. posit. Eggs $1 each. Paradise Valley order now, giving us a 25 per cent de-

McNeely's Mammoth Geese. Fine stock, ready to ship at the old price of $5.00 each for as many as you want. First come first served so order early. Chas. McNeely, Alpaugh, California.

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Registered Duroc-Jersey Hogs for Sale—Spring gilts at pork prices, open or bred to prize boar of Grand Champion stock. Also a fine lot of weaned pigs and a few bred sows. For further particulars write to Green Canyon Ranch, Fallbrook, California.

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Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

I Will Offer a dozen first class young Duroc sows bred for spring litters to my crack yearling boar Nutmeg Gana 292547. Worth investigating. L. R. Hitchcock, Van Nuys, California.

Great Duroc-Jersey Pigs, both sexes, real pigs for herd prospects. $20.00 each. Send check. Write for what you want. Durocs and Polands. R. A. Chapman, 413 Owl Building, San Diego, California.

SWEETWATER DUROCS

The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

Weanlings—Gilts open or bred to a son of Great Wonder I Am. Service boars. Derryfield Farm, Capital National Bank Building, Sacramento, California.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Wondergerst, California's leading Poland China sire—big himself, bred big and his pigs show the same qualities. His dam was Giantess Wonder, his sire Big Jones—both big, both winners—a combination of the greatest blood of the breed. Breed big type Polands. Start right by using this blood. Write for special offer. A liberal consignment made to the Tulare Poland China Associated Breeders' sale held Tulare, October 21st. OXBONE Herd Poland Chinas, Tipton, California.

For Sale—Registered Poland China, one brood sow Daisy Girl $110, two year old; one brood sow Belladonna $75, one year old; one boar Wonderlust $50, one year old; all from Orange Blossom and A Wonder. Address route 2, Box 62, Van Nuys, California.

The Best in the West—California Gertsdale and President's Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

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The Garden Beautiful in California by Ernest Braunton; a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant; also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No Broadway, Los Angeles.

For Sale — Millions of Stone Tomato Plants from seed selected by myself and guaranteed. Liberal discount on orders placed before February 15th. Order now and make sure—ran short last year. L. C. Johnson, Pomona, California. Phone 2987.

RYE GRASS

Domestic Rye Grass, Italian special, 10c per. lb. f. o. b. Stockton. Also Burr Clover Burrs. Aurora Seed Mill, Stockton, California.

For Sale — Guaranteed Stone Tomato Seed, hand selected by myself; choice stock, fresh, $4.00 per pound. Reference any bank Pomona. L. C. Johnson, Pomona, California. Phone 2987.

Get Cory Thornless Mammoth Blackberry plants direct from Cory's Mt. Pass Ranch, $3.00 per dozen, postpaid G. S. Wilis, Jamestown, California.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc. Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

Write the Amount and kind of Seeds wanted. Four kinds alfalfa. Orders filled promptly. Wanted, Sudan in carloads. Box 501, Fowler, California.

For Sale—Madera Vine Roots, 25 cts. per dozen, postpaid. Order early as these will not last at this price. A. G. LOVEALL, Glenn, California.

Rhubarb Roots—1 year old roots, $3.00 per hundred; 50c per dozen. Two year old roots $1.00 per dozen. Currier Bulb Company, Santa Cruz, California.

For Sale — Blackberry and Strawberry Plants. Write for description and prices. Albert H. Leavitt, Cloverdale, California.

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20 ACRES IN PRUNES

$8,000

About the value of the raw land

Three miles northeast of Biggs on the Oroville-Biggs road, 1 mile north of Rio Bonito station on Northern Electric. One half in bearing trees balance 4 years and under. Over 12 tons of dried fruit past season. Roomy dwelling house, barn, etc. Prime grader and dipper, about 1,000 trays and fruit boxes.
G. P. Dreher,
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200-ACRE MISSOURI MONEY-MAKER IN rich farming section, near hustling R. R. town, 160 acres black loam tillage, clay subsoil, for bumper crops, balance wire-fenced pasture, home use wood. View overlooking village from house, 2 verandas, barn corn and smoke houses, other buildings. Land all around selling in this fine level prairie section $75 up makes this a real bargain at $11,000, only $2000 cash needed; balance easy terms. Details page 87 Strout's Catalog Farm Bargains 23 states; copy free. E. A. STROUT FARM AGENCY, 831 A. G. New York Life Bldg., Kansas City, Mo.

For Sale — The Following San Fernando Valley ranches are all well located, all have aqueduct water, all good soil and all underpriced.
10 acres (on boulevard), per acre $500.
20 acres (2½ hilly) per acre $375.
30 acres, per acre, $350.
10 acres, per acre, $325.
15 acres (improved), per acre, $525.
60 acres (best walnut land in valley), per acre, $585.
Some cash, good terms. H. L. ALLARD, 410 Security Bldg. Phone Broadway 1696, Los Angeles.

For Sale: Citrus Land — Forty-five or ninety acres highest grade, proven frostless citrus land, at Fallbrook, practically on state highway—two miles south of town. Improvements on one forty-five. All land in crop. More water than you can ever use. This property must be sold at once and will be priced fifty per cent lower than anything of equal value in Southern California. Investigate quickly with your own eyes and judgment. Enough personal property goes with place so you can step in and go right to work. C. E. Howland, Fallbrook, California.

For Sale—$5000. Clear. 104 acres Mattole Valley, Humboldt County, 50 bottom, 25 bench, 8 bearing orchard, "Land of the big red apple." Plenty rain-fall. No irrigation needed, river and county road cross place. Fish and deer. Heart of the new oil district. Indications on place. Million feet saw-timber, new 6 room bungalow and 6 other buildings. No trades. E. T. Gray (owner). Box 524, Arcata, California.

FOR SALE AND EXCHANGE
10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.
FOR SALE
Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

Equipped for Irrigation—95 acres rich gravelly loam, bordering on rice creek, ¼ mile from Sacramento River; all oak tree land, ½ cleared; will sell all or 20-35-50 acre tracts; first class for all crops, especially alfalfa and trees. Buy from owner and save commission. Box 123, R. D. 2, Orland, California.

For Sale—Ten or twenty acres Apple Orchard, 10 inches abundance water. Varieties Wine Sans and Jonathans. Three miles south of Bishop, Inyo County. Famous Apple Belt. John A. Liedy, Bishop, California.

Fine Alfalfa Land Northern Los Angeles County, easy water lift; $55 an acre, one-fifth down. Write for our alfalfa circular. Lippincott Company, Fay Bldg., Los Angeles.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

For Sale—8 acre Poultry Ranch with chickens. New up-to-date buildings and equipment. Easy terms. Near town of Solvang, California. P. P. Hornsyld, Solvang, California.

Shawnee, Oklahoma, center of a great farming country. Write for information. Board of Commerce, Shawnee, Oklahoma.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

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Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale — Must dispose of my three Guernsey cows and two heifer calves—cheap. Fine chance to start small dairy. 5025 Palm Street, Lennox (near Inglewood), California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

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1 Ply Roofing Paper....$1.80 Roll
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Nails and cement included. Send us your order at once. 5,000 Gals. Stop Leak roof coating for shingles, paper or metal. Will make your roof as good as new. Ready to put on with a brush. Special price 5 gal. cans $3.00 per can. A. S. O'Niel Co., Contractors, 324 Wilcox Bldg., Los Angeles, California.

Farmers Troubled with Sticky Gumbo Land in plowing we have a composition and a deflector that we can attach to any plow to make it turn land like sandy soil. For information write: Champion Sales Co., P. O. Box 1854, Salt Lake City, Utah.

Red Leaf Tobacco—Homespun aged in bulk. Chewing or Smoking—6 pounds $3.30; 10 pounds $5.00. Postpaid. Murphy Company, Martin, Tennessee. REFERENCE, People's Bank.

5000 ft. of 8-in. and 10-in. surface irrigation pipe, $38.75 and $45 hundred feet. Don't wait month and expect order filled—very little new pipe in country. DEMMITT CO., 120 N. Main St., Los Angeles.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

If You Want to sell or exchange your property write me. John J. Black, 116 St., Chippewa Falls, Wis.

LIVE STOCK

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Third sale at the Ranch—all breeds—April 17, 1920. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

Just Arrived—3 carloads heavy blocky built Shire horses and mares, 4 to 7 years old, weighing 1,100 to 1,600 lbs. All sized city used horses and mares. New and used chain and leather harness. All kinds, single, double. Mill and lumber wagons and buggies. G. Lindauer, 122 Clara St.; off 4th St. near Harrison, San Francisco.

For Sale: Milk Goats, all bred to pure registered Saanan bucks from best imported stock. The female kids will be eligible to registry and will be worth twice what we ask for the mothers, viz., $20 to $50, according to grade. Here is a chance to get good blood at a low price. Wm. Ritchie, Arlington, California.

For Sale—Registered Nubian Goats, buck and several does, beauties, excellent milk stock, rich in cream. Miss B. Stocker, R. 4, Sebastopol, California.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands

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Young Man, Agricultural College Graduate, experienced in all branches of agriculture open for position as ranch manager or field superintendent. Last season was Irrigation and Rice Superintendent on 2000 acres of rice land in Sacramento Valley. Education, training, experience and references furnished. Address Box 517, Care of Y. M. C. A., Sacramento, California.

Wanted—Nursery Foreman. Young man experienced in fruit tree growing. Must be thoroughly competent field nurseryman and efficient in handling labor crews. In your reply give all particulars, experience, references, salary expected, etc. Address: Nurseryman, care of California Cultivator, 112 Market Street, San Francisco.

Wanted for Mountain Fruit Ranch—single or married—middle aged or elderly man—with good intention of doing right. Right party will find real home and good layout. Address: C. J. Mosler, P. O. Box 65, Julian, California.

Wanted to Buy second hand hay press, Eagle or Star preferred. State best cash price. Write: E. W. Boyd, 1226 East 52nd Street, Los Angeles.

Wanted Position on Ranch as foreman, Reference given if requested. Harry A. Knight, Tulare, California.

Wanted—Fine stationary or other work for Holt Caterpillar. Address: Boyd, 503 Sonoma Street, Los Angeles.

Wanted—500 to 1000 each of year old Myrobolan and Mazzard stock. C. W. ROSE, Santa Cruz, California.

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Beat the Butcher—Raise your own rabbit meat and know it is healthy. Our magazine tells you how. One year for 12 one-cent stamps. After January 1st 25c so get it now. SANDERSON, Eagle Rock, California. Dept. CC.

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beechling, 1578 W. 46th Street, Los Angeles.

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For Immediate Sale—One reg. Hampshire boar, 17 mo., good bone, well set up, $100.00. One reg. Hampshire sow about 20 mo., $100.00. Call or write: Crawford Kear, Poway, California.

Pedigreed Chester Whites, 3 to 5 months at very attractive prices. Illustrated description free. Cedarhurst Ranches, R. D. No. 2, Sacramento.

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Caldwell's White Muscovy Ducks, quackless, hardy, rapid growers. Eggs, Ducklings, Breeders. Free circular. Caldwell Farm, Box 274, Los Angeles.

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Washington Navel, Valencia, Marsh Grapefruit, Eureka and Libson Lemon trees. Sour stocks. One year old buds. We used "Supply Company" buds only. Nurseries Riverside, Puente. Frank A. Tetley & Son, 405 Eighth Street, Riverside.

Nursery Stock. Apples, pears, peaches, cherries, prunes, plums, berries, etc. OURS IS MAIL ORDER SYSTEM. IT SAVES YOU MONEY. Write us now for Planters' list. 20 years in business. Carlton Nursery Co., Carlton, Oregon.

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100,000 Florida Sour Orange Seed Bed Trees; 100,000 Sweet Orange Seed Bed Trees. Valencias, Grapefruit, Kadota Figs, Olives, Umbrella trees. Southland Nurseries, 1941 East Colorado Street, Pasadena, Phone Colorado 6352.

Budded Avocado Trees—We grow all varieties. W. P. Sherlock Avocado Nursery, R. D. No. 2, Puente, California. Sales yard on Third Avenue between El Monte and Puente.

For Sale — Seed Bed Stock, sour and sweet. Budded Valencias, navels, lemons. Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena, California.

For Sale—Scions, Eureka and Placentia Perfection from choice grafted orchards. The WALNUT NURSERY, W. A. Litten, Prop., Whittier, California. Phone Home 6294.

For Sale—Valencia Late and Eureka Lemon Trees, one and two year buds. Choice stock. W. V. SKILLMAN, R. F. D. Box 387, San Fernando, California.

For Sale—200 Eureka Walnut trees which have been planted in orchard two years. Call and see them. J. M. Koller, Puente, California.

Prune Trees—30, 35 and 40c. Cash Nurseries, Sebastopol.

TREES

For Sale—3,000 select orange trees. Also 3,000 lemon trees; first class trees; 20,000 seedbed stock. A. R. Ildeout, Whittier.

You Want to Plant Good olive, persimmon and citrus trees; thornless blackberries, figs, rhubarb, etc. Bishop's Nurseries, Highland.

Place Your Orders Now for all kinds of Citrus Stocks. Butler's Morningside Nursery, Lamanda Park, California.

Citrus Seed Bed Stock — Budded citrus trees. L. A. Tuttle, R. 2, Box 404, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—Eureka Walnut Scions. R. D. 4. R. M. Fay, Anaheim, California.

TURKEYS

For Sale — Turkey Eggs, from Wild-Domestic crosses. Raise more turkeys. Introduce wild blood into your flock. Get hardy, vigorous poults. Mammoth Bronze eggs also. Write for circular with directions how to raise 90 per cent of all you hatch. Orders booked now for February eggs and 5 day old poults. The Wild-Domestic Turkey Home, R. D. Box 26-A, Hemet, California.

For Sale — Breeding Toms. Pure Bred White Holland Beauties $12.00 each. Orders booked for White Holland Eggs, shipped in laying season. 75 cents each. Order early, supply limited. Mrs. L. A. Robinson, Hemet, California.

We advise our customers wanting turkey eggs from utility or prize stock to place their orders now. Eggs 50c to $3 each; 25 per cent deposit required. Paradise Valley Poultry Ranch, National City, California.

Write for Prices of Turkey Eggs and purebred Mammoth Bronze Cockerels. ROBINSON TURKEY RANCH, San Dimas, California. Covina Phone 902.

"One raw fur house which can be relied upon"

When you ship your raw furs to H. Liebes & Co. you will get the same fair and square treatment that Ulysses Bonetti of California does. Read what he says about the way H. Liebes & Co. treat trappers—

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Trappers who want honest grading, fair prices with no commission charges, should send their furs to H. Liebes & Co.—the largest manufacturing furriers in the West. Write for our price list today.

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Would you like to know how many cups a pound of Schilling Tea makes?

We'll tell you if you tell us how strong you like your tea, how long you let it stand on the leaves, how near you are willing to get to the tannin-taste, and how large your cups are.

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There are four flavors of Schilling Tea—Japan, Ceylon-India, Oolong, English Breakfast. All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

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Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or steamer, January, 1920.

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Ernest Braunton

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125 N. Broadway Los Angeles

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Household Department

DOLL DRESSMAKING

By Virginia G. Stanard in Youth's Companion

We cut, we trim, we scallop,
As busy as can be;
It takes a lot of labor
To dress a family.

Girl dolls are very careful
About the styles, you know;
They like becoming colors
And hats that sit just so.

We snip, we tuck, we gather,
We seam the whole day through:
If dolls grew fast as children,
Whatever should we do!

THE DESERT FEUD

By M. E. Bemis

(Continued from last week).

We had the smouldering fire. These two young fools had spilled the coal oil, as it were, upon the coals, and we were watching and momentarily expecting the flash which should be the outbreak of the feud that had resulted. Under such a nervous tension we traveled for weeks.

In all the party there were only two who were entirely neutral, so far as outward appearance was concerned. One of these, as you might expect, was Captain Sprowle, who, so far as I know now or could observe then, favored neither one side or the other. He issued his orders to all impartially. He called into consultation members of both factions, urging them to use care in the discussion of all subjects which would in any way be likely to precipitate matters. The other neutral was a little girl of four years, the only child of William and Alice Brown, who were taking their all, which consisted of two cows and a team, into the new land to take the chances of pioneer's fortune. Little Alice, as the child was called, had become from the first day out a general favorite. When camp was made she walked around from one group to another and none had any but pleasant words, and frequently gifts for her. Curiously enough, her two favorites among the party were Mary Andrews and John Brent. A friendship for these two had begun from the first and continued. When the climax came her childish mind could not see any reason for forsaking either, and although Brown as a soldier under Major Andrews sided with him, both he and his wife were too sensible to try in any way to make the quarrels of the elders the trouble of a child.

So it happened that she still went from group to group. In the day time she rode with one family in one wagon and then with another, indifferent as to which faction they belonged to. At night she teased for stories from first one and then another, and her cunning ways enlivened the seriousness and helped in a measure to relieve the tension. John Brent whittled toys for her, sometimes a doll which she took at once to Mary Andrews, who had her first lessons in sewing in learning to dress the dolls of little Alice.

In spite of the feud Mary Andrews was learning rapidly some of the things which had been neglected as a part of her education as a southern belle. She occasionally assisted, in a surreptitious, half ashamed manner, the women in their work. She learned to ride, not as the ladies of her set had ridden, but as the frontier woman rides, as a part of her horse, easy, free and in that way which is untiring both to the rider and the horse. I often caught Brent's admiring eyes following her as she gracefully skimmed the prairies, circling the train and sometimes helping to herd the cattle as we drove them along. She learned to handle fire arms, not only to shoot and shoot well, but to load and care for both rifles and revolvers.

The cause for the quarrel was melting away, but in the heat that had been kindled none seemed to notice the change that was taking place.

Things went on in this way, each expecting and dreading the time when someone with overwrought nerves should precipitate the crisis which would end as all feuds end. Men went about with serious faces; women talked with hushed voices; of all the party none were indifferent or joyful except Little Alice. And then there came a morning when Little Alice did not make the rounds at breakfast time. All missed her and inquiry disclosed that she was ill. All night she had been feverish and restless. The older women tried the simple home remedies, but she grew steadily worse, and as the train made its slow way across the desert wilderness, those close to her father's wagon could hear the low wails that came from the poor, painwracked, fevered little body.

Early in the afternoon Captain Sprowle ordered a halt and camp was pitched in the hope that it might bring relief to the sufferer, but without avail. Towards night she seemed to gain consciousness and recognized her father and mother. Mary Andrews was also at her side and Alice smiled at her and tried to talk of her playthings. In a few moments she said, "I want my John," as she was in the habit of referring to John Brent. Her father at once went in search of him. Mary blushed and attempted to withdraw, but Alice held her hand tightly, and responsive to the pleading look in the mother's eyes she remained. Brent soon came and seeing Mary turned away, but the child's mother said: "Little Alice Wanted you, Mr. Brent, and would not let Mary go." The sick child smiled at him and held out her other hand, and he sat down opposite Mary. Together the two tried to relieve the paroxysms of pain by bathing her brow, talking to her in an attempt at the old jolly way of pleasing her. Together these two watched with the parents of the stricken child the quick short breathing that betokened the approaching end. After a little the child opened her eyes and holding more tightly the hands of each, she said: "Pease don't fight no more." Together they watched the tired lids close for the last time over the bright eyes that had been the light of the travelers and especially of these two.

Slowly Brent came back with bowed head. A few hours later Captain Sprowle came with a shovel and handed it to Brent and with a voice that choked he said: "It has to be John. We must bury the child at daylight for we have to leave at daybreak on account of making camp tomorrow night where there is water." I went along with Brent to hold a light while he dug the grave. Pretty soon Mary Andrews came out and saying to me, "Bill, you go back and try to rest a little, I'll hold the light," she took it from my hand and together the two finished the grave of the child that had begged as a dying request: "Pease don't fight any more."

What they may have said there that night under the stars only God and the angels know, but in the morning when the eastern sky was turning gray and all that was mortal of Little Alice was brought out for the burial John Brent and Mary Andrews stood side by side as the rude coffin was lowered into the grave and scattered desert flowers upon its lid. As the last of the earth was heaped upon the grave she turned to Brent and asked: "Shall we sing, John?" and together their voices blended in the hymn, "God Be With You Till We Meet Again." Major Andrews brought a rude cross that he had spent the night in making and erected it over the grave that the men covered with stones. Captain Sprowle offered a simple prayer with a peroration, pleading that the calm and peace which had fallen upon this little one might pass to those who sorrowed in forgetting their differences and in the contemplation of the higher and more worthy ideals of life.

The camp broke, and in the last of the train of wagons looking back towards the lonely grave, with eyes that could not see for the tears, were the parents of Little Alice, their firstborn. Theirs was the price that pioneers have paid for the privilege of paving the way for civilization. Perhaps through their tears there may have come a vision of the after years, of other children in a happy home in a peaceful land of cattle, of broad fields of alfalfa and a community that was the better for their having lived in it, for those things were to be, but to the longest day they lived would never be forgotten that lonely grave on the desert.

Up in the front rode John Brent and Mary Andrews, side by side, into the dawn of the new day and into the

The Cultivator Patterns

BE SURE TO SEND SIZE

3109—A Unique Model. Cut in three sizes: 16, 18 and 20 years. Size 18 will require 5⅛ yards of 44 inch material. The width of the skirt at lower edge with plaits exteuded is 1⅞ yard. Price 10 cents.

3123—A Dainty Frock. Cut in four sizes: 4, 6, 8 and 10 years. Size 10 will require four yards of 27 inch material. Price 10 cents.

3115—Dress for Work or Leisure. Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 5¾ yards of 30 inch material. The width of the skirt at lower edge is two yards. Price 10 cents.

2748—Boys' Suit. Cut in four sizes: 3, 4, 5 and 6 years. Size 4 requires 1¾ yards of 27 inch material for the waist, and 1⅛ yards for the trousers. Price 10 cents.

3095-3104—A Very Attractive Combination.

3095 comprises a Muff cut in one size, and a Cape in threo sizes; Small, 32-34; Medium, 36-38; Large, 40-42 inches bust measure. It will require 2¾ yards of 44 inch material for the cape, and ½ yard of 30 inch material with 1¼ yard of lining for the Muff. Skirt 3104 is cut in seven sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. A Medium size will require 3⅛ yards of 40 inch material. With plaits extended the width of the skirt at its lower edge is 2⅛ yards. Two separate patterns 10 cents for each pattern.

3099—Girls Dress. Cut in four sizes: 8, 10, 12 and 14 years. Size 10 will require 2⅞ yards of 44 inch material. Price 10 cents.

2841—Ladies' Apron. Cut in four sizes: Small 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. Size Medium requires 4¼ yards of 36 inch material, with 1¾ yards of banding, 2¼ inch wide, for neck and front. Price 10 cents.

3117—A New Corset Cover. Cut in six sizes: 32, 34, 36, 38, 40 and 42 inches bust measure. It will require 1⅜ yard of 36 inch material for a 38 inch size. Price 10 cents.

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest Chicago styles, all pattern orders are filled in Chicago. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles.

dawn of a new life. Each had learned a lesson, and in the learning there had come the sweet satisfaction of knowing that humanity must share its burdens as well as its sorrows with others, that each is a part of a great whole with rights which others are bound to respect, but with duties that are, as others' rights, equally imperative.

Not one of all the number but was bowed in sorrow, but deep as the sorrow and sincere as was the sympathy for the parents, we knew that in dying Little Alice had not died in vain for in her grave there had been buried forever the feud of two foolish young folks.

The last dying ember of the fire broke and fell, disturbing the silence that followed the old man's story. From the street floated up sounds of the everyday world. Paxton blew his nose violently as a pretext for wiping from his eyes a suspicious moisture. Old Man Hendricks threw away the stump of his cigar, lighted another and rising, walked over to the elevator and pushed the button to descend. Dawson called after him: "What became of John Brent and Mary Andrews?" "That sir," said the old man, "is quite another story. Several of them, in fact. This one, as I told you at the beginning, ends with a funeral."

COOPERATIVE BUYING

By this I mean neighbors or relatives or members of a club buying common articles together and getting in many cases wholesale rates—for example, boys' corduroy pants, overalls, men's and boys' underwear, etc., also shirting by the bolt makes a considerable saving and the uses of shirting are legion—boys' blouses and shirts, aprons, rompers and creepers, bloomers and everyday dresses for girls.

Then, too, it is a wise plan for a number to buy thread, needles, etc. They are always cheaper in large lots and always needed.

By the way, there is an extra good grade of shirting that is 36 inches wide and cuts to excellent advantage.

Don't buy remnants unless you know just how much of the goods you need. You often have pieces left over and your remnants may cost you more than goods by the yard.

I have found that patterns are not always reliable in giving the amount of goods needed, so that it is a wise plan before buying goods to lay your pattern over it and see if it meets the requirements.

As far as possible get yard wide goods and goods having no right or wrong side. It cuts to much better advantage.

It is a wise plan to shrink goods that shrink much in washing before cutting them.

It is the part of wisdom to patronize sales of reliable houses, especially after Christmas sales and end of August sales, but don't buy things you don't need because cheap.

Pretty dresses for small girls can be made from a small remnant of gingham or linen for the skirt part and an outgrown blouse of an older brother for the waist part. Cut out the old collar, add a collar of new goods and cuffs. Finish with a belt, and presto! a new dress. Since sateen is so high dark blue or black galatea or devonshire cloth make good bloomers for little girls.—Reader, Santa Paula.

ECONOMY IN CLOTHES

By Mrs. Ward L. Jones, Stockton

In answering your call in the Cultivator for suggestions as to economizing in clothing, I have a few hints which might be helpful.

In making children's play dresses I find I can make a dress for a little girl from one to three years of age from a shirt which my husband has discarded. The sleeves of the shirt make the sleeves of the dress and the front of the shirt makes the back of the dress, thus saving one the trouble of making new buttonholes. Pockets may be added on which a little bunny, a duck or any design may be outlined. If the shirt has a pleated front I make the dress with a little yoke, using the pleated front of the shirt for the yoke of the dress.

In making house dresses and small house aprons, I find flour sacks can be used to good advantage. A very pretty breakfast set may be made by dyeing flour sacks any desired color and making collars and cuffs of white and a little cap to match. House dresses may be made that are certainly durable and very pretty by using the sacks the way they are using pieces of left over gingham or percale for collars, pipings, pockets, etc. The letters on the sacks may be removed by first soaking them over night with naptha soap, then boiling in suds to which a little kerosene has been added.

HOW TO ECONOMIZE ON CLOTHES

By Beulah May

How to economize on clothes is some problem. Dyeing of course helps many a faded dress along, but one must have new ones sometime. The only sure way I know is to make one's own clothes. It is not so hard. I made a beautiful coat this fall from a gray army blanket; cost of material, pattern, etc., $8. A faded cotton dress of rough texture, if dyed, makes a very pretty smock.

Use good pieces of a worn silk waist for camisoles.

Watch the sales, but never buy a piece just because it is on sale unless you really need it.

COOPERATIVE BUYING

A very businesslike suggestion is offered by our "Santa Paula Reader." Why not cooperative buying of staple dress materials? Farmers are being driven to cooperation in every other line and workable methods are being found.

Has our "Santa Paula Reader" made an actual test of cooperative buying with friends and neighbors? If she has all of us who read this page would like to hear more of how she has gone about it and how it works.

May we not have another letter with more information? Meanwhile we would also like to hear from anyone else who has ideas to express on the subject. Prices are still mounting!—R. P. D.

AWARDS IN HOUSEHOLD CONTEST

To Anna Lenington Heath, Pomona, first prize, $2, for "The Fight With Old H. C. L.," published in last week's Cultivator; to Reader, Santa Paula, second prize, $1, for "Cooperative Buying"; to all others whose letters are published one year's extension of subscription to California Cultivator.

THIS WEEK'S PATTERNS

The skirt 3104, giving the wide flare just below the hips, is exceedingly becoming to most figures—and is new. The stout woman need not shun this style, as she must the usual widening effect at sides of skirts, for this width is given not by fullness but by a straight line and the width comes below the wide part of the hips so that it gives an exceedingly trim effect. The cut of the back too takes away the trying "broad" look at the back.

The long waist of 3109 is becoming to the short waisted figure, if there is enough length from the waist down so one is not "cut in half." Beware of long waisted effects if you are also short legged.

A sweet and dainty way of making a little girl's summer dress is shown in 3123. 3099 gives the new narrow shouldered effect very gracefully. A simple darned edge for trimming, stitching or simple braid as indicated in the picture is very pleasing.

Two more good house dresses or work aprons. They are so simple and easy to make, such a model as 2841 requiring really no fitting, that one cannot afford to buy ready mades at any price unless they are of material that will wear and wash well.

The sturdy straight little boy's suit 2748 will help find a way of using some of Daddy's duds that are ready for passing on.

A new corset cover 3117, without back or front closing to show under a filmy waist, will appeal to every girl. A number of ways of modifying this style are shown and others will at once occur to the home dressmaker. By cutting the sleeve portion a little longer a short kimono sleeve can be made for those who dislike the open arm.—R. P. D.

WORDS INSTEAD OF ACTION

There was a man whose nature balked
And tempted him all toil to shirk.
About "efficiency" he talked
And thus avolded real work.

A Barn Is Worth Careful Planning--- Isn't a *HOME* Entitled to as Much?

Well planned barns increase profits because comfortable livestock thrives better. Good barn equipment saves manpower and time.

Isn't Home worth the same amount of attention? Home, where mother begins and ends her many duties, where the children grow up and learn to appreciate worthy things through the examples about them, demands as good planning as the rest of the ranch. The happiness of the family circle should never be clouded by household drudgery or unpleasant furnishings.

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2 oz. cabbage seed costing $1.00 produce 20 wagonloads
2 oz. tomato seed costing $1.00 produce 10 wagonloads
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6 lbs. carrot seed costing $6.00 produce 40 tons
6 lbs. beet seed costing $6.00 produce 40 tons

How else can you make your money yield such large returns? But be sure you get all your seeds from Morse, Morse's Seeds are soil-tested and true-strain. They grow and produce. They yield large crops of fine vegetables. Write today for quotations on larger quantities of the seeds listed above and for all other seeds you need.

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Morse's seeds are obtainable everywhere in large 5c packets

Los Angeles Markets

Los Angeles, January 28, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 66 cents.

Dairy Exchange prices last week on extras:

Jan	21	22	23	24	26	27
'20 ...	..	63	66	66	66	66

CHEESE

Brokers' prices:

California, fresh, lb., 31; price to retail merchants, 31@33.

EGGS

Fresh extras, Produce Exchange close price, 54 dozen; case count Produce Exchange closing price 52 dozen; pullets, Produce Exchange closing price 52 dozen.

Dairy Exchange prices last week on extras:

Jan	21	22	23	24	26	27
'20 ...	..	55	55	55	55	54

POULTRY

Price to producers: Hens, lt. 35; heavy 35; colored over 4 lbs., 37; broilers, 32@35; fryers, 35; roasters, 35; old roosters, 20; ducks, old, 23, ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hen turkeys, live, 40; dr., 41; squabs, 45@47.

Belgian hares, 3 to 3½ lbs. live, 17.

LIVE STOCK

Los Angeles, Jan. 27. — Weighed and delivered off cars without food or water: Hogs (hard-grain fed), 125 to 150 lbs., 15.00; 150 to 175 lbs., 15.50; 175 to 225 lbs., 16.00.

Cattle (on foot, gross weight): Steers, good, 11.50@12.00; medium, 11.00@11.50; heifers, good, 9.50@10.00; fair, 9.00@9.50; bulls and stags, 6.00@6.50; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.00.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock January 27, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Two cars California, two cars Idaho arrived. New stock, Stockton: Burbank, fancy and special brands, wide range, 5.25@5.75, mostly 5.40@5.75; few low as 5.00. Idahos: Russets, 5.50; few 5.25; Rurals, 5.00. Local: Lug boxes, 1.75@1.80; local White Rose mostly 5.25.

Sweet potatoes: Market strong. Lugs, 1.00@1.50; cwt. mostly 4.25@4.50; best, 5.00.

Carlots: Demand and movement slow, market firm, supplies limited. Straight cars, too few sales to quote, mixed cars, 4.50 per cwt.

Onions. Demand and movement moderate, market strong. Home grown and Stockton: White Globes, cwt., 6.50@6.75; Yellows and Browns, mostly 6.00. Garlic, lb. 40.

VEGETABLES

These are the actual prices obtained January 27, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz., 1.75@2.00.

Beans, green, lb., best, 15@17; other 8@9.

Beets, doz., 45@50; lb., 4@5; sk., 3.00@3.25.

Brussel Sprouts: Per lb., 10@13; best shipping stock 14@17, mostly 17.

Cabbage: Market strong. Per lb., 4@5; per cwt., 4.00@5.00; sacks, 3.50@4.00. @4.00.

Carlots: Demand good, movement moderate, market firm, supplies scarce. Winningstadt and Cannonball, in straight cars, very few sales, $80.00@85.00, mostly $80.00; mixed cars, mostly $85.00.

Carrots, dozen, 35@40; lb., 3; sk., 1.50.

Cauliflower: Market weak. Local stock, per doz., best 85@90; others, 60@75; field crates, 1.25@1.50; best high as 1.75@1.85.

Carlots: Demand good, movement moderate, market steady. Half Early and Pearl, straight cars, 90@1.00, mostly $1.00; mixed cars, $1.05@1.10.

Celery: Market stronger. Local and northern, per dozen bunches, 1.55@1.65; poorer low as 60; cr., 6.50@7.50; fancy shipping stock, 8.00@8.25.

Carlots: Demand and movement moderate, market firm, supplies limited. Per dozen, straight cars, few sales, No. 1's, 1.00@1.05; No. 2's, 90@95; mixed cars, No. 1's, 1.10@1.15; No. 2's, 1.00@1.05; No. 3's, 90@95.

Cucumbers, hothouse, 75@2.25 doz.

Chicory, dozen, 45@60.

Eggplant: Florida and hothouse, 25 per lb., local, scarce, 14@17.

Peas, local, scarce, lb., best, 10@12; others, 7@9.

Lettuce: Local stock: Market weak. Per dozen, 30@40; crates, best, 1.00@1.50; other, 60@75; best shipping stock, 1.50@1.75.

Carlots: Demand and movement moderate, market weaker, wide range in quality and condition, generally fair. California: Crates, Los Angeles Market (Iceberg), straight cars, 1.50@2.00, mostly 1.75@1.85; mixed cars, wide range in price, 1.60@2.00, mostly 1.75@2.00. Imperial Valley: 2.00@2.25 crate, mostly 2.00.

Parsley, doz., 35.

Peppers. No carlot arrivals. Supplies very light. Local stock: Bells, mostly 18@22 per lb.; Chills, best, 16@22 per lb. Floridas: Bells, 30 per lb.; Chills, 22@25.

Parsnips: Lugs, 80@1.00; sacks, 2.50@2.75; others, 1.65@2.00; per dozen, 50.

Rhubarb: Local stock scarce, bx., 1.40@1.50; few best, 1.85@2.00.

Squash: Hubbard, cwt., 2.75@3.50; lb., 3½@4½.

Spinach, doz., 30@40.

Tomatoes: Mexicans: cr. repacked, 3.75.

Turnips, doz., 50; sk., 3.00@3.75.

FRUITS

These are the actual prices obtained January 27, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: No carlot arrivals. California: four tier Bellefleurs, poor quality and condition, 1.85@2.00; best, 2.10@2.25; 3½-4½ tiers, 1.50@1.75; loose, 3@4½; per lb. Glen Seedlings, 2.25. White Pearmains and Yellow Newtown Pippins, 2.00@2.35 box, mostly 2.15@2.25; some fancy high as 4.25@4.50; Newtown Pippins, per lb., mostly 5@6. Pearmains, 5@6 per lb.; Winesaps, 6@6½. Delicious, 2.50@3.00 box; some fancy, large sizes, 3.50@4.00; loose, 5@7 per lb. Rome Beauty, 2.00@2.25; some fancy, 2.75. Northern Jonathans, loose, per lb., 7@7½. Spitzenbergs, extra fancy and fancy, 2.85@3.25; choice 2.50; per lb., 6½@7½. Delicious, boxes, 4.00. Winter Bananas, extra fancy and fancy, box, 2.00@2.50; loose, 6 per lb.

Bananas, 8@8½.

Cranberries: Barrels, 16.00@18.00; best shipping 18@20 per lb.; Oregon, lb., 8@10.

Pears: Winter Nelis, 3.50; lb., 6; Seckel, lb., 7.

Pineapples, lb., 15@16.

Lemons: No carlot arrivals. Market firm. San Fernando Valley stock: fancy packed, 3.75@4.00; loose, 3.50; juice, 2.00@2.50. Local stock: packed, 2.50@3.00; loose, 2.00 box; 3 per lb.

Oranges: Navels, 4.50@5.00 box. Local stock: Packed, 3.50@4.00; best high as 4.75; Tangerines, Cal., lb., 6@8.

Grapefruit: Arizona: Seedless, per box, 4.00; California: Porterville and Imperial Valley stock, per box, best, 3.25@4.00. Local: 2.00@2.75 box.

HONEY

Demand and movement good, market steady. Carloads f. o. b., usual terms, per lb.; white orange blossom, mostly 19; white sage 19@20; extra light amber sage 18½; light amber sage, supplies cleaned up; light amber alfalfa, 16½. Beeswax, local lots, 40@43.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.

No. 2, 26.

Diamond Brand Buds, 34.

Golden State Buds, 34.

1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6: Limas, 14½; baby, 13.

GRAIN AND FEEDS

Price bid local grain exchange, January 20:

Cal. Feed, 3.10; seed, 3.17½; Eastern White, 3.00.

Barley, 3.60.

Corn, Yellow, 3.38¾@3.43; White, 3.22½@3.42½.

Egyptian Corn, 3.55.

Eastern Kafir, 2.85.

Wheat, mixed feed, 5.20@5.60.

Milo, 3.03; Eastern No. 2, 2.72½@2.87½.

Bran (Kansas), 51.00.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	24.00@27.00
Barley	20.00@25.00
Alfalfa	23.00@28.00
Barley Straw	10.00@12.00

San Francisco Markets

San Francisco, January 27, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras						66
Prime Firsts						63½
Jan.	20	21	22	23	24	26
'20	59½	59½	62	66½	67	66
'19	..	59½	54	50	45	..

Rects. wk. ending Jan. 26, 2,236, centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	30@31
Cal. Flats	32½
Cal. Y. A.	37
Oregon Trip	32

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras						62
Extras, pullets						54½
Undersized						51
Jan.	20	21	22	23	24	26
'20	63	64½	64½	68	64½	62
'19	..	58	57	57	55	..

Rects. wk. ending Jan. 26, 376,500 doz.

POULTRY

Wholesale prices are:

Leghorn, 38@39; small, 38@39; large, 39@40; roosters, young, 35@37; old, 21@23; broilers, 38@40; fryers, 33@34; turkeys live, 38@40, dressed, young, 52@53; Ducks, Indian Runner, 25@27; Pekin, 28@32; geese, 30@32; Squabs, 50@65.

Belgian hares, live, 18@20; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company are:

Cattle: Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 11½@12¾; do, 1,200 to 1,400 lbs., 11@11¾; do, second quality, 10@10½; thin, 8@9.

Cows and Heifers—No. 1, 9@10; second quality, 8½@9; common to thin, 5½@6½.

Calves—Light weight, 13½@14; medium, 12@12½; heavy, 9½@11½.

Lambs—Yearlings, 10@11½; milk, 11½@12½.

Sheep—Wethers, 10@11½; ewes, 8½@9.

Hogs—Weighing 100 to 225 lbs., 15½; 225 to 300 lbs., 15; 300 to 400 lbs., 14.

Morgan & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle—Good steers, 1000 to 1200 lbs., 12@12¾; good heifers, 1000 lbs. and over, 9@10; good cows, 1000 lbs. and over, 8½@9; canner cows, 5@6; good bulls, 6@7.

Calves—Light, 13@14.

Hogs—Top packer, hard and well finish-

A Quality Combination

THE **International 8-16 Kerosene Tractor** is a tractor of character and personality. The first note of appeal is the graceful, trim design, the general compactness and the good balance of the tractor, with just the right distribution of weight on the front trucks and drive wheels. The next thing that strikes you is the absence of exposed working parts; everything is enclosed as protection against the grinding action of dust and dirt.

And you are impressed by the flexible range of the drawbar, making it possible to pull a harrow, plow, binder or wagon with equal advantage and by the convenient pulley so placed that the tractor can be backed into the belt in a hurry, with no chance for the belt to drag on the ground or rub against any part of the tractor.

And coming down to more technical but nevertheless very important details—there is the throttle governor that regulates the fuel to the load; removable cylinder sleeves in the engine so that if a cylinder should become scored through the use of poor lubricating oil, for instance, a new lining can be put in at once, renewing the cylinder; centralized auto-type control, making this tractor as easy to handle as an automobile.

These are only a few of the desirable characteristics of the **International 8-16 Kerosene Tractor.** The catalog that we have ready to mail you will give you the rest. Or, see your International dealer and examine his sample 8-16 for yourself.

International Harvester Company of America
(Incorporated)
Billings, Mont. Crawford, Neb. Denver, Colo. Helena, Mont.
Los Angeles, Cal. Portland, Ore. Salt Lake City, Utah
San Francisco, Cal. Spokane, Wash.

ed, 150 to 225 lbs., 15½; 225 to 300 lbs, 15; over 300 lbs. 14.

POTATOES

Wholesale selling price:
4.75@5.25; choice, 4.50@5.00; Idaho, Gems, 5.25@5.65; Salinas, 5.25@5.75; choice, 4.50@5.00; yellow, 5.00@5.25; sweet, 5@5¼ lb.

ONIONS

Wholesale selling price:
Onions: Onions, fancy brown, 5.00; choice, 4.50@4.75; yellow, 5.00@5.25; white, 5.00@5.50.
Garlic, 25@30 lb.

VEGETABLES

Wholesale selling price:
Artichokes, cr., 15.00@20.00; doz., 1.00 @1.50.
Beans: String, 15@20; Lima, 12½@15.
Brussels Sprouts, lb., 8@9.
Carrots, per sack, 1.00@1.25.
Cauliflower, doz., 1.25@1.45.
Cabbage, doz., 40@50.
Celery, doz. bunches, 45@50; cr., 5.00 @6.00.
Eggplant, lb., 15@20.
Lettuce, cr., 1.75@2.00.
Pumpkins, lb., 2@2½.
Peppers, Bell. lb., 15@20; Chili, lb., 10 @15.
Peas, lb., 10@12½.
Radish, 7@9 doz. bunches.
Tomatoes: Southern, cr., 1.00@3.00.
Spinacb, lb., 2@3.
Squash: Hubbard, sk., 1.25@1.75; Summer, bx., 1.50@2.25.

FRESH FRUITS

Wholesale selling prire:
Apples: Bellflowers, 1.25@1.75; Newton Pippins, 1.75@2.25; Spitzenburg, 1.75 @2.25; ch.; fy., 3.00@3.25; Baldwins, 2.00 @2.50.
Bananas, 7@8½.
Cranberries, 5.50@6.00 per standard box; barrel, 11.00@12.00.
Olives, lb., 8@12½.
Pears, box, 2.50@4.00.
Persimmons, box, 1.25@1.75.
Pineapples, doz., 3.00@4.50.
Pomegranates, 1.00@1.50 bx.

CITRUS

Wholesale selling price:
Per box: Lemons, fancy, 4.00@4.50 choice, 3.50@4.00; standard, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00 @2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@3.00; navel, 4.00@5.00; limes, 1.50@1.75 per crate; tangerines, 1.50@ 3.25 per crate.

BEANS, PEAS

Jobbing price per cental:
Beans: Small white, 6.50@6.75; large white, 6.50@6.75; cranberry, 7.50@8.00; red Mexican, 8.00@8.50; pink, 7.00@7.50; California Bayou 9.25@9.75; Blackeye, 6.50@6.75; red kidney, 12.00@13.00; Lima, 13.50@13.75; Garvanza, 9.50@10.50; Kotenasbi (in bond), 5.35.
Dried Peas: California, 6.50@7.00 per cental for green, recleaned.

ALMONDS

California Almond Growers Exchange opening prices:
Nonpareil @32½, IXL @31½, Ne Plus Ultra @30½, Drake @23½.

HONEY

Jobbing prices: Extracted, Water White and White, 18@20 lb.; Light Amber, 16@18; Amber, 14@16½; Comb, 25@ 28 for White and Water White and 20 @22½ for Wh. Amber.

DRIED FRUITS

Prunes:
Prune prices announcel by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premlum will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.
Peaches:
Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:
Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.
For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special, "practically peeled," 16¾c per pound, bulk basis.
Apples:
Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@ 23½.
Figs:
White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; exta choice (in 50s), 19 @20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@ 1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20 @4.35; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@ 3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.
Pears:
Standard 20, choice 22½; extra choice, 24; fancy, 26@27.
Raisins:
California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅜; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12⅜; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾. Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown, flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown, tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, 2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.30; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

GRAIN

Wheat: The prices are based upon federal grades and standards at the terminals in San Francisco Bay and Los Angeles, and are as follows, per bushel of 60 pounds:

Hard White—	Per Bushel	Per Cental
No. 1	$2.20	$3.66 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51⅓
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.09	3.48⅓

The above are minimum prices.
For sacked grain add 4½ cents per bushel of 60 pounds to above prices. Deductions of tbree-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.
Oats: Red feed, 3.30@3.35; black, 3.50.
Corn: California yellow, 3.15@3.25 per cental; Egyptian white, 3.75@3.80; milo maize, 3.25@3.30.
Barley: Spot feed, per cental, 3.60@ 3.65; brewing, 3.65@3.75.

HAY

Under date of January 24, Scott-Magner & Miller says:
Receipts past week 2,228 tons. Although these receipts are quite heavy for this time of the year, much of the hay has been ordered in for recompressing to fill government contracts for shipment to Hawaii and the Philippines; the government having called on contractors during the past week for some 2,000 tons for delivery shortly. The general hay market in San Francisco is quiet, yet prices are higher than for some time past. Demand from country districts continues heavy, nearly all sections requiring more or less hay for feeding. The recent rains have been a fizzle in practically all sections with the exception of on the lower Coast where they received about one inch of rain. The balance of the state received from one-quarter to one-half an inch, which is of course of great benefit—at the same time nothing compared to what is required at this time. Every little bit of moisture will be a great help and we are thankful for what we have received, yet all are praying for more rain soon. Weather conditions have been most abnormal to date and unless great changes come shortly not only will those crops depending on the rain be severely affected but the irrigation districts will have very little water and the power companies will be almost out of business as very little snow is in the mountains at the present time. Under these conditions we look for the hay market to go still higher as stocks are unusually short in this state, and although we are calling now on surrounding states their supply is limited.
We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses are to be added according to conditions:

Fancy Wheat Hay (light 5 wire bales)	29.00@31.00
No. 1 Wheat or Wheat and Oat Hay	26.00@30.00
No. 2 Wheat or Wheat and Oat Hay	25.00@27.00
Choice Tame Oat Hay	28.00@31.00
Other Tame Oat Hay	25.00@28.00
Wild Oat Hay	24.00@27.00
Barley Hay	24.00@27.00
Alfalfa Hay	26.00@31.00
Stock Hay	21.00@24.00
No. 1 Barley Straw, ton	.50@ .80

Citrus Markets

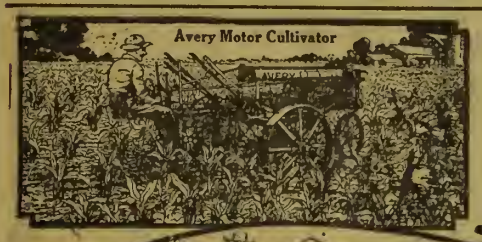
Los Angeles, California,
January 28, 1920.

Auction centers have shown many low sales of oranges due to the "frozen-in-transit" fruit that is showing up. Navels brought yesterday in the New York market $1.90-6.25. Now that danger of frost damage in California has passed, and with the assurance of a very short crop, it is expected that the market will advance steadily.

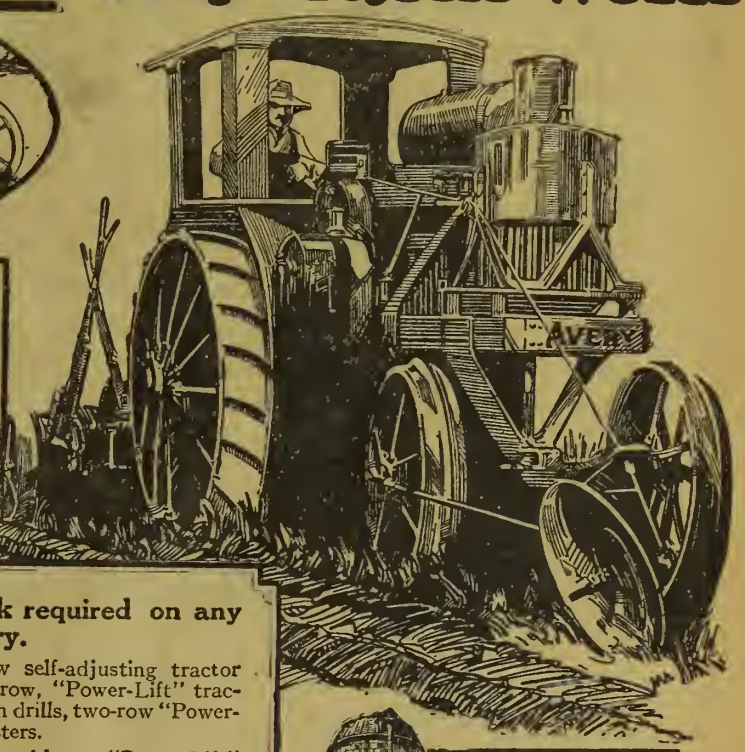
There is strong demand for lemons, especially in sections where influenza is epidemic. Twenty-five cars daily are going forward from this state. Good stock is bringing $5.00 to $5.50.

Shipments

Shipment of oranges from Southern California to date since November 1, 1919. Oranges, 5,229 cars; lemons, 977, total, 6,206. To same date last season, Oranges, 4,294; lemons, 1,538; total, 5,832. Central California: Oranges, 3,402; lemons, 154; total, 3,556. To same date last season: Oranges, 2,201; lemons, 187; total, 2,388. Northern California: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.



'Averyize' All Your Farm Work



YOU can do all the power work required on any size farm with Avery Machinery.

The Avery Line for 1920 includes a four-cylinder 14-28 H. P. tractor in addition to the previous 8-16, 12-25, 18-36, 25-50 and 40-80 H. P. sizes.

—A new six-cylinder small tractor.

—A six-cylinder two-row motor cultivator, a new four-cylinder one-row motor cultivator.

—A new self-adjusting tractor disc harrow, "Power-Lift" tractor, grain drills, two-row "Power-Lift" listers.

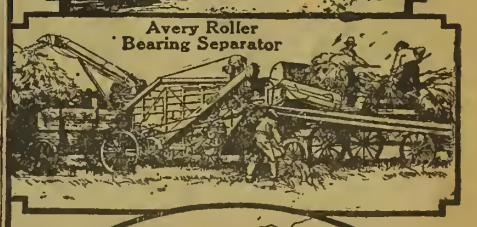
—Light and heavy "Power-Lift" moldboard and disc plows for any size tractor.

—A complete line of roller bearing threshers, and

—A roller bearing silo filler.

It Pays to "AVERYIZE"

Avery machines are built simple—can be operated without previous experience.
Avery prices are based upon large quantity production and the low selling cost of a complete line.
When you get an Avery you are assured of prompt and permanent service—backed by an organization with three large factories, many branches and satisfied customers in every State in the Union and 63 Foreign Countries.



Write for the Avery Catalog

and interesting Tractor "Hitch Book." Contains many valuable suggestions for the satisfactory operation of tractors, tractor drawn tools and tractor driven machinery. Two books mailed free.

AVERY COMPANY, 3902 Iowa St., Peoria, Illinois

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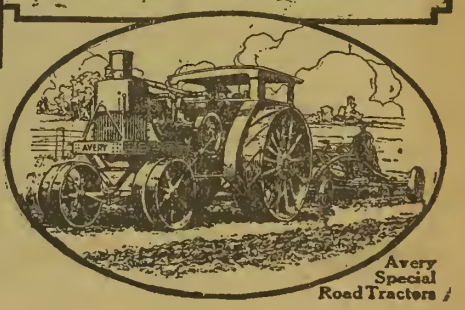

Avery Special Road Tractors

AVERY

Motor Farming, Threshing and Road Building Machinery

Your hens can't eat color —they want feed!

Your hens don't care about the color of their feed—why should you? *They* want feed that is good—and *you* want feed that is good for them.

Color in itself is a mighty poor guide-post in buying feed. Why? Because the color of your feed has absolutely nothing to do with its feeding value. It may be light or it may be dark and yet not vary one-tenth of one per cent, in actual feeding value.

Feed for your hens should be bought on its chemical analysis—on its *actual* feeding value—not on its color or texture. This fact has been demonstrated time and again—there's no qusetion about it!

Take SURELAY, for example. It may vary in color from time to time. But it *never* varies in chemical content—in net feeding value. It contains at least a dozen ingredients balanced and blended according to a formula that has stood the test of time. Our daily laboratory tests (something the hand-mixer cannot have) assure *absolute uniformity* at all times.

SURELAY is proud of the things that go into its making. Long before the present feed law became effective, the exact analysis of SURELAY was printed on the back of every sack. Today, as always, you *know* what you're buying when you buy SURELAY. You know it is a top-grade, *uniform* feed that will make your hens pay by making them lay.

If you haven't seen the new edition of our booklet, "Makes Hens Happy," we'll be glad to send you a copy. Don't bother to write a letter—simply fill in the coupon below and mail today!

STOCK AND POULTRY FOOD DEPARTMENT

SPERRY FLOUR CO.

STOCKTON · CALIFORNIA (AS3)

SURELAY

"A Sperry Product"

Stock and Poultry Food Department SPERRY FLOUR CO. 208 *Weber Avenue, Stockton, California.*

Gentlemen: Please send me, without obligation, your booklet, "Makes Hens Happy."

Name _____ Address _____

Feeding Value *vs.* Color

By GEORGE R. MCLEOD
Agricultural Department
Sperry Flour Co.

THE criticism of least consequence that can be made regarding a proprietary feed is color. Commencing with corn, which is the king of all feeds, there is no difference in the feeding value of either yellow, white or mixed corn; there is no difference in the feeding value of white, gray or red oats; there is no difference in the feeding value of white or red wheat. Common six-row barley (grown for many years in California) hulls white, while Portuguese and other bearded varieties of barley generally hull blue. But—there is no difference in feeding value!

Proprietary feeds cannot be manufactured in an economical way if color is strictly adhered to. A change in the manufacture of different colored corns, different colored wheats, different colored sorghums or different colored meals shows a change in the color of the by-products without a change in feeding value.

Why Color Means Nothing

The meat meals that are added for animal protein are often quite different in granulation, although there is no difference in the feeding value. A coarse granulation of meat meals does not have a tendency to darken, while a fine granulation of the same feeding value does darken a feed mixture very materially. This is also true of oilcake meals. The highest grade of oilcake meals obtainable varies from a light yellow to a very dark brown, and if these meals are mixed in the granular state they do not darken feeds nearly as much as if they are finely ground; and either highly concentrated meat meals or vegetable meals should be finely ground in order to mix thoroughly. The same is true of charcoal. In the granular state charcoal does not darken to any extent, but a very small proportion of finely ground charcoal has a tendency to darken a very large percentage of lighter feeds.

Color has nothing to do with the amount of moisture in a feed, which is a total loss; it has nothing to do with the ash in a feed, only a small part of which is assimilated; it has nothing to do with the amount of fibre in a feed, a part of which is digestible, but the cost of digesting and assimilating cuts down the net feeding value materially. Proteins, fats, carbohydrates—the substances that go to make up the net feeding value of any proprietary feed—are found in as large quantities in the gray or brown feeds as in lighter colored feeds.

Many Feeders Deceived by Color

A great many California feeders in the past have purchased feed on color and many of them still have the idea that they can tell the quality of a feed by looking at it. This is a good deal like the old saying that people purchase shoes to suit their eyes rather than to suit their feet.

If the value of a feed could be ascertained by looking at it, manufacturers would be compelled to sell their feeds on a color card basis rather than on an analysis. As a matter of fact, color is only camouflage and many people have been deceived as to the real value of feed by its color.

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — February 7, 1920 — No. 6

UNIVERSITY OF ILLINOIS
FEB 11 19

The National Orange Show

Has become really a National Institution. It will be held in San Bernardino Feb. 13-23, 1920. In connection there will be held an Institute of Citrus Growers for discussion of the problems in citrus culture.

Oakland

OAKLAND OWNERS REPORT RETURNS OF FROM
18 TO 25 MILES PER GALLON OF GASOLINE
AND FROM 8,000 TO 12,000 MILES ON TIRES

THIS NEW OAKLAND SENSIBLE SIX FOUR DOOR SEDAN IS POWERED WITH THE FAMOUS 44-HORSEPOWER, OVERHEAD-VALVE OAKLAND ENGINE

OAKLAND
SENSIBLE SIX

ONE thing, above all others, singles out this new Oakland Sensible Six four door Sedan for especial consideration—that is its pronounced and unrivaled value. It is a car embodying all the comfort and reliability that ample size and sound construction can give. It is a car mechanically so efficient that, under all conditions, it delivers the maximum of service at the minimum of cost. It is a car so well and completely appointed that every essential convenience is included in its standard equipment. Yet the purchase price of this Oakland Sensible Six four door Sedan is relatively very low. The moderate investment it represents, and the fine and spirited character of the car's performance, combine in this Oakland to a value as conspicuous in the present market as it is unusual.

MODEL 34-C: TOURING CAR, $1165; ROADSTER, $1165; FOUR DOOR SEDAN, $1825; COUPE, $1825. F. O. B. PONTIAC, MICH ADDITIONAL FOR WIRE WHEEL EQUIPMENT, $85

OAKLAND MOTOR CAR COMPANY
Pontiac, Michigan

California Cultivator

Vol. LIV, No. 6 Los Angeles, February 7, 1920 One Dollar Yearly

Sulphur Fumigation for Grape Mealybug

By R. L. Nougaret of California State Department of Agriculture

The Cultivator quoted last week from an article written some years ago by R. L. Nougaret, at that time connected with the United States department of agriculure, giving life hisory of the pest which has since deveioped into one of the grape growers' most perplexing. That article appeared in the Monthly Bulletin of September, 1918. During his connection with the department Mr. Nougaret continued his investigations of this pest. Some months ago Director Hecke secured his services and he is now in charge of the office of viticulture for the California department of agriculture. Mr. Nougaret has prepared for publication in the Monthly Bulletin of the department a statement of methods of controlling this pest, with practical everyday hints for their application. This article has the approval of Dr. L. O. Howard of the United States department of agriculture. Knowing its great yaiue to grape growers and that to be of any help in saving the coming season's crop it must be in their hands at once, we made urgent request of Director Hecke for the priviiege of using in this week's Cultivator. This has been granted and advance proof sheets supplied from which we give the following.—Edit.

THIS method of fumigation by means of sulphur fumes produced by burning sulphur directly under the tent was worked out by the writer when formerly engaged in grape insect investigations for the bureau of entomology of the United States department of agriculture, to whom credit for this work should be given.

It is pecuiiarly adapted to conditions pertaining to this species in relation to vineyards and is a very effective control when applied to vines in the vineyard. It is endorsed by the said bureau for this purpose. It cannot be used for disinfecting rooted vines of nursery stock and is not advocated for any other purpose than that related in this paper. Rules as formulated should be strictly observed so as to cause no injury to the vines.

This species of mealybug has different life history when the grape is the host than when other plants and fruits act as such. On grape it has two distinct broods which do not overlap as when the same species lives on citrus and pear. One brood, the first of the year, hatches in June and is the progeny of the overwintering larvae; the other, the second brood of the year, hatches during September and October. After hatching the larvae remain in the ovisac until the following spring. This is the period of hibernation, or overwintering time, during which there are only larvae and no eggs, these having hatched in the fall. Therefore, it is only necessary to conduct the fumigation with the object of destroying the larvae without taking the eggs into consideration. This facilitates considerably the results to be obtained, as in almost all cases of control it is more difficult to destroy eggs than to kill insects.

Warning

Too much emphasis cannot be laid uopn the fact that sulphur fumes are exceedingly injurious to plant life. In this connection a few don'ts to serve as a reminder may avert most serious damage through inadvertence and carelessness.

Don't fumigate with sulphur vines in an active growing state. It is only when in a dormant state that this can be done, with certain reservations, and cause no injury.

Don't fumigate with sulphur during the daytime. At night the temperature is lower (a most important feature), and darkness favors conditions of safety for the vine.

Don't fail to watch the thermometers during fumigation. There is a maximum temperature which must not be surpassed.

Don't fail to cover the burning sulphur with the distributing cover. An even distribution of the sulphur fumes throughout the tent is most essential.

Don't fail to use one sulphur pan and one distributing cover for every two vines.

Don't use sulphur which burns slowly. A rapid production of fumes in a short period of time is more effective in killing the mealybug, and less injurious to the vine, because the exposure is short and the fumes more penetrating on account of a greater volume of fumes being produced in a given time.

Basic Principles

Upon burning the sulphur rapidly depends the range of sufficient degrees of heat to be gained; a maximum temperature attained during the exposure, which insures safety in the operation; an exposure of short duration.

Factors in Applying

Kinds of sulphur used in order to produce a rapid combustion.

Ranges of degrees of temperature gained.

Difference between the initial temperature at the start and the maximum degree attained.

Exposure—Period of time during which the infested vine is subjected to the action of the sulphur fumes.

Maximum safe temperature—One hundred four degrees Fahrenheit. Not to be exceeded.

The exact volume or space encompassed by the tent sheet when placed over the vines, and the exact weight of the sulphur for a given space or volume, are factors which need not be considered in the performance of this method.

Equipment

Tent—A sheet of any material closely enough woven to prevent the fumes from passing through it can answer the purpose. Part of an old citrus fumigating tent is excellent. It must be long enough and wide enough so that when the vines to be fumigated (two, four or six in number according to how near the vines are in a row and the facility with which the tent can be handled) are covered, the tent touches the ground on all sides. There should also be a width of one and one-half feet of tent cloth to lay flat on the surface of the ground in order that there be a very close contact of the tent with the soil to prevent the escape of fumes. At each end of the tent a place should be provided for inserting the thermometer. This is done by fastening No. 5 canvas eyelets to the tent sheet so located as to be on top of the vine at each end of those to be fumigated when the sheet has been placed over the vines. The eyelet is fastened to the sheet by making a hole through which is inserted the funnel shaped part of the eyelet, the flange resting on the upper surface of the sheet. The ring is then passed over the funnel part and pressed tightly up against the underside of the sheet and securely kept in place by soldering, instead of riveting back that portion of the eyelet funnel shaped to tighten the ring against the sheet and keep it in place and make a flat eyelet. This funnel shaped part is not deformed but left in that shape so that a thermometer can be inserted through it and kept securely in place by means of a rubber cork which makes a tight joint opposing the escape of fumes.

Sulphur pan—For this a long handled frying pan ten inches in diameter, with a cover to fit, can be used. For suiphur wicks, a convenient way of holding them in place is to spike them on a sharp iron pin which is afterwards placed in position on supports of the sulphur pan in such a way that the lower end of the wicks rests inside and on the bottom of the pan. The supports are strips of iron six inches long riveted on the outside of the pan, and so shaped as to permit a cover to be placed on the pan when it is desirable to smother the flame of the burning melted sulphur which drips from the wicks at the end of an operation. In this way the excess sulphur is kept over for the next operation and serves to ignite the new lot of wicks.

Distributing cover—A round piece of sheet iron 18 inches in diameter supported on three or four legs, high enough to span the sulphur pan and low enough to prevent the fumes and heat of the burning sulphur coming in too direct contact with the vine. This is for the purpose of causing the fumes to spread out evenly throughout the whole space under the tent.

Sulphur—A form of refined sulphur which burns rapidly should be used in preference to one which burns slowly. Though costing considerably more than other kinds of sulphur, the commercial sulphur wick such as those used in sulphuring wine casks gives the best results. Each wick weighs practically the same, therefore a certain number represents a certain weight. The powdered and lump refined sulphur can be measured with a cup or other container correctly enough for the quantity of sulphur required for each pan.

Modus Operandi

The time of the year to fumigate is when the grape vines are dormant. This should be no sooner than late December, during January, and no later than early February. During this period of the winter season the night temperature is low and there is no movement of sap. Later when the buds are swollen and on the point of bursting open, the sulphur fumes and accompanying heat are likely to cause injury. Frosts in November will advance the time when fumigation can be done with safety. Fumigate at night only.

To insure an even distribution of the fumes and heat under the tent, one set of suiphur pan and distributing cover should be placed between every two vines.

Vines six feet apart in a row can be fumigated four or more at a time. Place the distributing cover in the right position between each pair of vines, then cover the vines by raising one edge of the tent sheet high enough so that the longitudinal center of the sheet is about even and in line with the top of the vines, then drop the sheet to the ground on the opposite side of the vines. This places the tent over the vines without having to drag the sheet over the canes.

It is preferable to fumigate vines before they are pruned, because the canes provide a better frame for the tent and there is less risk of tearing the sheet than when the latter is drawn over the sharp ends of fruit spurs of pruned vines and damage by breaking off fruit spurs is avoided. Precaution should be taken so that the sheet makes a good contact with the ground to prevent the escape of the sulphur fumes. If the ground has been batted down and made hard by rains, it is well to plow several furrows on each side of the row of vines so that the sheet and soil can make a good contact. Place the thermometers in the openings provided in the sheet for that purpose.

Place the sulphur in the pan, light it and slip the pan under one side of the tent into the position it must occupy under the distributing cover. Make note of the time at starting the fumigation and of the initial temperature; watch the rise of temperature. If the range in degrees gained is not a good average, at least 18, give a little more time to the exposure. If the range in degrees gained is enough, and the maximum temperature 70 to 75 degrees Fahrenheit, give just the required exposure of 15 minutes. Should the gain in temperature be very rapid and the maximum degree of safety, 104 Fahrenheit, be attained before an exposure of 15 minutes, remove the tent immediately from off the vines.

Safety Precautions

The mealybug is killed and the vine uninjured if fumigation is done at night, during 15 minutes exposure to sulphur fumes.

Burning six ounces of refined lump sulphur or five ounces of sulphur wicks per 100 cubic feet (these figures are given only as guide for approximate quantities to be used).

For a minimum of a range of 18 degrees gained during the first six minutes; maximum temperature attained 70 degrees Fahrenheit; temperature slowly dropping during next nine minutes, total exposure 15 minutes.

For a maximum of a range of 60

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Agricultural News Notes of the Pacific Coast

Northern California

The Sonoma County farm bureau is laying plans for a county fair to be held in the fall.

Mendocino County farm bureaus are considering uniting with the state and national federation.

Cattle in the Bald Hills section of Shasta County are reported suffering from lack of feed.

The annual meeting of the Sonoma County farm bureau will be held at Santa Rosa on February 25.

Farm Adviser Merrill of Sonoma County is making a survey of the dairy industry of the county.

The California Cattlemen's Association is making plans to ship cattle to other states for green range.

The entire 14,000 acres to be irrigated by extensions to the Sutter-Butte canal will be planted to rice.

Many sections of the state are calling for an extra session of the legislature to consider the Japanese question.

The farm adviser of Humboldt County is securing data from dairymen as to rations and methods of feeding dairy cattle.

The farm bureau of the Durham Land Colony is investigating plans for a cold storage plant to be established in the colony.

The Placerville Fruit Growers Association has just declared a dividend of over $15,000. Old directors were reelected for another year.

Tractor dealers of Chico, Butte County, combined last Saturday in a field demonstration on the Patrick ranch between Durham and Chico.

A meeting of the California Certified Seed rowers was held at Stockton January 30 and 31. The second day was devoted to field inspection.

The A. W. Morris & Sons ranch at Woodland, Yolo County, has been sold to the Conaway Ranch Company. The ranch contains 1,280 acres.

An election will be held February 21 to decide on establishment of the Glenn-Colusa irrigation district. If formed the district will include 102,000 acres.

The rice acreage in the Sacramento Valley will be increased from 140,000 acres to 175,000 this year, according to estimates made by the Pacific Rice Growers Association.

Jesse R. Hall has been appointed supervisor of the Shasta national forest to succeed L. H. Sloan. Mr. Sloan has served in both the Santa Barbara and Klamath national forests.

The big Virden packing plant at Sacramento has been enabled to proceed with its work of establishing the $5,000,000 industry by the commissioner of corporations releasing $2,000,000 of capital stock which had been subscribed for.

The Fourteen Counties Association which worked so hard to get the legislature and the governor to pass and approve bill appropriating $3,000,000 to flood control work now finds a discouraging situation because of Japanese farmers stepping in and taking control of the reclaimed lands.

The farm home department of the Shasta County farm bureau held its annual meeting at Redding, January 24, electing officers for the coming year. Chairman, Mrs. W. H. Tormey, Anderson; vice chairman, Mrs. Parker Talbot, Redding; secretary-treasurer, Mrs. Grover E. Oaks, Clear Creek.

Central California

Merced hopes to have established a packing plant for figs.

Watsonville high school boys are organizing for a pig raising contest.

The Madera irrigation district is being organized. A. L. Cowell is managing the organization work.

Stanislaus County farmers are opposing the sale of the great Buhach Ranch to a Japanese corporation.

The cotton growers of the San Joaquin Valley gathered recently at Fresno to the number of 150. It is estimated that 30,000 acres will be planted in the valley this season.

Miller and Lux will dispose of some 30,000 acres of land in Madera County. It is said that this sale is made because of large sums collected by state and federal governments as inheritance taxes from the Miller heirs.

February meetings of Kern County farm bureau: Weed Patch, 2; Kern Delta, 4; McFarland, 6; Delano, 9; Wasco, 11; Rio Bravo, 12; Edison-Fairfax, 13; Mountain View, 16; Pond, 18; Rosedale, 20; Inyo-Kern, 23; Shafter, 25; Arvin, 27; board of directors, 28.

The Fruit Growers Association of Cutler, Tulare County, at its recent annual meeting elected J. P. Bernard, president; W. H. Edwards, vice president; G. R. Goldman, secretary; George Smith and J. W. McPherson, directors. A very prosperous year was reported.

The December butter fat payroll at Tulare totalled $200,062 for the creameries, making an average of over $200,000 per month for the last six months of 1919. With the new milk powder factory in full operation another $100,000 per month is expected to be added to the amount, according to the factory manager.

Members of the Tulare board of trade and Tulare farm center will cooperate in a campaign against the shipment of manure from that section. Chief effort will be directed toward having land owners have clauses in leases to tenants providing that all fertilizer produced on the land should be kept there and spread on the fields.

Agricultural products shipped from Tulare County last year had a total value of $25,275,326, according to the annual report of A. E. Miot, secretary of the county board of trade. Chief items were: Citrus fruits, $5,196,226; vineyard, $5,247,500; deciduous fruits, $3,185,800; livestock, $4,877,700; dairy, $3,050,000; poultry, $1,000,000; wheat and barley, $1,263,000.

Judge N. E. Luce of Los Angeles and Professor J. E. Dougherty of the university farm were the chief speakers at the all day annual meeting of the Tulare Cooperative Poultry Association on February 3. Last year the association did a total valume of business amounting to $280,000, an increase over 1918 of $50,000. The operating expense for the year was $10,700, less than four per cent of the volume of business.

Members of the fair committee of the Tulare board of trade are working on plans for their 1920 stock show which follows the state fair at Sacramento on the new fair circuit. Inquiries already directed to the board of trade indicate that there will be from four to five times as many head of stock entered as in the first fair last year and the grounds and buildings will be greatly enlarged to accommodate exhibitors.

Southern California

Orange County farm bureau will hold its annual picnic on May Day.

Spinach shipping has ended in the Coachella Valley after a most successful season.

Brawley is now sending out heavy shipments of lettuce, spinach and mixed vegetables.

Riverside County expects to plant 2,000 acres of cotton, principally in the Palo Verde Valley.

Palo Verde Valley, Riverside County, has promise of a new cotton seed oil mill and feeding station.

The acreage planted to onions in the Coachella Valley is reported four times larger than ever before.

Imperial Valley officials are giving warning to children under 18 that they must not drive automobiles in that county.

Westmoreland ranchers are protesting against poor condition of roads which makes hauling to the railroads difficult.

Shipments of farm produce from Imperial Valley this year are said to be at least 200 per cent greater than last year.

Apple Valley farm center near Victorville, San Bernardino County, is taking steps to organize a fruit marketing association.

Eleven thousand acres of land in Imperial Valley are reported already signed up for the growing of Pima long staple cotton.

The Covina-Charter Oak center of the Los Angeles County farm bureau has elected Ben F. Thorpe president. Grant Chapman was elected secretary.

The Goodyear Rubber Company has announced that it will soon begin erection of cotton gins at Brawley, Calexico and either Imperial or El Centro.

At the recent annual meeting of the Arlington Poultry Association J. M. Davison was named representative to the Poultry Producers of Southern California.

The Citrus Belt Milch Goat Association will hold its next meeting at the Higgins ranch near San Gabriel, Los Angeles County. Date of the meeting February 21.

More than 90 per cent of the apricot acreage of the Hemet Valley of Riverside County is signed up with the California Prune & Apricot Growers Inc.

The Arlington Poultry Association at its recent annual meeting elected J. L. Edmiston, president; J. R. Roney, first vice president; H. K. Martin, second vice president; Murray Davison, secretary-treasurer.

Four cooperative canneries of Southern California located at Hemet, Ontario, Elsinore and Fallbrook have consolidated under the name of California Growers Association. Headquarters will be in Los Angeles.

The Farmers Club and the Parent Teachers Association of Little Lake, Riverside County, have consolidated under the name of Little Lake Farm Center. O. E. Kellner has been elected president; Mrs. C. E. Moyer, director; Mrs. H. O. Eggen, secretary-treasurer.

The California Prune and Apricot Growers Association will soon start erection of a great hollow tile packing house at Santa Paula, Ventura County. The association in that county is planning to pack much of its next season's crop in small cartons for retail trade.

The Coast and General

There is agitation in Oregon for laws to keep out the Japanese.

A Duroc-Jersey swine show was held at Salem, Oregon, February 4.

The Roosevelt reservoir is expected to overflow before the end of January.

Jackson County, Oregon, has appropriated $10,000 for the purchasc of a county fair site.

The Oregon Growers Cooperative Association has passed the 15,000 acre mark. It now has over 700 members.

The estimated onion acreage in Southwest Texas is about 12,000, the largest planting being in the Big Wells district.

A large delegation of Arizona cattle growers are attending the National Convention of Livestock Growers at Spokane this week.

Managers of state and county fairs recently met at the Oregon agricultural college and discussed dates for the Oregon circuit.

Farm bureau members of Lane County, Oregon, are arranging to import a number of cattle from the Island of Guernsey.

Growers of wheat in Washington, Oregon and Idaho are forming state associations with the idea of joining together into a pool to handle the wheat of the three states.

The Grange Warehouse Company has recently purchased its fortieth warehouse in Washington. This adjoins a concrete building owned by the company at Chehalis.

Apple shippers of Wenatchee, Washington, are confronted by a critical situation in the apple market because of the frozen fruit which has found its way into dealers hands.

Carl Erickson, near Phoenix, Arizona, reports a yield of 11 bales of 500 pounds each and 300 pounds over from seven acres of long staple cotton. This land has been in milo for two years and previous to that in alfalfa.

The Buckeye Canal Company of the Salt River Valley of Arizona is making extensive repairs on its water distributing system whereby they will add 5,000 acres to the land watered. The water is obtained direct from the Gila River.

The chamber of commerce of Phoenix, Arizona, through one of its members, is giving free trips to the short course held at the state college of agriculture, to nine boys and girls who have done especially good work in the boys and girls club work.

Throughout a good portion of the range district of Arizona there have been heavy snow falls that have made it somewhat uncomfortable for cattle, but few losses are expected to result Cold rains in the desert section have caused some suffering among the young lambs, but very little loss.

D. M. Green of the United States department of agriculture, expert poultryman, is stationed in the Salt River Valley and experimental work is beginning on a tract of land west of Glendale, which was originally operated as an ostrich experiment farm. It is expected that a tract of land will be secured nearer to Glendale which will be more favorable. There is great need of more experimental work in poultry feding, hatching, etc., as conditions are so much at variance with the conditions in other parts of the country.

A Feed Margin and Safety

By R. P. Royce

THROUGHOUT California, with very few exceptions, stockmen are facing one of the most serious feed shortages in the history of the state. In many sections the situation has become so critical that unless copious rains are shortly forthcoming the losses will be certain and heavy.

Aside from the hoped for rains, very little practical relief can be turned to account in the present crisis, and it is not with any intention of suggesting such relief, as is so sorely needed now, that this is written, but rather to use the present crisis to draw attention to preventing, in a measure, future recurrences.

During the past four years the stockmen have had to contend with short feed to a greater or less degree. Some years the shortage has been general, other years it has been of a more or less local character — but the losses have been severe in either case—and this in a state favored by feed conditions that are unsurpassed. Without any desire to preach, the writer is of the firm opinion that it is high time the livestock interests of this state set about to correct and solve the feed problem. It can be done.

As a working basis, the fact must be admitted that there is no more range in sight. With a growing population necessitating increased meat production, the real fundamental bedrock proposition is to make our available range carry more pounds of meat and carry the increase in safety.

Stockmen can rest assured that the few dry years they have experienced were not freaks. There will be other dry years. Knowing the hazard of a dry year, operating plans should always revolve about an anticipation that the next year will be dry. If such anticipation is provided for, that provision will constitute the best insurance the stockman can carry. No business can be safely operated without due regard to hazards and the successful man is the one who knows his hazards and makes the most practical plans for forestalling them. The biggest hazard that the stock raiser faces is a shortage of feed. His problem then is to increase his feed supply. Several methods are practical.

First of all, the average range has been carrying a peak load most of the time. A lot of men have figured that the way to make a range pay was to put on every hoof possible. As a result thousands of acres of range are not carrying as much today as ten, 15 or 25 years ago. They have been killed out by the short sighted policy of overstocking and not giving the native grasses an opportunity to reseed. There are many ranges in this state where, at moderate cost, water could be developed in sufficient quantities to make possible a considerable tonnage of hay for use as winter feed and in many cases the production of forage crops suitable for silage is entirely practical.

The use of silage as an adjunct to range operations is not general, but there can be slight doubt that sooner or later range men will turn to the silo for insurance through dry years. No doubt many men have looked upon the silo and the growing of silage crops as too expensive to be carried on on a large scale, but if silage is practical in small operations it should be practical in a larger way.

Since the beginning of the range business the great majority of cattle and sheep men have followed the theory that the way to beat the game was to stock the range to the limit and trust to luck and a kindly providence to see them through the periods of shortages. They have been good gamblers, as gamblers go; they figured on a certain loss, and expected to pull most of their stuff through in mighty thin condition, and for the most part those who operated along the above lines and "got by" rated their operations as successful. But has such practice been good business? Has it been profitable to run stock in good season only to lose the condition and thrift when short feed comes? Would it not be better business to take the losses caused by death and a heavy shrink in poundage and put that money into development of water, hay, silos and silage crops? Can the man with heavy investment in cattle or sheep afford to follow the old plan in vogue when cattle, sheep, land and labor were cheap? Can he afford not to adopt more modern practices made necessary to meet new conditions?

But some will say, "What is the sense of going to added expense—when maybe we won't need extra feed one year out of four?" The answer is—no man can really afford to take a chance on a three to one bet. That losses of that one year will cover, in many cases, the added investment. And the value of a reserve feed supply can hardly be estimated when needed. Here is a case in point, though not directly concerning the range man. The Butte City Ranch built a silo several years ago and filled it with corn. It so happened that feed was abundant each year after the silo was filled and the silo was never opened. There it stood for three years. Was that good business? Listen! This year feed was short; the cattle were losing weight every day—feed could only be bought at prohibitive prices. The silo was opened and around 200 tons of excellent and cheap feed was made available. That silo, idle for three years, was a life saver this year. Did it pay? Ask the owners!

Another feature of range management that must be given serious consideration is the problem of range improvement. There is no question but that the carrying capacity of hundreds and thousands of acres can be increased by the adoption of proven practices.

Primarily, range improvement hinges on whether or not the range is overstocked. A range on which the number of stock maintained is such that the herbage is eaten to the roots, can not be expected to improve or remain constant and each succeeding year under such practice the number of head carried must be reduced or expected to come through in poor condi-

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Demonstration Lemon Tree

By J. P. Englehart

One of California's pioneers in lemon growing is J. P. Englehart, one of those orchardists who lives with his trees. He soon discovered that trees, like human beings, have habits. In studying and encouraging or subduing these habits he has applied a system of pruning which has become known as the Englehart system. This has been described in former Cultivators. Here are a few of Mr. Englehart's recent observations.—Edit.

IN order to prove my theory of lemon tree pruning, based on heredity and the transmission of producing qualities in the wood composing the tree, I am growing demonstration trees from various buds, mostly Eureka lemons.

The so-called Englehart system of pruning has for its object the producing of uniformly good and plentiful fruit, which is found to be possible only by having the tree composed of close grained uniformly good bearing fruit wood and by eliminating all other kinds of wood, such as soft sucker sprouts and a peculiar white wood.

The type of tree obtained in this manner is somewhat of the nature of a thoroughbred, as it is originally bred, or later, pruned to become a top-notch bearer.

For many years I had observed that high grade fruit spurs were formed on wood that was originally obtained by growing a bud from an excellent bearing branch, composed of thin, dark wood of small compressed cells. If the original bud was taken from showy, watery, large celled wood, we failed in attaining our object.

My inference is that bud selection should be based on fruit wood selection, even if taken from trees that are record bearers in both quantity and quality. My four year old demonstration tree proves this. It was started from three buds of entirely different lemon wood texture. These were inserted upon an ordinary seed bed tree. They were respectively from sucker wood, from record fruit bearing wood and from a very common type of white wood which is threatening to replace desirable types of wood in many groves. (They were taken from a record bearer tree.)

The result is convincing. My tree consists of three large subdivisions, all of which differ in color and in the structure of the branches, leaves and fruit, exactly as the originals did.

Three Typical Eureka Lemon Branches

At left is branch of so-called white wood of which our idlers, or so-called shade trees, or non-bearers, are composed. Luxuriant foliage but little fruit are their charteristics.

Center branch is true fruit wood of which the entire tree should be composed in order to make it commercially highly profitable. Such trees are sturdy, even if somewhat small. They are record bearers in performance.

Branch at right is of sucker wood which may sometimes compose an entire tree. It bears fruit in small quantity.

Besides, the good fruit bud shows that it is dominant in this particular tree, as it has produced a vigorous mass of bearing branches, comprising nearly one-half of the tree. At the same time the recessive nature of the white wood and sucker in this tree are shown, especially of the former.

I am studying the intermingling of sap in this tree as affecting the branches reciprocally and believe we are on the eve of a great discovery in fruit tree genetics. Mendel's law is surely operative in our fruit trees.

I have grown a large numebr of so-called thoroughbred lemon trees, which have proved year after year to have quite marked characteristics and to be of the greatest value commercially. Such trees are started by inserting a bud of unmistakable record bearing fruit wood upon a certain type of seed bed tree, and have been found to breed true to the original branch, inheriting its qualities.

This system of lemon pruning is based not only on the phenomena of inheritance, but also uopn the study of the reciprocal action of the sap flowing in the various branches. A remarkable fact observed is that quantity, as well as quality, of fruit are found to be coexistent and dominant in the perfectly developed tree.

In fact, these two qualities become dominant and all other qualities recesslve by proper fruit wood selection in either starting the tree with a perfect bud, or, if not, then by proper wood selection in the pruning as the tree grows older.

I might say that the object of this method of pruning is the conserving or protecting of the good, original bud. In fact, of what use is bud selection if you do not protect and conserve the bud, as it unfolds in the making of the entire tree?

Cooperative Canning

THERE have been several cooperative canneries in California, and they have resulted in many a fruit grower getting full return for a crop which would otherwise have gone a begging. Unfortunately everyone of these has not been a complete success, though none has been a complete failure. But business management is succeeding and we believe that today every cannery operating upon a cooperative basis is successfully managed. Heretofore these concerns have not been large, but the California Cooperative Canneries, now erecting an enlargement to its plant in San Jose, has gained a success greater than most of the others. A recent issue of the San Jose Mercury comments editorially on the advantage which has been secured by growers because of this cannery:

"It would be of great interest to the fruit growers of this valley if actual figures could be compiled showing the increase of values of their products, the direct result of the establishment of the California Cooperative Canneries and the erection of the big plant on Taylor Street. Of course it is impossible to compile such statistics, but it is not difficult to see that this increase in values runs to very large figures.

"The opinions of the leading growers of the valley, taken with information available as to prices paid for similar products in other sections of the state, give a very good basis on which to make estimates. As an example, apricots were purchased by commercial canners in other sections of the state at prices ranging from $50 to $75 per ton. The average price paid by the leading canneries in the Santa Clara Valley was $100 per ton and this price was exceeded in some few cases by smaller canneries. The buying in this valley was delayed until the fruit of other sections of the state had been pretty well taken up, and by that time the growers were familiar with the plans and the capacity of the cooperative plant and its influence was being felt materially. Conservative growers not members of the local cooperative organization have freely stated that the establishment of the Cooperative Canneries added not less than $25 per ton to the canning apricots of the Santa Clara Valley. This on a basis of 10,000 tons, which is a close estimate of the total tonnage of apricots sold the canneries during the season of 1919, would make a total increase in the value of the canning apricots of approximately $250,000 for which the California Cooperative Canneries should receive credit.

"On the 1,600 tons delivered by members of the Santa Clara Valley Growers Association to the California Cooperative Canneries this increase will be over $40 a ton, as the average price returned by the cannery on all grades of fruit will be $115 per ton. This means that the Cooperative Canneries will have paid to its growers on apricots delivered during the season of 1919 canning profits to the extent of $64,000.

"It is to be noted at this point that the average price paid above covered all grades of apricots delivered and as is frequently the case in the early history of a cooperative cannery a considerable quantity of fruit was delivered to the local institution of quality below that accepted by commercial canneries at contract values. This lower grade fruit, of course, reduces the average per ton of the cooperative plant and makes direct comparison with commercial canners' prices unfair to the growers' plant. On the deliveries of the best quality of apricots such as the canneries require from their growers the cooperative returns will range from $125 to $140 per ton. These figures taken in connection with the conditions surrounding the operation of the new plant at a time when the buildings were still in course of construction, the personnel was new, in many cases made up of unskilled and inexperienced labor, gives some idea of the possibilities of profits for the growers in the operation of their own plant packing their own fruit.

"These facts have become so well known to the apricot growers of the valley that the possible capacity of the big plant, in the north end of the city, for apricots has practically all been taken up and only a very small additional acreage can be accepted."

FRENCH PRUNE IN CALIFORNIA

THE Journal of Heredity recently had an article written by A. D. Shamel of Riverside, giving history and method of development of the Coates 1418 French prune. The introduction of the article contains so much of interest that we quote liberally:

"The French prune, Prunus domestica, commonly called the petite prune d'Agen or little French prune, was introduced into California in 1856 by Louis Pellier, a nurseryman of San Jose, who brought the scions from Ville Neuve d'Agen, France, from which place the variety takes its name. The commercial development of this prune in California started about 1880. In 1918, according to the California state commission of horticulture, there were 100,721 acres of prune trees in bearing and 34,690 acres of young trees not in bearing. The production amounted to 39,127 tons with an approximate valuation of $5,500,000. The Santa Clara Valley is the center of greatest production, having about 60,500 acres of bearing prune trees. In 1919 the very heavy crops, together with the high prices being paid for prunes, seem likely to establish a high record both for the amount and value of the crop.

"During recent years the prune industry has developed extensively in the Pacific Northwest, particularly in the states of Oregon, Washington and Idaho. Formerly the growth of the prune industry was slow in these districts on account of difficulties in drying the fruits under natural climatic conditions. Recently, the drying has been done successfully under controlled conditions with hot, dry air in evaporators. This development seems likely to lead to an extensive culture of the prune in the Northwest.

"The Prune d'Agen variety, most generally grown in California, is particularly well adapted for dried prune production on account of the rich, aromatic flavor of its fruits, the dense, fine texture of the flesh, which gives the cured fruits tenderness both when used as a confection and when slightly cooked, and the smallness of the pits, together with their thinness and smoothness. The dried fruits frequently contain more than 50 per cent of fruit sugars. Correlated with this sugar content is a high degree of spicy prune flavor. The color of the fruits of this variety is a royal purple, which is an important factor in the successful marketing of the dried prune. The delicious, melting flesh separates easily from the small flat pit.

"The trees of this variety are heavy bearers under normal conditions. Some fruit is usually borne the third year after planting. From the fifth year on, the trees may be expected to produce commercial crops. From 200 to 300 pounds are considered to be a satisfactory yield for a full bearing French prune tree. However, 600 and even 800 pounds have been produced, and a six year old tree at Visalia, is said to have borne 1,102 pounds of fruit in one season.

"The tendency to heavy bearing is frequently correlated with small size of fruits, particularly when the crops are not thinned at the proper time. If too much bearing wood is grown, the fruits are likely to be too small for

(Continued on Page 198)

ESSEX MOTORS DETROIT USA

Essex Sets World's Long Distance Endurance Mark

3037 Miles in 50 Hours Proved Its Reliability

In its official test of 50 hours to prove endurance, Essex has established its claim as the dominant new type light car. Who ever before regarded a car of its type in the light of such proved performance and endurance? Only specially built racers and a few of the larger, costlier cars have been considered capable of such a test. Surely light weight cars have not been associated with such reliability as Essex has shown.

Proves Essex Economy

This test gives to Essex proof of the greatest factor in motor car economy. Light cars are notable principally for their economy in saving of gasoline, oil and tires. These qualities Essex has revealed from the first. But real economy must also include freedom from repairs and mechanical attention—all costly items.

So what greater proof of Essex economy could be asked than its new world endurance mark.

5869 Miles in 94 Hours 22 Minutes Driving Time

These tests were not made to establish speed records. Two trials were made before the 50-hour run was completed. So, in all, the Essex went 5,869 miles in 94 hours, 22 minutes driving time, averaging more than a mile a minute. Sleet stopped one, after 27 hours, 58 minutes, and 1790 miles. Snow halted a second, three days later, after 16 hours 25 minutes and 1042 miles. The third, begun the next day, went the full 50 hours. These tests were made under American Automobile Association observation on the Cincinnati Speedway.

Think what they mean. The average car is driven little more than 5,000 miles in a season. The average driving speed is probably 25 miles an hour. The Essex went more than a mile a minute for 5,869 miles.

You might expect that a car of its weight would require frequent mechanical attention. But there was no need for that in the Essex.

Doesn't It Settle the Light Car Question?

Essex now adds to its light car qualities the advantage of endurance and reliability. It brings costly car distinction, beauty and fineness to the light weight, moderate price class. Essex cars appeal to pride, and that is why owners speak of them as they do.

Individual owners would never ask as much of a car as did this 50-hour test.

It showed how much more could be expected of an Essex than any one would demand of it.

Every Essex delivered has resulted in an increased demand. Sales passed $35,000,000 in 11 months—a new record.

This latest proof will decide thousands who have only waited for just such evidence that Essex would stand up. All buyers cannot possibly be served. Now is the time to make your reservation.

(124)

Copyright 1920, by The Goodyear Tire & Rubber Co.

"IT would be impossible for us to handle our present milk route except with a pneumatic-tired truck. Our Goodyear Cord Tires have delivered mileages up to 13,500 to date over bad gravel, rocks and chuck holes. With them we serve more farmers than we could with the slow solid tires."—Harry E. Hughes, Dairy Farmer and Truckman, Hughes, Ohio

THIS statement describes hauling conditions such as many farmers find can be counteracted most effectively with the perfected pneumatic truck tire.

Not only does the pneumatic-shod truck, as compared with the solid-tired unit, average a better rate of travel over country routes, without necessarily reaching a high maximum speed, but it does so quite smoothly.

Rural users thus note that hauling on pneumatics adds to a saving of time and brawn important protection of equipment and loads, shrinkable, perishable and breakable.

They particularly note the effect of Goodyear Cord construction, developed during recent years, which makes possible pneumatic-tire mileages comparing very favorably with those of solid tires.

In addition to reporting that pneumatic-tired trucks pave the way for the general motorization of farm work, they list mileages of Goodyear Cord Tires, on trucks, as ranging from 15,000 to past 40,000 when given proper care.

Accurate information furnished by farmers and other rural haulers, showing how they improve their methods and incomes with pneumatic-tired trucks, can be obtained by writing to The Goodyear Tire & Rubber Company, at Akron, Ohio.

GOODYEAR
CORD TIRES

The DEALER says=

"the GIANT mark protects you from imitations"

"It pays me to give my customers what they ask for," says the retailer who knows what's what. "When they ask for 'Giant Powders' I give them GIANT Powders—the real Giant, made by The Giant Powder Co., Con. I don't tell them that 'I have the same thing, only under another brand name,' because it is not true.

"The name 'Giant' on a case or a stick of powder is evidence that the powder is made by the company that originated Giant Powders. Remember this: You can't get Giant results when you use ordinary dynamites that look like Giant but aren't marked Giant."

Look into the new, money-saving methods of clearing land, blasting tree beds, ditches, boulders, etc. They are all described in our up-to-the-minute book, "Better Farming with Giant Farm Powders." A post card will bring it by the first mail.

THE GIANT POWDER CO., CON.
"Everything for Blasting"
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We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

WHITE LIGHT FROM KEROSENE Beats Gas or Electric

Agents Wanted

Make your home bright and cheerful, **saving one-half** on oil. Government and leading University tests prove this wonderful new Aladdin nearly five times as efficient as best round wick open-flame lamps. **Burns 50 hours on one gallon** common kerosene (coal-oil). No odor, smoke or noise, no pumping up, easy to operate, won't explode. WON GOLD MEDAL. GUARANTEED. Prove for yourself, without risk, by

TEN NIGHTS FREE TRIAL

that Aladdin has no equal as a white light. If not satisfied, return at our expense. $1000 given anyone showing us an oil lamp equal in every way to this NEW MODEL 8 ALADDIN.

GET YOURS FREE! We want one user in each locality to whom customers can be referred. In that way you may get your own without cost. Be the first and write us quick for 10 DAY FREE TRIAL OFFER and learn how to get one FREE.

MANTLE LAMP CO., 100 Aladdin Building, Portland, Ore.
LARGEST KEROSENE (coal oil) MANTLE LAMP HOUSE IN THE WORLD

Make big money spare or full time. Our easy selling plan makes experience unnecessary. We start you without money. Sample sent for 10 days trial and GIVEN FREE when you become a distributor.

Twenty Acres of Berries

By Ernest Braunton

TWO miles southwest of the San Gabriel Mission in Los Angeles County lies the 40 acre Boos ranch where 20 acres of berries are being planted for special restaurant use. Ground has been prepared and stock ordered, or is now on the ranch, for five acres of blackberries, five of raspberries, two and a half of loganberries, and six of strawberries. Supperintendent Baldwin, a California farmer of long and varied experience in this line of work, says stock is very scarce in this state and much of it is coming from farther east.

The blackberries will be set on a warm southern slope of about 20 degrees, a side hill plantation on contour lines so that irrigation will not prove a problem. The rows will be ten feet apart and the plants eight feet apart in the rows. This will allow of heavy permanent irrigation ditches on the upper side of every row. The varieties used will be rampant growers, the Himalaya often making canes of 40 feet in a season. Half of the plot will be in Corey's Thornless, which is really a thornless Mammoth. This variety has run to 20 feet in a summer. Mr. Baldwin is much in favor of thornless canes as he says the biggest berries grow amid the thickest growths and pickers will not risk injury from thorns to get them. The plants will be set out at once and immediately irrigated and for every three weeks thereafter, to produce a quick growth of canes. Of course, in fruiting season they may get water once a week. Posts of redwood three by four inches will be set 16 to 20 feet apart in the rows and five feet high. On top of these will be placed a crosspiece four feet long, so the trellis will be T-shaped. There will be four wires strung on top and two wires on the posts below.

Raspberries.

In the five acres of raspberries one-half will be Cuthbert and one-half St. Regis. The reason for so planting is that Cuthbert yields but few fruits the first year while St. Regis bears a good crop. A half-acre will also be set to the eastern Black Cap. The latter will be in rows six feet apart, plants three feet apart in the row. The others will be set four feet in the rows and rows six feet apart. Loganberries will occupy two and a half acres and may be planted eight by eight feet or ten by ten.

Strawberries

The strawberries will consist of an acre and three-fourths each of Klondyke, Brandywine and Lady Cornella and three-fourths of an acre of the Carolina, an unnamed variety received from North Carolina producing enormous crops during the past year, in appearance resembling the Banner. As the latter stock is scarce the plants will be set three by three feet, the runners kept in the rows one way and cut with hoes the other. The irrigation ditches between the rows will also prevent a matting sidewise. This will insure a rapid filling of the rows. Other varieties will be in rows three feet or 42 inches apart and plants one foot apart. Barnyard and poultry manure has been worked into the soil and experiments will be made with commercial brands and nitrate of soda as much of the latter is used on vegetables on the same ranch.

California Lettuce

IT would seem that nearly every county in California is distinguished for something above any other spot, and it appears that two counties beat the world on lettuce. Imperial County ships more than any other like area, and Los Angeles County ships more continuously throughout the year than any other spot, there being a small acreage equally available in Orange County. Aside from these districts there is considerable sent from the Coachella Valley, Riverside County, and from the Salt River Valley, Arizona.

But the Gardena-Moneta section, a few miles from Los Angeles, ships lettuce every month in the year. In company with F. R. McQuaid, local manager for the California Vegetable Union, the writer last week visited several large fields. One ranch of 93 acres belongs to C. G. Pursche, and 20 acres are now just coming into market as another field is finished. Mr. Pursche told us there was no time in the year that he did not have ten to 15 crates of marketable lettuce on hand, and there is now a total of about 500 acres in the Gardena-Moneta district, with about 150 acres at Lomita, nearer the coast and San Pedro.

The crop now being harvested is from seed sown in October. The shortest time from seed time to harvest is from seed sown in June, the lettuce being cut in August, a lapse of 56 days. The longest growing season is from November seeding, harvested about the first of April. Lettuce seed is giving the growers some concern as it is now selling at $7.50 a pound, while just a year ago it sold for $1.50. But as Mr. Pursche said: "Why should we worry? Last season, from December 15 to May 1, I took more than $13,000 worth of produce from this ranch, as Mr. McQuaid will testify, for he shipped the stuff and the return checks passed through his hands." Nearly the entire acreage is set to Los Angeles Market, though a little Iceberg is planted for local midsummer trade. The seeds are planted in double rows ten to 12 inches between the companion rows, from the middle of one pair to the middle of the next being 32 to 34 inches, irrigation ditches alternating with the double rows. Plants must be thinned in the rows to not less than one foot apart, for air must circulate freely under the plants or the lower leaves will rot.

Rotation of crops is a universal practice with all the vegetable growers, and there is no time hay, either barley or alfalfa, may not be found on every ranch of 80 or more acres. On the ranch noted there are 25 acres in cauliflower, ten in cabbage, including a patch in purple cabbage. This last is not much in demand by Americans but Europeans and Jews use it much as a relish, not as they use the more common cabbages. There is a slightly increasing demand for Savoy cabbage, for all will concede it has the finest flavor of all. Yet it is the European who buys it and encourages its extension for in Europe it has been the leading variety for home use for centuries. Much of the young cauliflower in this section has been at a standstill for some time, due to two causes—lack of rain and warm weather.

Aphids are very bad except where plants have lately been sprayed, a 40 per cent nicotine sulphate being the base used for annihilating them. The day after this visit it rained and the weather plays an important part in the welfare of aphids, heavy rains washing many away, especially the tender forms, and in hard, continuous rain those washed off starve to death for they can live but a short time without food. Cold weather also retards the increase and damp weather favors the entomogenous fungi so that sometimes 25 per cent of the aphids are killed by it.—E. B.

CALIFORNIA CORN

It is the belief of leading seedsmen that the highest notch has not been cut in corn production in California. The solution of the problem is believed to lie in the trial of many varieties of high quality seed corn from various parts of our country where corn is a decided success. One of the leading seed houses in the south end of the state is now having quite a list of the best Eastern varieties tried in several sections ranging from San Diego up to the San Joaquin Valley. It is hoped thereby not only to find new kinds adapted to California but to determine if one variety will do well in all sections of the south half of the state, or whether we must use several varieties to meet climatic differences.—E. B.

SIX TESTS FOR A FARM POWER-PLANT

There are many tractors, but the *Moline* Tractor is *Universal*

It is THE ONLY FARM POWER-PLANT

Combining

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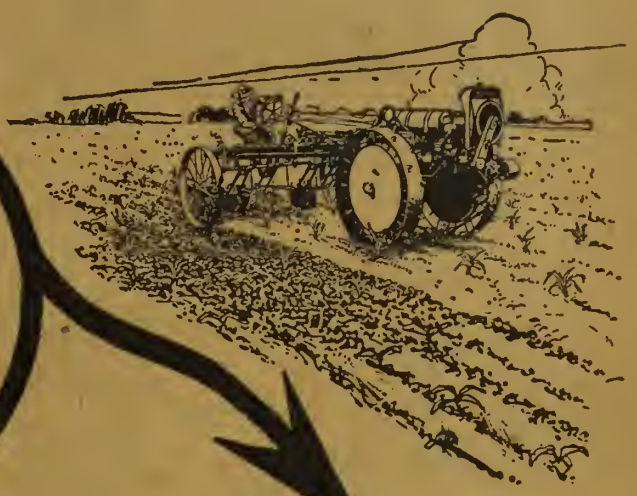

Exclusive Features *with* *Indispensable Results*

1. Does all field work, including cultivating, harvesting and belt work	*Means*	No duplication by horses
2. One man completely operates both tractor and all implements	*Means*	A large saving in labor
3. A single seat in the center of all controls of tractor and implement	*Means*	Great ease of operation
4. A single unit of operation—the tractor and implements form but one unit	*Means*	Can back and turn short
5. Operator sees all his work—"Foresight is better than hind sight"	*Means*	Better and faster work
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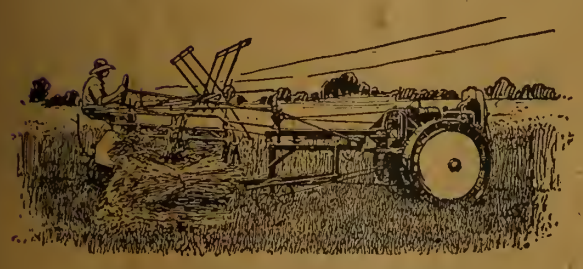

The Power of a Correct Principle

The principle of doing all field operations with one man sitting where he can watch his work is correct, or farming has always been done backward, and the operator would always have ridden or led his horses instead of driving them.

The Moline Universal Tractor places the power of nine big horses where the horses stood—is driven just like horses are driven, from the seat of the implement, and hitched up to the implements just like horses are hitched.

NOTE—**If desired you can use the "drag behind" or horse drawn implements you now have with the Moline Universal the same as with other types of tractors.**

See your Moline Dealer or write our nearest branch for full information.

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Atlanta	Oklahoma City	Baltimore	Spokane	Denver	Minneapolis	Des Moines	Columbus, Ohio
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QUALITY

CITRUS and TROPICAL

Stand supreme for Growth and Productiveness.

CITRUS TREES

We are running low on the Standard varietles for commercial planting but can still supply all the leading sorts for the home or family orchard.

AVOCADOS

We have some extra large specimens in field grown trees of **Fuerte, Sharpiess, Linda** and **Rey.** We carry all the varieties recommended by the California Avocado Association.

FEIJOAS

Grafted trees of the two best varieties.

Also the best varieties of **Cherimoyas, Sapotes** and **Guavas.**

Our new illustrated Price List is free to those interested.

The R. M. Teague Citrus Nurseries

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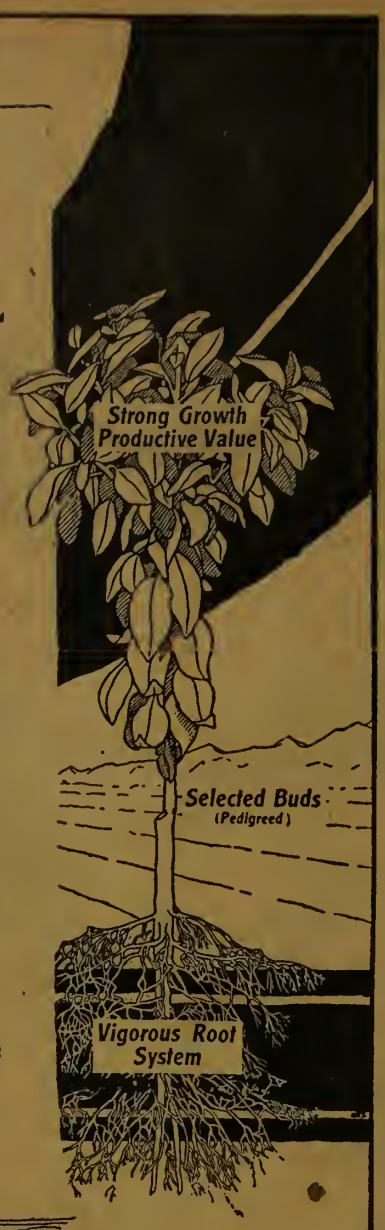

Bargains *in* Food

The place to seek bargains in food is in your own land where a few *cents* invested in seeds bring *dollars* in return.

Note the following large returns possible from Morse's Seeds—and plan now to raise vegetables on your own land for your own use and for the market:

2 oz. cabbage seed costing $1.00 produce 20 wagonloads
2 oz. tomato seed costing $1.00 produce 10 wagonloads
4 lbs. onion seed costing $7.00 produce 8 wagonloads
6 lbs. carrot seed costing $6.00 produce 40 tons
6 lbs. beet seed costing $6.00 produce 40 tons

How else can you make your money yield such large returns? But be sure you get all your seeds from Morse. Morse's Seeds are soil-tested and true-strain. They grow and produce. They yield large crops of fine vegetables. Write today for quotations on larger quantities of the seeds listed above and for all other seeds you need.

Write today for the 1920 Garden Guide, a practical manual of Pacific Coast planting. It will help you —and it's free. A post card mailed today brings it

C.C. MORSE & CO.

Wholesale and Retail Seed Merchants

733 Front Street San Francisco

Morse's seeds are obtainable everywhere in large 5¢ packets

FUMIGATION FOR MEALYBUG

(Continued from Page 191)

degrees gaincd during the first eight minutes; maximum temperature attained 104 degrees Fahrenheit; temperature slowiy dropping during the next seven minutes, total exposure 15 minutes.

In practice the operator should alm to obtain results as near an average as possible between these two extremes. This will insure an eradication of the insect and cause no injury to the vine.

If the rules of this method are carefully observed it will take but little practice for the operator to become proficient.

Cost of Fumigation

Most of the infested vineyards are of the table grape varieties. The vines are generally planted closer together in the rows than the distance is between the latter. Often the vines are six feet apart in the rows and the rows eight or ten feet apart. A sheet ten by 30 feet will cover four average sized Malaga vines. If the vines are more than six feet apart in the rows it may be advisable to fumigate only two at a time because of the difficulty of handling a long sheet and also on account of using so much more sulphur than necessary for the distance between the pairs of vines.

A long sheet used as a tent is handled much more conveniently when removed from one row to the next, rather than from a given number of vines in a row to the next consecutive lot of the same row. The sheet is raised, uncovering the vines just fumigated, pulled off and back from these and dropped over the next row. The outside surface of the sheet when on the first row becomes the under surface when covering the vines of the second row, and the right hand longitudinal edge of the sheet when on the first row becomes the left hand edge when it is placed over the second row. There is economy of time in using two sheets. These should be placed to cover a consecutive number of vines in the same row, both tents being removed so as to cover vines occupying the same position in the next row, one tent being used for fumigating while the other is being prepared for the operation. It is difficult to state the cost of the tent sheet, as this depends much on the size and the material. Old citrus fumigating tents from which these can be made may be bought for from $10 to $25.

The 10 inch frying pan with cover, supports and pin cost $1.25; the 18 inch distributing cover can be made to order for $2.75.

Sulphur wicks can be purchased in small lots, say of 20 pounds, at 22 cents per pound, refined lump sulphur in 150 pound sacks at $2.80 per hundred or 2.8 cents per pound. With a little practice two men can handle two tents, placing one in position while fumigation is under way for the other. Three fumigations per hour can be done with sulphur wicks and two and one-half fumigations during the same time can be made with refined lump sulphur per each tent.

FRENCH PRUNE IN CALIFORNIA

(Continued from Page 194)

satisfactory commercial purposes. For this reason there has been an active demand among prune growers for a larger French prune having the valuable characteristics of the established variety. Until recently all efforts to achieve this result seem to have been failures. The trouble with the larger fruited varieties, as a rule, is that the fruits are likely to be of poor quality, coarse, and stringy in flesh, or have large, undesirable pits."

Following the above quotation is a detailed history of Mr. Coates' work in selecting this large size and especially high quality fruit bearing tree. Mr. Shamel says:

"The fruits of the No. 1418 strain average about 25-30 to the pound as compared with an average of from about 50-60 to the pound in fruit of the parent variety. The fruits of the No. 1418 strain drop clearly from the trees and are so firm that in a recent field examination no damage could be observed as a result of their fall. There was little or no bruising or other injuries observed in the fruits on the ground."

RED SPIDER ON CITRUS

Many of the ills the citrus tree is heir to come because of the weakened condition resulting from insect attacks. Besides, abnormal weather conditions have more serious effect on citrus orchards which have had their vitality sapped by continuous sap-sucking operations of the red spider. We referred some months ago to serious wind injury in an orange grove while alongside another orchard showed better conditions and far larger uninjured crop. This because the first orchard had not been properly protected from red spider. Red spider is one of the smallest of our citrus pests and works in a way which does not attract attention, unless the grower is observing, until the tree is seriously injured. Many feel that the best procedure with this pest is to assume it is going to come and "kill it before it gets here." However, we have asked Prof. Quayle to give us in a short outline the best method of dealing with this pest and apparently he feels that the grower with two eyes can determine the status of the pest.

Prof. H. J. Quayle

The most generally recognized treatment for this pest is lime-sulphur solution used at the strength of two to two and one-half per cent. In most cases this spray gives satisfactory results, but in certain sections the spiders seem to be more persistent, taking several applications with still more or less of the spiders present on the trees. In such cases, the addition of dry sulphur to the amount of 10-15 pounds to the 200 gallon tank is of benefit. This simply acts as an additional amount of sulphur left after the spraying, which will continue to act on the spiders providing the weather is warm enough. The success of red spider control is more or less dependent upon the weather, even in the case of the lime-sulphur solution, and very much dependent upon the weather where the dry sulphur is applied.

As a general rule red spiders appear in greatest numbers during the spring months, although in favorable seasons they may appear at other times, particularly in the fall. Red spiders do not occur in the same numbers throughout all the groves of a district excepting in those districts where the red spider is troublesome every year. The time of control is a question therefore for individual judgment very largely. If the grove is watched and the status of the red spider noted, the proper time for applying treatment can be determined. Excepting in some of the districts that can be counted upon with certainty it scarcely pays in my judgment to apply treatment when the proper time of the year comes around. In other words, the status of red spiders on the trees should be the criterion for starting control work rather than the particular time of the year.

WINTER INJURY TO WALNUTS

Circular No. 216 of the Agricultural Experiment Station, College of Agriculture, Berkeley, will be of interest to every walnut grower. It touches upon winter injury or the die-back of the walnut. It is written by L. D. Batchelor and H. S. Reed. We quote from it as follows:

"This circular contains an account of studies made through several seasons on the so-called die-back or winter injury of the Persian walnut (Juglans regia). In certain districts where walnuts are commercially grown, the trees have suffered greatly from this trouble, and in some cases parts of orchards have died from this cause.

"Unfavorable soil or climatic conditions which would show little or no effect upon many species of orchard trees, may seriously injure, if not actually kill, a walnut tree. The effect of such unfavorable conditions is often first clearly manifested in the early spring. At that time the tops of healthy trees make rapid growth, whereas the tops of injured trees show no growth whatever. Frequently unfavorable conditions not only cause the death of the uppermost twigs but also of some of the older branches."

The circular follows with a full description of this trouble which has caused a great loss in walnut sections. The text is made much plainer by several photographs.

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SOONER or later you expect to get a motor truck for all-around farm use.

The GMC Model 16 is America's standard all-purpose truck.

It was standardized by the government for all military work in the ¾ to 1 ton class. Any American soldier in the late war can tell you of its record.

We have yet to find the first dissatisfied user of a GMC Model 16.

It has all the speed you want—will carry its capacity load safely under even adverse conditions.

It's a time saver and money maker for any man who needs a truck of this capacity.

For the dairyman, the fruit grower, the market gardener, the small stock raiser and the general farmer who does not have need for a heavy truck, it has no superior.

But the Model 16 is only one of a family of five GMC trucks, ranging in capacity up to 5 tons.

Thousands of GMC trucks are in service in all kinds of business. GMC dealers and service stations are to be found in every state in the union.

Tell us the nature of your roads, the distance you have to haul and your principal uses for a truck and we can help you select the proper model.

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Ask any returned soldier how this GMC Truck performed

Fairbanks-Morse "Z" Farm Engines

MECHANICAL perfection—sturdy construction—plus power—right price—all these combine to make the Fairbanks-Morse "Z" America's Master Farm Engine.

On over 250,000 American farms the "Z" is daily demonstrating its superiority. More firmly than ever its unquestioned supremacy is becoming established. Backed by Fairbanks-Morse quality and its own reputation for unparalleled performance, the "Z" is the one engine for any farmer to buy.

Let your dealer show you why you should have a "Z." You will know then why over a quarter of a million progressive farmers selected it after comparing it with all others. Two hundred Bosch Service Stations cooperate with Fairbanks-Morse dealers in rendering real service to "Z" owners.

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3 H. P - $125.00
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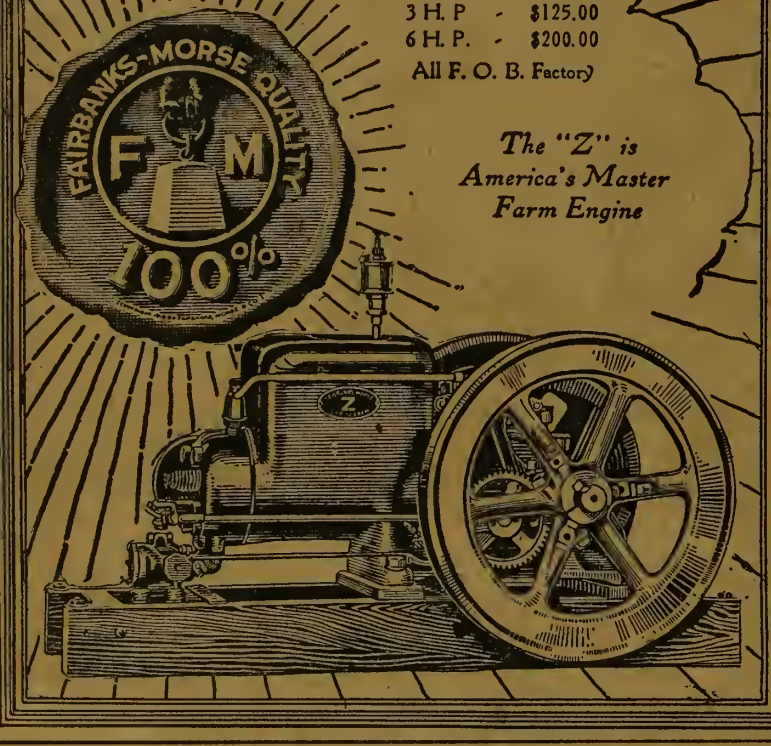

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Choose the machine you need. Hand machine develops 30 or 60 tons. Horse machine 60 or 90 tons. Hand machine weighs 175 pounds. Horse machine 350 pounds. Sold on a straight cash basis. No agent's discounts, no special offers. Every dollar of price represents a dollar's worth of value.

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Free Book Describes One-Man and Horse Power Models. Tells cheapest way to clear land for big crops. Write

The new labor and power-saving Kirstin! ONE MAN with a single horse and boy-driver, operates it! Pulls ANY stump Quick! Easy! Cheap!

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Actually ten years ahead of its time! Wins Government and University tests for speed, power, strength and efficiency! Kirstins used on big Government work! Single power for fast work. Double and triple power for big, tough ones. Only stump puller especially designed for developing *triple* power from one or two anchor stumps. Quick "take up" for slack cable. If satisfied, after 30 days' trial, keep puller. If not satisfied, return at our expense. You don't risk a penny. Four easy ways to pay. Shipment from nearest distributing point saves time and freight. Write for Free Book and details of Special Agents' Proposition.

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Vegetables in the San Gabriel

By Ernest Braunton

THE peerless climate of the San Gabriel Valley of Los Angeles County is not without its drawbacks, for the cauliflower growers say that recent weather has been too good and some others complain of need of rain, not for soil moisture so much as for protection against plant diseases and pests. The cauliflower men waited patiently through a cold spell that would not allow the plants to develop and hoped for a time of neutrality, warm enough for both young and maturing crops. But the very warm days came, and with them a rain. This was glorious weather for the young but it caused the maturing heads to start growth suddenly, open up so no longer solid and rapidly become soft. This necessitated close picking of the best heads and rushing them into iced cars within a few hours at most. One prominent grower with a heavy crop in the field said he would not pick another head and unless more favorable weather came at once the cauliflower harvest in the El Monte section would be over in a few days.

Celery Fields

The celery growers in the same district care not a whit for temperatures but the shortage of rainfall has allowed the blight to develop and in common with the spinach growers, they are hoping for rain, for that stops development of this disease. As the local shipping season for celery lasts until March, it depends upon the weather as to whether the crop or the blight wins. If no rains come the crop may not be marketable. The same reports come from other districts. One of the government men present stated it is so bad in Florida this year that its control is doubtful and the industry may have to be abandoned, as it has been in parts of California. The rain is equally valuable in driving away insect pests and growers having fields of young cabbage and cauliflower are much troubled with aphids.

The Spinach Crop

J. M. Slaughter is now taking from one field of high grade spinach, but in others frosts at night with a temperature of 80 at midday, without rain, is not good spinach weather. Mosaic leaf, blight, aphids, all disappear with a good pelting rain. It is difficult to find a spinach that will do well in this district, though seeds selected from blight resistant plants will help much. While Broad-leaved Prickly has been grown in the past, some Broad-leaved Flanders will be tried next year. Spinach is a fine short season crop when favorable weather prevails, for it is but three months from seed time to harvest. Mr. Slaughter plants, cultivates and harvests by hand. The seed is drilled in rows ten inches apart and the seeder set to drop the seeds at half inch intervals. The plants are not thinned and all may grow that will. The maturing field has not been irrigated, but if the season is without rain one or two irrigations are given. The crop now being harvested runs six to eight tons to the acre and averaged in price about $48 a ton, one-half the crop being delivered at the packinghouse and the other half at the roadside.

Slaughter on Potatoes

Mr. Slaughter laughs as he tells a potato experience. Last year he cut his potatoes, sacked them and dipped in a corrosive sublimate solution for a half hour. He then spread them out about four inches deep and while still wet sprinkled lime over them freely. He then raked them all about until every one was coated with white. The crop was very light everywhere last year, but his quality was of the best. Such treatment is not considered good practice, however, and all other conditions were probably highly favorable. The crop, of two varieties, averaged about 105 sacks to the acre where in 1917 the same field ran 165 sacks. One peculiar feature of the 1919 crop was the growing, side by side, under the same treatment, from the same seed house, of American Wonder and White Rose, said by many to be one and the same. But the former yielded 135 sacks to the acre and the latter but 75 sacks, and no reason is known for the difference in amount, the size and quality being about equal.

Mr. Slaughter was having a field subsoiled with a Moline tractor and two shoes. The plows had been removed and the shoes put in their places, being some specially made for this plow at a cost of $35. When routed out one way the machine was then run crosswise. In this way an average depth of at least 16 inches will be loosened, in places 20 inches. Mr. Slaughter said that in heavy soil a more powerful tractor and a stronger shoe or beak would be necessary, but that in his soft black soil the Moline did perfect work.

Agriculture at Soldiers Home

Pacific Branch, Home for Disabled Volunteer Soldiers, is the official name of the institution which the post office department designates "Soldiers Home, Los Angeles County, California." The tract contains 722 acres o'er hill and dale, 520 of which is under cultivation. The agriculture there is as varied as on any ranch in the state, for it runs from beets to bees, cabbage to canned goods, and oats to oranges.

The grain acreage is about 400; the vegetable garden, 53 acres; citrus, four acres; grapes, one acre; sorghum, 20 acres; buckwheat, for the bees, three acres; and the remainder is a mixture of all sorts of fruit trees and odds and ends, figs, walnuts and peaches predominating. Nothing is sold from the farm except surplus lemons. Every sort of vegetable needed may be found, an almost endless list.

One new increased acreage was being developed while the writer was there. Fifteen thousand strawberry plants of Kellogg and Brandywine were being set out and a shipment of Peerless, Acme and Banner are on the way. The land is plowed and harrowed, cultivated in furrows 42 inches apart, with smoother attached, and the strawberry plants set on the flattened ridges, 14 inches apart in the rows, the latter of course being 24 inches apart. Water is run down the furrows immediately after planting.

The domestic water supply is pumped from 14 wells on the place and stored in a million gallon reservoir, but the irrigation water, when there is any, comes from Mandeville Canyon in the adjoining foothills. Just at present there is none, though sorely needed. But Owens River water is to run through the ranch when a tunnel is completed, and the distressed vegetation and other things will find relief.

There are 108 colonies of bees that are now being fed. Last year but 1,900 pounds of honey was recovered, but in 1918 the crop was over two tons.

In addition to many minor conservation enterprises there is a cannery that in 1919 put into gallon jars (no cans used) 17,000 gallons of fruits and vegetables.

The agricultural activities of the home are in charge of the quartermaster, Captain M. S. Murray, a retired army officer who has had much horticultural experience while stationed in New Mexico and now in his seventh year of service in the "home." The work is, however, much handicapped through lack of modern equipment and civilian experts to take charge of farm, garden and the various departments —E. B.

Vegetable and flowering plants are often mulched with well rotted manure during the dry season. This supplies food and also keeps the roots cool and moist.

No home is complete without flowers at least a part of the summer months. Gladioli and dahlias are at their best. There are some fine varieties of gladioli to be had.

POTATO GROWING HINTS

By Ernest Braunton

I RECENTLY visited a potato grower, C. F. Richardson, of the San Gabriel Valley of Los Angeles County, who was busy among his men, cutting potatoes faster than any of them. They were working on Red Rose which will be planted at once as the eyes have already started and the stock could not therefore be dipped as corrosive sublimate is nearly as hard on potato eyes after they are open as it would be on human eyes. Planting will be in rows 33 inches apart and the pieces dropped 13 inches apart, by planter, which may be set only 9, 11, 13, 15, or 17 inches apart.

Mr. Richardson was asked his opinion as to the American Wonder being a distinct variety and said he so considered it midway between White Rose and Burbank. It proves a good variety on heavy soils where some others do not thrive. British Queen is a prodigious cropper on rich soil, but White Rose is two weeks earlier and therefore commands the higher price. But the Queen will yield the heaviest and White Rose more easily "runs out." Mr Richardson believes in change of location so is this year shipping seed to Inyo County and will next year bring the crop to Los Angeles County to plant once more on the old fields. He says there is dire need of breeding up stock and selecting closely so we can raise our own seed that is reliable. Too many culls are now being planted.

The Next Ranch

E. D. McSweeny is preparing to plant 100 acres as the spring operations, about 60 acres of White Rose and 40 of British Queen. In the harvest of 1919, now just closing, the 150 acres averaged about 100 sacks to the acre. J. G. McSweeny, his father's aide in the management of the ranch, says the White Rose is not so resistant to the blight as the British Queen, but is a fine 90 day spud. Last season they sprayed three times with Bordeaux mixture as a preventive measure. It may, or may not, have been needed, but the careful grower runs no risk that may be eliminated. All stock is dipped in the corrosive sublimate (bichloride of mercury) solution of one ounce to eight gallons of water, or one part to 1,000, and left therein for one and a half hours.

The spring planted crop should be harvested in June and if in good shape may be used for seed to plant by August first, but as it is not always up to the required standard, the problem is solved with cold storage seed. Mr. McSweeny now has 700 sacks of British Queen in cold storage at a temperature of 38 degrees. These will be taken out July 15 and planted. One advantage of cold storage seed is an assured good stand. Another is the earlier crop. When the June harvested and the cold storage are planted side by side the cold storage comes up in two weeks, while the fresh seed requires three weeks. Thus storage advances the harvest one week or in favorable seasons perhaps ten days. What is urgently needed is a potato with a shorter season, one that can be planted after July, avoiding the hot weather, and be harvested before the frosts come. At present seed brought from upland or mountain valleys in Washington, where the summers are short, would seem best to meet this requirement.

Potato pickers are now being paid 40 cents an hour, six men to each tractor digger or ten men to a horse power digger.

FERTILIZERS BOOST TOMATOES

By J. T. Rosa, Jr., University Missouri

Results of recent fertilizer tests made by the horticultural department of the Missouri college of agriculture in cooperation with tomato growers in various parts of the state show that the yield of tomatoes may be greatly increased by use of commercial fertilizers. In several cases the yield has been increased from one or two tons to over five tons to the acre. Also the earliness of the crop was influenced very markedly by the fertilizer, as the fertilized plants began heavy bearing from four to five weeks earlier than did the unfertilized plants. As the market price is much higher for the early fruit, the increased earliness of the crop would greatly increase its value.

In the case of tomatoes grown for canning factories, the period of heavy picking averaged six weeks on the fertilized plots, but only three weeks on the unfertilized plots. By doubling the length of the season of heavy production by means of fertilizing the crop, both growers and cannery men can handle a much larger quantity of fruit.

One of the outstanding results in these tests, was the vigorous growth of the fertilized plants in the early part of the season. This resulted in a well developed plant, full of green fruit before the season of hot, dry weather arrived. Stable manure and poultry manure proved to be excellent fertilizers for tomatoes when well rotted, and applied before plants are set. However, these materials did not speed up the earliness of the crop as much as commercial fertilizers. Acid phosphate was the material which produced the most striking results, while the results as a whole from ten different tests indicate that a fertilizer analyzing three or four per cent nitrogen and 12 per cent phosphorus may be expected to give the most satisfactory and economical results. This fertilizer should be used at the rate of at least 200 pounds per acre, and preferably should be drilled into the row a few days before plants are set.

A dehydrating plant is to be installed in connection with the cannery at Arlington, Riverside County.

GROW CORN

King Philip Corn is yielding 100 bushels to the acre in the crop now being harvested by Ratto Brothers in Contra Costa County. There are some 200 acres in the field and all of the land was flooded last spring. The Ratto Brothers have had considerable experience in corn raising, having farmed the land on the Clifton tract for a number of years. Such a record breaking crop is expected that lumber has been ordered for about 100 feet of extra corn cribs. Estimates of the crop vary from two and a half tons to three tons to the acre. It is confidently expected when the harvest is finished that 100 bushels to the acre will be shown.

The gratifying returns for the labor and effort put into cultivating this wonderful peat soil can be readily estimated with corn selling at $60 a ton. The cost of seeding is so small as to be almost negligible. Seed corn sells at three cents a pound and from ten to 15 pounds only are required to the acre. The outlay for seed represents at the outside 35 to 40 cents an acre. Compare this with $4 for barley and $5 to $6 an acre for potatoes. Corn is one of the surest producers and seed of the finest quality can easily be secured.

TRADING IN THE OLD CAR

The power plant of a good car will continue to function well years after the top and finish on the body have become very shabby. In fact, many cars are traded in just when the power plant is at its best. All mechanics know a new piece of machinery doesn't operate smoothly and at full efficiency until it has been run sometime. Meanwhile, the paint, varnish, lacquers, etc., put on to make it look attractive in the show room have lost their pristine newness.

It's all very well to get a new car every year if one can afford it, but many do it who can not afford it, and it really isn't necessary in most cases. An examination will generally show that the power plant is in good shape and the surface shabbiness will readily yield to the skilled ministrations of an auto painter and top maker. And a new top and new coat of paint costs a lot less than a new car.

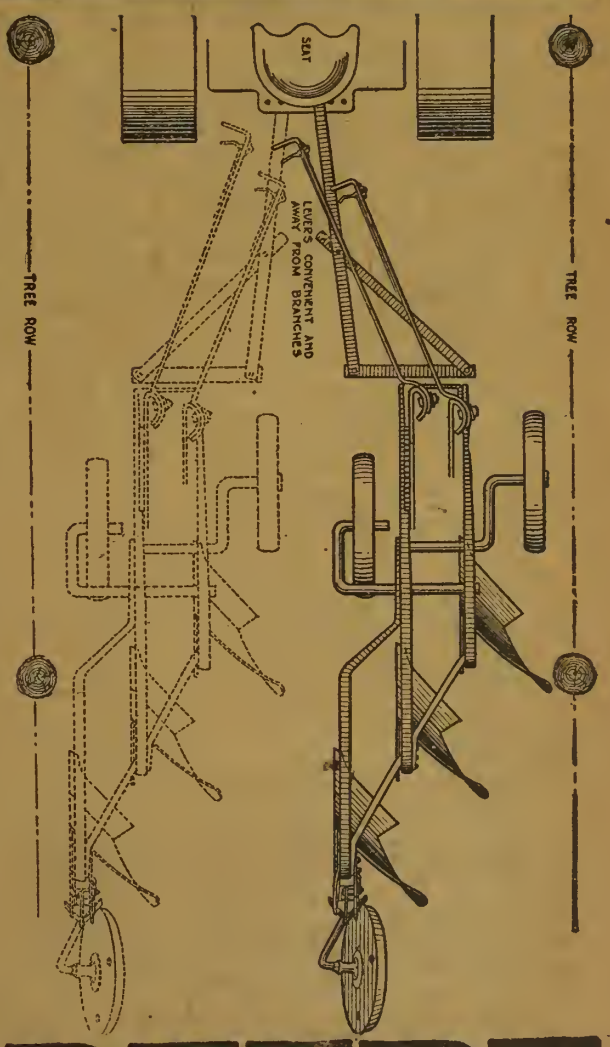
This is not an argument in favor of keeping a car in service for several years. After the power plant begins to deteriorate repair bills mount up; annoying break-downs on the road become too frequent and it then becomes economical to replace the old car with a new one, but such replacement is by no means necessary as often as many car owners seem to believe. The painter and trimmer can work wonders with a car showing signs only of surface wear.

It's very true in the auto industry that "wilful waste causes woeful want," and it is waste to discard a perfectly good auto power plant just because the outer shell doesn't look as spick and span as it might. That defect is too easily remedied.

Here's an Orchard Tractor Plow Built the Way You Want it

BY means of its reversible hitch you can set the John Deere No. 8 out to either side for close work in throwing to or from the row. And you can angle the levers in, no matter to which side you set the plow. That hitch and lever construction is one of the big advantages of the

JOHN DEERE No 8
ORCHARD TRACTOR PLOW



With the plow working close to the trees, the levers are always easy to reach from the tractor seat, out of the way of limbs, and out of the way of the tractor wheels when turning short.

Doesn't Scar the Trees. Note also the wheel base design that permits close work in throwing either to or from the row, without scarring the trees. The furrow wheel doesn't project beyond the inner moldboard's wing. The land wheel is set inside the third beam.

For Use With Small Tractors. The John Deere No. 8 is a low-down, power-lift, easily-handled plow especially designed for use with the smaller types of tractors. It is equipped with three 10-inch bottoms that scour and pulverize to best advantage. The land and furrow wheels have a great range of adjustment for either deep or shallow plowing. It can be used for general field work as well as for orchard plowing.

Tell Your John Deere Dealer to show you the John Deere No. 8, for use with small tractors. And, remember, no matter what the size of your tractor or what the condition of your soil, you can get a John Deere Tractor Plow of the moldboard or disc type to meet your requirements.

Write Today for a folder describing the John Deere No. 8. Ask for Booklet O-47.

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A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914

Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday Feb. 7, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Land of the orange, the lemon and the pomelo is pictured on the cover this week. A bit of reminder of the old home land back in the states glistens from the peaks in the background, but the orange groves nearly shut out the chill. It is all in honor of the National Orange Show which opens next Friday in San Bernardino. The orange growers will make such a showing of their industry, which produces nearly $100,000,000 annually, as will open the eyes of the many visitors to the Golden State.

SUPPORT IT

If state pride were not sufficient to induce fullest support of the National Orange Show which opens next Friday in San Bernardino the boycott established by the labor unions should be. This country went to war with Germany because of the overbearing demands and the arrogance of the Kaiser. The same spirit shown by the labor unions is not likely to meet with very hearty support on the part of the people. Because the management of the orange show saw fit to change the location from the middle of town to the attractive park at Urbita Springs, which is on the line of the Pacific Electric, the labor union, because of a strike which it declares is still on, issued the ultimatum that the show should be taken away from the place where its holding would prove beneficial to the Pacific Electric. The orange growers had no fight with the Pacific Electric, neither were they of the kind to accept arbitrary dictation.

To express our conviction in the matter we use one word which has become a classic—"Bully".

NET WEIGHT

Producers must bear in mind that there is now in force in California a law calling for net weight regardless of the weight of the container, that is, the sack containing 100 pounds of walnuts must have the 100 pounds regardless of the weight of the sack. Likewise, grain sacks, fruit crates, barrels and other containers must not be weighed in. Small bean sacks weigh eight ounces; large ones, likewise wheat and barley sacks, weigh 12 ounces. Quarter barrel flour sacks weigh three ounces; we should have our net fourth of a barrel of flour in addition.

STODDARD JESS

Stoddard Jess, at the head of one of the largest financial institutions on the Pacific Coast, has passed. But we would not speak of him as a banker nor as a financier, rather as a farmer and a man. Ever since he came to California 35 or more years ago, he has been interested and heartily joined in the agricultural upbuilding of the state. For years he grew oranges in the Pomona Valley and by his practice and encouragement induced others to use better methods of culture and marketing. More recently, in the San Joaquin and Imperial Valleys he has headed large organizations which have shown the state's agricultural possibilities in producing food to the limit when the world was going hungry. As a man he has been an inspiration to many a younger man and has offered encouragement and help more substantial than mere words. A guiding principle in his own affair and in those of the great institutions he headed he expressed in the four words: "Character, the best collateral." His sphere of influence has been even greater than California and will extend far beyond his lifetime.

GIVE US THE LEAGUE

"The war just closed called 56,000,000 men to arms, and cost 26,000,000 casualties, 11,000,000 men killed and $221,000,000,000 in treasure. Throughout four and a half years of horror, the people were told that they were fighting a war to end war—that with peace would come a League of Nations to guard the world against the repetition of such a catastrophe. In that hope the people fought the war through to victory."

Of course, politics is an important vocation and must not be interfered with. Hence "we" are justified in hesitating and looking wise while the world's peace is jeopardized.

The California Cultivator, issued weekly, had 44,611 inches of reading matter during 1919, or 773 inches more than any California agricultural paper.

LET US THINK A BIT

The country has been somewhat startled, or at least given a serious thinking spell, by report of a canvass which has been made by the department of agriculture in representative agricultural sections. A questionnaire was sent out as to production, profitableness and possible future production. Forty thousand replies have been received and from them deductions made which have caused the serious thinking.

One of the department officials who has looked them over estimates that nearly 50 per cent of the replies indicate that the writers will either leave their farms, rent them, or largely curtail acreage under cultivation. The reasons given for the discouragement felt by the farmers are summarized in these two short paragraphs:

"Inability to obtain labor to work the farms, hired help and the farmers children having been lured to the city by higher wages and easier living.

"High profits taken by middlemen for their mere handling of food products; and lack of proper agencies of contact between the farmer and the ultimate consumer."

Members of the senate committee, in discussing this situation, have referred to it as "disquieting" and "portentous of disastrous consequences."

"The time is very near," wrote a farmer from East Chatham, New York, "when we farmers will have to curtail production and raise only what we need for our own use and let the other fellows look out for themselves. Labor unions are more to blame for the high prices than anyone else. People are trying to get pay for what they don't earn."

Another farmer wrote:

"I sell butter to the dealer for 45 cents a pound, and the same butter sells to the consumer for 80 cents. In the distribution we lose nearly half, and we lose money on the butter at this price. Such conditions are causing farmers to leave the farm by thousands. We have reached a crisis. You may ask what we would do with the middlemen. I would suggest that it be arranged for them to go on the farm and help produce things. I understand that they might not relish working 14 hours a day, but if we get by in the near future there will have to be some useful work done by everyone."

Another expresses it as his opinion that the way to lower costs of living is to lower the wages in the city which are now so high as to draw all young men from the farms. This farmer said that his year's work averaged him exactly one dollar per day and that his day averaged around 14 hours. "I am done with this kind of production so long as it aids the middleman to get rich at the expense of such labor."

Now the legal department of the state of California is taking steps which will put many of our dairymen out of business.

LOS ANGELES STOCKYARDS?

Last Friday a representative group of livestock men—producers and packers—met in Los Angeles under the auspices of the committees on manufactures and agriculture of the chamber of commerce, to discuss the practicability of establishing union stockyards in Los Angeles. At the conclusion of the meeting a committee was appointed to digest the available data and submit a report upon which action will be taken.

The Cultivator believes that the livestock industry will be materially advanced if union yards are established at San Francisco and Los Angeles, but in view of the recent agreement under which the packers are to divorce themselves from financial interests in all yards it remains to be seen how such a proposition can be financed. Obviously, the producers will be very largely interested in any plan, and it would seem that they should have been allotted more representatives on the committee that is to make the preliminary report.

We note in a press report of the meeting that practically all the opposition came from the cattle producers, who claimed that cattlemen are satisfied with present methods of marketing. We take it such opposition represents but few of the larger operators who by virtue of their volume of business are in a position to drive satisfactory bargains—at least it is certain that there is a wide-spread feeling among small operators and among the majority of pork producers that properly organized and regulated yards would go far toward eliminating many of the handicaps under which they must now market their surplus.

LINCOLN ON OUR NEEDS

Sixty years ago in an address delivered before the Wisconsin Agricultural Society, Abraham Lincoln said:

"My first suggestion is an inquiry as to the effect of greater thoroughness in all departments of agriculture than now prevails in the Northwest, perhaps I might say in America.

"What would be the effect upon the farming interests to push the soil up to something near its full capacity? Unquestionably, it will take more labor to produce 50 bushels from one acre than it will to produce ten bushels from the same acre, but will it take more labor to produce 50 bushels from one acre than from five?

Unquestionably, intense cultivation will require more labor to the acre, but will it require more to the bushel? If it should require just as much to the bushel, there are some probable, and several certain advantages in favor of intensive practice. It is possible it might develop those unknown causes which of late years have cut down our crops below their former averages.

"The thought recurs that education and cultivated thought can best be combined with agricultural labor, or any labor, on the principle of thorough work, and thorough work again renders sufficient the smallest quantity of ground to each man, and this again conforms to what must occur in a world less inclined to war and more devoted to the arts of peace than heretofore.

"Population must increase rapidly, more rapidly than in former times, and ere long the most valuable of all arts will be the art of deriving a comfortable subsistence from the smallest area of soil. No community whose every member possesses this art can ever be the victim of oppression in any form. Such a community will be alike independent of crowned kings, money kings, and land kings."

HEADQUARTERS FOR WALNUT GROWERS

The California Walnut Growers Association proposes to follow its most successful season by building its own building. This will be fitted as no other building in the world ever has been for handling California walnuts. A site has been chosen on the corner of 7th and Mill Streets, Los Angeles. This site, the building and equipment will call for an expenditure of $250,000, the building alone not far from $167.-000. Another $25,000 will be invested in labor saving machinery. The building will contain about 90,000 square feet of floor space, a portion of it seven stories high. It will be fitted to handle walnuts in every stage from harvesting to loading on the cars. Primarily the work will be in processing lower grade and cull nuts. There will be crackers, an endless belt for sorters, carton filling rooms and even machinery for working up and disposing of the shells. The building will also house the business offices of this great association. There will be room for private trackage. There have been employed in the house now occupied from 500 to 750 women workers in handling of walnut meats. The new plant will provide room for 1,000 women workers. The production of walnuts has more than trebled during the last five years.

ORANGE TREE RECORDS

In your issue of January 17, you gave an article on orange tree records and referred to the H. E. Huntington ranches in the San Gabriel Valley. Speaking on the value of fertilizing you gave the following figures: "On a block of Valencias 25 years old, with 69 trees to the acre, the application of fertilizer cost $1.72 per tree, total including everything, even the cost of keeping records. This is $119.86 per acre. This was in 1917 and the treatment was much the same in 1918. The 1917 crop was 697 picking boxes per acre. The 1919 crop was 5,758 picking boxes to the acre." Can you give me any more information on this?—G. K. P.

Another observing reader writes from Beaver Dam, Wisconsin: though he has an orange grove in California and is "from Missouri" as to that place producing "some 83 field boxes per tree." He adds:

"Can't you modify that statement a little? I should like to know, also, whether the manure was applied broadcast, or by the Shamel furrow method. Also, if the tankage is applied in July, how it is got down to root zone."

Mr. Hertrich has already written us stating that the figures as printed were for a block of six acres. He read from the charts as the Cultivator man jotted the figures down and inadvertently gave block figures for the acre figures desired.

Regarding the second query Mr. Hertrich phones us that while he then applied manures with a spreader he now uses the Shamel furrow method altogether. The tankage he drills in deeply after irrigation.

STOP THE DECAY OF TREES

Whenever the limb of a tree is blown off or becomes diseased, the stump should be sawed off even and painted with creosote or tar paint, otherwise decay will set in and spread to other parts of the tree.

Oftentimes even a nail hole will so injure the bark that it will come off, leaving the wood underneath unprotected. If these spots are left bare, decay will set in and seriously endanger the tree. A coat of creosote or tar paint will prevent spread of decay and gradually the bark will grow over the bare place again.

BATS DEVOUR PEACHES

Our federal and state quarantine officials have carefully guarded against the introduction to California of the mongoose and the giant bats known as flying foxes. A recent number of the Victoria, Australia, Journal of Agriculture has the following to say respecting the latter pest:

"There has been a sudden and unprecedented incursion of flying foxes into the Albion Park (N. S. W.) district, the bats having taken up their abode in a deep gorge at Croome, known as 'Foxes Gully.' The foxes are so ravenous that they are devouring half grown peaches. The local residents are banding themselves together to deal with the foxes in their haunts, where they hang from the branches of the trees in the daytime. An application has been made to the government for a supply of ammunition to enable the gunmen to attack the pest before the orchards are ruined. The early appearance of the flying foxes is said to be due to the dryness of the weather inland, which has forced them coastwards in search of food."

A KEY TO SWEET POTATO VARIETIES

The United States department of agriculture is working out a key by means of which varieties of sweet potatoes can be identified. There has always been a great deal of confusion regarding sweet potato varieties, and this key will make it possible to positively identify all true varieties. It is based on the color, size and shape of the stems and leaves, and in the color, size and quality of the potatoes themselves. That the key works is attested by the fact that by its use varieties described at the time Columbus discovered America have been identified.

Considerable new acreage has been planted to almonds in the country around San Miguel, San Luis Obispo County.

Nursery Stock

We Can Yet Supply

Bartlett Pears on Jap Root
Bartlett Pears on French Root
Forelle Pears on Jap Root
French Prunes

James Mills Orchards Corporation

Hamilton City, Calif.

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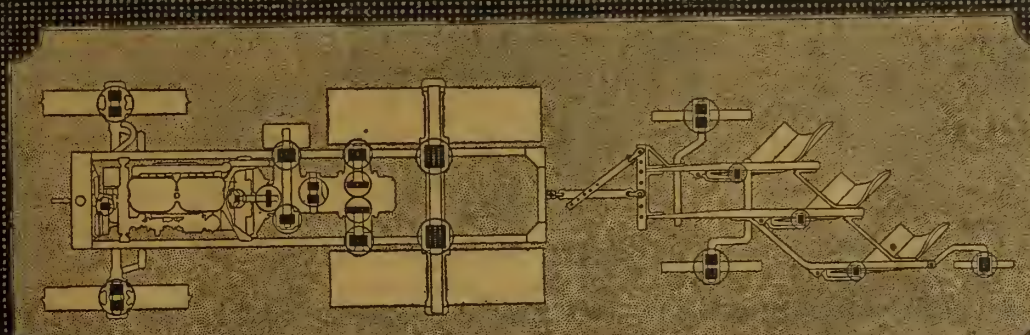
HYATT ROLLER BEARINGS



In 1920 Farm Machinery

THE tendency of all agricultural machinery design is toward increased efficiency and permanent construction.

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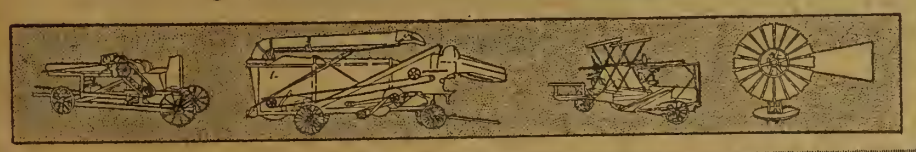

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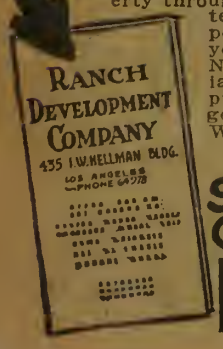

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LOS ANGELES

This Month in the Ornamental Garden

Southern California

By Ernest Braunton

FEBRUARY is the most active month of the year in vegetative growth. Seeds of all sorts spring into plants and the most dormant of roots send up their annual tops. The gardener must keep pace with nature's program and be up early and late, for swelling buds and unfolding leaves proclaim that spring has come. This month is sometimes dangerous, for distressingly hot weather is not infrequent during the first week, and this may engender a growth that will be caught by a late frost, so February is occasionally our most freakish month. While some sections must guard against such unusual visitations, the most of us are safe in going ahead with all but the most tropical in gardening.

Deciduous trees and shrubs may be pruned, with few exceptions, and because of these exceptions it is better to prune all deciduous subjects immediately after blooming period. No acacias should be pruned now unless they have just flowered or flowers will be cut away.

Rubbish of all kinds should be composted or burned and all insect life found beneath ruthlessly killed, as the season for multiplication is at hand. All growing plants should be fertilized and watered if soil is dry, but feed no dormant palnts; wait for manifestation of life. At time of writing soils are dry and should be turned over and left in the rough for wind and sun to purify and pulverize, but after each rain cultivate and level soil to conserve the moisture for more rains may not come and artificially applied water is not of equal value.

Sowing Seeds

All seeds of tender plants may now be sown and in addition all hardy annuals in the catalogue list. Asters, calliopsis, annual chrysanthemums, cockscombs, salvia, snapdragon, stocks and sweet peas are all in season for best results later on. Plants for shade would not have started earlier, either from seeds or in growth, but will now develop rapidly.

Bulb Planting

Do not divide bulbs or roots, or plant such now, as dahlias, elephants ears, cyperus or papyrus, but amaryllis, anemone, agapanthus, gladioli and lilies may go into the soil, leaving the first named lot for a month, for we should yet have copious rains in the valleys and snow on the mountains and some sharp frosts may result. Even lily bulbs are best set with a handful of sand below and another handful on top. Decaying organic matter in the soil cannot then induce decay in case of a long wet spell. In addition to bulbs and seeds, cuttings of hardwood shrubs will root now, such as crepe myrtle, hydrangea, lemon verbena and lilac. Nearly all herbaceous perennials may be divided and reset, such as golden rod, golden glow and Shasta daisies. In warm sections chrysanthemums and carnations may be propagated, though a little early.

Roses and Trees

No time of the year is better than the present for planting bare root roses. Those in the garden may also be pruned and fertilized to bring spring flowers, for February is the most vital of all months to the rose bush. As it is now, so will it be throughout the year. All hardy or half hardy bedding and border plants should be set at once and all trees planted or transplanted except in the colder sections. The deciduous tree is now in prime condition, but the semi-tropic evergreens are better left for a month later. The time to plant a tree is when it is ready to grow, and oranges, lemons and this class are still dormant. But place your orders at once for fruit trees of all sorts are extremely scarce. Lawns should be fertilized now, for there is less danger of washing such material away than if applied earlier in the season. Stable manure is best if you can get it, and bone meal is a splendid concentrated food. Bare patches in the lawn should be loosened a little and blue grass or clover seed sown.

Northern California

By Albert R. Gould

GARDEN improvement is now the order of the day, or the month, and we now have to study carefully further development of the home grounds. Whether large or small, we want them to look natural, and with the possibility of further rains the ideal planting weather is at hand and the nurserymen have usually a large and varied selection of plants to select from in the early spring. It will always pay the prospective planter to make an inspection tour of the nurseries at this time of the year, after first making a general survey of the garden to be planted. The garden around the farmhouse may need reconstructing. The planting may be too thin and need here and there shrubs to make a bolder effect. There are a number of choice subjects that should be grown in every garden and will be a source of beauty to the home surroundings. Look over your situation carefully and if you are not satisfied with your garden get into consultation with a practical man and have your problems solved.

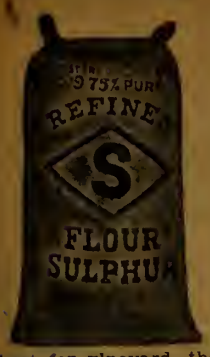
Sweet Peas

This popular flower should be grown by all who love delicate shades. The winter flowering types have been in flower for several weeks and we have seen some wonderful blooms recently. These new varieties are a credit to the raisers and prove what hybridizing will do. They are profitable cut flowers, coming as they do when flowers are scarce. Among the summer flowering group the best are the waved, or Spencer, types, as they are called, and the following is a choice selection from a color standpoint. Size will often depend upon the culture. We have grown them with eight and nine flowers on a single stem, but we worked hard and long hours to do it and as for fertilizer we were very liberal, but close attention to business pays. Among the best are Elfrida Pearson, New Miriam Beaver, Scintillator, Dobbies Cream, King White, Illuminator, Fiery Cross, Helen Pierce, King Edward Spencer. Prepare your ground thoroughly and trench in manure very deeply, having the surface in a fine condition to sow the seeds which should be soaked in water for 12 hours at least immediately before sowing. Some prefer to sow three or four seeds in a three inch pot, but they may be sown in the open ground one inch apart in the row. This method is less trouble than growing in pots and transplanting. After the seedlings get a few inches high, feeding with liquid manure will help greatly. We shall deal with this and other hints later on in the season. In the meantime sow the best seed you can get.

Hardy Plants for Bold Groups

Often we have some positions we need bold groups for, and the most suitable plants to produce this effect are: Hollyhocks in various shades. These are stately plants, growing five to six feet high, and fairly easy to grow from seed, or strong plants may be purchased now which will flower this summer. The Allegheny mixed are fringed, of a semi-double type. Then we have the campanulas, many of which are tall species. The Chimney Bellflower blooms in late summer and has beautiful blue and white flowers growing to a height of six to seven feet. Campanula persicifolia is also useful for grouping, having also blue and white flowers. These average four feet in height. The foxglove, or digitalis, is another subject which may

SULPHUR



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be used in groups under the trees in shaded or semi-shaded locations. Plants are easily raised from seed sown in boxes of light soil. Some of the liliums grouped in solid beds look wonderfully well, and of these we think the following desirable: Lilium auratum, often known as the golden rayed lily of Japan, platyphyllum being the tallest variety. L. Henryi is another good type to grow, and among the best native to North America are L. pardalinum and L. Humboldtii. Lilies thrive best in a rich soil composed mainly of leaf soil and a light loam.

A Beautiful Climber

Among the best climbers we have seen for a long time is the coral creeper, Kennedya comptoniana, which with its delicate purple flowers is a picture itself and may be used to cover pillar, trellis or in a vase. It is a native of South Australia. It requires a fairly rich loam to thrive and a fairly warm position.

Work on the Lawns

There will be little to do in the way of mowing, but keep after the weeds. Never let them get ahead or they will cause trouble. An old pocket knife will be found useful in removing them. Apply bonemeal and dried blood as a dressing before the rains as a renovator.

This Month in the Vegetable Garden

Northern California

By Albert R. Gould

RECENT rains have encouraged gardeners, nurserymen and seedsmen alike, and as a result there is much activity. The days are lengthened somewhat and we shall be able to put in more spare time in the garden.

Your list of seeds for the season should be in order, and the sooner you place it with the seedsman the better, as the rush season with him is now on. It is therefore wise to be there early and be sure to deal with a well established firm. Plant only the tried and tested. Cheap seed is usually too old to germinate and should be burnt.

Apply plenty of fertilizer to the plots while in the state of preparation and study your own particular soil conditions. Apply lime to heavy soils, also work in decayed leaves and wood ashes. You can hardly expect to raise good crops on poor soil, hence soil conditions are of the first importance before wasting seed. Regarding the most important elements in the soil necessary to plant growth we would like to mention briefly that nitrogen gives vitality and produces increased growth, giving the plant a deep green color, and potash will also assist in bringing the plant to earlier maturity. Lime has a tendency to produce a short stocky growth which in root crops is desirable. In the case of fresh farmyard manure nitrogen is present in an organic form but when placed in a heap it becomes heated and fermentation takes place, some of the organic nitrogen being changed into ammonia. When this manure is applied to the land and dug in soil microbes carry on the good work, changing the ammonia into nitric acid. This acid then unites wtih lime in the soil, or potash, then forming nitrate of lime or potash. It will then dissolve in water and passes into the plants, and from either of these they can secure the nitrogen they need. We mention these interesting facts so that our readers can more readily understand the importance of soil conditions. The science of plant food is worth careful thought.

Peas

This crop especially has been helped by the rain, and the cultivator or hoe should be kept moving between the rows. Tall growing varieties three feet and over will need support. Procure bushy stakes and place both sides of the row, or wire stretched tight will serve the purpose. Lucky is the garden free from aphis or green fly. These pests love the peas. To destroy them get busy with the spray pump and nicotine sulphate. The following varieties may be sown this month for

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No. 10

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California soils respond promptly and generously to intelligent fertilization. This is particularly true concerning nitrogen, in which important plant food so many soils are deficient.

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As is always the case, some form of nitrogen is better than others. The California Experiment Station advises the growers of this state to use **Sulphate of Ammonia.**

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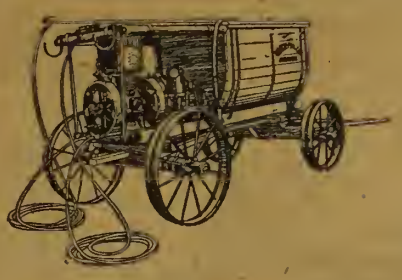

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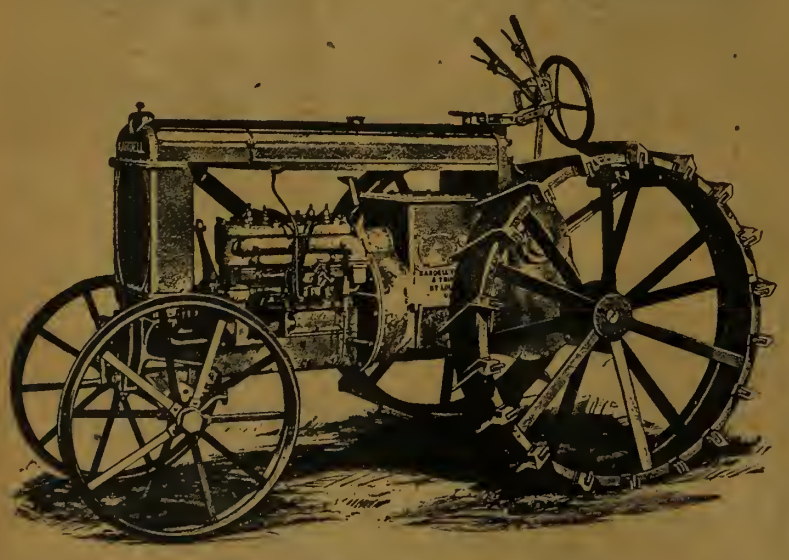

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Carrots

Sow Danver's Half Long and French Forcing in rows 18 inches apart. Keep the ground well cultivated. Thin out those previously sown to four inches apart in the row.

Onions

Sets may be planted on rich soil in rows 18 inches apart three inches or more apart in the row. They may be used in the green state or if grown on to maturity will produce good sized bulbs much earlier than from seed. The earlier varieties sown in December will now be making good headway and thinning should be completed this month. Plant out any surplus plants. Main crop varieties sown as advised last month will be showing through, and thinning of these may be undertaken at the end of the month. Prizetaker, Ailsa Craig and Australian Brown may still be sown.

Turnips

Thin out this crop, the varieties sown as advised last month, and leave the plants four to five inches apart in the rows. Sow for succession Early White Milan and Orange Jelly.

Lettuce

This useful and popular salad may now be sown every month. The varieties May King, Deacon, Los Angeles or White Paris Cos are all worthy of a place in the home garden. Make your choice.

Asparagus

Secure the best roots of Colossal or Palmetto for planting new beds. Plant three feet apart in the row and prepare with manure before planting. Apply a good dressing of farmyard manure to existing beds.

Rhubarb

This crop thrives on rich soil and will well repay every attention both as regards manure and water. For establishing new beds plant strong roots having several "eyes" of Myatt's Victoria, Crimson Winter and Strawberry varieties. Plant six inches deep three feet apart. It may also be planted in a deep box five feet deep by five feet square having two feet of soil at the bottom. Keep the box covered and water at intervals. Early rhubarb may be obtained in this manner.

Kale and Cabbage

Complete the planting of these on well prepared soil. Giant Narrow kale is the latest new variety, quite useful for poultry. Early Spring cabbage will provide fine heads in a few months.

Southern California

By D. F. Reichard

THIS month Southern California spring starts in earnest. Although we may get a frost now and then the atmosphere in general is warmer and plant life begins to awaken. We ourselves have a longing to get out and stir the earth and plant something. Follow up the impulse by laying off some ground for a vegetable garden even though it is only to plant a few radishes or beans. If you want a real worth while garden look up the Cultivator of January third for suggestions as to planning a garden. If you are planning for a permanent garden with perennial plants as well as the annuals, arrange it so that the perennials, such as bush berries, artichokes and asparagus will be at one side, or at least where they may be undisturbed when working the ground for annuals.

Everything can be planted this month except in low cool sections where planting of beans, corn, melons and squash had better be postponed till the weather warms up a little more.

Plant all trees, vines and roots as soon as possible for the sooner they are in the better root systems they make for the coming year. The same may be said of herbs and strawberries. Make further plantings of radish and spinach, also lettuce plants, onion sets for green onions and seed of cabbage, kale and lettuce to be transplanted within the next two months, at which time tomatoes, peppers and egg plant may be set in their places. Larger planting of Irish potatoes is proper for this month. The last planting of peas goes in this month. Carrots, beets, turnips and parsnips may be planted for succession. If a good quantity of onions are wanted plant seeds of Australian Brown or Silverskin for harvesting next summer. Set out plants of cabbage and cauliflower for late spring heads; these may be interset with onions or lettuce plants which will be out of the way before the others are ready. Small plantings of Canadian and Ventura Wonder beans and early sweet corn may be made in the warmer sections.

If the rains continue to hold off the stuff that was planted during January will have to be irrigated and the ground carefully worked. Thin out plants where they are too close to make proper development. Any pruning that has not been done to shrubs or trees should be done at once because the season is very much advanced this year and growth will be starting before we know it. When the sap starts to come up it is then too late to prune. Spray all deciduous fruits and berry bushes with Bordeaux mixture or lime-sulphur solution. The powdered forms of these are the easiest, nicest to handle. To the desired amount of water add the required amount of the dry powder, stir well and apply with spray pump.

Southern Arizona

By M. E. Bemis

FEBRUARY and March offer greater inducements to the Arizona gardener, possibly, than any other month of the year. The spirit of the seedsman's annual is in the air, and it is at this season that one feels more enthusiasm for planting seeds and watching them sprout than later or earlier.

As the animal, be it boy or colt, that is well born is half raised, so the seed that is well planted is well on the road to feeding the hungry world. Preparation of the seed bed then should be the first consideration. It is true that most of the soils of Southern Arizona are very fertile, but garden crops are plants that readily lend themselves to intensive culture, and therefore it behooves the gardener to introduce some well rotted manure into his soil. Usually this is not difficult to obtain in Arizona, but fresh manure should not be used as a substitute if the rotted is not available. Gardeners are quite well agreed that fresh stable manure "burns" the young plants.

The manure should be well plowed in, or if the plot is a small one it may be spaded in. Deep plowing or spading is just as essential in gardening as in farming, and this is the first step in the preparation of a good seed bed. Harrowing, leveling and working down to a fine condition are steps which should logically follow. As any gardening scheme in Southern Arizona must depend upon irrigation, it is necessary to consider the matter of running the water as a preliminary to the final finishing touches. The lighter the soil the more slope will be required, the heavier soil requiring considerably less.

Naturally with irrigation it is necessary to plant crops in furrows on the sides of ridges. In extremely light sandy soils it may be possible to practice level culture, but I have never known but one gardener in Arizona to advocate this method.

Possibly as good a method as any for common garden practice, that is the home garden, is to run furrows two feet apart, throwing the earth up into a shallow ridge between, five and ten inches high at the centers and broad and flat, with the furrows be-

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Set Among the Gardens of the Great Playground of the Orange Belt at Urbita Springs
Admission Fifty Cents

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San Francisco, Calif.
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Wanted to Lease

Orchard ranch and general farm of 50-200 acres. Responsible party. Experienced university graduate. Good references. Will develop large tract of young orchard. Box R, Cultivator.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

tween as narrow as possible. This makes the rows of vegetables about 12 inches apart, if the rows are made about half way down the sides of the ridges, the centers of the ridges being just two feet apart. Where a horse is used for cultivation the ridges may be spaced three feet apart from center to center.

The problem of successful germination is one that taxes the patience of a white man. The Oriental with his infinite perseverance and disregard for time seems not to mind the failures that come from poor germination and plants over and over again, if necessary, with seemingly no discouragement. Planting good seed in moist soil as fine as it can be prepared and just above the water line is about all that can be done. If the Fates are propitious—that is to say, if there is not a combination of very warm days, cool nights and steady drying winds that dry out the soil and form a crust, there should be moisture enough to bring up the seeds before the crust forms. Sometimes when a crust forms it may be broken carefully with a garden rake without disturbing the embryo plants. This must be done carefully, however, as any raking would of course be disastrous. A chopping without moving the earth is all that is needed.

The things that may be planted in February in the Salt River Valley and other locations with similar altitude and soil conditions are: Beets, carrots, collards, sweet corn, kale, kohl rabi, lettuce, mustard, parsley, early peas, potatoes, spinach, Swiss chard, bush squash, tomatoes, turnips, strawberry and cabbage plants, onions seed and onion sets and asparagus roots.

The smaller seeds like beets, carrots, lettuce and mustard, should be planted very shallow, one-half to three-fourths of an inch deep. Crosby's Egyptian, Early Blood Turnip and Eclipse are good beets. Danvers Half Long or Ox-heart carrots; the very early varieties of peas only, such as Alaska or American Wonder; Papago sweet corn towards the latter part of February; New York lettuce; Bush Scallop or Summer Crookneck squash; Prickly Winter spinach; Purple Top Strap Leaf or White Flat Dutch turnips, are among the common vegetables that have proved successful in this climate. Potatoes may be planted any time in February. They do best in the more sandy soils; in fact, it is somewhat of a gamble to plant them in any except the sandy soils. This is true also of sweet potatoes. As a rule potatoes do not require as much irrigation as other crops; in fact, the best potatoes are grown on soils that are naturally sub-irrigated, although some good crops have been grown on sandy soils rich in humus, where they have been carefully handled. For the home garden there should be some potatoes planted, but as a commercial crop, except in soils that have been proved, I would not go heavy on potatoes.

Tomatoes should be started in cold frames. Some prefer to plant these in the row where they are to grow, and if this is practiced it would be better to wait until March. Squashes, although a tender plant, are planted early by the Chinese and Japanese gardeners and the squashes are often on the market before many people would think it was time to plant them. The seed is not expensive and if killed by frost it costs little to plant them over, and if only nipped a little they are not much injured.

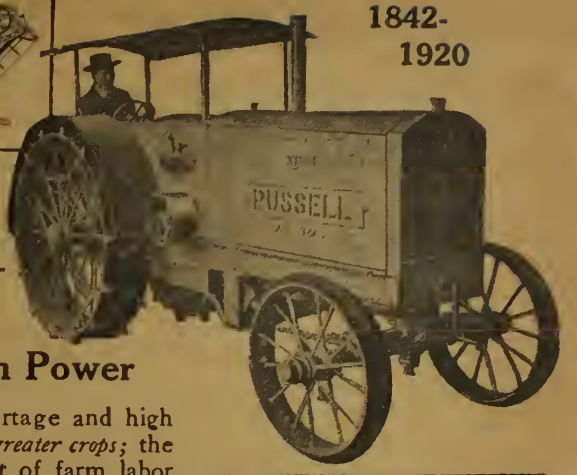
Strawberry plants by good rights should be set out earlier, but they will do very well if put out in February, although one should not expect much of a crop the first season.

Planting the garden is only the beginning. Frequent irrigation is necessary with most plants, but cultivation following each irrigation is highly essential to the greatest success.

MODERNIZING IT

Many knocks among the squeaks,
Tie-bolts that no longer hold—
Darling, you are growing old,
All your members rattle, dear,
Out of joint your timing gear.
Though I seek him day and night
No man born can set you right.
Once I swore that you should be
Always young and fair to me.
But, alas, old fuel bin,
I must trade your carcass in.
—Richard B. Bennett in Motor Life.

1842-
1920



This Year—
Demand
Reliable Farm Power

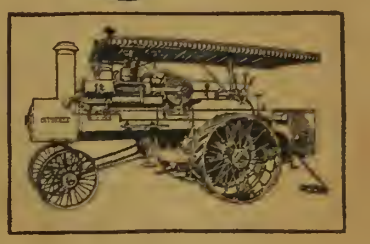
The world-wide shortage and high price of food demands *greater crops;* the shortage and higher cost of farm labor demands more and *more farm power*—tractors and threshers in particular.

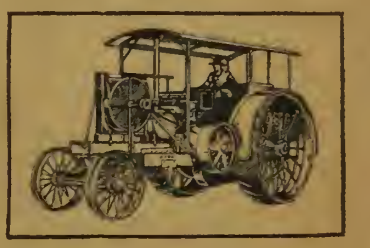
The shrewd farmer cannot afford to risk trouble, loss, delays and breakdowns with new or untried machines—or those rushed through the factory to meet a sped-up scale of production.

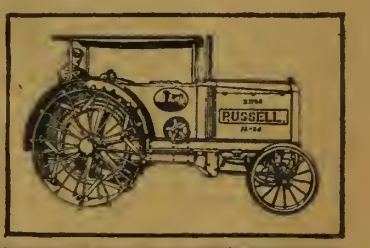
For 1920 Russell will build only a few more tractors and threshers than last year—but will *build them right*—true to "old reliable" standards of quality and service.

These are the only kind of machines you want to buy, sell or use—but get your order in early to guarantee prompt shipment.

Send now for Big New Russell Catalog.







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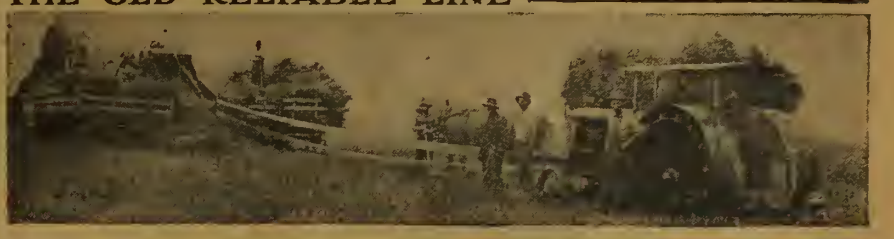

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Vines and Roses

Write for Our Illustrated Catalogue

You Should Plant More Deciduous
Ornamental Shade Trees
Fine for Avenues or Individual Specimens

A Real Practical Planter's Guide

On the ranch these trees are good for stock shelter. Nothing better than Balm of Gilead Poplar, European Sycamore and those Stately Elms. Do well anywhere—easy to transplant.

Fancher Creek Nurseries
209 HOLLAND BUILDING
Fresno, California.

SEED POTATOES
Complete Catalog Now Ready. Write
Aggeler and Musser Seed Co.
620 So. Spring St. Los Angeles, Cal.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Trees for Reforesting

I wish to secure trees for replanting rough land along stream. Would like pine, sycamore and holly. Can such trees be had from government reforesting nurseries?—Subscriber.

We believe the division of forestry grows trees for use only on the public domain and do not think they distribute for planting on private property. However, the trees mentioned are easily secured and planted. The sycamore will usually grow from cuttings taken at this time of the year, and if other sycamores are now growing along the stream it is probable young seedlings may be found in abundance nearby. We have repeatedly taken up these seedlings and have fine large growing trees from them. The pines are also easy to secure and grow, comparatively all growth being raised from seed which every seed house can supply.

Building a House

Where can I find out how to construct a house out of large granite rocks found on the place?—Subscriber, Long Beach.

That is rather a long question and the first suggestion would be to work with builders who have had experience. The mere matter of laying up the boulders, however, is very simple, for with the use of a mortar made of Portland cement one can build a very substantial and dependable wall. If the boulders have been taken from the stream where they have been rolled and polished they can be used in the wall without further cleaning. If, however, they have been dug out from the soil thorough cleaning is necessary in order to get perfect adherence to the mortar and a strong wall.

Olive Cuttings

When is best time to set olive cuttings and how are they set?—Subscriber, Springville.

That depends upon which variety of cutting is to be used. Presumably the subscriber is referring to the ripened wood cuttings. For those there is no better time than the present. That is, the trees are now dormant and the wood well ripened. Select wood the size of lead pencil or larger and cut ten or 12 inch lengths. Some root in sand, others will root directly in the place where the nursery row is to stand. Choose a sandy loam, plow, furrow, place the cuttings—some prefer at an angle of 50 to 60 degrees, others set upright. Plow another furrow so as to throw soil against cuttings, leaving one eye or bud above the surface. If soil is heavy or inclined to liberal supply of moisture do not place cuttings so deep. We have seen large blocks used for cuttings which have been entirely buried, but near the surface, and when the young sprouts come from various portions of these cuttings they are broken off and carefully planted in the nursery row. However, the more common herbaceous cutting used by the nurserymen in propagating olive trees is taken from the tips or new growth. These are rooted only in sand and usually in glass house supplied with under heat. Of necessity this type of cutting is made later in the season when the spring growth permits securing satisfactory cuttings.

Preserving Citron

Please tell me how to preserve citron.—Subscriber, Encanto.

Coit's "Citrus Fruits" gives the following outline of method for preserving citron: "The fruit as it first begins to assume a bright yellow color is picked and placed in brine for a month or longer, the brine being renewed occasionally. Sometimes tender young leaves of the citron tree are soaked with the fruit to deepen the green color. The fruit is then boiled in fresh water to remove the salt and soften it. It is then halved, the pulp and seed scooped out, and immersed in cold fresh water to intensify the greenish color. After this it is covered with hot sugar syrup and allowed to stand three or four weeks, during which time the strength of the syrup is gradually increased. The fruit is then put into boilers with crystallzed sugar syrup and cooked; then allowed to cool, more sugar is added, and it is cooked again until it will take up no more sugar. It is then dried and packed in wooden boxes, each piece being coated with white sugar crystals and wrapped in tissue paper."

Bacon From Moulding

Will you tell me how to prevent bacon from moulding? — Subscriber, Triumfo.

Will some of our subscribers give us a hint in this particular? We have heard that rubbing with olive oil as soon as removed from its original wrap or as soon as cured is an aid in preventing the moulding. However, we have tried this and when moisture and heat conditions are right it will still mould. Occasional wiping with dry cloth and keeping in cold dry place is effective.

Planting Walnuts

I am thinking of planting some black walnut trees in order to have walnuts for my own use. How is the bed for them prepared and when is the best time to plant? Is sandy soil better than heavy soil?—Subscriber, Anaheim.

The method of handling and planting the nuts is given by Prof. Ralph E. Smith in Bulletin 231 as follows: "Walnuts (Northern Blacks) to be used for planting in the nursery should, after gathering, be kept in sacks or other receptacles in a cool, not too dry place until planting time. If allowed to become extremely dry after gathering the nuts germinate much less easily than otherwise. They will usually keep in good condition if tied up in sacks and piled in a cool, shady place. It may be found desirable to allow the outer hulls to dry somewhat before sacking up the nuts, especially in the case of large hybrid nuts, since if sacked and put away quite green the hulls decay and become extremely soft and mushy. Early in the winter, not much later than January, the nuts should be layered in sand or light strawy earth in order to sprout them and segregate the best ones from those that germinate feebly or not at all. This is most conveniently done by constructing a frame about 18 inches deep, either above or below ground, in the bottom of which should be placed three or four inches of sand, then the layer of nuts, which may be either one or several nuts in depth, according to the available space. The nuts are then covered with three or four inches of sand which should be washed down thoroughly between the nuts by a stream of water. The whole bed will thus be well soaked. Instead of placing the nuts directly in the bed it is more convenient in getting them out to put them in shallow wooden boxes or flats, imbedding these in the sand as above described. If this is done it is much easier to get the nuts out for planting than if they are placed directly in the sand. Other materials may be substituted for sand, such as earth mixed with fine straw or manure, or any substance which holds moisture well and from which the nuts can be easily removed. The bed should be so arranged that water will drain away from it and not accumulate sufficiently to rot the nuts, and it should be protected from rain if there is any danger of such an effect

Heider

Twelve Years Actual Field Work

Think of the *assurance of service* you have in the fact that America's leading power farmers have used the Heider on their farms for 12 years. Many of the original Heiders are in faithful use today. You do not have to take one or two days' "demonstration" as proof.

Model D 9-16

Rock Island One-Man Outfits

Heider Model D 9-16 with No. 9 Rock Island CTX two-bottom Power Lift Plow directly attached. To the right, Heider Model C 12-20 with Rock Island No. 19 CTX two-three bottom Power Lift Plow. Foot-lever control. Automatic power lift.

No Gears to Strip! That means saving wear, trouble and expense. Heider Friction Drive does away with clutch, transmission gears and bevel gears. All three units are in one. Power ordinarily used up by these parts is put into drawbar pull or belt work. Steady, resistless power under perfect control. Seven speeds forward, seven reverse, for traction or belt with one motor speed and one lever.

Two sizes, 12-20 and 9-16. Write for catalog of Heider Tractors and Rock Island Tractor Tools.

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Rock Island Plow Co.
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Model C 12-20 *with No. 19 Power Lift Plow Attached*

Rock Island No. 38 One-Man Tractor Disc

Close-up levers. One man easily operates both tractor and disc. Extra high clearance. Two sizes. 8 and 10 feet cut. Solid or cut out discs.

Rock Island No. 12 Tractor Plow

Successful behind *any* tractor. Front furrow wheel lift equipped with 2, 3 or 4 Rock Island CTX bottoms that turn the furrow slice clear over, pulverizing soil and preventing air spaces.

Quick Detachable Shares

from that source. The nuts need to be constantly well moistened, however, in order to start germination, and if drainage is good there is not much danger of getting them too wet. The bed should be located in a place where it will receive the heat of the sun in order that it may not he too cold for germination, and it may he underlaid with manure if it is desirable for any reason to hasten the sprouting of the nuts. As soon as a considerable portion of the nuts has begun to sprout in the sand hed they must be gotten out into the nursery as soon as possihle."

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Ownership of Homestead

Several heirs own a homestead left hy father. Only one has stayed on the homestead and has paid the taxes for 20 years. No rent has been asked hy the other heirs. Does this entitle the heir to ownership of the property? —Suhscriher, Sunol Glen.

The only title which could he claimed would be one by adverse possession hut it is essential to the title by adverse possession that it be hostile to that of all other persons. The title of the heir staying upon the property in the case mentioncd can in no wise be considered as hostile to that of the other heirs. If it was in fact a true legal homestead, it would descend upon the death of the parents to each of the heirs as joint tenants. If the word "homestead" is merely used in the common expression as frequently used, it is merely an unprobated estate. In neither event can the possession by one he considered as hostile to the rights either of the other joint tenants or of the estate itself. Everything which the heir in possession has done is merely in preservation of the estate. He entered into possession under no color of title other than that jcintly held by all, nor is there anything which he has done which can be construed as placing the other heirs or the estate upon notice that there is any hostile claim. It is true that in the event of administration of the estate an accounting would be necessary in which the heir in possession might he entitled to receive compensation for his expenses in caring for the property or he might be charged with rents and profits of the property.

Partnership Pump

There is a pumping plant on the land of C in which A owns one-half and B and C each one-fourth. A separate deed covers the land upon which lies the pumping plant, and the interest of A therein is covered hy a mortgage upon his land. The present pump is worn out; B and C wish to install a new pump hut A refuses to contribute to the expense. How can B and C proceed?—Subscriber, Redlands.

It is evident that the parties are tenants in common in respect to the pump. In such case each of the tenants in common may be held to contribute for expenditures necessary for the pump and preservation of the common property incurred fairly and in good faith. Before making such repairs B and C should notify A of their intentions so to do, which notice should state the character of repairs and the expenses necessary thereto with his proportion of such expense and make demand upon him for payment thereof. If he fails to make such contribution within a reasonable time, then B and C can proceed to install the necessary repairs and thereafter bring an ordinary action against A to recover his proportion of the expenses together with interest and costs. That method would probably be better than discontinuing the service of water, although there possibly could be no objection.

Payment for Debt

Can a merchant take property of an employer for debt contracted hy employe? If so, how? A bought goods from B, a merchant, who sues A and attaches personal property of C, his employer, for the debt. Debt was contracted without knowledge of employer. Two goats were taken from the care of the employe, under protest that there was no law for such action. B seems to have the idea that A and C are partners, but A is only hired to take care of goats and other stock. C was not home when goats were taken. What steps can he take to recover goats? He has filed affidavit of ownership, but B refuses to bring goats hack and is making charges of 50 cents per day for feed and care. Can he make A or C pay these charges? A has only her wages to live on and C works for wages. C has not been able to pay A wages for two months. Does it make any difference what A does with merchandise hought in her own name?—Subscriher, Felton.

B has no right to take the goods of C for the debts of A and the relation of employer and employe does not enter into the case. C's proper course is to file an affidavit of ownership with the constable or sheriff who levied the writ of attachment upon the goats, whereupon the officer should release the animals from the levy of the writ. In case he does not release these animals, then the owner may hring action and claim delivery against said constable or sheriff for the animals or their value and seize them upon the writ of replevin issued in such case. If the officer seizing property does not release it upon filing the affidavit, it is because the party bringing the action has indemnified him by bond. In case he refuses to release, if the owner of the animals is successful in his replevin suit, he will be entitled to recover the animals without charge for their keep and may in such action recover damages for their detention.

Chickens and Hogs Trespass

I have grain and potato land which is unfenced. Can I compel my neighhors to keep their chickens and hogs off my place, as I have heen damaged to quite an extent by the trespasses? —Subscriber, Highlands.

The premises being unfenced, you are entitled only to take up the trespassing animals as estrays, in which event you can hold them for the costs, fees and charges as provided in the estray act. If they are caught doing actual damage, it is doubtful if the court would seriously hold you if you used only necessary force in driving them off, even if some injuries might happen in the course of the use of such force. I have known instances in which chicken dinners are of good effect in those cases.

Homestead

I filed on a homestead in North Dakota 18 years ago; land was unfit for agriculture and I did nothing with it. May I file upon another?—Subscriber, Ceres.

The act of congress of September 5, 1914, provides that any person otherwise duly qualified to make entry to puhlic lands under the homestead or desert land laws, who has theretofore made or may hereafter make entry under such laws and who through no fault of his own may have lost, forfeited or abandoned the claim, shall be entitled to the benefit of the homestead or desert land law as though such former entry had never

Agri GYPSUM

Ask any authority on soils, fertilizers, plant growth or botany about gypsum and he will tell you of uniformly beneficial results when applied to soils.

California producers have many and varied uses for AGRI GYPSUM. For such cover crops as melilotus, vetch, alfalfa, and legumes which use much sulphur, AGRI GYPSUM supplies the Sulphur and these crops fix the NITROGEN from the air by means of little lumps or tubercles on their roots. Use AGRI GYPSUM—plant legumes for cover crops and grow your own nitrogen—the most valuable element you can supply to your grove or crop.

At the roots of cover crops are little tubercles of nitrogen obtained from the air. AGRI GYPSUM supplies the sulphur for a monster cover crop.

When all fertilizers are scarce and high AGRI GYPSUM applied to your soil makes every beneficial element active for plant growth.

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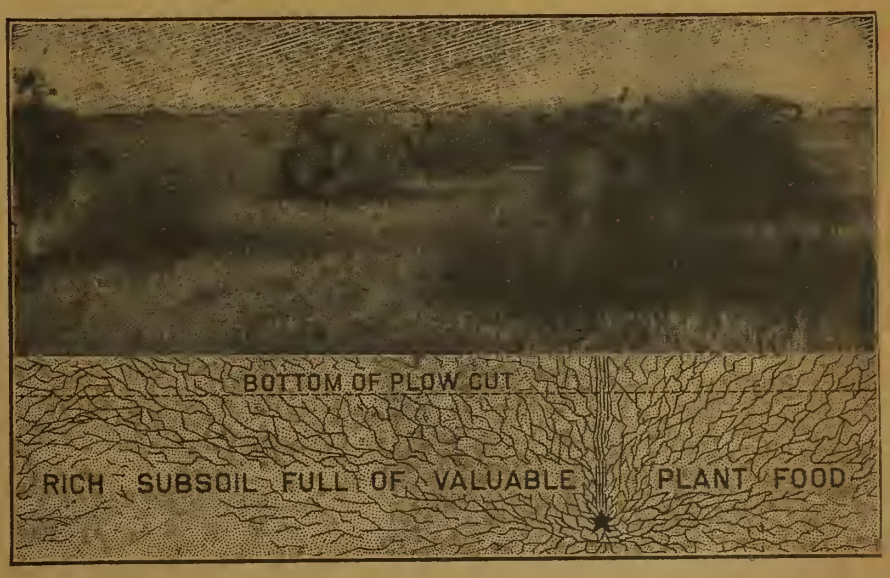
Alfalfa is one of the largest consumers of sulphur. Sulphur is deficient in nearly all soils while AGRI GYPSUM contains more than 40 per cent sulphur. AGRI GYPSUM will supply a more vigorous growth of alfalfa than anything you can apply and at less expense.

Useless Alkali Lands Can Be Made Highly Productive When AGRI GYPSUM

AGRI GYPSUM is a specific for black alkali. It turns the harmful sodium carbonate into comparatively harmless sodium sulphate. Results of experiments are available confirming our statements. If your land is inclined to alkali or spotted with alkali treat it with AGRI GYPSUM. The improved value of the land and the resulting crop growth will be very much greater than the small expense for the AGRI GYPSUM.



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Crops greatly benefited by AGRI GYPSUM include:

Oranges	Potatoes	Vetch	Barley
Lemons	Cotton	Alfalfa	Deciduous Fruits
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Ask your dealer for AGRI GYPSUM and you will be sure of the product properly balanced, uniform and ground fine to do the most good with the least amount used. If your dealer cannot supply you write

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We Are Specialists in production of high grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strain of America's choicest Leghorns fill our pens, and my personal attention is given to all details, assured each customer of highest grade stock. All baby chicks guaranteed and only healthy baby chicks shipped; if not satisfactory on arrival your money returned. Catalogue free. F. C. Rhode, Vineburg Hatchery & Poultry Yard,s Vineburg, California.

We Are Now Booking Orders for Eggs. Eggs from our Mammouth Bronz Turkeys, $1, $2, $3 from show stock and 50c utility stock. Eggs from Toulouse Geese, winners at seven shows, $1 each. White Muscovy Duck Eggs, 35c. White Wyandotte Eggs, $3 and $5 a setting. Young unmated pairs, White King Pigeons $2, old mated pairs $3. Pearl Guineas $4 a pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY (Electric), Box 122, Artesia, California.

For Sale—Baby Chicks from my thoroughbred carefully selected flock of S. C. White Leghorns. Orders accepted now for spring delivery, at $15.00 for 100 chicks, $140.00 per 1,000. Every order receives my personal and most careful attention. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Breeding Cockerels—S. C. White Leghorn males furnished with a pedigree showing five generations of line breeding from hens having trap-nest records of 200 eggs or more per year. Pedigreed chicks and eggs also for sale. All other chix sold until May. We trap-nest all the time 300 hens. ENTERPRISE POULTRY RANCH, Henry W. Boone, Chino, California.

Thoroughbred Barred P. Rocks—Egg records 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 5599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

Quality Barred Ply. Rocks and White Leghorns. .A western bred strain of utility merit and demonstrated world's winning strength. Guaranteed hatching eggs and vigorous breeders for sale. GOLDEN RULE POULTRY FARM, Penn and Stamelen, Porterville, California.

White Leghorns—Breeding Stock, Hatching Eggs. Bred to standard and to lay. At 1919 Oakland Show won 2nd and 4th cock, 4th hen, 4th and 5th pullet, 2nd pen. 178 birds competing. All curves, white plumage, vitality, high egg production. MAHAJO FARM, P. O. Box 597, Sacramento, California.

If You Are After Good Layers, buy your Barred Rock, White Leghorns, Ancona, Rhode Island Red, Buff Leghorn and Black Minorca Baby Chicks from the STEVENSON HATCHERY, Watsonville, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Thoroughbred White Leghorns and Mottled Anconas. Eggs from carefully selected stock of high laying strains. The White Leghorn Hatchery, Pomona, California.

Baby Chicks—Standard S. C. White Leghorns, heavy laying stock, bred to standard requirements. Order now. Hatch from my own stock exclusively. Standard Poultry Yards, Geo. Bruns, Prop. Box 85, R. F. D., Sonoma, California.

Just Rite Chicks from selected eggs. Barred Rocks, R. I. Reds, Black Minorcas, Brown-White Leghorns. Prices just rite, shipped just rite. We deliver free. Willow Glen Poultry Yard, 582 So. 9th Street, San Jose.

Newton Poultry Farm — White Leghorn Baby Chicks from our well known, carefully selected stock. Best strain. Big plant. Order now, any number, and get them when you want them. Los Gatos, California, Dept. 2.

"Watch Us Grow" Baby Chicks. Booking orders now for January and February deliveries. Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

White Leghorn Baby Chicks and Hatching Eggs from trapnested, line bred high producers. Every male used from dams producing over 200 eggs. Waldeck Ranch, Burbank, California.

Conklin's Heavy-Laying Strain R. I. Reds, S. C. Light and Dark Brown Leghorns. Eggs reasonable. EVA V. CONKLIN, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

For Sale—Choice Silician Buttercup cockerels. May Tolin, Orland, California.

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OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS

We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

Sly's Single Comb Rhode Island Reds prove their quality by winning at Los Angeles, 2 firsts, 4 seconds, 2 thirds, 2 fourths, 2 fifths, 2 shape specials, 2 color specials, 1 gold special, 3 silver cups. A top notch exhibition and utility strain. Send for Catalogue. A. G. Sly, 1642 E. Middleton Place, Los Angeles.

Ringler Strain Barred Rocks. (Thompson foundation direct). Cockerels, pullets, mated pens and eggs for sale. Identically same matings as our prize winners. Fine laying strain. C. W. Angier, 1011 S. Columbia Ave., Glendale, California.

Day Old Baby Chicks—From mature hen eggs—February—White Leghorns $17.00 per 100; Black Minorcas, Barred Rocks, Rhode Island Reds $22.00 per 100—March $2.00 per 100 less. Terms. One-third cash with order. T. C. Hawley, 504 East Elm Street, Lodi, California.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Buff Orpingtons, Black Minorcas, Anconas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306. San Jose, California.

Baby Chicks—Hatched every week. Booking now for entire season. White and Brown Leghorns, R. I. Reds, Barred Rocks. All strong youngsters. Safe arrival guaranteed. Write for free circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

1 Won More First and special prizes on S. C. R. I. Reds at the recent Oakland Show than all other exhibitors combined, 188 Reds competing. Hatching eggs from prize birds for sale. F. M. Lail, 6 Lupton Ave., San Jose, California.

For Sale—Thoroughbred White Wyandotte settings, $2.50 for 15 eggs, also, choice White Wyandotte cockerels from $5.00 to $8.00 each. Apply Gordon O. Tetley, 190 Edgewood Place, Riverside, California.

Booking Orders in limited numbers for hatching eggs of S. C. Rhode Island Reds, Buff Orpingtons, Pearl Guineas, White Holland Turkeys, White Muscovy ducks, Toulouse Geese. E. A. McKinley, R. F. D., Ukiah, California.

Big, Strong, Vigorous Plymouth White Rock cockerels from excellent stock. March and April hatch. Price $5.00. Only a few left. Geo. E. Dierssen, Box 913, Sacramento, Cal.

Baby Chicks and Hatching Eggs from Standard S. C. White Leghorns. We sell only strong, hardy chicks from heavy laying parent stock. Tacker's Poultry Ranch and Hatchery, Escalon, California.

White Minorca Baby Chicks and Hatching Eggs—Dark Cornish and Silver Campine Eggs. Folder. Leech Poultry Yards, Baldwin Park, California.

For Sale—Guaranteed Day Old Pullets. S. C. White Leghorns. March delivery. One ranch here buys 20,000 a year. Eureka Hatchery, Petaluma, California.

R. I. Red Hatching Eggs from good laying stock of good color, $2.00 per setting. W. M. MARQUAM, Bishop, California.

For Sale—22 Incubators, 1500 capacity each. Hot air. Fine condition. Personal injury reason for selling. Bargain. Fred Dye, Petaluma, California.

Baby Chicks, thoroughbred White Leghorns. No weak ones charged for. Schellville Hatchery, Schellville, California.

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S. Reservoir, Pomona, California.

For Sale—Pure bred White Minorca roosters, just two left out of 16 months, one 10 months, $5.00 each or trade. 770 East "A" Street, Ontario, California.

Thoroughbred high record strain S. C. White Leghorns. Quality chicks. Folder free. C. R. Shipway, Santa Cruz, California.

Baby Chicks, standard varieties, high quality, low price. Catalog now ready. Can fill large orders. Madera Hatchery, Madera, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C, Ceres, California.

"Eastman's Bred-to-Lay" trap-nest Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

For Sale — White Wyandotte eggs $2.00 per setting, $8.00 per hundred. Mrs. F. A. Cox, R. 1, Buena Park, California.

Clarus Ledford's Famous Buff Orpingtons, Eggs $2.00 and $3.00. Shepherd, Tenn.

POULTRY

THE MISSION HATCHERY
—our breeds—
WHITE, BROWN, BUFF LEGHORNS
BLACK MINORCAS, ANCONAS
BARRED & WHITE PLYMOUTH ROCKS
RHODE ISLAND REDS
(capacity 15,000 chicks weekly).
From first class breeding stock, hatched right and priced reasonable. Write us your needs, number, breed and date desired and we will do our best to meet them.
Mission Hatchery, Box 27, Campbell, Cal.

BABY CHICKS
ELECTRIC HATCHERY
25,000 Hatching Weekly,
Vigorous, True Blood Stock. Special attention to mail orders. Safe delivery GUARANTEED. Anconas, Barred Rocks, Rhode Island Reds, Minorcas, Brown, Buff, MacFarlane Strain White Leghorns. Hatching eggs. Write for prices.
PEERLESS 66 EGG HATCHER
Simple, Automatic, $8.75. Express paid.
D. E. DOKE (Baby Chicks since 1908)
328 So. Spring St., Los Angeles, Cal.

Barred Plymouth Rocks—"Nothing Better in Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Voddon, Los Gatos, California.

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Santa Cruz Chicks—We specialize on very best White Leghorns, hatching many thousands each week; also Brown and Buff Leghorns, Anconas, Minorcas, Wyandottes, Orpingtons, Barred Rocks and Rhode Island Reds. Write for folder. B. W. Archibald, Soquel, Santa Cruz County, California.

Thoroughbred S. C. White Leghorn Chicks —In 100 and 1000 lots from our Hoganized and Trapnested Stock. Order now for spring delivery. Inventors and Distributors of "Forbros" Separator and Trapnest combined. Write for circular. Forster Brothers, 2918 Otis Street, Berkeley, California.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

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Baby Chicks hatched from our S. C. White Leghorn Utility Stock, bred for commercial laying. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

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For Sale—No. 28 Pomona Deep Well Pump with 74-in. by 12-in. friction clutch pulley, 140 ft. 12 in. O. D. casing; 20 ft. 11-in. O. D. casing; 12 in. by 100 in. cast bronze cylinder; 140 ft. 2½-in. special tubing; 140 ft. 1½-inch solid steel rods, with long bronze couplings. Pump in good condition and may be seen in operation. Price $2500. E. L. DREHER, Claremont, California. Phone Pomona 3298.

Tanks, Pumps, Windmills, Ranch Tools Rebuilt, guaranteed do same work as new, save half. No profiteering. Compare prices and material. Make new galv. tanks, 100 to 2000 gals., save 20 per cent. Why pay more? See bargain prices ads L. A. Sunday papers. DEMMITT CO., upstairs, 120 N. Main, Los Angeles.

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For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

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For Sale—Pomona Pump, 28 head, nearly new; 25 H. P. Bean Distillate Engine. Clarence W. Wagner, Terra Bella, California.

Samson Tractor in good condition for sale or trade. Apply to Mel. Harding, East Telegraph Road. Phone 9132, Santa Paula, California.

For Sale—Yuba Tractor, consider Auto as part payment. Louis L. Penland, Reseda Avenue, Van Nuys, California.

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Registered Duroc-Jersey Hogs for Sale—Spring gilts at pork prices, open or bred to prize boar of Grand Champion stock. Also a fine lot of weaned pigs and a few bred sows. For further particulars write to Green Canyon Ranch, Fallbrook, California.

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Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

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The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

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For the Best in Durocs write June Acres Stock Farm, Davis, California.

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Wondergerst, California's leading Poland China sire—big himself, bred big and his pigs show the same qualities. His dam was Giantess Wonder, his sire Big Jones—both big, both winners—a combination of the greatest blood of the breed. Breed big-type Polands. Start right by using this blood. Write for special offer. A liberal consignment made to the Tulare Poland China Associated Breeders' sale held Tulare, October 21st. OXBONE Herd Poland Chinas, Tipton, California.

For Sale—Registered Poland China, one brood sow Daisy Girl $110, two year old; one brood sow Belladonna $75, one year old; one boar Wonderlust $50, one year old; all from Orange Blossom and A Wonder. Address route 2, Box 62, Van Nuys, California.

Big Type Poland China Bred Sows and Gilts. Also a few open Gilts sired by A Price. Am booking orders for winter and spring boars. Address: W. S. Adams, Gridley, California.

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price, $75.00 and up. J. H. Crawshaw, Hanford, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

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"ACHIEVER"

The Boar that puts more vitality, more bone and more pork-making qualities into his pigs, is sired by Onward 4th by "Epochal" out of a Grand Champion Sow. An opportunity to purchase Sows and gilts bred to this Boar will be offered at our coming sale, Feb. 14th.

Castleview Ranch, Santa Rosa, California.

ANCHORAGE FARM BERKSHIRES
Orland, California.
BRED GILTS FOR SALE.

3 Long, Stretchy Boar Pigs farrowed in July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St. at Third, San Francisco. In charge of Natomas Land Sales.

BERKSHIRES
are bred on the Lark Meadow Ranch for big bone, strong backs and the right type to produce profit for the purchaser. Bred and open gilts from most popular strains for sale now.
GEO. A. STINGLE, El Monte, California

Grape Wild Farm Berkshires—Guernseys —spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. R. Humphrey, Prop., Escalon, California.

Solano Berkshires. Choice stock for sale, service boars of varying ages, bred gilts, unrelated pairs and trios. Reasonable prices. Write for information. R. C. Gruhike, Dixon, Solano County, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

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20 ACRES IN PRUNES

$8,000

About the value of the raw land

Three miles northeast of Biggs on the Oroville-Biggs road, 1 mile north of Rio Bonito station on Northern Electric. One half in bearing trees balance 4 years and under. Over 12 tons of dried fruit past season. Roomy dwelling house, barn, etc. Prime grader and dipper, about 1,000 trays and fruit boxes.

G. P. Dreher,
R. D. 2, Box 62, Biggs, Calif.
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344-ACRE MIDWEST FARM
$5000, ON STATE ROAD
Good all times of year, mile stores, etc., motor bus passes farm, near R. R. center, only 8 miles large city. As good soil as lies out of doors; well drained, productive tillage; stream-watered pasture for large herd, wood, timber, fruit; 10-room house, steam heat; view over beautiful river which farm borders; house could not be replaced for $7000; large barns, etc. To settle quickly, low price $5000 is made, easy terms. Where can you equal this exceptional bargain? Details page 73 Strout's Catalog Farm Bargains 23 States; copy free. E. A. STROUT FARM AGENCY, 831 A. G. New York Life Bldg., Kansas City, Mo.

For Sale, One Hundred Ten Acres, at three hundred dollars an acre. One mile and half west of Visalia on Goshen Road. Price includes stock, implements, chickens and blooded Duroc hogs. Two houses on the place; one six room and one four room, two barns; family orchard of peaches, apples, mulberries, almonds and blackberries. One separator, one separator house, two bored wells, plenty of shade trees and 40 acres under good cultivation, all fenced. Best buy in California. Act quick; won't last long. Only reason for selling is account of my old age. ADDRESS Mary M. Menken, R. D. A. Box 319, Visalia, California.

For Sale: Citrus Land — Forty-five or ninety acres highest grade, proven frostless citrus land, at Fallbrook, practically on state highway—two miles south of town. Improvements on one forty-five. All land in crop. More water than you can ever use. This property must be sold at once and will be priced fifty per cent lower than anything of equal value in Southern California. Investigate quickly with your own eyes and judgment. Enough personal property goes with place so you can step in and go right to work. C. E. Howland, Fallbrook, California.

For Sale—$11,000—Will sacrifice my ranch 15 acres, one and half miles from Porterville. Good pumping plant all under irrigation, good for fruit, grain or dairy. 5 acres in alfalfa, 5 acres in prunes. Two houses, four rooms each, good barn, separator and separator house, fine water, cows, chickens, hogs, horses and implements, all go with the place. For particulars address W. B. LYON, Porterville, California, Route 3 Box 44.

For Sale—Dairy Ranch 250 acres of land in best farming section of California, the Turlock District. 64 head cows and heifers. 100 acres of alfalfa, 4 miles from Turlock, good melon or sweet potato land. Ideal for subdividing. Price reasonable, write to or see C. J. Densmore, R. F. D. 1, Box 305, Turlock, California.

FOR SALE AND EXCHANGE
10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.

FOR SALE
Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

Equipped for irrigation—95 acres rich gravelly loam, bordering on rice creek, ¼ mile from Sacramento River; all oak tree land, ½ cleared; will sell all or 20-25-50 acre tracts; first class for all crops, especially alfalfa and trees. Buy from owner and save commission. Box 123, R. D. 2, Orland, California.

For Sale or Exchange—6 acres Washington navels, 4 miles east of Porterville. In frostless area. Never has been damaged by frost, 2½ acres 12 years old; 2½ acres 8 years old; 1 acre 4 years old. Ideal home place. Reason for selling, living outside of state. Write Chas. Wentworth, 1721 Faraon Street, St. Joseph, Mo.

For Sale—Ten or twenty acres Apple Orchard, 10 inches abundance water. Varieties Wine Saps and Jonathans. Three miles south of Bishop, Inyo County. Famous Apple Belt. John A. Liedy, Bishop, California.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

Shawnee, Oklahoma, center of a great farming country. Write for information. Board of Commerce, Shawnee, Oklahoma.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

RABBITS

Beat the Butcher—Raise your own rabbit meat and know it is healthy. Our magazine tells you how. One year for 12 one-cent stamps. After January 1st 25c so get it now. SANDERSON, Eagle Rock, California. Dept. CC.

Learn to Raise, breed, tan and make up your own furs. Furbearing Rabbits will teach you—50 cents. Fine stock for sale. Mrs. C. O. Richey, R. 7, Box 854, Los Angeles.

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beechling, 1578 W 46th Street, Los Angeles.

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DEVELOPMENT OPPORTUNITY
Development Tenant wanted to take hold of 400 acres of splendid land, one mile and a half from Bishop, Inyo County; high altitude, fine climatic conditions, close to fine schools and high school. A hundred acres have been leveled, 35 acres now in fine alfalfa; fully 250 acres can be made alfalfa land. Have a superabundance of cheap water for irrigation. Land is well drained. Land not suitable for alfalfa is a fine natural pasture. Will make lease on most favorable terms to a tenant who has the equipment—teams, tractors, etc., to take hold of this tract, develop it, plant alfalfa and bring it into full production. Address L. H. Roseberry, care Security Trust and Savings Bank, Los Angeles.

ROOFING PAPER—Note Prices
1 Ply Roofing Paper....$1.80 Roll
2 Ply Roofing Paper .... 2.25 Roll
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100 sq. ft to the roll
Nails and cement included. Send us your order at once. 5,000 Gals. Stop Leak roof coating for shingles, paper or metal. Will make your roof as good as new. Ready to put on with a brush. Special price 5 gal. cans $3.00 per can. A. S. O'Niel Co., Contractors, 324 Wilcox Bldg., Los Angeles, California.

Farmers Troubled with Sticky Gumbo Land in plowing we have a composition and a deflector that we can attach to any plow to make it turn land like sandy soil. For information write: Champion Sales Co., P. O. Box 1854, Salt Lake City, Utah.

5,000 ft. of 8-in. and 10-in. surface irrigation pipe, $38.75 and $45 hundred feet. 2,000 ft. of 5 and 6-in. riveted line pipe. Don't wait month and expect order filled—very little new pipe in country. DEMMITT CO., 120 N. Main St., Los Angeles.

For Sale—Fine fresh Almonds, 35c per pound. I G. M. B. Turkey hen, $7.50 or exchange for 1 thoroughbred Bourbon Red Turkey hen. Mrs. G. E. Rasdall, Shawmut, Tuolumne Co., California.

Fords Double the Mileage with Picard Carburetors. Easy starting. More power. Free trial. Agents wanted. York Sales Co., Dept. CC 1518 East Jefferson, Detroit, Michigan.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

PIPE PIPE PIPE
For Sale—1000 ft. of 2nd hand 10-inch steel irrigation pipe practically as good as new. Apply L. A. Henrich, Box 92, Perris, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

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Honey—Pure California honey in 5 gallon cans $12.50. H. W. HAMPTON, Chowchilla, California.

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De Young's Mammoth Early Hybred Golden Bantam Sweet Corn, short stalks, heavy foliage protects ear from birds, worms and smut, twelve to eighteen rows, two and three ears to stalk, eight to ten inches long. By mail oz. 25 cents, ¼ lb. 50 cents, ½ lb. 75 cents, 1 lb. $1.00, 3 lbs. $2.50. John A. DeYoung, R. F. D. 3, Yakima, Washington.

The Garden Beautiful in California by Ernest Braunton; a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant; also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No Broadway, Los Angeles.

Tomato Seed — Save 100% on Hummer Glove, Stone, San Jose. Postpaid $3.00 pound. Send money order. 20 cents ounce, stamps accepted. Order today, supply limited. Dana Walden, Wholesale Terminal Bldg., Dept. 25, Los Angeles, California.

RYE GRASS
Domestic Rye Grass, Italian special, 10c per. lb. f. o. b. Stockton. Also Burr Clover Burrs. Aurora Seed Mill, Stockton, California.

300 Pounds Best Chilian Alfalfa Seed—41c pound. Du Mond, 237 E. Lime Street, Monrovia.

Strawberry Plants—Americus everbearing. Strong, healthy plants. Do well in California. $2.50 per 100, $5.00 per 250. Postpaid. Catalogue free. F. L. Moffet, Ellensburg, Washington.

Seeds—Alfalfa Seed 40c f. o. b. San Francisco. All varieties Vegetable and Flower Seed. Write for special prices. Bay Counties Seed Co., San Francisco, California.

Grow Your Own Melons. Secure a package of seed, 25 cents. The world's finest musk melon "Casad's Special." Roland C. Casad, Covina, California.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

Write the Amount and kind of Seeds wanted. Four kinds alfalfa. Orders filled promptly. Wanted, Sudan in carloads. Box 501, Fowler, California.

For Sale—Madera Vine Roots, 25 cts. per dozen, postpaid. Order early as these will not last at this price. A. G. LOVEALL, Glenn, California.

Rhubarb Roots—1 year old roots, $3.00 per hundred; 50c per dozen. Two year old roots $1.00 per dozen. Currier Bulb Company, Santa Cruz, California.

For Sale — Blackberry and Strawberry Plants. Write for description and prices. Albert H. Leavitt, Cloverdale, California.

Rhodes Grass for alkali soils. Write: Imperial Valley Nursery and Seed House, El Centro, California.

TREES

Washington Navel, Valencia, Marsh Grapefruit, Eureka and Libson Lemon trees. Sour stocks. One year old buds. We used "Supply Company" buds only. Nurseries Riverside, Puente. Frank A. Tetley & Son, 405 Eighth Street, Riverside.

Beauty, also Maynard Plums on Myrobolan roots. Royal Apricots, Transparent and Hyslop Crabapples, Bartlett Pears on Japan root. Placentia and Eureka Walnut trees. Los Nietos Valley Nursery, Downey, California.

100,000 Florida Sour Orange Seed Bed Trees; 100,000 Sweet Orange Seed Bed Trees. Valencias, Grapefruit, Kadota Figs, Olives, Umbrella trees. Southland Nurseries, 1941 East Colorado Street, Pasadena, Phone Colorado 6352.

Budded Avocado Trees—We grow all varieties. W. P. Sherlock Avocado Nursery, R. D. No. 2, Puente, California. Sales yard on Third Avenue between El Monte and Puente.

For Sale — Seed Bed Stock, sour and sweet. Budded Valencias, navels, lemons. Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena, California.

For Sale—Scions, Eureka and Placentia Perfection from choice grafted orchards. The WALNUT NURSERY, W. A. Litten, Prop., Whittier, California. Phone Home 6294.

Genuine Kadota and other variety fig cuttings. Walnut, pecan and standard and new varieties fruit tree scions for sale. Tribble Brothers, Elk Grove, California.

For Sale—About 500 2 year old rooted Tokay cuttings at 5c each. Address: Old Hermitage Vineyard, 1623 North Main, Los Angeles.

For Sale—3,000 select orange trees. Also 3,000 lemon trees; first class trees; 20,000 seedbed stock. A. R. Rideout, Whittier.

You Want to Plant Good olive, persimmon and citrus trees; thornless blackberries, figs, rhubarb, etc. Bishop's Nurseries, Highland.

For Sale—Walnut Grafting Wood; Payne 10 cents. Eureka 8 cents foot. A. C. Kuhn, Route B, Box 351, San Jose.

Place Your Orders Now for all kinds of Citrus Stocks. Butler's Morningside Nursery, Lamanda Park, California.

Citrus Seed Bed Stock — Budded citrus trees. L. A. Tuttle, R. 2, Box 404, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—4 Year Old Manzanillo and Mission olive trees. E. E. Barnes, Highland, California.

Avocado Trees—Mathers' Avocado Nursery. Home of Field Grown Trees. P. O. Box 585, Pasadena.

For Sale—Eureka Walnut Scions. R. D. 4. R. M. Fay, Anaheim, California.

TURKEYS

For Sale — Turkey Eggs, from Wild-Domestic crosses. Raise more turkeys. Introduce wild blood into your flock. Get hardy, vigorous poults. Mammoth Bronze eggs also. Write for circular with directions how to raise 90 per cent of all you hatch. Orders booked now for February eggs and 5 day old poults. The Wild-Domestic Turkey Home, R. D. Box 26-A, Hemet, California.

Giant Bronze Turkey Eggs for hatching from the famous Gold Nugget strain. Range raised, insuring strong poults. Phone city agent Lincoln 333. Mrs. A. H. Aiken, R. F. D. 13, box 315, Los Angeles.

Turkey Eggs—Also young Toms. "Gold Nugget" and other leading Mammoth Bronze strains. Quality plus honesty. Can you beat it? Carrie Andrews, Hemet, California.

Turkeys—Breeding Stock—Cockerels $25 each; two year old toms, $50 each. Eggs in season. Robinson Turkey Ranch, San Dimas, California. Covina Phone 902.

CATTLE

DAIRY COWS
Our entire herd of 20 T. B. tested dairy cows, eight heifers and the registered Guernsey bull, Pilot of Mayhew, a son of Don Adonis of Linda Vista, whose two nearest dams averaged 683.01 lbs. of butter fat yearly. 12 of the herd are daughters of Pilot of Mayhews. A 3 unit Calf Way Milking machine included with cows. Pope's Dairy, Box 1100, R. D. 4, Sacramento.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

Reg. Shorthorns—Fair Oaks Ranch, Willits California.

FOR LEASE

Dairy Ranch For Lease—50 acres alfalfa, 50 acres barley land, 100 inches water. Complete equipment, 63 head feed carriers, litter carriers, electric motors, milking machines, boilers, brine circulators. J. E. Mayberry, Los Nietos.

DUCKS

Caldwell's White Muscovy Ducks, quackless, hardy, rapid growers. Eggs, Ducklings, Breeders. Free circular. Caldwell Farm, Box 274, Los Angeles.

LIVE STOCK

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Third sale at the Ranch—all breeds—April 17, 1920. W. P. Dwyer and W. S. Gulliford, Box C, Butte City, Glenn County, California.

Just Arrived—3 carloads heavy blocky built Shire horses and mares, 4 to 7 years old, weighing 1,100 to 1,600 lbs. All sized city used horses and mares. New and used chain and leather harness. All kinds, single, double. Mill and lumber wagons and huggies. G. Lindauer, 122 Clara St., off 4th St. near Harrison, San Francisco.

For Sale: Milk Goats, all bred to pure registered Saanan bucks from best imported stock. The female kids will be eligible to registry and will be worth twice what we ask for the mothers, viz., $20 to $50, according to grade. Here is a chance to get good blood at a low price. Wm. Ritchie, Arlington, California.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

For Sale—Good Jack 6 years old. R. S. Seydel, Lincoln, California.

WANTED

Wanted—Men with rigs preferred, all or part time, taking orders among farmers for an old reliable California Company. Good pay and several weeks' work. ADDRESS: J. H. Yetter, 115 North Broadway, Los Angeles (upstairs).

Wanted for Mountain Fruit Ranch—single or married—middle aged or elderly man—with good intention of doing right. Right party will find real home and good layout. Address: C. J. Mosier, P. O. Box 65, Julian, California.

Wanted to Buy for Cash—A small pumping plant, about 6 or 8 horse distillate engine, jack and 4 or 5 inch cylinder pipe and rods, about 175 feet. J. Saunders, Invokern, California.

Wanted to Buy second hand hay press, Eagle or Star preferred. State best cash price. Write: E. W. Boyd, 1226 East 52nd Street, Los Angeles.

GEESE

McNeely's Mammoth Geese. Fine stock, ready to ship at the old price of $5.00 each for as many as you want. First come first served so order early. Chas. McNeely, Alpaugh, California.

LEGAL QUERIES

(Continued from Page 209).

been made, provided that such applicant shall show to the satisfaction of the secretary of the interior that the prior entry was made in good faith and was lost, forfeited or abandoned because of matters beyond the control of the applicant and that he has not speculated in his right, nor committed or attempted to commit fraud in connection with such prior entry.

Selling Real Estate

I am considering selling real estate on monthly installments. During the period of monthly payments am I required to pay taxes? Should I give buyer a deed or contract when he makes first payment? — Subscriber, Lakeport.

The contracts which are usually drawn provide that the purchaser shall pay the taxes; if not paid, they become a part of the principal and bear interest as the principal. Contracts should be executed when first payment is made and a deed executed when the final payment is made.

ALTRUISTIC

"Some want the rich to divide their property."

"I gotta little tract out near here," said the real estate man, "that I'm willing to subdivide for the benefit of the public."

NO HARM MEANT

A few days after a farmer had sold a pig to a neighbor he chanced to pass the neighbor's place and saw the neighbor's son sitting on the edge of the pigpen, watching the new occupant.

"How do you do, Johnny?" said he. "How's your pig today?"

"Oh, pretty well, thank you," replied the little boy. "How's all your folks?" —Exchange.

WITHOUT INTERRUPTION

"Is she really so curious?"

"Curious? Why that woman would listen to advice."

German papers say that Theodore Roosevelt was the "arch enemy" of Germany. This is the most complete and wholly satisfactory eulogy that has yet been uttered.

His Answer to Shortage of Help

A G-E Motor on practically every hard job on the farm.

Electric service means "horsepower" instead of "man power."

Electric power brings abundant crops, more leisure, greater profit and lighter labor.

Let our G-E Motor Agent show you what electric power will do for you.

General Electric Company

General Office Schenectady, N.Y. Sales Offices in all large cities 45-63

Sanguinetti's Quality Brand
(1919 Crop)

ALFALFA SEEDS

Grown on Certified Fields

Unexcelled for Germination, Purity, Color and Productiveness

Varieties:

Chilean (Common) Smooth Peruvian
Hairy Peruvian

Orders Shipped Same Day Received

It will be to your interest to ask for our prices and samples before placing your order elsewhere

E. F. SANGUINETTI Yuma, Arizona
"THE HOME OF THE HAIRY PERUVIAN"

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

When Writing Advertisers, Mention the Cultivator.

Is It True?

By Jay Dutter

IS IT true that cooperative marketing of farm products increases the cost of living? Certain newspapers throughout California have for months past been attacking farmers' cooperative associations for being profiteers, accusing them of being trusts formed in the restraint of trade, accused them of destroying food products in order to sustain high prices.

Can you remember ever having seen a farmer burn his wheat crop or part of it to help keep prices up, or let some of his stock die from want of care in order to shorten the meat supply so he could get higher prices for some of his products?

The dairymen of Northern and Central California have been accused of pouring milk down the sewer in order to hold up prices of milk. Did you ever hear of anything more unlikely?

Up to the beginning of this generation the farmer has been at the mercy of the buying public, regardless of the frantic denials of independent buyers and profit making concerns, and because of the unfair methods of many of the buyers and commission men the farmer in sheer desperation was compelled to save himself by entering the selling and manufacturing field.

The orange growers blazed the way in California for all the other cooperative associations and have made an unqualified success because of good business methods. They were followed by other specialized branches of farming industries, nuts, deciduous fruits, grains, etc., all of whom have achieved more or less success.

Last of all, came the dairy industry. Then, Ouch! up went an awful wail; someone's toes had been stepped on. Several great firms who had always (?) given the farmer a square deal, paying him at least half, and sometimes even a little more, than the value of dairy products, found that a large percentage of their business had vanished over night. This was robbery pure and simple; they had no right to go into the selling and manufacturing business for themselves.

These firms had for years had a monopoly of the business; they had invested millions in it, were making millions out of it. As one man from one of our northern cities said in talking against one of the associations: "Those fellows don't know anything about the business of running a creamery. You fellows are foolish to join an association. I am a big stockholder in the ——— Creamery Company and have made over $60,000 in the business in two years, and I know." Well, let us give him some credit—he must have known something. If one man made that much out of the creamery business, let us have some pity for the patrons of that very large creamery.

The assertion is made that there are enough manufacturers in the field, enough buyers, no more plants needed, that the dairyman should mind his own business and keep out of the game and attend to his dairy, that it is no business of his what the creamery products might bring, nor what the by-products are worth, nor what they are. In some of the smaller industries the farmer was opposed in the same way, but not so strenuously as the dairymen. The milk business was too big to let slip, hence the big fight.

The claim has been made that the Associated Dairymen are to blame for the high cost of milk in the city; yet the press that are so loud in their claims against the so-called milk trust fail to state through their columns that no cities in the United States in the same class as the cities of California have cheaper milk, and most of the large Eastern cities have much higher priced milk. The dairy associations do not increase the price of milk because of their manufacturing operations, and there is no reason for raising a howl because they wish to engage in the manufacture of by-products of milk.

I will offer a parallel instance which should to any sane reader show why the dairyman's activities should not have any effect on prices to the ultimate consumer but only on the pocketbook of the middleman.

In the little inland town of Hemet, Riverside County, there is in successful operation a cooperative fruit cannery, owned and operated by the farmers, known as the Hemet-San Jacinto Growers Association, Inc. Five years ago they organized because they had their backs to the wall, no market for their fruit, debts unpaid. They gave their notes, borrowed money and built a modern factory. Today they have a plant representing an investment of $130,000 nearly paid for, and this year they are paying their members net per ton for apricots $104; for cling peaches $96 average; for grade A apricots $145; for grade A cling peaches $125.

The writer having traveled nearly all over the state this year, has ascertained that many, in fact, most of the canneries, paid an average price of less than $60 for 'cots, and $40 for best grade of peaches.

This does not mean that the growers association gets more for its pack; they sell for the same prices as the independent packers. The consumer may say: "They should sell it to us cheaper, if they make so much more money." Does that follow? Is it human nature to offer your products for less than the other fellow, just for the sake of being philanthropic?

But the farmers association will do this. By securing better returns for its members it will so encourage production and stimulate pride in manufacturing and selling of the finished product that ultimately prices will lower.

Col. Harris Weinstock had the right idea, that encouragement of the farmer, rather than exploitation, would so encourage production, that ultimately the consumer in the city would reap the benefit as well, and the sooner city people come to realize this fact and stop listening to the paid publicists of manufacturing interests, the sooner will the goal of lower prices be reached.

To be sure, most farmers are now making some money. We often hear from the city man: "All the farmers have their automobiles." Very true, the farmer must save time. Does the farmer deny the city man his auto, or his social life in general? The more pleasant the life of the farmer is made the more he will be encouraged to stay on the farm and produce. Grind him down to the last penny of profit and try to make him a drudge, and the city will become so thickly populated that the farms cannot support them. The farmers will not produce crops unless they are paid well and can enjoy some of the fruits of their industry.

True cooperation is the modern method of reaching the market at lowest cost, and all over this great republic the farmer is beginning to realize it and come into his own, and the sooner the big manufacturer wakes up and starts to cooperate with him the better it will be for their investments.

FREEDOM

Those who deny freedom for others deserve it not for themselves and under the rule of a just God cannot long retain it. We must make this a land of liberty in fact as well as name. Let us appeal to the sense and patriotism of the people and not to their prejudices. Let us spread the floods of enthusiasm aroused here over all the vast prairies so suggestive of freedom. There is both a power and magic in popular opinion. To that let us now appeal, and, while in all probability no resort to force will be needed, our moderation and forbearance will stand us in good stead when, if ever, we must make an appeal to battle and to the God of hosts.—Abraham Lincoln.

The farmer only wants his share and a square deal.

Since the dairymen have organized, several large manufacturers of dairy products have started building manufacturing plants in the state and no one has raised an objection. But every time an association starts a new building the vested interests set up a roar and start attacking the officials, which is their only hope. They dare not attack the system nor the members themselves, so they try by accusation, innuendo and subterfuge to vilify the intentions of the directors and officials of the associations, hoping thereby to alienate the members and sow the seed of distrust in their minds, but more and more the dairymen see the light, and they will stand pat.

BUSINESS FARMING

We recently received the following hints from a business house which handles office equipment. They looked like an ad, or rather had suggestions of advertising leanings but really the suggestions have good business sense in them. Doing your best you can't find an ad.

So farmers may read and profit by the suggestions of a business man.

* * *

In the last few years farm methods have been revolutionized. Better roads, more railroads, the automobile, the tractor, the cream separator, the telephone, the farm lighting plant and other labor saving and time saving improvements have done away with the old, tedious methods. The farmer is no longer isolated from the outside world. He can have on his farm almost all the conveniences and advantages that his city brother can have and a lot more that his city brother cannot have.

Farmers are applying scientific farming in the field. They understand crop rotation, stock breeding, deeper plowing, soil exhaustion. They are getting greater and greater returns from their acreage by intensive cultivation. They keep pace with the latest discoveries and inventions of agriculture and stock raising. They are in close touch with market conditions. They are keenly interested in the cost of transportation.

Yet many of them do not put that same efficiency into their office work. For every modern farmer is compelled to do a certain amount of office work. He has to do a lot of things that his father did not have to do. The government insists that he keep sufficient records so as to make correct returns on his income tax. He is transacting more and more of his business by mail. No merchant, no lawyer, no manufacturer—no man needs a typewriter more than a farmer.

The core of a business office is a typewriter. The typewriter is becoming the business partner of the farmer of today. Every letter a farmer writes should be a silent compliment to the business efficiency which he is employing as a business man. It should be clearly written and easily read. It should be written on a letterhead.

Carbon copies should be kept by the farmer of all letters, agreements, orders, memoranda, cost entries, instruction sheets—all paper which must be read by another without mistake at a time when correct, easy reading is important. These are recognized requirements in a business office which the typewriter furnishes.

You may think it difficult to operate a typewriter—that it requires long months of practice before presentable work can be produced. Such an impression is erroneous. Hundreds of farmers are handling their own correspondence and office work with a typewriter. Most of them learned as beginners with the instructions furnished with all typewriters. It is really a simple matter.

SCARE OFF THE LINNETS

A farmer from Iowa came to California to retire, but had to have a garden patch to while away the time. A nice house was built and a good garden planted, including some strawberries. But alas, he did not count on the linnets getting all the fruit.

But he had some ingenuity. A wire was stretched extending over the strawberries. On this were suspended a number of tin pails with a few stones in them. Then another wire was attached to the middle of this and carried to the kitchen window.

The housewife did the rest. Whenever she saw any linnets in the berries a pull on the wire made such a racket that the linnets took flight. In a few days the linnets had acquired such an aversion to that particular garden that they left it for good, and plenty of berries ripened, to the delight of the family.—E. L. Koethen.

BOSTROM IMPROVED

Shipping weight 15 lbs. **Price $22.50**

Has TELESCOPE with magnifying glasses which enable you to see cross on Target quarter of a mile. Pays for itself on the first job of

IRRIGATING, DITCHING, TILE DRAINING, TERRACING, etc.

Best investment any land owner ever made with Twenty-Two Dollars and Fifty Cents. Simple, accurate, durable and complete with full instructions. Used and endorsed by Agricultural Schools, County Demonstration Agents, and farmers from Atlantic to Pacific, and you will endorse it too, after using it—if not your money back.

Write for description of Level and TELESCOPE, details of money back guarantee; also name and address of our distributor in your section.

BOSTROM-BRADY MANUFACTURING CO.
89 Stonewall Street, ATLANTA, GA.

Place Your Order NOW for Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or steamer, January, 1920.

O. HENRY SMITH, General Agent
Pacific Coast and Hawaiian Islands
311 California St., San Francisco.

25 Cords a Day

Easily Sawed By One Man. Easy to move from cut to cut. Make big profits cutting wood. Cheap and easy to operate.

OTTAWA LOG SAW

Does 10 men's work at one-tenth the cost. Makes work easy. Engine can also be used for running pumps and other machinery. Saw blade easily removed. Write for our low price. Cash or Easy Payments.

Ottawa Mfg. Co.
2749 Wood St.
Ottawa, Kansas.

The late Andrew Carnegie: "The man who cannot and does not save money, cannot and will not do anything else worth while." Make yourself worth while in the world—and earn 4% on your savings at

DEPARTMENT B

ANGLO-CALIFORNIA TRUST COMPANY BANK

SAN FRANCISCO

Preserve Your Strength by Attaching a
NATIONAL BACK REST

To the seat of your tractor or farm machinery. It saves your back and you rids in comfort. The National Back Rest fits on nearly any seat no matter what style or shape, it can be quickly and easily attached without the use of tools. No screws or bolts. Will not slip off. Three dollars delivered. Some agency territory still open. Satisfaction guaranteed or money refunded.

CARL G. JORN
Jorn Bldg., 57 Plaza Square, Orange, California

Camarillo, Cal.
Hercules Powder Co.
San Francisco, Cal.
Gentlemen:-
In planting something over two thousand orchard and ornamental trees, it was thought advisable to use your dynamite where severe hardpan was encountered. This method not only greatly simplified the digging of the holes in which the trees were to be planted, but the trees themselves bear a marked evidence of the benefit of planting. Without exception those trees planted in the worst hardpan formation, show a more vigorous growth than the ones in the best soil where shooting was not employed.
Very truly yours,
(Signed)-C.C. Perkins.

"That's the Way They Talk"

"Here's a letter from C. C. Perkins of Camarillo, California. *Read it* and see what *he* thinks of

HERCULES DYNAMITE

"Sign the coupon and mail it today. The Hercules Powder Co. will send you free a copy of 'Progressive Cultivation'. This tells you all about the use of dynamite on the farm and in the orchard.

Send today for this book—*You need it.*"

Hercules Dynamite is for sale at leading dealers.

HERCULES POWDER CO. 1033 Chronicle Building, San Francisco, Cal.

Gentlemen: Please send me a copy of "Progressive Cultivation."

I am interested in dynamite for _____

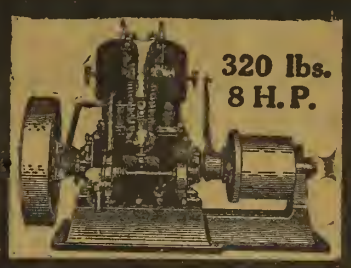
Name _____

Address _____

More Power Per Pound

CUSHMAN

Original Light Weight Power



The Cushman is the original lightweight, all-purpose farm engine. Unusual care in design; higher standards in all manufacturing processes; perfected balance, and refinements in ignition, carburetion and lubrication enable Cushman Engines to deliver more power per pound.

This is why Cushman Motors weigh only 40 to 60 pounds per H. P., depending on size, yet afford as much power and even more general efficiency than is possible with engines of the old type weighing three or four times as much.

Cushman Motors do all stationary jobs, even more satisfactorily than ordinary engines, and also may be attached as power drive to machines in the field, such as harvesters, hay presses, corn binders and pickers, potato diggers, etc.

Cushman "Does More"
Electric Light and Power Plant

It does more for the farmer than any other outfit—combining both an Electric Light Plant and a Portable 4 H. P. Power Plant in one outfit, at practically the cost of an electric light plant. Equipped with the famous Cushman Engine and Cushman Self-Starter. Ask for Book on Cushman Light Weight Engines or Cushman Light Plants—whichever desired. (309a)

CUSHMAN MOTOR WORKS 804 North 21st St. Lincoln, Nebraska

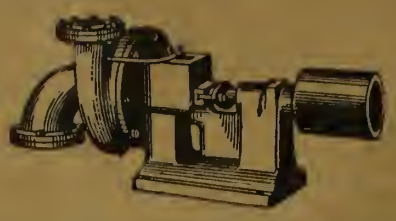
MACHINERY
OF EVERY DESCRIPTION
Bought, Sold and Rented
BUTTRESS & McCLELLAN
205-7 N. Los Angeles St., Los Angeles

Westrobac

Los Angeles, Calif.
618 So. Spring St.

San Francisco, Calif.
440-442 Sansome St.

End Pump Troubles



—See how this Pump does it.

THE "Bean" Universal Pump—belt driven—eliminates pump troubles. It's a twenty-year development, the ultimate in centrifugal design.

Stuffing box troubles are minimized by a perfect water seal. The shaft where it enters the case is ever completely surrounded by a water bath.

The danger of loss of priming is minimized. And you don't have to cinch the packing down so tight that you cut the shaft.

We designed this pump especially to overcome these trouble sources.

Then we added all the other advantages in pumps that our experience of 20 years evolved.

The result is the perfect pump. Don't overlook it in making your selection.

Hundreds of men who have examined all kinds are putting in the "Bean." Let their decision guide you.

(Clip Out and Mail)

Distance to water below surface of ground.....
Probable distance to water when pumping.....
If water is to be raised above surface of ground, how high? (Length and size of pipe line).....
Volume of water desired (Gals. per min.).....
(Inches) .....
If you have pit, give width..... length.....
depth.....
H. P. of motor or engine if you have that equipment.....
Give total depth of well.....
Inside diameter of well.....
Is well straight and true?.....
Is electric power available?.....
Name .....
Address.....
Rural Route No.....
521 Box.....

Automatic Water Balance

The "Bean" is provided with automatic water balance and an extra heavy outboard bearing which is oversize. It gives insurance against vibration. Belt changes are easily and quickly made.

It is strongly braced. An extra web of metal between sealing bowl and outboard bearing protects against excessive strain.

In fact, if you want the best pump of this type you have little choice, for that pump is the "Bean."

"Bean" Universal Pump—Belted

Send coupon for all the facts about this modern pump. Don't buy a pump until you know all the points wherein the "Bean" excels. That is the way to insure satisfaction when you buy a pump.

Bean Spray Pump Co.

521 W. Julian St., San Jose, Calif.
Branches. Fresno, Los Angeles

The FIELD OSPRAYMO Line
Includes a "Sprayer for Every Need"
Headquarters for California
127 S. Los Angeles St., Los Angeles
ASK FOR CATALOGUE

Field Force Pump Co. The Field "Ospraymo" Line of Sprayers Elmira, N.Y. Trade Mark Registered

International Dehydrator

You are invited to inspect a Real Working Dehydrating Machine.

GET YOUR ORDER IN

We are now booking orders for next season's deliveries. Save all of your fruit and vegetables and get Dehydrated prices for them.

CUT OUT AND MAIL TODAY
Write for demonstration appointment

International Dehydrator
Chamber of Commerce Bldg.
Los Angeles, Cal.

Give full data as to tonnage and kinds of fruit grown.
Date .....
International Dehydrator Company,
Chamber of Commerce Bldg.,
Los Angeles, California. C.C.1-27.
Send me full particulars.
Grower of .....
Tonnage .....
Signed .....
Address .....
City State

California Cultivator
Costs $1 per Year

Los Angeles Markets

Los Angeles, February 4, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 68 cents.

Dairy Exchange prices last week on extras:

Jan.	28	29	30	31	Feb. 2	3
'20 ...	66	66	68	68	68	68

CHEESE

Brokers' prices:

California, lb., 29; price to retail merchants, 29@31.

EGGS

Fresh extras, Produce Exchange closing price, 46 dozen; case count Produce Exchange closing price 44 dozen; pullets, Produce Exchange closing price 45 dozen.

Dairy Exchange prices last week on extras:

Jan.	28	29	30	31	Feb. 2	3
'20 ...	52	48	45	45	47	46

POULTRY

Price to producers: Hens, lt. 35; heavy 35@37, colored over 4 lbs., 38; broilers, 35@37; fryers, 35; roasters, 35; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hen turkeys, live, 40; dr., 41; squabs, 45@47.

Belgian hares, 3 to 3½ lbs. live, 17.

LIVE STOCK

Los Angeles, Feb. 3. — Weighed and delivered off cars without food or water: Hogs (hard-grain fed), 125 to 150 lbs., 15.00; 150 to 175 lbs., 15.50; 175 to 225 lbs., 16.00.

Cattle (on foot, gross weight): Steers, good, 11.50@12.00; medium, 11.00@11.50; heifers, good, 9.50@10.00; fair, 9.00@9.50; bulls and stags, 6.00@6.50; calves, 125 to 150 lbs., 12.50; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock February 3, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Seven cars California, 3 cars Idaho arrived. Market weak. New stock—Stockton: Burbanks, fancy and special brands, wide range, 5.25@5.65, mostly 5.40@5.65; some low as 5.00. Idahos: Russets, 5.25@5.50, mostly 5.25. Local: lug boxes, 1.75@1.80. Local, White Rose, 5.25@5.40.

Sweet potatoes: Market strong. Lugs, 1.35@1.50; cwt. mostly 4.00@4.65; best, 5.00.

Carlots: Demand and movement slow, market firm, supplies limited. Straight cars, too few sales to quote, mixed cars, 4.50 per cwt.

Onions. Demand and movement moderate, market strong. Home grown and Stockton: White Globes, cwt., 6.50@6.75; Yellows and Browns, 5.50@6.00; lug, 1.75; lb., 6@7. Garlic, lb. 40.

VEGETABLES

These are the actual prices obtained February 3, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.65@1.75; Jerusalem, 1.50.

Beans, green, lb., best, 15@17; other 8@9.

Beets: Doz., 40@60; lb., 4@5; sk., 3.00@3.50.

Brussel Sprouts: Per lb., 10@13; best shipping stock 14@17.

Cabbage: Market strong. Per lb., 4@5; per cr. 3.00@3.50; best, 4.00@4.50; red, lb., 5@6; sacks, 3.50@4.00.

Carlots: Demand good, movement moderate, market firm, little change in prices, supplies scarce. Winningstadt and Cannonball, in straight cars, very few sales, some consigned, 77.00@85.00, mostly 80.00@85.00; mixed cars, 82.50@90.00; mixed, 85.00@90.00.

Carrots: Doz., 35@45; lb., 2@3; sk., 1.25@1.50.

Cauliflower: Market weak. Local stock, per doz., best, 65@75, others, 40@50; field crates, 1.10@1.25; best high as 1.40@1.50.

Carlots: Demand good, movement moderate, market strong. Half Early and Pearl, straight cars, 90@95; mixed cars, wide range, 1.00@1.05.

Celery: Market strong. Local and Northern: per dozen bunches, 1.40@1.65; some best high as 2.00; poorer low as 60; crates, 6.00@8.00; fancy shipping stock, 8.00@8.50.

Carlots: Demand and movement moderate, market firm, prices slightly lower, supplies limited. Per dozen, straight cars, few sales, No. 1's, 90; No. 2's, 80; No. 3's, 70; mixed cars, No. 1's, 1.00@1.10; No. 2's, 95@1.00; No. 3's 80@90.

Cucumbers, hothouse, 85@2.25 doz.; extfy. high as 2.75.

Eggplant: Florida and hothouse, 25 per lb., local, scarce, 14@17.

Peas, local, scarce, lb., best, 10@12; others, 7@9.

Lettuce: No carlot arrivals. Local stock, market weaker. Dozen, 30@35; crates, wide range in quality and condition, 60@1.00; best shipping stock, 1.25.

Carlots: Demand and movement moderate, market demoralized, prices lower, wide range in quality and condition, generally fair. Crates Los Angeles Market (Iceberg), straight cars, few sales, 1.30@1.50; mixed cars, 1.40@1.50. Imperial Valley: too few f. o. b. sales to quote, many rolled unsold.

Peppers: Supplies very light. Local stock: Bells, mostly 20@26; poorer, 15@17. Chilis, best, 18@22 per lb. Floridas: Bells, 30@35 per lb., Chilis, 30@35.

Parsley: Doz, 35.

Parsnips: Lugs, 80@1.00; sacks, 2.50@2.75; others, 1.65@2.00; per dozen, 50.

Rhubarb: Local stock scarce, bx., 1.40@1.50; few best, 1.85@2.00.

Spinach, doz., 20@30; best, 40.

Squash: Hubbard, cwt. 4.00@4.50.

Tomatoes: Cr. repacked, 3.50; lugs, 4.00.

Turnips: Doz. 40@50; sk., 2.75@3.50.

FRUITS

These are the actual prices obtained February 3, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: No carlot arrivals. California: four tier Bellefleurs, poor quality and condition, 1.85@2.00; best, 2.10@2.25; 3½-4½ tiers, 1.50@1.75; loose, 3@4 per lb. Glen Seedlings, 2.00@2.25; White Pearmains, best, 2.75@3.00; others, 2.25@2.50; per lb., 4@6. Yellow Newtown Pippins, 2.00@2.50; per lb. 4@6. Winesaps, 3.75@4.00; loose, 6@6½ per lb. Delicious, 2.50@3.00, fancy, large sizes, 4.00@4.25; loose, 5@7 per lb. Hoovers, fancy, $2.50@2.75; Romes, 2.75@3.25; Arkansas Blacks, 3.50@3.75; Greenings, 2.25@2.75. Northern: (Oregon and Washington): Spitzenbergs, fancy, 2.50@3.00; choice, 2.50; per lb., 5½@7½. Delicious, extra fancy, 4.00; fancy and choice, 2.75@3.25. Winter Bananas, extra fancy and fancy, 2.00@2.50; loose, 6 per lb. Rome Beauty, 2.65@3.25; Jonathans, loose, 7@7½ per lb.

Bananas, 8@8½.

Cranberries: Barrels, 18.00; best shipping, 18@20 per lb.

Pears: Local, lb., best, 11@12; other 7@9.

Pineapples, lb., 15@20.

Grapefruit, Porterville and Imperial Valley stock: box, mostly 3.25@4.00. Locals, 2.00@3.00 box. Arizonas: 4.00 box.

Lemons: Market firm. San Fernando Valley stock; fancy packed, 4.75@5.00; loose, 4.50; juice, 2.50. Local stock: packed, 2.50@3.00; loose, 1.50@2.00 box; 2@3 per lb.

Oranges: Navels, 4.50@5.00 box. Local stock: packed, 3.50@4.00; best high as 4.75; small sizes, 3.00@3.25. Tangerines, lb., 6@9.

HONEY

Demand and movement good, market steady. Carloads f. o. b., usual terms, per lb.; white orange blossom, mostly 19; white sage 19@20; extra light amber sage 18½; light amber sage, supplies cleaned up; light amber alfalfa, 16½. Beeswax, local lots, 40@43.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.

1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6: Limas 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	25.00@28.00
Barley	25.00@29.00
Alfalfa	25.00@30.00
Barley Straw	10.00@13.00

San Francisco Markets

San Francisco, February 2, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	69
Prime Firsts	66

Jan.	27	28	29	30	31	Feb. 2
'20 ...	67½	67	67	68½	68½	69
'19 ...	49	49	48½	48½	47½	..

Rcts. week ending February 2, 2,990 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	27@29
Cal. Flats	30½
Cal. Y. A.	36
Oregon Trip	32

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	53
Extras, pullets	45
Undersized	41

Jan.	27	28	29	30	31	Feb. 2
'20 ...	61½	57	54	51½	52½	53
'19 ...	52	52	47	49	49	..

Rcts. week ending February 2, 339,328 dozen.

POULTRY

Wholesale prices are:

Leghorn, 38@39; small, 38@39; large, 39@40; roosters, young, 38@40; old, 21@23; broilers, 40@43; fryers, 42@45; turkeys live, 38@40; dressed, 52@53. Ducks, Indian Runner, 25@27; Pekin, 28@32; geese, 30@32; Squabs, 50@65.

Belgian hares, live, 18@20; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company are:

Cattle—Grass steers, No. 1, weighing 1000 to 1200 lbs., 12½@13; do 1200 to 1400 lbs., 12@12½; do, second quality, 10@11½; thin, 9@9½.

Cows and Heifers—No. 1, 9@10; second quality, 8½@9; common to thin, 5½@6½.

Calves—Light weight, 13½@14; medium, 12@12½; heavy, 9½@11½.

Lambs—Yearlings, 13@13½.

Sheep—Wethers, 11@12; ewes, 9@9½.

Hogs—Weighing 100 to 225 lbs., 15½; 225 to 300 lbs., 15; 300 to 400 lbs., 14.

Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle—Good steers, 1000 to 1200 lbs., 12@12¾; good heifers, 1000 lbs. and over, 9@10; good cows, 1000 lbs. and over, 8½@9; canner cows, 5@6; good bulls, 6@7.

Calves—Light, 13@14.
Hogs—Top packer, hard and well finished, 150 to 225 lbs., 15½; 225 to 300 lbs, 15; over 300 lbs. 14.

POTATOES

Wholesale selling price:
Per 100 lbs.: Rivers, fancy, 4.50@4.75; choice, 4.25@4.50; Idaho Gems, 4.30@4.75; Salinas, 5.25@5.50; sweet, 4½@5 per lb.

ONIONS

Wholesale selling price:
Onions, fancy brown, 5.00@5.25; choice, 4.50@5.00; yellow, 5.00@5.25; white, 5.00@5.50. Garlic, 25@30 per lb.

VEGETABLES

Wholesale selling price:
Artichokes, cr., 15.00@20.00; doz., 1.00@1.50.
Brussels Sprouts, lb., 8@9.
Carrots, per sack, 1.00@1.25.
Cauliflower, doz., 1.25@1.45.
Cabbage, doz., 40@50.
Celery, doz. bunches, 45@50; cr., 5.00@6.00.
Eggplant, lb., 15@20.
Lettuce, cr., 1.25@2.00.
Peppers, Bell. lb., 12½@15; Chili, lb., 10@15.
Peas, lb., 10@13.
Radish, 7@9 doz. bunches.
Tomatoes: Southern, 2.00@4.00.
Spinach, lb., 5@7.

FRESH FRUITS

Wholesale selling prire:
Apples: Bellflower, 1.25@1.50; Newton Pippins, 1.75@2.00; Spitzenburg, 1.75@2.25, ch.; fy., 2.75@3.00; Baldwins, 1.75@2.50; Winesaps, fy., 4.00@4.25.
Bananas, 7@8½.
Cranberries, 4.00@4.50 per standard box; barrel, 8.00@10.00.
Olives, lb., 8@12½.
Pears, box, 2.50@4.00.
Pineapples, doz. 2.50@3.50.

CITRUS

Wholesale selling price:
Per box: Lemons, fancy, 4.25@4.75; choice, 3.50@4.00; standard, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00@2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@3.00; navel, 4.00@5.00; limes, 1.50@1.75 per crate; tangerines, 1.50@3.25 per crate.

BEANS, PEAS

Jobbing price per cental:
Beans: Small white, 6.50@6.75; large white, 6.50@6.75; cranberry, 7.50@8.00; red Mexican, 8.00@8.50; pink, 7.00@7.50; California Bayou 9.25@9.75; Blackeye, 6.50@6.75; red kidney, 12.00@13.00; Lima, 13.50@13.75; Garvanza, 9.50@10.50; Kenashi (in bond), 5.35.
Dried Peas: California, 6.50@7.00 per cental for green, recleaned.

ALMONDS

California Almond Growers Exchange opening prices:
Nonpareil @32½, IXL @31½, Ne Plus Ultra @30½, Drake @23½.

HONEY

Jobbing prices: Extracted, Water White and White, 18@20 lb.; Light Amber, 16@18; Amber, 14@16½; Comb, 25@28 for White and Water White and 20@22½ for Wh. Amber.

DRIED FRUITS

Prunes:
Prune prices announcel by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.
Peaches:
Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.

For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special, "practically peeled," 16¾c per pound, bulk basis.
Apples:
Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.
Figs:
White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; exta choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.35; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.
Pears:
Standard 20, choice 22½; extra choice, 24; fancy, 26@27.
Raisins:
California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅝; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¾; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12¼; Thompsons, bulk, recleaned, in 25s, 14¼; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾. Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown, flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown, tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, 2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 30-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

GRAIN

Wheat: The prices are based upon federal grades and standards at the terminals in San Francisco Bay and Los Angeles, and are as follows, per bushel of 60 pounds:

Hard White—	Per Bushel	Per Cental
No. 1	$2.20	$3.66 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51⅓
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.09	3.48⅓

The above are minimum prices.
For sacked grain add 4½ cents per bushel of 60 pounds to above prices. Deductions of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.
Oats: Red feed, 3.30@3.35; black, 3.50.
Corn: California yellow, 3.15@3.25 per cental; Egyptian white, 3.75@3.80; milo maize, 3.25@3.30.
Barley: Spot feed, per cental, 3.60@3.65; brewing, 3.65@3.75.

HAY

Under date of January 31, Scott-Magner & Miller says:
Receipts past week, 1,058 tons. The falling off in receipts during the week possibly was caused by government contracts being mostly filled and the heavy demand throughout the interior requiring immediate shipments which have prevented hay from finding its way to this market. The lack of rain has caused heavy feeding of baled hay in all districts. Large quantities of alfalfa are being moved into this state daily. Without rain shortly, we look for higher markets.
sion and handling expenses are to be added according to conditions:
We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses are to be added according to conditions:

Fancy Wheat Hay (light 5 wire bales)	29.00@31.00
No. 1 Wheat or Wheat and Oat Hay	26.00@30.00
No. 2 Wheat or Wheat and Oat Hay	25.00@27.00
Choice Tame Oat Hay	28.00@31.00
Other Tame Oat Hay	25.00@28.00
Wild Oat Hay	24.00@27.00
Barley Hay	24.00@27.00
Alfalfa Hay	26.00@31.00
Stock Hay	21.00@24.00
No. 1 Barley Straw, ton	.50@ .80

Citrus Markets

Los Angeles, February 4, 1920.

The demand for oranges has been quickened and a slightly better market prevails. Weather conditions, however, in the Eastern centers have been unfavorable to moving the fruit. Some independent buyers in California are offering around four and four and a half cents per pound for Navels and three and a half for seedlings.
California lemons have been given a great boost by the return of the flu epidemic. The demand has caused an advance which is almost spectacular. Best grade lemons are now often commanding around $8.

Shipments

Shipments of oranges to date from Southern California since November 1, 1919: 5,675 cars; lemons, 1,169; total, 6,844. To same date last season: Oranges, 4,913; lemons, 1,698; total, 6,611. From Central California this season: Oranges, 3,419; lemons, 164; total, 3,583. To same date last season: Oranges, 2,205; lemons, 211; total, 2,416. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

January 28
New York: 7 or. Nav. 2.80@5.70.
Boston: 2 or., 2 lem. Nav. 2.35@4.65; lem. 5.00@5.25.
January 29
New York: 12 or. Nav. 2.65@6.25; lem., 4.35.
Boston: 4 or. Nav., 2.75@5.60.
January 31
New York: 8 or. Nav., 2.55@6.35; Tang., 2.70.
Boston: 3 or. Nav., 1.55@3.50.
St. Louis: 3 or., 2 lem. Nav., 2.10@3.15; lem., 4.95@5.40.
Cincinnati: 1 or., 1 lem. Nav., 3.50; lem., 4.40@5.35.
February 3
New York: 8 or. Nav., 3.80@5.60. Navelencias, 3.80@5.10.
Boston: 7 or., 2 lem. Nav., 1.75@4.75; lem., 4.40@8.70.
Philadelphia: 1 or. Nav., 3.40@4.35.

MARKET NOTES

The most notable change in the shipping market during the past week has been demoralization of lettuce prices, now quoted at $1.30 to $1.50 a crate, a drop of 50 cents or more from last week, with no hope of the future. On account of extreme cold weather in the east the markets are glutted and dealers at this end refuse to ship as returns will not pay the freight. A few are culling closely and shipping extra fancy only. During past week Imperial Valley has shipped 30-50 cars daily, now stopped.
In the local market potatoes are very dull, owing to action of "fair price committees" and boycotts, though prices hold fairly well, running but 25 cents to 50 cents a hundred less than week ago. In normal season 18-20 cars would move in a day, at present that is the volume for the entire past week. Onion market a little stronger and for first time this season whites are quoted higher than yellows or browns.

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Diamond Bar Durocs at Record Prices

Pacific Coast records tumbled one after another when the largest crowd that ever attended a California auction sale paid an average price of $420.30 for 35 head of Duroc-Jersey bred sows and gilts at the Diamond Bar Ranch sale, January 28. The average price registered is not only a new coast record for public sales of pure bred hogs, but the top, $1,500, is the highest ever paid for a Duroc-Jersey sow or gilt at auction in the West.

By this sale California Duroc interests made their debut into big league company and indicated that California breeders are willing to pay full values for breeding material when the opportunity is provided to select blood lines that are popular and coupled with desirable individuality.

A long story could be written about the Diamond Bar sale. The ranch itself, the extensive equipment, the mammoth hog barn, the feeding system, the small locomotives, the tracks and feed cars, the hundreds of Durocs from which the sale offering was selected are all a part of the story, but space does not permit such extensive reference.

Long before the sale the parking space for automobiles reminded one of a fair, and by lunch time over 1500 people had registered. After the barbecue lunch, the sale opened with every seat in the large tent occupied—many of the visitors were tourists from the cornbelt states who, a bit homesick, perhaps, had come to see a California sale, but the majority were representative breeders.

After a brief talk, Ord L. Leachman of Sacramento, called for bids, and while at times, the going was slow, the 35 head were taken at highly satisfactory prices. The sale made plain a keen desire on the part of our breeders to introduce into their herds the blood that is popular in the East and because the Diamond Bar herd boars, Ace of Pathfinders and Mammoth Sensation Jr, provided that blood, the better things carrying their services were quickly taken.

The top of the sale was $1,500, at which figure J. P. Walker of Visalia secured the outstanding senior yearling, Orion's Crimson Lady, sired by Creator and bred to Ace of Pathfinders. This young sow represents to a marked degree the present day standard and her selling price can be rated as conservative.

Pathfinder's Perfection, a junior yearling daughter of Pathfinder, was taken by Fred B. Ellis of Lindsay at $1,025, the top for the catalogued sows. Sensation Belle was purchased on order for Hanks & Bishop, New London, Iowa, for $700, and the same amount was paid by J. P. Mallory, Fresno, for Willetta of Idlewild. Pal's Gano went to Lawton & Walker, Fillmore, at $600, and Elliott-Brant Ranch, Owensmouth, paid a like amount for the Mumford bred sow, Starlight of M The top ten head averaged $709.50.

The sale was a credit to the owner, F. E. Lewis, II, the manager, Walter Gatton and to Col. Leachman. A detailed report follows:

1, Fred B. Ellis, Lindsay, $1025.
2, Carroll Gates, Los Angeles, $310.
3, Lawton & Walker, Fillmore, $600.
4, H. A. Ludwig, Downey, $500.
5, D. G. Cummins, Goshen, $450.
6, Walter A. Lewis, Pomona, $350.
7, Elliott-Brant, Owensmouth, $600.
8, Charles Ellis, Visalia, $310.
9, J. P. Walker, Visalia, $360.
10, Hanks & Bishop, New London, Iowa, $700.
11, Mong & Charleston, Whittier, $250.
12, Mrs. R. E. Whitley, Van Nuys, $440.
13, Fugler & Perkins, Santa Maria, $460.
14, Fred O. Sargeant, Whittier, $505.
16, W. H. Morrow, Downey, $370.
17, Lawton & Walker, $285.
18, J. K. Atwater, Riverside, $505.
21, Carroll Gates, $240.
22, Carroll Gates, $305.
23, Ireland Ranch, Owensmouth, $400
25, J. P. Mallory, Fresno, $700.
27, Lawton & Walker, $290.
28, Orris & Padgham, Gooding, Idaho, $150.
29, Lawton & Walker, $160.
30, H. A. Ludwig, $140.
31, Lawton & Walker, $175.
32, Winsor Ranch, Bonita, $150.
33, Carroll Gates, $395.
34, Carroll Gates, $395.
35, H. A. Ludwig, $400.
36, John Sugiian, Fresno, $325.
37, John Sugiian, $325.
38, S. C. Whiting, Sacramento, $170.
39, H. A. Ludwig, $170.

At a Great Sale of Reds

Above is shown the crowd leaving the "banquet hall", at left, and starting for sales ring under the big tent at right. Diamond Bar sale of Durocs.

Below is shown group of boys from George Jr. Republic, all of them admirers of pure bred hogs. Robert Condee, superintendent of agricultural work of the republic, at left in background, with soft hat.

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You can get a greater milk yield from Besgrade because it is a balanced feed and contains the digestible proteins, carbohydrates and every necessary element in just the proper proportions to insure a heavy milk yield without impairing the cow's health.

Years of experience in manufacturing balanced rations is back of every sack of Besgrade Dairy Feed.

There is absolutely no need for just breaking even with expenses or to even be just a little profit to the good; you should be making a decidedly good profit BESGRADE DAIRY FEED WILL SHOW YOU THE WAY.

And back of this feed is the service of highly specialized men who will cooperate with you in making possible a greater profit from your herd.

Others are making profits by feeding Besgrade Dairy Feed. Are you going to?

If your dealer does not have it in stock, write us for complete information.

Great Western Milling Co
I have been feeding your feed for the past three or four months and find it to be satisfactory in every way
A. E. Venable.
Artesia Cal.

Great Western Milling Co. *Los Angeles*

and the

Northwestern Milling Co.

San Francisco

Winsor Sale a Real One

The sale of 40 Duroc-Jersey sows and gilts, held by Winsor Ranch, Bonita, at Exposition Park, Los Angeles, January 29, must be rated as one of the most successful sales ever held in this state. Practically all the offering was bred by the sellers and the average of $344.75, with only five head selling for $500 or more, a top of $875, and only two gilts selling under the $200 mark, is a striking demonstration of the uniformity and high quality of the offering and the ability of R. K. Walker, the manager.

Few if any sales have been held in the West that presented a more uniform or attractive lot of breeding material, and the eager manner in which the offering was absorbed should be a source of high satisfaction and encouragement to the sellers even though no records were established. The top of the sale, $875, was paid by D. C. Cummins & Son of Visalia for Golden Sensation, second prize under year gilt at the 1919 state fair. Mong & Charleston, Whittier, got a good buy in a daughter of Great Wonder I Am at $575. E. C. Witt, Lankershim, paid $525 for Sensation Rose Again. L. R. Hitchcock, Van Nuys, took a daughter of Great Model, bred to Winsor's Giant Orion, at $525 and C. D. Crouch of San Diego, paid the same amount for Bonnie Model.

Aside from the sales mentioned most of the consignment sold near the average for the sale. E. S. McClure of Perris, secured splendid values in the two May gilts by Great Orion Sensation.

Col. Leachman conducted the sale in a very satisfactory manner.

The sale list follows:

1, D. C. Cummins & Son, Visalia, $87
2, Elliott Brant Rancho, Owensmouth, $350.
3, Ireland Ranch, Owensmouth, $385.
4, Mrs. R. A. Whitley, Van Nuys, $38
5, Mong & Charleston, Whittier, $385.
6, Southwest Cotton Co., Phoenix, Arizona, $400.
7, Geo. C. Aydott, Hanford, $310.
8, J. C. Craig, Los Angeles, $250.
9, Ordway & Snyder, Hughson, $275.
10, Leest & Mounier, Van Nuys, $28
11, Chaffey Union High School, Pomona, $285.
12, Ireland Ranch, $325.

(Continued on Page 222).

Combination Sale, One Too Many

It was perhaps too much to expect that the comparatively limited buying power of Southern California Duroc interests could absorb three sale offerings in three days—at any rate the Ireland Ranch-Graham-Newton combination sale held at Ireland Ranch, January 30, suffered somewhat through a lack of support from the Southern breeders, and the average of $194.64 on the 28 sold represents conservative values compared with the preceding sales.

This sale constituted the first event of the kind ever held in the San Fernando Valley and the local ranchers, for the most part, seemed to regard it more as an occasion to meet and visit than an opportunity to increase the efficiency of their hogs. However, the consignors were game and showed their sportmanship by sending forward every lot that could be taken by the small crowd. Buyers from a distance who were represented by mail bids secured some excellent values.

Dr. Creamer sold the top sow, Ireland's Model Lady, to Mrs. Whitley for $500 and the 17 head consigned by him averaged $206.50.

Four gilts from Donald H. Graham's herd averaged $262.50 and six young gilts from Dr. Newton's consignment made an average of $131.66.

Ord L. Leachman of Sacramento was the auctioneer, the following animals sold:

Consigned by Ireland Ranch, Owensmouth

1, Fred B. Ellis, Fresno, $350.
2, Charnock Ranch, Hemet, $250.
3, E. F. Meyers, Lankershim, $400.
4, Charnock Ranch, $150.
5, Geo. Aydlott, Hanford, $300.
6, E. P. Norrie, San Fernando, $110.
7, (boar) Charnock Ranch, $100.
8, H. B. Curtis, Owensmouth, $125.
9, Charnock Ranch, $150.
10, Mrs. R. E. Whitley, Van Nuys, $500.
11, Ellis & Ellis, Fresno, $250.
12, Winsor Ranch, Bonita, $100.
13, Fugler & Purkis, $100.
14, Mrs. R. E. Whitley, $160.
15, Charnock Ranch, $110.
16, Charnock Ranch, $110.
17, Winsor Ranch, $120.
33, C. F. Waltmeyer, Newbury Park, $225.

Consigned by Donald H. Graham, Lancaster

34, E. C. Witt, Van Nuys, $275.
35, Jack Klein, Los Angeles, $275.
36 S. E. Whiting, Sacramento, $250.
37, Geo. Aydlott, $250.

Consigned by Dr. E. Avery Newton, Lankershim

38, Fugler & Purkis, Santa Maria, $125.
39, Charnock Ranch, $100.
40, Charnock Ranch, $100.
41, Lecst & Mounier, Van Nuys, $150.
42, A. V. Austin, Van Nuys, $225.
43, H. B. Carter, $90.

Chas. Gatewood's Poland China Sale

The dispersion sale of Chas. Gatewood's Poland China herd was held in Fresno, February 26. The entire offering of 68 head was sold by Col. Bell in less than three hours for a total of $15,325, making an average of $225.35 for the entire lot including a number of young unbred gilts. The outstanding feature of the sale was, of course, the sale of Giant Bob, the grand champion boar at the last state fair. For several months there has been much speculation as to who would be the new owner of Giant Bob, but it is doubted if any made the right guess. He was purchased by Z. M. Dickey, Dinuba, and H. Buckland and Son, Fresno, for $5,250. Mr. Dickey is one of the younger breeders and has recently established the Sequoia herd of big type Poland Chinas on his ranch near Dinuba. A. Buckland and Son are well known and maintain one of the leading herds of the state. They recently purchased Golden West King, grand champion at the California International Livestock Show, so that in these two herds are found the grand champion boars at two of the state's biggest livestock shows. Mr. Dickey also secured the top sow of the sale, paying $600 for Forestview Anna 4th. Other heavy buyers were C. E. Dack, Fresno; Fred Gatewood, Fresno; J. Hall, Kerman, while the entire offering was practically absorbed by the breeders. Following is detailed report of animals selling for $100 or more:

BOARS

1, Giant Bob, Z. M. Dickey, Dinuba, and A. Buckland and Son, Fresno, $280.
2, Prospector, E. S. Meyers, Riverdale, $350.
3, Gatewood's Prospect, J. Hall, Kerman, $325.

SOWS

4, C. E. Dack, Fresno, $235.
5, Z. M. Dickey, $600.
6, C. E. Dack, $390.
8, M. Lovelace, Lemoore, $195.
10, C. E. Dack, $115.
11, F. Gatewood, Fresno, $105.
12, J. Hall, $105.
13, H. I. Marsh, Modesto, $225.
15, M. Lovelace, $190.
17, M. & A. L. Bassett, Hanford, $115.
18, J. Hall, $135.
19, W. L. Haag & Son, Hanford, $200.
20, R. F. Guerin, Visalia, $295.
21, C. E. Dack, $140.
22, C. B. McNeil, Fresno, $225.
23, F. D. Ross, Hanford, $285.
25, J. H. Cook, Paradise, $115.
27, M. & A. L. Bassett, $145.
28, M. Lovelace, $180.
29, F. Gatewood, $550.
30, C. E. Dack, $300.
31, C. E. Dack, $140.
33, Hugh Shinn, Tulare, $125.
35, B. S. Cole, Hanford, $120.
36, W. L. Choisser, Riverdale, $155.
37, Les McCracken, Ripon, $100.
38, C. E. Dack, $125.
46, C. E. Dack, $110.
47, H. I. Marsh, $105.
49, Thos. Caesar & Son, Reedley, $135.
50, H. I. Marsh, $125.
51, H. I. Marsh, $125.
52, W. D. Trewhitt, Hanford, $180.
53, Hugh Shinn, $155.
54, F. Gatewood, $120.
55, W. C. Ficklin, Fresno, $175.
58, A. J. Van Gleef, Riverdale, $170.
60, J. Hall, $140.
61, C. B. McNeil, $350.
62, H. I. Marsh, $235.
66, B. S. Cole, $135.

MARSH'S POLAND CHINA SALE

Hale I. Marsh held a very successful sale of Poland Chinas on his farm, near Modesto, February 28. Mr. Marsh has recently completed a circular farrowing house, and this was turned into a sale pavilion which afforded a warm and comfortable place for the holding of the sale. The top of the sale was the full yearling, Miss Model Improved, by Model Major, selling to M. B. Houk, Winton, for $235. The average for the sale was $130. Geo. W. Bell, Tulare, was the auctioneer. The following sold for $100 or more:

1, Cy. N. Clark, Jr., Modesto, $155.
4, L. Snyder, Modesto, $100.
5, Ratto Stock Farm, $200.
6, N. K. Horan, Lockeford, $115.
7, J. O. Martin, Atwater, $100.
8, R. F. Guerin, Visalia, $130.
10, J. Gibson, Modesto, $150.
12, N. K. Horan, $220.
13, N. K. Horan, $170.
14, Z. M. Dickey, Dinuba, $100.
15, C. N. Clark, Jr., $100.
16, Les McCracken, Ripon, $100.
17, M. B. Houk, Winton, $235.
20, N. K. Horan, $125.
21, N. K. Horan, $125.
22, McCarty & Starkweather, Modesto, $125.
24, J. O. Martin, $120.
29, Z. M. Dickey, $100.
30, M. L. Harmon, Denair, $100.
31, N. K. Horan, $125.
39, N. K. Horan, $150.
40, H. C. Harmon. $115.

J. T. Sullivan of Meadow Gold Dairy, says: "I challenge anyone to produce a finer field of alfalfa than I raised from Germain's Proven Hairy Peruvian Alfalfa Seed. This variety cannot be praised too highly. It does all you claim for it — and then some." Read the rest of Mr. Sullivan's letter in our free booklet. It contains 30 signed letters from farmers and dairymen who have tested this wonderful alfalfa seed.

Send for Germain's FREE 1920 Horticultural and Poultry Book.

Established 1871
Seed & Plant Co.
N.E. Corner
Sixth & Main Sts.
Opp. P.E. Depot
Los Angeles, Cal.

Special Notice to Duroc-Jersey Breeders

I leave for the East soon. Several breeders have given me orders to buy bred sows and gilts for them. I will be pleased to purchase for you anything you want. Will personally select them. Write me what you want and the blood lines. I'll tell you just what I pay for them.

Clayton Slocum Willows, Cal.

N.B.—Write me at once

When Writing Advertisers, Mention the Cultivator.

The Mark of Farm Supremacy

is found where Duroc-Jersey Hogs are Raised. Make Your Farm a Duroc-Jersey Farm

50 — Bred Sows and Gilts — 50

will be sold by the

Tulare County Duroc-Jersey Breeders Association

Sale

Thursday, Feb. 12, 1920, in Tulare, Cal.

THE DUROC-JERSEY

is the great American hog. A prolific, easy feeding, quick maturing animal. That's why you find more Durocs on the farms than any other breed. The blood of our greatest Durocs will be found in this sale and this sale affords you a great opportunity to start and start right. More important still is the rapid manner in which they increase farm profits. Sale will be held in new sale pavilion, Tulare, Calif. Geo. W. Bell, auctioneer.

Sale at 12:30 P. M. Lunch at 11:30 A. M.

Tulare County Duroc-Jersey Breeders Association

Allen Thompson, Pres. R. C. Sturgeon, Sec'y

Next Thursday is the day. Tulare is the town. Come and buy a Duroc.

When Feed Is Scarce and High

The Owner of Whitefaces Smiles

Not because of scarcity and high prices, but because he knows that under these handicaps he has the best cattle possible for him to own.

Unsurpassed by any breed under normal feed and range conditions, HEREFORD CATTLE stand out in a class by themselves, during the periods of drought, scant range, or winter hardship, a fact that has been demonstrated year after year on some of the world's greatest ranges, as well as on thousands of smaller holdings.

Since their invasion of the west, HEREFORDS have increased steadily and rapidly in popular esteem, as progressive cattlemen have had opportunity to observe their actual performance under various conditions, and through sheer merit the excellence of the breed has created a demand for pure bred registered breeding HEREFORDS far in excess of the available supply.

One of the good opportunities to purchase registered pure bred HEREFORDS will be made possible by Pacific Coast breeders at

University Farm, Davis, Cal.
Tuesday, February 24, 1920

when they will offer an unusually well bred lot of cows, heifers, and bulls.

THE FEMALES will include drafts from many of the most substantial western herds, and a large number will be safe in calf to the high class sires now in service, presenting to the beginning breeder an opportunity for wise selection of foundation females.

THE BULLS will be an especial feature of the sale, as the breeders will make a real effort in this offering to make available to owners of range herds a class of bulls that will breed HEREFORD quality into their herds in a marked degree.

Write for catalog of sale. Detailed announcements will appear in later issues.

REMEMBER Stockmen's Week, Feb. 24-27 University Farm, Davis REMEMBER

Sale under auspices of

Pacific Coast Hereford Cattle Breeders Association

J. I. Cazier, Pres., Wells, Nev. J. A. Bunting, Sec., Mission San Jose, Calif.
Sale Manager—C. L. Hughes, Sacramento.

THE FOURTH SALE OF

SHORTHORNS

under the auspices of the

CALIFORNIA SHORTHORN BREEDERS' ASSOCIATION

Will be held at

UNIVERSITY FARM, DAVIS, CALIF.

WEDNESDAY, FEB. 25, 1920

at 1:30 P. M. Sharp

The University Farm authorities are establishing a

STOCKMEN'S WEEK

From Tuesday, February 24th, to Friday, February, 27th, inclusive

Besides this sale of Shorthorns there will be held sales of Hereford Cattle, swine and dairy cattle. Well-known speakers will make addresses on many subjects revelant to the various breeds, and meetings of the different livestock associations will be held. Also a five counties' meeting under the auspices of the California Cattlemen's Association.

Recognizing the seasonal demand for bulls, there have been entered in the Shorthorn sale

40 - - HEAD REGISTERED BULLS - - 40

the majority of which are nearly two years old, and

20 - - HEAD COWS AND HEIFERS - - 20

of the quality for which these sales are becoming famous

For Catalogue and Further Particulars, Apply to

California Shorthorn Breeders Association

222 Sharon Building San Francisco, Calif.

For Rent; Cattle Ranch in Central California

2,000 acres completely equipped for general farming and stock. Four excellent houses, all necessary buildings. Also 10,000 acres summer range. This property will successfully handle a large number of cattle, has abundance of water. Address

J. S. Bordwell, Riverside, California

CLARK, HUNTER & CLARK,

Livestock Auctioneers

915 I Street MODESTO, CALIF.

REGISTERED HOG SALES A SPECIALTY

FIRST SALE

Bred Sows and Gilts

Southwestern Berkshire Congress

Clearwater, Los Angeles Co.

Saturday, Feb. 21.

Detailed Announcement Next Issue.

---

200 Bred Duroc-Jersey

sows and gilts bred for spring litters. All carefully selected from Glenn County herds. They are the kind that will make a profit on any farm. All are priced at exceedingly low prices. Bargains for car lot buyers. Get busy and write or come and see us immediately as they won't last long at the price.

H. P. Slocum and Son

Willows, California

Breeders of Duroc-Jerseys. The Key Herd of the Pacific Coast.

The Proof of a Sire

is his ability to sire the kind the buyers want. In recent public sales, as well as direct orders, it was demonstrated beyond all doubt that

ORION'S KING GANO

is siring Duroc-Jerseys of such outstanding qualities—those qualities that are only found in Durocs of the highest type.

Donald H. Graham Lancaster, Cal

Greenwood Farms

We are offering some unusual values just now in Duroc-Jerseys. They are sired by JOHNSON'S DEFENDER, JR.

a boar that commands the respect of every breeder in the state. All animals we sell for breeding purposes are carefully selected and have the true characteristic Duroc-Jersey type. Write for description of what you need.

H. C. WITHEROW, Mgr. Live Oak' Sutter Co., Cal.

The Greatest Duroc Boar of His Age!

Choice Wonder 3d

a winner at the 1919 Iowa State fair, sired by the great boar, Mahaska Wonder, and a litter mate to the first prize junior boar of Iowa, heads our herd. He is the largest heaviest boned, best footed boar in the state and he is being mated to the sows that have made this herd famous for futurity winners. Get your order in early for his pigs. Prices are most moderate. Satisfaction guaranteed.

JUNE ACRES STOCK FARM V. F. Dolcini, Davis, Cal

Watch for These

I will sell in the breeders sale, Lodi, February 12, 10 Big Gilts by Golden State King and Big Bone Bob and bred to Smooth Big Korver and Surprise Prospect Jr., a son of the famous Surprise Prospect. These will be the kind to buy.

J. F. Lehman *Lodi, Cal.*

California Breeders

have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

CALIFORNIA BREEDERS SALES & PEDIGREE CO.,

C. L. HUGHES, Sales Mgr. Sacramento, Cal.

Brighton Farm Herds

Registered Shorthorns and Berkshires---Both Sexes

H. L. & E. H. Murphy

Perkins, Cal.

Duroc-Jerseys

Bred and raised under right conditions. Correct as to type and size.

D. C. Cummins & Son

VISALIA, CALIF.

Use Shire Horses For Farm Power and Profit

BREED SHIRE HORSES. They are in demand. Good Grade Shires are selling between $200 and $300. Shire Mares prove to be good workers and excellent mothers. They will work steady and at the same time raise profitable colts.

For booklet on Shires write

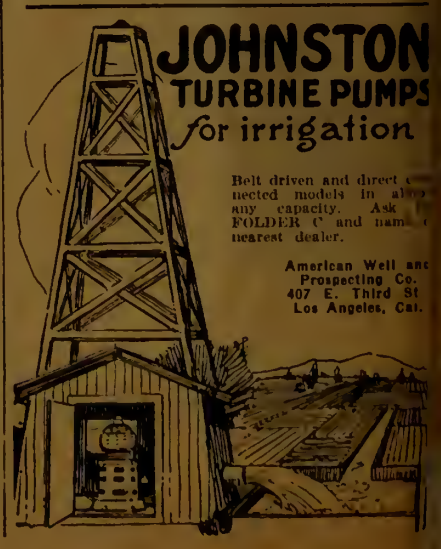
W. G. Lynch, Secretary, American Shire Horse Association, Tonica, Illinois.

Duroc-Jersey

Registered Big Type Bred Gilts

California George Junior Republic

Chino, Cal. P.O. Box 157



FIRST BERKSHIRE SALE NEXT WEEK

The first sale of Berkshire swine to be held in the 1920 season will be held by J. Francis O'Connor, Castleview Ranch, Santa Rosa, Saturday, February 14. This sale will also be the first sale ever held by an individual breeder in Sonoma County.

Mr. O'Connor is only selling 25 head of sows and gilts, but in view of the fact that he has listed Rookwood Lady 100th, the only grand champion of a National Swine Show owned in California, wide interest has been created and much speculation as to whether that great sow will remain in California or be taken East.

The Castleview herd has been prominent at the recent livestock shows and fairs and has been very successful with entries in the barrow contests.

NEW BERKSHIRE ORGANIZATION

Berkshire breeders in Southern California held a meeting Saturday, January 31, at the ranch of the Italian Vineyard Company and formed the Southwestern Berkshire Congress. Alex M. Wilson of the Italian Vineyard Company was elected president; Rowe Sanderson of Los Angeles, vice president, and C. Jack Zinn of Inglewood, secretary-treasurer. Including the officers named the following breeders will serve on the board of directors: F. P. Hall, Perris; Mrs. F. M. Connor, Pasadena; D. J. Bastanchury, La Habra, and Geo. A. Stengel, El Monte.

The new association plans to hold a consignment sale at Clearwater, Saturday, February 21, and it is expected that a number of the breeders in Northern California will consign, as well as E. J. Barker of Thorntontown, Indiana.

LOS ANGELES LIVESTOCK SHOW

At a meeting of the board of directors of the Los Angeles Livestock Show held January 29, October 2 to 10, 1920, inclusive were the dates chosen for holding the third annual Los Angeles Livestock Show.

Nothing will be left undone to make this show surpass any show yet held in the West and premiums to the amount of approximately $50,000 will be hung up.

ORGANIZATIONS PROMOTED AMONG RANGE STOCKMEN

Regulated management of the national forest ranges during the past 14 years has had a marked influence on development of livestock associations. In 1917 there were 359 stock associations cooperating with the forest service. Last year there were 544, an increase of over 51 per cent. The old system, under which each holder of a permit gave individual attention to his stock while on the range, is being widely replaced by a pooling of interests along certain lines, accomplished by forming livestock associations, with advisory boards to handle many of the details of stock management.

Many associations employ herders for the stock while on the range, buy and distribute salt, in some cases buy bulls, and take charge of other management and improvement matters which promote the best interests of those holding permits and the highest use of the range.

The method employed is the adoption of special rules, passed by an association and approved by the forest service. Compliance with these rules is then required of all users of the national forest range. Practically all of the more progressive associations have adopted such special rules as meet the needs of their localities. Membership in the association is open to all livestock owners using the range, and a majority of all users must belong to the association in order to secure its recognition by the forest service.

In many cases advisory boards have recommended reduction in the number of stock upon a given range; they have also suggested changes in grazing seasons, with a view to securing the greatest benefits to the users and an improvement in the range. In practically all cases associations have interested themselves in constructing range improvements, such as drift fences; in water development, in the eradication of poisonous plants, and similar matters. Funds for improvements are obtained through assessments. Value of organized cooperation is most evident on range allotments where conditions of use are very intensive and the permitted stock belongs to a large number of small owners.

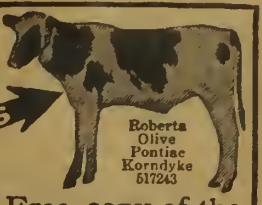
KNOWLEDGE OF PEDIGREES VALUABLE

Knowledge of pedigrees is of fundamental importance to the stockman, according to livestock specialists in the animal husbandry department of the Pennsylvania state college. The most successful breeders of pure bred stock know the history and performance of all the important animals of their breeds as well as they know their own relations and speak of them with a familiarity that surprises the uninitiated. To the man who does not keep pure bred stock, but who uses pure bred sires to improve his herd, a working knowledge of pedigrees is equally important. When he buys he knows what he is getting. He knows what families or lines will give him the characteristics desired. He knows when he can afford to pay a big price for an animal and when he cannot. When he sells he knows what price he should ask.

Familiarity with pedigrees keeps a man in touch with what is going on in the development of his particular kind of cattle, sheep or hogs. It also gives him a standing in the respect of other breeders. Here it is especially valuable to young breeders who have a reputation to establish. If they know what they are talking about when they are buying or selling an animal, the man with whom they are doing business will think more of their judgment, while they will have the knowledge which will enable them to make a good bargain. Nothing is more effective in advertising livestock than an intelligent display of the breeding and "good connections" of the animal in question. Time spent over the herd book is well employed.

TREAT Your Own Herd for **Abortion**

Stop Losing Calves! You can *wipe abortion out* of your herd and *keep it out.*



Send for Free copy of the *Cattle Specialist* with questions and answers pertaining to Abortion in Cows. Answers every question. Tells how to treat your own cattle at small expense. Write

Dr. David Roberts Veterinary Co. 212 Grand Ave. Waukesha, Wis.

Get Full Value From Your Feed

The time is here when you must make your feed bring you more dollars. Feeding by guess is an expensive experiment, so why guess, when you can know. The better article is usually a little higher but is much more profitable in the end. For more profits in swine feed Poland Chinas —the hog for profits.

Attend the First Sale

of Merced County Poland China Breeders Association

Merced, Saturday, February 21, 1920

40 Big Type Sows and Gilts

In this sale there will be daughters of such boars as **Cantrall's Ideal, President, King's Massive Orange, King's Timm, Big Bone Bob, Model Fellow, President's Equal, King's Big Bone Leader,** and, impress this upon your mind, they will be bred to Big Model Fellow, reserve grand champion at the 1919 state fair, Aviator, fast coming to the front as one of the state's leading sires, Whitten's Jumbo Timm, the good sire of P. E. Mitchell,'s King George Big Bone, 2nd prize senior boar pig at 1919 state fair showing against animals four to five months older and other good boars.

Attention Merced Farmers

We are especially anxious that these good sows remain in Merced County. We want to make Merced County a strong Poland China center. We want the farmers of Merced County to attend this sale and take home at least one good sow or gilt. There is not an animal in this sale but what will make you money.

Breeders Read This

We trust you will attend this sale and whether you buy or not, come and give us your moral support that we may make our county a great Poland China county.

Sale will be held at Cross Bros.' Ranch, adjoining Merced

Sale at 12:30 P. M. Lunch at 11:30 A. M.

Ord L. Leachman, Sacramento, Auctioneer

Merced County Poland China Breeders Association

For Catalog address, M. B. Cross, Sec'y, Merced, Cal.

ARE YOU A BUSINESS FARMER?

Then
You will be
Interested in the

Poland China Sows and Gilts

to be offered by the

San Joaquin County Poland China Breeders Ass'n

at Lodi, Thursday, Feb. 12

BECAUSE

The kind to be sold are the profitable kind. The offering has been selected from the best herds in the county—owned by practical farmer-breeders, who know the type and blood lines that make good under all conditions. The members of the association stand squarely behind every animal sold. There never was a time when good hogs could prove their value as under present conditions. There will be no better opportunities to select the right kind than will be provided by this sale.

40 Bred Sows and Gilts

Big Type---Size and Quality

12 Tried Sows:

These sows are just that—they have been tried and proven good producers in some of the best herds in the county. They are big, heavy boned, smooth, deep, motherly sows that represent very choice blood lines. Several of them have produced show winners. Any farmer, breeder or pig club boy can buy such sows for a foundation and be certain of producing the right kind of Poland Chinas.

15 Bred Gilts:

These gilts have been selected from the tops of the following herds: Geo. V. Beckman & Sons, N. K. Horan, J. F. Lehman, Langhorst Bros., Eugene Miner, John Boskovitch, Young & Barton and Young & Clark. A number of the gilts have show records, others are litter mates to prize winners and all are bred to the outstanding boars owned by members of the association.

12 Open Gilts:

The man who has his own good boar and needs a few outstanding brood sow prospects will not need to look farther than this sale. Among the lot will be found gilts that will look well in any herd in California. The type is right—the breeding is right.

For Catalog Address
SHERWOOD BECKMAN, Sec'y

San Joaquin County Poland China Breeders Ass'n

Ord L. Leachman, Auctioneer

Success in Breeding

depends largely upon your foundation. It demands type, conformation, early maturity and size. Our herd of Poland Chinas is typical of what you should desire in your own herd. We can supply one or more of this kind at reasonable prices.

Geo. V. Beckman & Sons **Lodi, Cal.**

THIS IS WHAT COUNTS

If you are raising hogs the quicker you can make 200 pounds of pork the more money you make. I breed Poland Chinas that mature quick.

BIG MODEL FELLOW—my herd boar was Reserve Grand Champion at last state fair. Buy a sow bred to this boar and secure both quick maturing and show qualities.

Bred sow sale, Merced, Feburary 21st.

J. F. McSwain **Merced, Cal.**

Better service is assured by the advertiser if when writing you mention the California Cultivator.

CONSIDER STOCKYARDS FOR LOS ANGELES

At a meeting called by the Los Angeles Chamber of Commerce for the purpose of discussing plans for the establishment of union stockyards, the following committee was appointed to investigate the proposition and make a report upon which definite action will be taken: F. H. Scribner of the farm bureau, chairman; Charles Hill of Wilson & Company; Frank W. Hauser of the Hauser Packing Company; Charles O. Robinson of Clay, Robinson & Company, Chicago; W. I. Morrison of the Alfalfa Growers Association; A. D. Buckley, secretary of the Globe Grain and Milling Company; E. J. Bennett of Woodward-Bennett & Company, and O. B. Fuller of the C. H. and O. B. Fuller Company.

Among the speakers were A. D. Buckley, Charles O. Robinson, Fred Bixby, president of the California Cattlemen's Association, and D. J. Sheehan of Lone Rock Ranch.

Mr. Robinson, who is one of the best known livestock men in the United States, stated that both the producer and the packer would be benefited by union yards and declared that marketing through union yards would stabilize prices.

The following livestock men attended the meeting: O. B. Fuller of the C. H. and O. B. Fuller Company, D. J. Sheehan of Lone Rock Ranch, J. L. Knorpp of the Southwest Cattle Loan Company, T. W. McDermitt of the California Cotton Oil Company, W. I. Morrison of the Alfalfa Growers Association, G. H. Woodward of Woodward-Bennett Company, J. L. Bush of Clay, Robinson & Company, Frank M. Hauser of the Hauser Packing Company, C. M. Smith of the Producers and Users Company, Louis Degen of Degan Bros., C. S. Johnston of the Newmarket Company, A. D. Buckley of the Globe Grain and Milling Company, E. J. Bennett of the Woodward-Bennett Company, F. P. Allen of the United States bureau of markets, T. F. McKee of Clay, Robinson & Company, W. J. Doran of the City National Bank, G. H. Emery of the Alfalfa Growers Association, E. R. Gregory of the Santa Fe, A. F. Osterloh of the Goodyear Tire and Rubber Company, W. H. Roche of Degen & Roche, H. L. Musser of Aggeler & Musser Seed Company, C. H. Hill of Wilson & Company, Charles O. Robinson of Clay, Robinson & Company, C. H. Beauchamp of the livestock meat division of United States department of agriculture, James Cantlay, W. T. Bishop, J. W. Kemp, R. G. Hoskins, F. A. Pierce, B. G. Osborne, J. C. Austin, W. H. Daum, C. R. Thomas, C. H. Howland, J. A. Burton, Fred Bixby, F. H. Scribner, and Roderick Scott of the Cudahy Packing Company.

SAN JOAQUIN POLAND SALES NEXT WEEK

Few sections of this state have made greater progress in swine improvement than has been recorded in the San Joaquin Valley. Last week the highest price ever paid in the West for a boar of any breed was registered by a Fresno County Poland China. That fact is stimulating interest in the sales to be held at Fresno, February 11, and at Lodi, February 12. Each sale contains the blood of the record boar, Giant Bob, as well as of other prominent boars of the state.

The sale at Fresno will be held at the Fresno fair grounds and will consist of consignments representing the following boars: Big Bone Leader, Rossmead Big Bob, California Jumbo Buster, Giant Bob gilts and sows, as well as many others of excellent parentage, have been bred to Fresno Boy, Model Big Timm, Blue Valley King, Golden West King, Model Jumbo and California Bob Wonder.

Walter C. Ficklin, secretary of the Fresno County association, writes that the sale animals have been carefully selected and will be a credit to the breed.

The San Joaquin breeders who sell at Lodi are: George V. Beckman & Sons, Langhorst Bros., J. F. Lehman, Eugene Miner, all of Lodi; George Barton, Clements; Frank Dollard and Les McCracken of Ripon, and N. K. Horan, Lockeford. The offering is said to be the equal of any to sell this year.

BERKSHIRE ASSOCIATION'S CLASSIC

The widespread demand for catalogs for the Western Berkshire Congress sale at the university farm, Davis, Wednesday, February 18, indicates that buyers will come from all parts of the Pacific Coast, according to the report of Frank B. Anderson of Sacramento, secretary of the congress. At least one buyer is coming from Honolulu. The Berkshire people claim this year's offering to be just about the best lot of Berkshires that have been put up in consignment sale. In view of the fact that a $5 per head entry fee was charged for the sale, this to go into a fund for cash prizes, breeders were anxious to consign animals of the kind that would have a chance to bring home these prizes which are larger than those offered at any fair.

A large number of breeders have arranged to take in the entire Berkshire circuit, starting with the sale at Castleview Ranch, Santa Rosa, Saturday, February 14, thence to the state fair grounds at Sacramento for the H. C. Muddox & Son sale on Monday, the 16th, with the congress meeting at Davis on Tuesday, the 17th, and the sale the day following.

DUROCS STRONG IN LOWER SAN JOAQUIN

A feature of the Duroc-Jersey sales held in Southern California last week was the determination displayed by Tulare and Fresno breeders to secure the best. The tops of the two high sales went to Visalia breeders, and Fresno breeders took many of the best.

The introduction of such high class breeding material in the already strong herds of the lower San Joaquin bids fair to make that section a leading source of Durocs. The breeders held one very successful sale last summer and they will hold a sale of bred sows and gilts at Tulare, February 12. The purpose of the sale is to attract attention to the district and to afford an opportunity for beginners to select desirable foundation material. Many of the leading herds of the state have contributed entries.

FAMOUS WRITER TO BREED DUROCS

Peter B. Kyne, the well known writer and O. H. Cash have purchased the entire herd of Durocs owned by Fred Johnson, Napa, and plan to conduct a Duroc-Jersey breeding establishment at Sierra Vista Ranch near Perris. The deal, which is one of the most important ever made in this state included the boar King Orion Jr., that was secured by Mr. Johnson last fall. This boar was grand champion at the California International Livestock Show and when shown at the 1919 National Swine Show defeated six state fair grand champions. The purchase also included 23 top sows and 14 fall gilts.

BURR SALE ESTABLISHES RECORD FOR GRADE DAIRY COW

In the sale of grade Holstein cows held by the Burr Farm at Los Angeles, January 27, a new record was made when Mannie Mayo of Compton paid $510 for a grade cow. Every cow offered had been tested in the cow testing association and was sold on her record. The high prices that ruled for tested cows was most convincing proof of the value of cow testing associations. The 15 head of pure bred bull calves sold for an average of $163.

MILKING MACHINES POPULAR IN HUMBOLDT

B. D. Mason, state dairy inspector sends in the following information: "During the past year 110 milking machines of different makes were installed on dairy ranches in the Eel River Valley of Humboldt County. Out of 360 dairies in this valley, 110 are now using milking machines, or approximately 32 per cent. One-half of these machines are in use in the vicinity of Ferndale. Indications are that many more will be installed during the coming year."

The use of mechanical milking devices is no longer in the experimental stage. They are rapidly proving themselves a solution of the help problem for the dairy farm. Undoubtedly most of the complaints registered against these machines in the past have been due to improper care and handling of the outfit.

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

Thursday, March 25, Guaranty Sale, Sacramento.
April 8, Breeders Sale, Tulare.
Wednesday, April 21, A. M. Bibens, Modesto.
Wednesday, May 12, Leeman & Killgore, Dispersal, Ripon.

Herefords

During last week of February, Pacific Coast Hereford Cattle Breeders' Association.

Shorthorns

April 17, Butte City Ranch, Butte City.

Berkshire Swine

February 14, J. Francis O'Connor, Santa Rosa.
February 18, Western Berkshire Congress, Davis.
April 17, Butte City Ranch, Butte City.

Duroc-Jerseys

February 12, Tulare County Duroc-Jersey Association Sale.

Poland Chinas

February 11, Fresno County Poland China Breeders Association, Fresno.
February 12, San Joaquin Poland China Breeders Association, Lodi.
February 21, J. F. McSwain, Merced.
February 26, California Poland China Breeders Association, Davis.
February 28, Kings County Poland China Breeders Association, Hanford.
March 13, Haag & Bernstein, Hanford.
April 3, Kings County Pig Club sale, Hanford.
April 24, W. T. Dice and Harrold Waltz, Hanford.

Shetland Ponies

April 17, Butte City Ranch, Butte City.

Shropshire Sheep

April 17, Butte City Ranch, Butte City.

Next Thursday, February 12, the Tulare Duroc-Jersey Breeders Association will hold their third sale of bred sows and gilts. To make this sale attractive the breeders are disposing of some of their best animals and have consignments from some of the state's leading breeders as well. In speaking of the sale, Allen Thompson, president of the association, said: "We have had this sale in view for some time but we decided to postpone holding it until we felt that we could make an offering that would be representative in every way. We feel that this sale presents real opportunities both to the breeder and farmer."

Fifty-five students of the college of agriculture who formed the animal husbandry club at Berkeley are continuing the club this term while attending the university farm, Davis. W. H. Alison, a senior, has been elected president, and L. A. Crawford, also a senior, has been elected secretary. Meetings are held every two weeks for the purpose of discussing matters in connection with their courses in animal husbandry. Prominent speakears are scheduled to address the club on important agricultural topics. The men are particularly interested in forming a judging team to represent the institution at livestock shows.

Mong and Charleston of Whittier, are laying the foundation for a good herd of Durocs. They secured one gilt in the Diamond Bar sale and four in the Winsor Ranch offering.

W. T. Dice of Kings County, is in the East attending a number of the leading Poland China sales. Mr. Dice represented California at the record sales held at Kansas City last month.

In the L. H. Glover sale of Poland Chinas held at Kansas City, January 19, 46 head of sows and gilts sold for an average of $2,759.78. Fashion Girl, the dam of Liberator and Designer, sold for the record price of $17,200. At the Winn and Moore sale held at the same place, 40 head of sows and gilts averaged $1,629.37, and Model Giantess 3d sold for $11,300.

The state of California recently placed an order with the Castleview Ranch for a registered Berkshire boar for delivery to the Sonoma State Home, Eldridge.

Mrs. W. Anderson, the well known horsewoman of Kenwood, has just accepted delivery of a splendid young Berkshire boar, sired by "Achiever" from the Castleview Ranch, Santa Rosa.

Dr. S. W. McClure, for the last nine years secretary of the National Wool Growers Association, has resigned to become manager of the Cunningham Sheep and Land Company, Pilot Rock, Oregon. Dr. McClure is succeeded by Professor F. R. Marshall, formerly of the animal husbandry department of the University of California, and more recently with the United States department of agriculture.

Dr. S. S. Bogle, prominent physician of Santa Rosa, has purchased a ranch of 45 acres north of the City of Roses and will fit it up as a model breeding establishment for Berkshire swine. Much of the foundation has been secured from the Castleview Ranch.

J. Francis O'Connor, Castleview Ranch, Santa Rosa, reports sales of bred Berkshire sows to Messrs. Groff & Rippin of Merced and Jas. S. Pedrotti of Calistoga.

Castleview Ranch, Santa Rosa, has recently shipped Berkshire service boars to J. D. Krause, Melitta, California. E. C. Carpenter, Taft, California, and W. N. Nail, Manzanar.

V. F. Dolcini, owner of June Acres Farm, Davis, has sold to Hutchinson and Daisie, Walnut Creek, eight head of Duroc-Jersey gilts and a young boar.

Manager James McDonnell of the Ormondale Ranch, Redwood City, reports the sale and shipment to Peru of a Shorthorn heifer, daughter of Golden Goods Jr., and therefore a half sister to Little Sweetheart, the sensational champion developed by Thornton S. Glide.

H. A. Jastro, manager of the Kern County Land and Livestock Company, and one of the dominant factors in the cattle industry of this country, was reappointed chairman of the marketing committee of the American National Livestock Association at the annual meeting held at Spokane last month.

L. D. Thompson of Modesto, who maintains herds of registered Holsteins and Poland Chinas, reports having sold three yearling heifers to J. A. Kinney, Standish, Lassen County, and

The Grand Champion Sale

Castleview Ranch First Annual Sale
—The Berkshire Classic—will be held at the Pavilion Building, Fair Grounds, Santa Rosa

Saturday, Feb. 14th, 12.30 P.M., Rain or Shine

25 Actually Bred Berkshire Sows and Gilts
including Rookwood Lady 100th

The 750 lb. Grand Champion Sow of America, and the only National Grand Champion of any breed, in California.

FOR THE FIRST TIME

you will have an opportunity to purchase choice prize-winning sows and gilts—carrying their own guarantee—bred to our great English blood boar, "ACHIEVER" a son of Onward 4th, by "Epochal."

EVENTUALLY

You must have new blood in your herd, why wait? At the big Eastern shows in 1919, "Epochal" English blood Berkshires won more ribbons than any other herd in America.

If you cannot attend the sale in person, send mail bids through the California Cultivator, or the auctioneer, Col. Ord L. Leachman, Sacramento, Calif.

Catalog is ready, write today.

Castleview Ranch, Santa Rosa, Cal.

Home of World, National and State Grand Champions

BERKSHIRE CHAIN OF SALES

Castleview Ranch, Santa Rosa, February 14 H. C. Muddox & Son, Sacramento, February 16 Western Congress, Davis, February 18

35 BERKSHIRES

of the Highest Quality make up the Annual Guaranty Sale of the

Western Berkshire Congress

at the University Farm

Davis, Cal., Wednesday, Feb. 18, 1.30 P.M.

Following the Annual Congress Meeting, Tuesday, Feb. 17

This is the opportunity for the farmer or breeder to secure, at his own price, outstanding animals of the breed that won grand champion pen, and carlot and junior champion barrow over all breeds at the San Francisco Livestock Show last November, proving them to be the hog the farmer wants —the best pork producer.

Carful selections of 30 bred gilts and sows and five young boars have been made from the herds of the following breeders in four states:

ANCHORAGE FARM
Orland, Cal.

FRANK B. ANDERSON
Sacramento, Cal.

CALAC ORCHARDS
Martinez, Cal.

CASTLEVIEW RANCH
Santa Rosa, Cal.

E. J. FERGUSON
Santa Rosa, Cal.

R. C. GRUHLKE
Dixon, Cal.

A. B. HUMPHREY
Escalon, Cal.

ITALIAN VINEYARD COMPANY
Guasi, Cal.

KOUNIAS REGISTERED STOCK FARM
Modesto, Cal.

WILL LONG
Orland, Cal.

R. J. MERRILL & SON
Morgan Hill, Cal.

H. C. MUDDOX & SON
Meadow View Farm, Sacramento, Cal.

HUGH NESBIT
Chimacum, Wash.

WALTER OLSEN
Santa Rosa, Cal.

W. F. SANDERCOCK
Natomas Lands, Sacramento, Cal.

SILVER GLEN STOCK FARM
Silverton, Ore.

C. P. WARNICK & SON
Pleasant Grove, Utah.

GEORGE M. YORK
Modesto, Cal.

D. J. BASTANCHURY
Santa Catalina Rancho, La Habra, Cal.

Write to the Secretary for a Catalog

Western Berkshire Congress

Pres. A. B. Humphrey, Escalon, Cal. Sec'y Frank B. Anderson, Box 724, Sacramento

Don't Miss these Sales:

Castleview Ranch, Santa Rose, Feb. 14 H. C. Muddox & Son, Sacramento, Feb. 16

Ord L. Leachman, Auctioneer

a cow to Macomber and Son of Modesto. Thompson also has sold four Poland China gilts to Shannahan and Hindman, Modesto, a gilt to Rossi Guy, Modesto, and a boar to J. W. Crane, Oakdale.

D. H. Bittner, general manager of the California Farm Marketing Association reports that during the 14 months ending January 1, 1920, the association held 191 sales of fat hogs in the counties of Kern, Tulare, Kings, Fresno, Madera, Merced and Stanislaus. The sales marketed 55,789 for a total of $1,917,416.86.

McCarty and Starkweather, Poland China breeders, Modesto, have recently purchased from Williams Bros., Villisca, Iowa, a young sow by The Yankee, carrying a litter by Long Boy, a son of Orange Boy. Other purchases includes a yearling sow by Long King bred to Giant Joe secured from Robinson Bros., Morton, Illinois.

Mrs. Sears of Bakersfield was a good bidder and buyer of registered Jerseys at the Arden Dairy sale at El Monte, January 23. Mrs. Sears also has the foundation for a herd of big type Poland Chinas. She owns the fine yearling sow Big Bone Maid 3d, daughter of Rossmead's Big Bob, with litter of eight by Big Timm.

H. A. Younkin of Corona reports the highest grade Holstein cow record yet to be announced. Under official test by the Riverside County Cow Testing Association the Younkin cow made 103.52 pounds butter fat in 30 days. The average for the entire string of 28 cows for the 30 days was 45 pounds of fat.

A. R. Doctor of Van Nuys has recently added to his fine herd of Poland Chinas one of the best brood sows sold in the McCune sale at Hanford.

The next annual meeting of the American National Livestock Association will be held at El Paso, Texas.

C. E. Park of Boyle Heights, Los Angeles County, was a recent buyer of high class Jerseys from the J. H. Kee herd at Lancaster. Mr. Kee and Mr. Park were both buyers at the Arden Dairy sale at El Monte.

Josh L. Wilson, Lamanda Park, Los Angeles County, was the buyer of two young Hampshire sows in the Underhill sale at Santa Barbara. One of them has a beautiful litter of ten fully belted pigs sired by a grandson of Gen. Tipton's Masterpiece. Another sow has fine litter of nine.

Geo. W. Thomas & Sons, Arlington, have 50 registered females in their herd of Jerseys at their Golden Glen Stock Farm. In early December they secured 30 females from the F. E. Molby herd at Fallon, Nevada, the young things carrying the close up blood of Noble of Oakland.

The Record Boar

Giant Bob, the $5,250 Poland China boar sold by Charles Gatewood to Alfred C. Buckland & Son, Fresno, and Z. M. Dickey, Dinuba. Giant Bob was grand champion at the 1919 state fair and is the highest priced boar ever sold at auction in the West.

WINSOR SALE

(Continued from Page 216).

13, E. C. Witt, Lankershim, $525.
14, Geo. Jr. Republic, Chino, $200.
15, L. R. Hitchcock, Van Nuys, $525.
16, F. G. Haskell, Earlimart, $235.
17, Donald Graham, Lancaster, $350.
18, Mong & Charleston, $300.
19, C. D. Crouch, San Diego, $525.
20, Janss, Los Angeles, $375.
21, H. S. Hoard, Hollywood, $185.
22, Elliott-Brant, $365.
23, Mong & Charleston, $375.
24, J. A. Prendergast, San Bernardino, $330.
25, H. S. Hoard, $300.
26, C. Guy McCune, Fresno, $450.
27, P. Maxwell, Lankershim, $260.
28, H. S. White, Chino, $285.
29, Leest & Mounier, $260.
30, Mong & Charleston, $250.
31, W. Walker, Fallbrook, $235.
32, F. G. Haskell, $170.
33, W. Moore, $190.
34, H. S. Hoard, $250.
35, Ordway & Snyder, $300.
36, Ordway & Snyder, $335.
37, Falfadale Farm, Perris, $335.
38, E. S. McClure, Perris, $420.
39, E. S. McClure, $420.
40, S. M. Padis, Tustin, $210.

DAIRYMEN MUST REDUCE COST OF PRODUCTION

Reduce the cost of production to increase the profits of the business, Dean Van Norman of the University of California farm, Davis, told the Sacramento-Yolo Cow Testing Association at a recent meeting held by the cow testers.

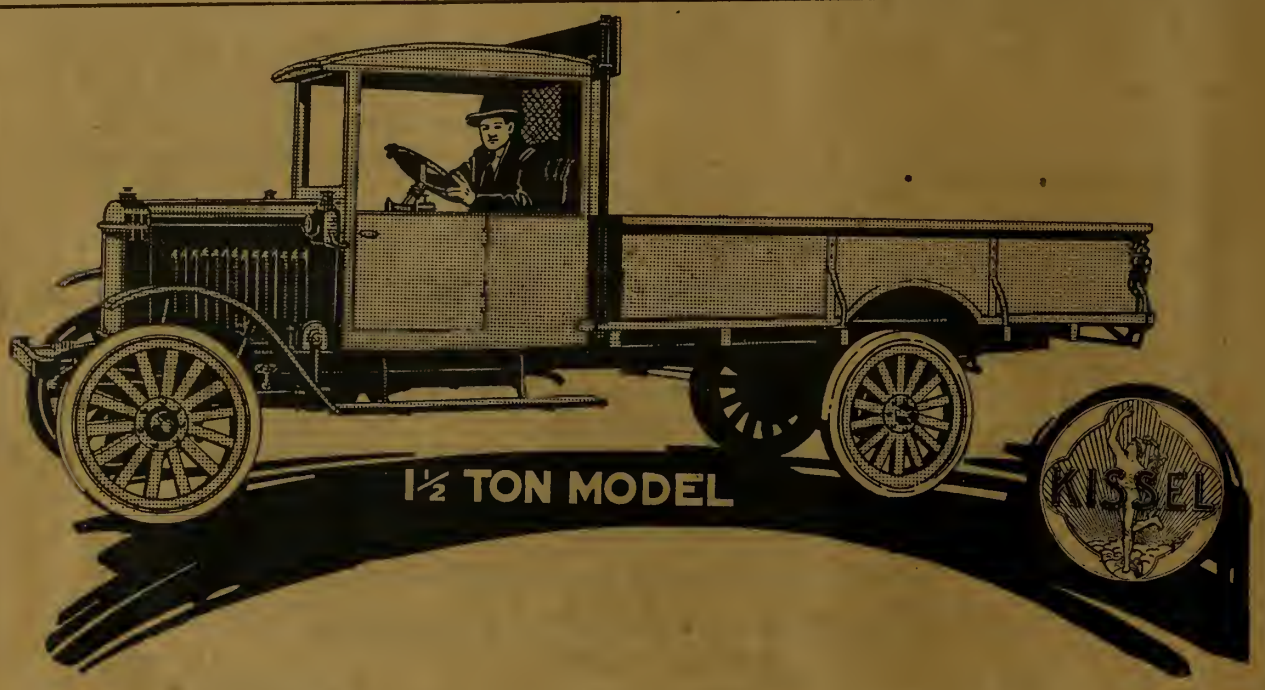
"Since the selling price received by one dairyman is substantially the same as that paid to his neighbor, he has little chance to change it; but the cost of production is in each man's hands. Some cows produce $1.25 worth of milk for each dollar of feed consumed; others, $2 to $3 worth. If 20 good cows produce as much milk and more profit than do 28 poor ones, why feed, milk and look after the extra eight for nothing? Why expect the city consumer to pay a profit on the poor cow, for the poorer the cow, the higher the price of milk must be.

"The price dairymen get for milk is not too high, compared with what they pay for shoes, stockings, dress goods, suits, flour, sugar, coffee, automobiles, plows, tractors, labor, or most other things they buy. Dairymen's profits, however, are too small. While thousands of cows produce from 500 to 800 pounds of fat per year, many are satisfied with cows yielding less than 200 pounds per year. And the state average is only about 160 pounds.

"Someone must raise more good cows to replace the poor ones which are slaughtered as fast as they are discovered. It can best be done by mating pure bred bulls to the highest producing cows in our cow testing association, bulls that come from families not merely of high production, but families of cows that have the habit of transmitting to succeeding generations the high producing power inherited by them."

CALIFORNIA SAFETY NEWS

The industrial accident commission announces that the California Safety News, its monthly publication, will be sent free to anyone interested, if notice is sent to the office of the commission at 525 Market Street, San Francisco. The various industrial activities of the state are considered in their relation to safety under appropriate headings, such as mines and tunnels, boilers, construction, electricity and elevators. The commission's engineers in charge of these divisions write special articles each month for the information of employers and employees, all with a view of telling about safe working practices and different methods of preventing industrial accidents. In this way there is a variety of subjects discussed and each employer and employee can find something of interest.



IN no other line of usage have Kissel Trucks proved their value more impressively than they have in the hands of some of the most successful ranchers of California.

¶ We would be very glad to furnish you with information concerning their experience.

¶ There's a Kissel model to meet the requirements of any ranch.

Western Motors Company

OAKLAND LOS ANGELES SAN FRANCISCO

Eleventh and Flower Streets

Telephone 60388

KISSEL TRUCKS

FEED MARGIN AND SAFETY

(Continued from Page 193).

tion. The nutritious native grasses can not reseed, and soon die out. On the other hand, where no effort is made to crowd on every head possible, but rather a definite policy of understocking is pursued, the grasses get a good start and furnish better feed and at the same time reseed. The range improves from year to year. The stock grows out to better advantage, faces the off seasons in better condition and is generally more profitable and satisfactory. Some may argue that the general practice of understocking will seriously deplete the meat supply. Not necessarily. Along with modern range management must come the use of better livestock. Fewer head perhaps—but an equal poundage of better quality should be the aim.

There are few if any outfits in this state whose profits can not he increased by the wider use of better blood. The use of pure bred bulls of the right quality and stamp will grade up the cow herd with each cross and with this improvement the selling age of the steers be reduced. Two year old steers can be turned off weighing as much as the old time threes, and by such a practice range formerly needed for carrying the steers the extra year is made available for cows. Such a plan is not a mythical theory. It is absolutely practical and is being cashed in on by the shrewder operators.

The above suggestions are only a few of the many ways open hy which California livestock operators can turn their business from a nightmare of short feed into a profitable business in which many of the current hazards have been eliminated, and it is simply sound business to conduct operations along such lines.

What has been said concerning the range operator, can be repeated to the small rancher who is running beef or dairy cattle and lose none of the force. Hundreds of dairymen are now paying from $25 to $40 per ton for bay—and find it hard to get at those prices. Of course, many dairymen are so situated that they can not produce their own feed and therefore must buy—but the majority of dairymen are raising more or less feed—and nearly all of them can produce more. Too many are depending from year to year on buying what they need and every year at some time or another they get caught out of feed on a high market. Their hazard is no different from the beef or sheep man—and their problems are largely the same. More water is needed for irrigation; more alfalfa is needed; more silos are imperative; more silage crops must come. In sections where irrigation is difficult, dairymen need to investigate and learn to grow many of those crops that have been proven practical with little or no irrigation—but above all, the present situation should serve to convert hundreds of dairymen to the prime importance of silos and silage.

The dairyman, too, can largely alleviate the possible feed shortages by keeping fewer but better cows. No fact of livestock production is susceptible of more definite proof than that the use of a well bred pure bred bull will increase the production of a herd. If 25 well bred cows will produce as much as 30, 40 or 50 poorer cows—the saving of feed will be considerable and the man who is now paying $40 per ton for hay will experience a sense of relief comparable to few sensations.

The way has been marked and the livestock interests of California should resolve that 1920 will see advantage taken of any plan of operation tbat promises relief.

URGES BETTER BULLS FOR THE RANGE

Chas. U. Pickrell, extension animal husbandman of the University of Arizona, is carrying on a state campaign to help put the scrub bull out of business.

Here is tbe way he summarizes the situation for cattlemen:

"For the past two or three years the difference in price between well bred cattle and scrubs has not been as great as it should have been. There has been some difference in the selling price of yearlings and steers of better breeding and scrubs but not as much as there should be. In the struggle to secure cattle, buyers have taken cows at a more or less general price, and growers in haste to remove stock from the range during a dry period, have sold their female stock at a general price per head. The man with scrub stock has benefited by this condition and the grower who bas been making an earnest endeavor to improve his stock has not received the difference in price that he should.

"However, this condition is fast changing. Sales this past fall showed a difference in price of as much as $5 per head for yearlings in some cases. At present the price of cows shows a variation of $10 to $15 a head, according to tbe breeding of the animal.

"If the cattleman will look around a little he will see how much easier the producer of well bred cattle has disposed of his stock. He will also nearly always find him selling to the same buyer year after year.

"The producer of scruh cattle may find a market for his cattle, but it will not be to the same buyer two years in succession, unless he sells at a much reduced price. In fact a good buyer does not care to handle scrub cattle at all if otber cattle can be found. Buyers who have handled scrub cattle in the past have in turn passed them on to feeders who have lost when they placed tbem on the market.

"With tbe present price of land a feeder has no place for a scruh. Securing cows of better breeding is probably out of the question for many at present, but the bulls for use this coming year should be selected with greater care.

"When figuring on the price per head for bulls that a grower can afford to pay the cattleman may well multiply the number of yearlings per bull by five. The product would represent in dollars what a man can afford to pay for a pure bred bull above the price of a scrub bull.

"If possible purchase registered bulls as well as good individuals. A beef bull for breeding should have good conformation, good size and the sex character developed."

FOR
SPRAY HOSE
SEE
LOS ANGELES RUBBER CO.
124 E. Third St. Los Angeles
Mail Orders Filled Promptly

The Value of Fertilizer In Crop Production

is gauged entirely by the increase in crops the fertilizer applied can deliver, and the cost per acre.

Hauser's Organic Fertilizers

contain more food essentials for tree and plant life than purely chemical formulae, giving immediately available results. Specially prepared and mixed to fill California requirements and give best returns for money invested

SEND FOR VALUABLE BOOKLET

Hauser Packing Co.

Los Angeles

Cross-section of typical tractor engine showing where the oil is greatly heated.

Engine troubles—90% preventable

Burned out bearings, overheating, lack of power are caused by failure to lubricate properly

ONE man has trouble with his engine—another one does not. What is the difference?

In nine cases out of ten, engine trouble in automobiles, tractors and trucks is preventable. This is the verdict of automotive engineers, practical repair men and dealers after years of study.

It is the tremendous heat at which engines operate which makes lubrication a problem. Ordinary oil breaks down under this terrific heat—200° to 1000° F. Large quantities of sediment which has *no lubricating value* are formed. The lubricant evaporates like boiling water. The oil in the sump is contaminated and thinned down by fuel.

As a result carbon forms rapidly, bearings soon burn out and the engine overheats. Serious engine trouble soon results. Because the tractor works at higher temperature, these evils are exaggerated in its case.

Ordinary oil after use *Veedol after use*

Sediment formed after 50 hours running in a tractor

Solving lubrication problems

To overcome these difficulties engineers of the Tide Water Oil Company developed the famous Faulkner process used exclusively to produce Veedol, the lubricant that resists heat. How Veedol resists heat is clearly illustrated by the sediment test on the left.

The proper grade of Veedol for all engines not only reduces by 86% the amount of sediment formed, but prevents excessive contamination. Because it reduces evaporation to a minimum, Veedol gives from 25% to 50% greater service per gallon.

Recommended for most fine tractors

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Fresno, Wednesday, Feb. 11

40 Outstanding Bred Sows and Gilts 40

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For Catalog, Address the Secretary

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Fresno County Poland China Breeders' Association

Alfred C. Buckland, President
Route E, Fresno

Walter C. Ficklin, Secretary
Route A, 189, Fresno

Geo. W. Bell, Tulare, Auctioneer

Poland China Sale De Luxe

Thursday, February 26th

California Poland China Breeders Association

WILL SELL AT

UNIVERSITY FARM, DAVIS, CAL.

40 Bred Sows and Gilts

If You

had the opportunity to select breeding material from the tops of the leading herds, you'd like the chance, wouldn't you?

That is just what you can do in this, the first sale held under the auspices of this state association.

The sale will be held during the big Livestock Week at the University Farm.

Watch for Further Announcements

For Information and Catalog
Address the Secretary

A. D. McCarty, P. O. Box 2250, San Francisco, Cal.

California Poland China Breeders Ass'n.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Garget: Inflamed Quarter

We have a young Jersey cow that has lumps in her milk. Her udder and one teat will swell up and be inflamed and the milk in that teat will he lumpy for two or three days at a time. She has been that way twice since she was fresh in Septemher. Do you think she might have tuherculosis?—Suhscriber, Dinuba.

She might have tuberculosis but she could have the trouble you describe without having tuherculosis. When cows are fed highly ahout calving time the blood is apt to be too thick and rich and that causes congestion of the udder. A week or two before calving a cow should be fed very sparingly and about that time given a dose of salts; that will thin the blood and they very seldom have any udder trouble. When the udder becomes very full of milk even before calving it should be milked out to relieve the pressure and this also will help to prevent congestion or inflammation. Congestion causes the milk to coagulate and come in lumps until the inflammation suhsides. This is apt to recur at intervals as in your case. The remedy is to thoroughly rub the udder and milk it out clean regularly, also give her salts in her feed to thin the blood. Mix three pounds of epsom salts with two pounds of common salt and give her a handful in the feed once a day for a week or two. If the trouble returns give her more salts.

Frozen Teat

I have just brought a car of stock from the East and in the car was a young heifer with a calf. The weather was very cold at the time of starting and one of her teats hecame frozen. This made the teat very sore and she refused to let the calk suck, and as it was not possible to milk her regularly she sometimes went a day without being milked. Now the milk in that teat is very thick and a very small quantity comes out. From the remaining teats she gives a large quantity of milk and she seems to be in the best of health. I can not think it is of tuhercular origin as she was tested about 30 days ago and gave no signs then. Please advise me what to do. — Subscriber, Bakersfield.

By thoroughly rubbing the quarter and milking it out regularly you may be able to save it. It could easily occur without her having tuberculosis. Read the answer in this column under the heading "Garget: Inflamed Udder."

Fistula

I have a horse ahout nine years old weighing 1,600 pounds, gentle and sound, but has a fistula started last spring. I have had him two months, have worked him some but he has been running out now for some time. Can he he cured and what would do it? About how long would it take?—Subscriber, Tulare.

Fistula is hard to heal as it is a deep abscess on the top of the shoulder and the cavity that contains the pus is below the opening so it will not drain. Also the parts where such abscesses form have very little hlood supply so the process of repair is slow. When pus discharges for a time from such an ahscess nature forms a false skin or membrane around the cavity and the canal through which the pus flows. That membrano is called a pyogenic or pus forming membrane and will continue to form pus as long as it is allowed to remain thero and must be gotten rid of before the pus will stop and allow the wound to heal. The opening should be enlarged so you can reach the bottom of the cavity. The pus should be all washed out and the cavity scraped just enough to start the blood all over the surface. Then to keep it clean and healthy so it will heal it should be packed with surgeon's cotton or gauze which is saturated with a weak solution of iodine. This packing should be removed, the parts cleaned and the packing renewed every two or three days. No one can tell how long it will take to heal it but one of long standing like yours will usually heal much quicker than one of recent origin. If properly cared for it should be sound in two or three months.

Dog With Distemper

We have a dog that has a hacking cough and gags, spitting up a white froth, and his eyes look weak. He eats bread and meat. What do you think is wrong with him and what can he done for him?—Subscriber.

The symptoms you describe are those of distemper. Unless it is properly treated at the start it is apt to leave the dog with a weak stomach and a discharge from the eyes and nose. Give five or ten grains of calomel (according to the size of the dog) at night and in the morning mix as much salt as will dissolve in a teacup of hot water and when cool enough so you can hold your fingers in it give him as much of it as you can get down him. This will make him vomit and clear out his stomach. After that give him five grains of salicylate of soda on the tongue once a day for two weeks.

BUTTE FAT HOG AUCTION

The first farm bureau fat hog auction sale in Butte County was held at Durham, the home of the state land settlement colony. The sale was a demonstration, being one of the first farm bureau sales to be held in the Sacramento Valley.

The success of the sale was unqualified. The two top cars averaged 14½ cents per pound, which was one cent above the local market on that day and two cents ahove the average price in the county during the week previous to the sale. Hogs were offered by 30 growers. Nine huyers were present to bid on them, one coming from as far as Los Angeles. Over 400 farmers witnessed the auction. The success of the sale was due largely to the efforts of the committee appointed from the Durham farm center and of George Kreutzer, manager of the colony and originator of the farm hureau hog sale idea. O. S. Grant cried the sale.

The increased prices offered at Durham were due to the fact that the huyers were offered graded hogs in carload lots. This is an advantage to the buyer hecause he is saved the cost of assembling the animals. For the farmers the cost of assembling was very low and they were all given the opportunity of selling at carload prices even though they had only a few hogs to offer. All hogs were carefully graded before being sold. This is an advantage to the grower who finishes correctly. The top car always brings the highest price. Many growers are not particular enough about getting the proper finish on their animals. It is a matter of education to them to see properly finished hogs at these sales and to watch the correlation between good hogs and good prices.

Now that the idea of farm bureau hog sales has been proved out in the Sacramento Valley there will no doubt be many sales held. Probably a chain of sales will be started similar to that in tho San Joaquin Valley where buyers are able to go from one to the other. This would stabilize the hog market considerably and stimulate the hog industry throughout the northern soction of the state.

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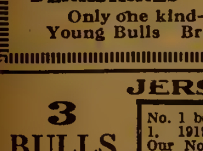

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JERSEYS

3 BULLS	No. 1 born Mar. 1, 1919. Sire, Our Noble Mayflair Hero.	3 BULLS
No. 2 born Oct. 1, 1919. Sire Our Kathie's Eminent.	All from high record cows in Arden herd.	No. 3 born Dec. 20, 1918. Sire same as No. 2.

ARDEN DAIRY CERTIFIED, EL MONTE, CALIF.

ANCHORAGE FARM MAKES BIG BERKSHIRE SALE

Mrs. Ruth Hardy, manager of the Anchorage Farms, Orland, writes that she has just closed an important sale consisting of 50 head of registered Berkshires to the Modoc Land and Livestock Company, Cedarville. The sale includes five daughters of Star Leader, bred to Natomas Baron Duke; 16 bred gilts; 16 open gilts that will be bred to Natomas Baron Duke; ten sow pigs, six and seven months old and three bred sows.

In reporting the sale Mrs. Hardy said: "The herd was selected and will be managed by Charles Barrows, Berkshire breeder. The Modoc Land and Livestock Company owns 2,640 acres of fertile land, all under cultivation. A railroad is now being constructed which will open this ranch to Portland and the East. The farm is to be superintended by Mr. Brown, now with the Napa State Hospital. A large part of the acreage is in alfalfa where it is planned to run pure bred herds of hogs, sheep and cattle, and they have adjacent pasture. Water conditions are ideal, there being a number of artesian wells on the place. The managers were influenced in their decision to have pure bred Berkshire hogs on their farm by the winnings of the Napa State Hospital at the California International Livestock Show where the grand champion carload was won by this breed, and the carload was sired by a son of Star Leader, so they wish to make their foundation herd daughters and granddaughters of this boar. A number of the sows and gilts selected are bred to Natomas Baron Duke, the grand champion of California. They were also attracted to Anchorage Farm by the sow exhibited by the Webber children with her ten pigs. Mr. Owens purchased this sow at the time and sent her up to Anchorage Farm to be bred again. This large sale completed a very successful year for Anchorage Farm."

LIVESTOCK WEEK AT UNIVERSITY FARM

Preliminary plans for the Livestock Week to be held at the university farm, Davis, the last week in February have been announced. The entire week will be devoted to livestock activities and it is hoped that many things will occur to shove the industry ahead. February 25, the Pacific Coast Hereford Breeders Association will hold their semi-annual sale; the following day the California Shorthorn Breeders Association will sell 60 head of bulls and females. The California Swine Breeders Association will meet in annual session Friday, February 27 and during the day the California Poland China Breeders Association will hold their initial sale of bred sows and gilts. Saturday will be "Dairymen's Day" and it is expected that representatives of many cow testing associations will attend. Herd improvement through the use of pure bred bulls will be stressed. A small auction sale of young bulls of the leading breeds is being arranged.

STALLION REGISTRATION RENEWALS

Last year there was a total of 583 stallions and jacks registered in the state. The results so far seem to indicate that the total number will be slightly increased this year. In 1912 the registrations totaled 2,034, a decrease in seven years of 1,451 animals. Here is food for thought for all persons interested in the livestock development of California.

SAN JOAQUIN POLAND BREEDERS ANNOUNCE SALE

The second sale to be held by the San Joaquin County Poland China Breeders Association has been scheduled for February 12 and will be held at Lodi, so Sherwood Beckman, secretary of the organization writes. The consignments come from the following breeders: Geo. V. Beckman & Sons, John Boskovitch, N. K. Horan, Langhorst Bros., J. F. Lehman, Eugene Miner, Young & Barton and Young & Clark. Forty head of sows and gilts will be sold and it is stated that a special effort has been made to present an offering that will be a credit to the breed and the association. The sale, as is the case with many others, is arranged as part of the wide spread propaganda for better hogs.

The Bell Cow for Profit

Jersey Cows don't eat merely to live, but to produce the richest quality of milk from the smallest amount of feed. They are the money-makers.

Any breeder will tell you that a dollar's worth of feed goes farther and yields a greater return when fed to a Jersey. Jersey Milk averages 5.37% butterfat. Jersey Milk, Jersey butter and Jersey cheese bring the biggest prices on the market.

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Breeders will tell you that the Jersey is the Pride-Prize-Profit breed. Let us tell you why the Jersey is *the* investment cow! Write for free literature about Jerseys.

THE AMERICAN JERSEY CATTLE CLUB
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Venadera Herd
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Senior herd sire Altama Interest sire of 12 cows in Register of Merit.
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Guy H. Miller, Modesto, Cal.

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Are made under ordinary dairy conditions
The Farmer's Cow is
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YOUNG BULLS FOR SALE
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Young Jersey Bulls
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One at the head of your herd will pay big dividends on his cost. Write to
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A fine straight one, bred right, priced right.
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Prince Walker Cornucopia
The Highest Record Son of Prince Gelsche Walker

His dam ALBA SADIE CORNUCOPIA CREETA has just completed official records of 36.26 pounds butter from 516.7 pounds milk in seven days. Her previous records were as follows:

At seven years—
Milk 338 days 13,849.40
Butter 866.23
At six years—
Butter seven days 34.13
Milk 532.40
At five years—
Butter seven days 28.85

She is a daughter of Sir Sadie Cornucopia, son of the first 30 pound cow, Sadie Vale Concordia.

Over 60 of our best females are bred to PRINCE WALKER CORNUCOPIA, and he will be given the fullest opportunity in this herd. Put one of his young sons at the head of your herd.

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The females in offer are well bred, nicely marked, of good individuality and all have A. R. O. records. All are fresh or springing and are bred to a 32-lb. bull. They must be moved quickly and are priced accordingly. This is a real opportunity to be taken advantage of quickly. Also offer a few high producing grade Holsteins.

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We will accept your GRADE BULL as payment for a fine PURE BRED and REGISTERED HOLSTEIN BULL CALF. You can keep your bull until the calf is old enough for service.

We have several very fine calves on hand now. Come and see them and their dams, or write for photos and pedigrees.

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both public and private have demonstrated the value of animals bred on Sunnyside Farm. Our experience in breeding Holsteins and Poland Chinas might assist you in making the right selection.

R. F. Guerin Visalia, Cal.

JERSEY FUTURITY STAKE

By Guy H. Miller

At the last meeting of the California Jersey Breeders Association the matter of the Jersey Futurity Stake was discussed at some length. This stake, founded about six years ago, has been allowed to lapse and go by default for the past two or three years on account of lack of entries and failure to qualify heifers in the stake at time of freshening. It was decided to make some change in rules and entry fees and open the stake anew, with the result that nine breeders have made entries of heifer calves as follows: Bonnickson Bros. of Ferndale, seven heifers sired by Financial King B. No. 160748, one helfer sired by Queen's Cicero of C. V. No. 159987, one helfer sired hy Cicero's Golden Oxford No. 144463; J. E. Thorp of Lockeford, one heifer sired by Jolly Senator Raleigh No. 114508; J. W. Coppini of Ferndale, one helfer sired by St. Mawes of Ferndale No. 154942, one helfer sired by Gamboges Cannon No. 151607; W. B. Stuell of Orland, three heifers sired by Alzy's Undulatta Oxford No. 160531; E. E. Greenough of Merced, one heifer sired hy Opas Golden Fern No. 165024; University of California, two helfers sired by Susy's St. Mawes No. 135577, one heifer by Owl of Belleview No. 106305; E. W. Doane of Merced, one heifer sired hy Baron Underwood No. 133198; C. D. Hayworth of Modesto, four heifers sired by Silkies Golden Glows Chief; one heifer sired hy Lorna's Altama Interest No. 108420; Guy H. Miller of Modesto, five heifers sired by Jap's Perfection Owl No. 160572, one heifer sired by Altama Interest No. 98466. A total of 31 head of heifers sired by 15 different sires of many different lines of Jersey breeding. This makes an excellent entry list for stake number seven, particularly so as it was open for entries but two months.

This futurity stake is a butter fat contest of one year duration for helfers under 30 months of age at time of starting on test. The heifers must be tested under the rules of the American Jersey Cattle Club for Register of Merit tests. This will be an annual event. Heifers must be entered before they are a year old. If entered before six months old the entry fee is less.

Stake No. 8 is now open for entries and will not close until December 31, 1920. For full information and entry hlanks Jersey breeders should address tbe secretary, Prof. V. C. Bryant, Agricultural Hall, University of California, Berkeley.

If all the 31 heifers now entered in stake No. 7 to be contested for in 1921 qualify at time of calving and start in the contest it will make a contest of unusual interest and attract wide attention in livestock circles of California.

DISTRIBUTION OF COSTS IN PORK PRODUCTION

Income tax reports put tbe question of farm records squarely up to every farmer. In the meantime expensive feed and costly labor frequently disturb the feeder's sleep by inquiring where he expects to get off.

Tbe farm is not like a factory in which every item of expense is very closely known in advance. On tbe contrary, weather conditions constitute a big unknown quantity which may cause heavy losses of young stock, cut down the yield of crops, or by keeping men out of the fields greatly increase labor cost. Hence farm records are on a different basis, but none tbe less important.

While the pork producer is interested in costs as determined for operations of the entire year, data on shorter periods is wortb while and may help him to get a better line on the whole proposition. A Kansas test covered but a 100 day feeding period. Labor costs are higher than would be necessary where larger groups are handled. Prof. Ferrin reports the results as follows:

Five lots of pigs were fed by hand for 100 days, October 19 to January 27. An average of results for the five lots show tbis distribution of expense: Feed cost, 82.75 per cent; labor, 10.51 per cent; vaccination, 2.62 per cent. Interest (eight per cent), 1.83 per cent; equipment, 1.31 per cent; unaccounted for, 1.7 per cent; total, 100 per cent.

It will be noted that risk is not estimated or included.

Labor was charged at 30 cents per hour, while corn was $1.58 per bushel, tankage $100 per ton, oatmeal and peanut meal $60 per ton and semi-solid buttermilk $80 per ton.—Duroc Bulletin.

THE THIRD NATIONAL SHORTHORN CONGRESS

The congress idea has become quite generally adopted in improved livestock circles and serves a broad and useful purpose. The congress was first applied to the Shorthorn interests in particular in 1918 and the results were of such a far reaching contact that it was decided to place the National Shorthorn Congress on a permanent basis. The third event will occur at Chicago, February 17, 18 and 19, in the International Livestock Building, with the headquarters as before at tbe Stock Yard Inn.

One of the important rules in force from the beginning is tbat no individual breeder or firm may enter for the show contests more than ten animals. This rule was adopted for the purpose of making the show, which is a most important feature of the occasion, as widely representative as possible and to encourage beginners and owners of small herds. It is required of those making entries that the animals be of a high order of individuality. As an attraction $5,000 is appropriated for prizes and the class awards extended from 15 to 20 places in the various classes. The possible cash winnings mount up to a liberal sum and offer an inducement to the breeders who have animals of superior merit to enter tbe contests.

Another rule that is applied is that every animal entered in the show contests must be sold in the sale. From 250 to 300 high class Shorthorns pass through tbe congress sale each year.

As heretofore, speakers of international acquaintance and standing are scheduled for addresses. The affair in this respect will be highly educational just as it will be educational through the show and sale features. The purpose has been to place the Shorthorn Congress on a high plane. The program is designed to appeal to all observing folks regardless of whether they are directly identified with the Shorthorn interests or not. If the present plans do not miscarry the forthcoming congress will surpass in every respect those that have preceded it.

The American Shorthorn Breeders Association is to be commended for the high conception of the value and possibilities of tbis annual affair, and all improved livestock interests are benefited as a result.

The day of the husbandman is at hand and in its coming the welfare of all useful industry is fostered.

MORE GRAZING IN NATIONAL FORESTS

The demand for range on tbe national forests was greater the past year than ever before in the history of the forest service. Especially in the drouth stricken regions, stockmen, using the unreserved public domain or private pastures, eagerly sought forest permits in order to save their stock. The value of the system of range regulation in use has been so thoroughly demonstrated that representative stockmen from all the western states have declared emphatically in favor of placing the remaining unreserved puhlic lands under federal control and having them managed under a plan similar to that in effect on the national forests.

SAN BERNARDINO COW TESTING ASSOCIATION

Prof. C. V. Castle sends table showing names and records of cows of the San Bernardino County Association which are producing more than 50 pounds of fat. The list shows 21 on the honor roll. The topper was from tbe dairy of J. B. Metzley of Chino. Cow "No. 96" produced 1,695 pounds milk and a total of 81.36 pounds fat. The next honor cow was in the dairy of P. Farell, Ontario, which made a record of 73.32 pounds fat.

Manufacturers used about 60,600,000 pounds of wool, grease equivalent, in November, 1919, or slightly more than 8,000,000 pounds less than the amount consumed in October. The November, 1919, total exceeded that for the same month in 1918 by approximately 13,400,000 pounds. Totals by condition, in pounds, for November, 1919, as given by the bureau of markets, United States department of agriculture, were: Grease, 43,147,921; scoured, 7,605,982; pulled, 1,674,951.

This Healthy Brown Swiss

won a national Senior Championship at 3 years. She is a record milk producer.

Cultivate health, and the milk pail will show instant improvement.

What Makes Heavy Milkers?

Good breeding and good feeding are by no means the biggest factor. Perfect **HEALTH** is the master key. The constant strain of milk production will in time wear down the disease-resistance powers of the most rugged system. The digestive and genital organs are the first affected. Nature must be given medicinal assistance.

KOW-KURE is a cow medicine designed to help solve the health problems of cow owners. By directly affecting the organs where disease lurks, this medicine is successful in treating or preventing Abortion, Retained Afterbirth, Barrenness, Bunches, Scouring and Milk Fever. Try a treatment on your poorest milkers and note results. Feed dealers and druggists sell KOW-KURE; 60c and $1.20 packages.

Send for free treatise,

"THE HOME COW DOCTOR"

—full of valuable dairy hints and full information on treating all cow diseases.

Dairy Association Company

Lyndonville, Vermont

KOW-KURE

YEAR'S TEST IN VENADERA HERD

Guy H. Miller reports work of two heifers that have recently completed yearly Register of Merit tests in Venadera herd of Jerseys. Both are daughters of the same cow and both started on their yearly tests as three year olds, but they are not twins. The older one, Zama of Venadera, started as a senior three year old, being a few weeks under four. For the year she gave 9,389 pounds of milk with an average test of 5.49 per cent butter fat, making 515 pounds of butter fat. Zama was sired by Owl of Belieview and is his highest tested daughter. This bull was used a season in Venadera herd but now heads the Jersey herd at the university farm at Davis. He has seven daughters in the Register of Merit. Zama made a test of 370 pounds of butter fat as a two year old with first calf. She is a remarkably persistent worker, is due to freshen again in March and will be heard from in further Register of Merit work.

Angela of Venadera, the younger of these half sisters, started her year's work as a junior three year old, being a few weeks over three years of age at time of starting. For the year she gave 7,605 pounds of milk with an average test of 5.63 per cent fat, making 428 pounds of butter fat. Angela was sired by our senior herd sire, Altama Interest, sire of 12 daughters in Register of Merit. Angela made a test of 380 pounds of fat as a two year old with first calf and is also a very persistent worker. Angela is also quite a show animal. Beginning as a calf she has been shown every year and has won first premium six times. She is due to freshen in March and will be started on test again. These two heifers were fed and milked but twice daily while on test and ran with the rest of the herd through fair weather and foul.

The dam of these two heifers is Belle of Venadera, Register of Merit test 460 pounds of fat in a year. She is one of the 14 Register of Merit daughters of Marigold's Exile King. Like her two daughters she was bred and tested in Venadera herd, but she was sold a few years ago to Dr. Hand of Orland as one of the foundation cows for the herd he was then establishing.

Cygna of Venadera, a four year old daughter of Owl of Belieview in Venadera herd, has also recently finished her second Register of Merit test. Starting as a junior four year old she gave 7,457 pounds of milk with an average test of 5.60 per cent, making 417 pounds of butter fat. Her previous Register of Merit test was 267 pounds of fat made starting before two years old. Her dam is Astrea of Venadera Register of Merit test 370 pounds of fat as a senior yearling, one of the Register of Merit daughters of Altama Interest.

WELL KNOWN DAIRY EXPERT ESTABLISHES DAIRY

Noel Negley, widely known for his work in promoting cow testing association work in Wisconsin and more recently in the West, has bought a ranch near Escalon in the South San Joaquin and is now actively engaged in developing it with the intention of placing a dairy on it.

For many years Negley did notable work in pushing cow testing association work in Wisconsin. For a considerable time he did dairy extension work in the South for the United States department of agriculture, and for the past year he has been connected with the Western office of the dairy division of the United States department of agriculture in the capacity of specialist in cow testing association work. He has done much writing for the leading dairy journals.

After Negley in the course of this work had the opportunity of familiarizing himself with the conditions of dairying over large areas of the Central states and also of the South, and after having visited in the past year most of the important dairying districts of the West, he decided that California was the place for him when he got ready to go into the dairying business for himself.

"MAD ITCH" OUTBREAK IN CATTLE

According to Dr. J. P. Jacks, extension veterinarian of the bureau of animal industry, stockmen of Arizona should be on the lookout in their herds for hemorrhagic septicemia, also called "mad itch," and immediately upon its appearance in the neighborhood inoculate all animals with a preventive vaccine which has been developed. This vaccine may be secured through the office of Dr. R. J. Hight, state veterinarian at Phoenix. G. L. Harris of the Salt River Valley has just lost 13 head of cattle from this malady. Both beef and milk animals were affected and the fatter animals seemed most susceptible. The symptoms are intense itching of the animals causing them to scratch against wire fences and sharp sticks to the point of serious injury to themselves. Slobbering of the animals is a symptom attending the disease. It is a disease of the blood and responds to vaccination.

THE BECKMAN SALE OF POLAND CHINAS

Geo. V. Beckman and Sons held their first public sale in Lodi, February 27. The Beckmans are located right in the heart of one of the state's greatest fruit growing centers and are making a strenuous effort to build up the pure bred livestock industry in their community. The offering consisted of about 20 bred sows and gilts and 20 open gilts. Those selling bred brought very satisfactory prices, while the buyers did not take kindly to those selling open. The top of the sale was the yearling sow, Matchless Jane by Matchless Big Bob, their senior herd sire, Langhorst Bros., Lodi, being the purchaser at $300. Hale I. Marsh, Modesto, secured one of the best buys of the season when he secured the March gilt, Marja, for $245. She was sired by Big Square Jumbo, and out of Margaret, being purchased in dam from J. E. Maharry, Illinois, and is one of the best spring gilts to go through a sale this season. Les McCracken, Ripon, secured a good fall yearling in Miss Miami for $215, the remainder of the offering selling for from $80 up and remaining in the vicinity of Lodi. Ord L. Leachman was the auctioneer.

FOURTEEN POUNDS ONE STONE

The letter from England which appeared on page 77 of the issue of January 17 was most interesting to the California reader, and some of the more observing ones have noticed reference to the ox, winner of the first prize at the Smithfield show, which weighed "300 stones (1400 pounds)." This short quotation from Mr. Raine's letter had two errors for which the editorial room will not accept responsibility. This, because of an accident in the press room causing injury to this line of type. In changing "stone" became "stones" and "(14 pounds)" became "(1400 pounds)". Now a 1400 pound stone or a 1400 pound ox, whichever construction may be put upon it, would be rather remarkable. But as it should read, 300 stone (14 pounds), would mean 4200 pounds, or, as Mr. Raine suggested, some ox.

FEED COWS COCONUT MEAL AT UNIVERSITY FARM

It is safe to feed cows one pound of coconut meal for each three or four pounds of milk produced per day, according to results of a period of experimental feeding just completed at the University of California farm, Davis. It is stated that some dairymen find it advantageous to feed as little as one pound for each six pounds of milk for each cow per day.

Coconut meal is one of the best concentrates on the market in California, farm authorities declare, and as a rule is relatively low priced.

BOGUS INSPECTORS AT WORK

Reports have come to the state department of agriculture that in some of the counties of the state the attempt is being made to sell disinfecting preparations to dairymen by sellers representing themselves as dairy inspectors. Dairymen must know that if any man comes to them selling goods that is a sure sign he is not an inspector.

Arrangements are being completed for the annual meeting of the Western Berkshire Congress that will be held at the university farm, Davis, February 18. Following the usual custom, a sale of bred sows and gilts will be held in connection with the congress meeting. The Berkshire breeders have long made their annual sales important events and the high standard set by former sales is expected to be maintained next month.

"FEEDFINE" FEEDS

	are scientifically compounded in proper proportions for dairy and all livestock feeding, of the following ingredients with the most economical results always in view.
YEAST	A concentrate high in PROTEIN and FAT content, sterilized and predigested.
CANE MOLASSES	The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.
ALFALFA MEAL	Gives body to the ration and supplies the mineral matter which is absolutely essential to all animals.
	The greatest known combination for health, strength and productiveness.

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will keep your pigs in condition by acting on the liver, kidneys and blood. Will keep the stomach sweet, expel worms, aid digestion and prevent white scours and thumps.

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If you are interested in this very great breed you will find it worth your while to visit the

Ortega-Underhill-Rancho
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Registered Hampshires

Thos. T. Dinsmore, Manager - Santa Barbara, Cal.

You will find there some of the best blood in the country and a truly great herd in course of construction.

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The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows.

HARVEY'S CHOICE
Grand Champion Boar
at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair

SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

A. E. Harvey, Manager Redlands, Cal.

The Poplars----Hampshire Headquarters

Our reserve grand champion sow Wavelet at the big Los Angeles show is the mother of 8 little Wavelets—a flourishing family. We won 1st on boar and 3 sows bred by exhibitor, also 3 other herd prizes. We were in the money on aged boar, twice on junior yearling boar, and once next the top on junior boar pig. All young stock the get of our great boar, The Harvester Again. Write us your wants.

C. J. Gilbert Lancaster, Cal.

When Writing Advertisers, Mention the Cultivator.

The Poultry Producers Convention

By Jean A. Koethen

FRIDAY, January 30, was the big day of the Poultry Producers' Association of Southern California, the day when poultrymen from the five southern counties met to elect directors and hear reports of officers for the year just closed. The meeting was held in the Poultry Producers' building on Industrial street, Los Angeles, and was attended by every poultryman who could be there, to say nothing of a sprinkling of poultrywomen. They came from San Diego and San Bernardino, from Orange and Riverside. The block in front of the building was lined with all sorts of motor vehicles, from flivver to Cadillac. Professor Dougherty was there, and Farm Adviser Hodgson of Los Angeles County and his assistant A. J. Gordon, most everyhody who is anyhody in poultrydom, in fact. They were a jolly crowd, a good looking crowd, and a notably prosperous looking crowd. Room had heen made hy clearing out the egg cases and lumher in the rear of the second story of the building to seat nearly 300, and every seat was filled. At noon a buffet lunch was was served to everybody on tables made of egg cases and the meal was enjoyed in the farmer's whole-souled fashion. It made one proud to be the owner of even a single hen.

Notable Progress

The year 1919, according to the report of the genial president, J. M. Davison, was one of great progress. While production has been curtailed in most lines of business the poultry producer has gone ahead, and the whole poultry industry is progressing by leaps and bounds. We are just on the eve of a great expansion. If there was ever a time when cooperation and wisdom in handling produce and opening up markets was needed it is right now. The Poultry Producers Association now numbers 475 members. It marketed during 1919 2,696,310 dozens of eggs, with a value of $1,349,245, and 50,660 cases of eggs were packed for storage. Twenty thousand cases of eggs found their way to outside markets; and the need of outside markets grows as production increases.

Owing to the increased cost of labor and supplies the business can no longer be handled for two cents per dozen eggs, and at the last meeting of the directors 2½ cents was authorized.

Good Prices Expected

The manager, Mr. Stanley, was highly commended hy the president for his efficient marketing, and was received with applause when he came forward to make an informal report. Comparison of prices today with those of a year ago, he said, showed that where eggs were selling at 40 cents wholesale a year ago, they were 48 cents on the corresponding day this year. Contracts are now being made for April delivery at 43 and 43½ cents for storage, and prices are not likely to go much lower, certainly not below 37 cents, the lowest market last year. There were more eggs in the warehouses last year than ever before. Many packers lost money, hut the organization through careful management has come out ahead. Shipping of eggs to New York hegan in October and has increased from a car every other week to five cars a week. As a rule prices received in New York are a little better than Los Angeles market. For instance, when the Los Angeles market was 48 cents 53 cents was received in New York; when the Los Angeles quotation was 85 cents, New York was 77 cents. It is necessary, however, that eggs be more carefully graded to meet the requirements of the New York market. Tinted eggs are not wanted and checks and dirties must be kept at home for immediate sale.

Cost of handling has increased tremendously. Where competent men could be secured four years ago at $2.50 per day, no help can now be had under $4 per day, and the cost of lumber and nails goes up by leaps and bounds. The only remedy for this increased cost is a corresponding increase in the number of eggs handled. Fifty per cent more eggs could be handled in the building with very little more help. More members in the association is therefore the logical solution to the problem. The membership has increased from 30 to 40 per cent the past year and will no douht continue to increase since the Poultry Producers has made good its promise to stabilize the industry.

Mr. Stanley emphasized the fact that eggs for storage must not be washed, and promised to let shippers know when washing must be stopped. Washed eggs are satisfactory for the local market hut they do not keep in storage. If eggs must he washed, they should be marked "washed."

Demonstration Meetings

A. J. Gordon of the Los Angeles County farm bureau announced that a series of poultry demonstrations has been arranged, to be held at homes in different districts the first two weeks of February. Professor Dougherty announced that poultry institutes for Southern California will he held in Riverside the last week in May, and in Van Nuys and probahly also in San Diego County the following week.

Poultry Profits

According to figures given by Professor Dougherty, the 12 demonstration farms under the direction of the university are proving that there is a very satisfactory profit in poultry kept under proper conditions. On one farm 975 hens produced a labor income of over $4,000. On another 928 hens hrought in $1,059; on another 718 hens brought in $1,563; in a fourth the income from 969 hens was $2,046, and in another case 957 hens produced a labor income of $2,031. His averages showed that 24 farms with 2,900 hens averaged the egg farmer $1,244 yearly and that the hens on these farms laid an average of 143.7 eggs a year, the highest average for any farm heing 176 and the lowest 113. The sale of fertilizer is included in these reports, the manure from 1,000 hens bringing in from $23 to $28 monthly.

Will Handle Broilers

The organization has now perfected a plan by which it undertakes to handle broilers for its members. The producer receives 75 per cent of the market when the broilers are delivered and the other 25 per cent when they are sold. The profits are divided hetween the National Poultry Company, which handles the hirds, the Poultry Producers and the producer, the first receiving 45 per cent, the second 40 per cent and the producer 15 per cent. The producer is thus assured the market price and prohahly something more.

Directors for 1920

After a lively hour in precinct caucus and another lively discussion in open meeting the following directors were elected: Riverside County, J. M. Davison, Riverside; San Diego County, T. M. Hurley, Oceanside; Orange County, C. A. Walker, Anaheim; San Bernardino County, T. C Browning, Fontana; San Gabriel, F. R. Richardson; Van Nuys, B. R. Holloway; Gardena, M. A. Schofield; Pomona, C. J. Ross; Burbank, L. W Prewett. Representative of the state market director, Austin O. Martin.

CHICK RATION

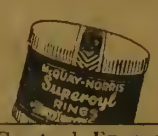
Although the little chicks are removed to the hrooder after 24 hours they are not fed for from 60 to 72 hours after hatch is completed. When the chick leaves the shell its digestive apparatus contains considerable unabsorbed yolk. Until this is digested the chick's delicate little stomach is not ready to receive other food When chicks are first taken to the brooder only a fountain of water is put before them. They will immediately begin picking at the sand on the floor and drinking water. This prepares and hardens the crop for other food. If buttermilk or sour milk is available, fountains of this may be given each morning and kept before the chicks all day, in addition to fountains of fresh water always before them. Where chicks are given all the sour milk they will drink, no meatscrap, etc., need be added to the chick mash. If only a small amount of milk can be fed, the meatscrap in mash may he reduced slightly, depending on amount of milk fed. If chicks drink the milk too eagerly and it physics them too much or causes sour crop, feed the milk in the morning only. Some flocks of chicks may overeat of milk and this should be prevented.

The time tried piston rings

For ten years these rings have stood the test—made good. And time is the severest test of any product. They are tried and true.

Genuine McQuay-Norris LEAK-PROOF Piston Rings, by creating uniform action on the cylinder walls, stop piston ring leakage, increase motor power, decrease carbon and save fuel and oil.

They are made in every size and over-size to fit every make and model of tractor, truck, passenger car or gasoline engine. Your dealer has them or can get proper sizes for you promptly from his jobber's complete stock.



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A special ring for motors that pump oil. Use in top grooves of each piston. In the lower grooves use McQuay-Norris LEAK-PROOF Piston Rings for complete compression—power.

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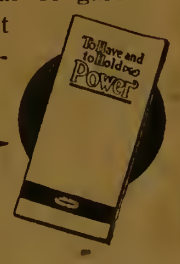

McQuay-Norris Manufacturing Company
St. Louis, U. S. A.

5

In feeding chicks the first two days, a grain mixture composed of equal parts by weight of fine cracked wheat, fine cracked corn and steel cut oats is fed in a wooden hopper and left before them all the time so that they can pick at the grains and thus learn how to eat. They will do a lot of picking at first but really swallow very little. As soon as they have learned how to eat, scatter the grains lightly on the sand for a day to teach them to scratch. Then put in a light litter of cut alfalfa or clover. From the time the litter is put in the chicks should be made to scratch for all their grain. Plenty of exercise keeps the system toned up and is the best preventive for the many ills to which little chicks are subject. Later on coarse cut straw can bo used instead of the cut clover or alfalfa, but for the first four weeks the latter is best, as the chicks will eat the finer parts and it will do them good. Pieces of straw would cause inflammation if taken into the crop at this tender time of the chick's life.

Beginning with the sixth day a dry mash composed of two pounds of bran, two pounds shorts, one pound cornmeal or barleymeal, two pounds beefscrap, one pound powdered bone, and three-tenths pound powdered charcoal is fed at 10 o'clock for one hour. For the next two weeks the litter is kept deep and grain mixture scattered in it early in the morning and about 3 o'clock in the afternoon with a feeding of dry mash at 10 a. m. As the chicks develop the dry mash should gradually be left before them for a longer interval, until by the time they are from eight to ten weeks old they have access to the mash till 2 p. m.

The chicks are gradually changed over from the chick grain to the laying grain mixture after they are five or six weeks old and big enough to begin to eat somewhat coarser grains.

First begin to eliminate the steel cut oats at about five weeks. Just as soon as chicks can handle larger grains substitute whole wheat or hulled barley and coarse cracked corn for fine cracked corn and wheat. At about ten weeks begin to add cracked barley. At five months rolled barley can be given and later whole barley. At six months the pullets should be eating the regular laying grain mixture. The laying mash may be substituted for chick mash at four or five months, and may be left before fowls at all times.

When wheat is hard to procure this division is using cracked, hulled barley in place of the cracked wheat in our chick grain mixture.

If pullets develop too rapidly, discontinue mash and substitute a hopper of dry bran at four to five months, and do not give the laying mash until six months of age. Too early laying is undesirable.

CONTROLLING POULTRY LICE

By J. R. Watson

The louse is one of the most annoying pests of poultry. It is a biting insect which feeds around the bases of the feathers, on scales and other refuse matter from the skin of the chicken, and should not be confused with the blood sucking mite. Unlike the mite, the chicken louse lives on the fowl constantly. It injures the chicken chiefly by irritation as it crawls over the skin. It is particularly injurious to young chickens unable to dust themselves thoroughly, and to the sitting hen which should not be forced to leave the nest for that purpose.

Even if the lousy hen does not desert the nest she is liable to become restless and break the eggs, or spend much of her time standing and chill them. Although more likely to become abundant on the sitting hen, chicken lice often become so annoying on laying hens as to reduce seriously the output of eggs.

Effective Remedies

Pyrethrum or Persian insect powder, an old, much used remedy, loses its effectiveness quickly when exposed to the air and much of it is of poor quality even when freshly bought. Perhaps the best powder to use as a dust is sodium fluoride. Its value for this purpose was first recognized by the bureau of entomology, United States department of agriculture. The powder has been tried by the writer and found effective. It may be used alone on the hen, or may be mixed with flour to lessen the amount required. Although rather expensive, about 50 cents a pound, the amount needed is so little that the cost per hen is small. The substance keeps well in a dry place, and a pound will answer the needs of a small flock for many months. Any surplus may be dusted into the corners of the pantry or cupboard to kill roaches and ants.

Sodium fluoride is most economically applied to fowls by the pinch method; that is, a pinch of the powder is dusted on the head, one under each wing, one on each thigh, one around the vent, one around the breast, and two on the back.

SEVERAL KINDS OF LICE AFFECT CHICKENS

Of the several kinds of lice that commonly attack chickens, one crawls over the skin, especially under the wings and on the posterior part of the body, but seldom gets onto the feathers. Another is particularly a feather mite and is somewhat smaller than the body louse. Another common louse that is particularly injurious to young chickens attacks the head and is called the head louse. It is best controlled perhaps by greasing the head liberally with lard.

Chicken mites, which are sucking parasites, may be killed by a liberal use of flowers of sulphur on the fowls and about the house. Stick-tight fleas also sucking pests, may be killed by a liberal application of one part of carbolic acid in five parts of vaseline.

The Pride of Petaluma

KRESKY'S 1920 VENTILATING brooder stove forces proper ventilation in spite of the operator and sweeps the room with FRESH AIR. PETALUMA'S latest sensation and result getter. TRY it. Keep it if you like it, or send it back if you do not.

Catalogue No. 3, free for asking.

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For Poultry, Pigeons, Dogs, Cats, Rabbits, Parrots, Canary and other birds or pet animals. Germozone is a universal and safe remedy; for colds, snuffles, roup, sore throat, loss of voice or singing, influenza, bowel trouble, distemper, sore eyes or ears, canker, gleet, loss of or feathers, sores, wounds, skin disease,—or other affections of skin or mucous membrane.

"My hens have never done so well as this year and haven't lost a single chick"—Mrs. Flora Kapple, Walker, Ia. "Simply grand for rabbits"—L. W. Browning, Boone, Ia. "Cannot praise Germozone enough. I use it for chickens, stock and household"—Mrs. Wm. Hoeppel, Hugo, Okla. "My bird pupples don't know what distemper is and I never had such good success before with chicks"—Curly Smith, Kennett, Mo.

Germozone is sold by most drug, seed and poultry supply dealers, or mailed postpaid in 25c, 75c and $1.50 packages from Omaha. Book on treatment of diseases free with each package.

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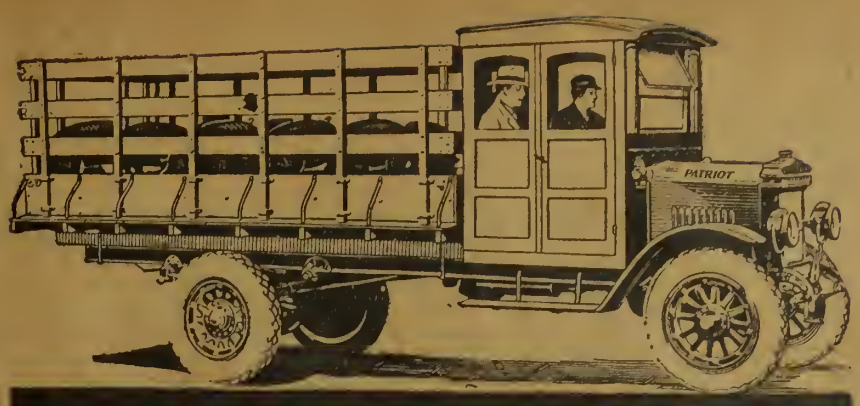

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In Washington, at the Walla Walla Farm Power Show, Patriot Trucks were the only rear-driven trucks that went over the hills in the plowed ground under capacity loads. Their performance was the talk of the Northwest and has resulted in the sale of hundreds of Patriot Trucks.

In California, the first load of wheat hauled to market in 1919 was hauled on a Washington Model Patriot Truck, hauling eight loads a day four miles and carrying 4½ tons of wheat each trip. The performance of that truck, handling almost 100% overload, made a great many friends for it in that community.

In Texas, Patriot Trucks are making a wonderful reputation for all-purpose hauling under all conditions—in the oil-fields of North Texas, the lumber districts of Eastern Texas, and the live stock and farm sections of West Texas.

In Kansas, a fleet of Patriot Trucks, heavily loaded, made a run of 350 miles last summer, through territory where there had been much rain for several weeks, some of the roads having practically no bottom—over 200 miles made in the rain—the entire trip of 350 miles being made in two days, each truck going through on its own power.

In Nebraska, Patriot Trucks were picked by the Standard Oil Co. for its roughest country work—where other trucks had fallen down.

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(24) **HEBB MOTORS CO.**
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Revere Model	Lincoln Model	Washington Model
1500 to 2500 lbs.	3000 to 5000 lbs.	5000 to 7500 lbs.

The Reliable Blue Flame Wickless Oil Heated Hover

This Hover Represents Our 30-Inch 42-Inch and 52-Inch Sizes.

THE MODERN HOVER

This hover has the same chick capacity as the coal burning brooder. They are made in four sizes, 18 inch, 30 inch, 42 inch and 52 inch hover. A few of the special points on this oil heated hover are as follows:

Burns Coal Oil
Steady Blue Flame
Comfortable and Easy to Operate
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Hillview Barred Plymouth Rocks---The Birds of Quality

These birds are the famous Aristocrat strain, Fort Wayne, Indiana. They are bred for heavy laying and exhibition quality.
Every entry won in the late shows: Los Angeles P. B. Assn., and San Diego Exhibitors Club.

Our birds are fed no stimulants or patent mashes to increase egg production. They are fed to produce strong vigorous chicks.

Eggs for Hatching ....$ 5.00 per setting 15 eggs
Special Mating .....$10.00 per setting 15 eggs

State whether you prefer the light or dark matings

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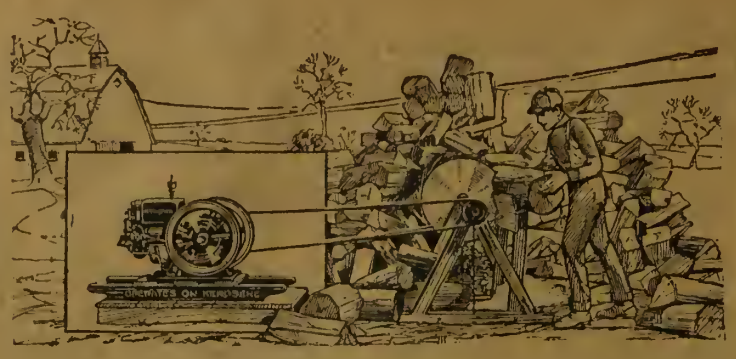

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NO longer is there any question about farm engine value. Long ago engine power made a secure place for itself on the good farmer's farm. Made itself the indispensable worker at a dozen or a score of small jobs we need not name here. You know them too well. They are a part of the routine of your life.

Nor need there be any question as to *which* engine power will serve you best for the longest time.

Tens of thousands of power users will tell you if they have the opportunity that the best answer is "International Kerosene Engine!" On the day you read these lines many new Internationals will start work for new owners. These engine investments are made on the strength of rugged Harvester reputation, kerosene economy, quality of materials and construction. And you will have the sureness of International service at your service whenever you may call for it.

The figures at the top are the sizes in which International engines are made. One or another of them will serve you. See the International dealer.

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CAN BE QUICKLY INSTALLED

These Turbine Centrifugal Pumps can be installed in wells of 10 inches diameter or larger. No foul, dangerous pit is required. All adjustments are made above the surface of the ground. There are no bearings to overheat and no packing glands to pack. Write for folder No. 30.

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The "MARTIN" is the easy way

It does the work of many men; it does a better job in far less time. It is a simple, all-steel, reversible and adjustable implement, built to last a lifetime. Works in any soil, wet or dry, hard or soft, on hillside or level. Has many other uses other than ditch-making and cleaning.

Horse and Tractor Sizes Catalog, with full particulars, sent free. It contains a wealth of information on better ways to ditch. Address

OWENSBORO DITCHER & GRADER CO., Inc.
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MIGRATORY BEEKEEPING

ONE of the features of the short course in commercial beekeeping, held at Davis, Fresno, Riverside and San Diego, was the talk by J. D. Bixby of Covina, which of course, was repeated at each point at which the meetings were held. Mr. Bixby has had much experience along this line, and his talk sums up the various lines of successful endeavor. "The development of our great system of paved roads, and of the auto-truck, has revolutionized beekeeping in this state and made possible many things undreamed of a decade ago," said this speaker, as reported by the Western Honey Bee.

"Today it is possible to take advantage of three or four honey flows in a season, even with an apiary running into hundreds of colonies. One may start with eucalyptus and willow in January and February, build the bees up to full strength and secure a small surplus yield, then move to the orange in March. By June 1 he is located in the purple or white sage belt, his early honey marketed, and the bees will be ready to move to the beans July 1 where the flow may continue lightly to September 1.

"Or one may have an apiary in the citrus belt, raise queens and divide each colony twice or thrice, taking a considerable crop of orange honey meanwhile, then move to the alfalfa and sweet clover ranges of Idaho and Utah just in time to catch their opening flow and make a full crop of honey.

"Many of our most successful beekeepers think it as important to move within reach of an abundant spring pollen as to follow the honey flow. Pollen makes young bees—honey does not, and the colony with few bees cannot store much surplus, no matter how plentiful the nectar. Especially must this factor be considered in dry winters. When we have early rains, filaree, bur clover and other 'grass flowers' come on early and furnish the necessary pollen, but after dry winters they are usually so late that they are of much less value. In the citrus sections, particularly, we are always short of pollen until the live oaks and wild walnuts bloom, usually at the opening of the orange flow.

"The season has much to do with success in migratory beekeeping. When early fall rains occur the black sage which furnishes the main crop is likely to be very early and be in blossom even earlier than the orange, or at least occur simultaneously. In such case moving from the sage to the orange is of doubtful expediency, while the reverse plan is useless unless one has the purple or white sage to rely on. In moving from the orange to the sage or from sage to beans, every effort must be made to save time, owing to this overlapping of the seasons. Screens and cleats must be ready, trucks and help engaged and all arrangements for locations made in advance.

"All experience seems to agree that in long moves by rail it is better to get rid of the old worker bees. They fret themselves to death, anyway, and the increased excitement caused by their worrying operates against the safety of the balance of the colony. A short move before closing up for shipment, or the division of the colonies, accomplished this result. Colonies are usually divided into four or five frame nuclei before long moves, anyway, the queenless ones to be requeened after arrival or divided again, depending on the season at the destination.

"It is quite possible to have colonies too strong for safe moving. In such cases they should be divided by setting one or two supers full of bees on a new bottom board, treating them as a separate colony and reuniting at the end of the trip. I knew one young beekeeper who destroyed 20 of his best colonies by neglecting this precaution; these colonies were so populous that three hive bodies would not safely accommodate the bees.

"One point to be guarded against is the tendency to abscond after the disturbance of a long journey. As many as ten per cent of your colonies may be so affected. The yard should be watched closely for a week or ten days after arrival and swarms thus leaving the hive be returned, placing an empty super below the broodnest. They may be hived, when discovered clustered, in the same manner, placing a frame of brood, all sealed, no eggs or larvae, in the upper story as bait."

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Household Department

THE FIRST AMERICAN

Such was he, our martyr chief,
Whom late the nation he had led,
With ashes on her head,
Wept with the passion of an angry grief:
Forgive me, if from present things I turn
To speak what in my heart will beat and burn,
And hang my wreath on his world honored urn.
Nature, they say, doth dote,
And cannot make a man
Save on some wornout plan,
Repeating us by rote:
For him her old world moulds aside she threw,
And, choosing sweet clay from the the breast
Of the unexhausted West,
With stuff untainted shaped a hero new,
Wise, steadfast in the strength of God, and true.
How beautiful to see
Once more a shepherd of mankind indeed,
Who loved his charge, but never loved to lead;
One whose meek flock the people joyed to be,
Not lured by any cheat of birth,
But his his clear-grained human worth,
And brave old wisdom of sincerity!
They knew that outward grace is dust;
They could not choose but trust
In that sure-footed mind's unfaltering skill,
And supple-tempered will
That bent like perfect steel to spring and thrust.
His was no lonely mountain-peak of mind,
Thrusting to thin air o'er our cloudy bars,
A sea-mark now, now lost in vapor's blind.
Broad prairie rather, genial, level-lined,
Fruitful and friendly for all human kind,
Yet also nigh to heaven and loved of loftiest stars.
Nothing of Europe here,
Or, then, of Europe fronting mornward still,
Ere any names of serf and peer
Could nature's equal scheme deface
And thwart her genial will;
Here was a type of the true elder race,
And one of Plutarch's men talked with us face to face.
I praise him not; it were too late;
And some innative weaknes there must be
In him who condescends to victory
Such as the present gives, and cannot wait,
Safe in himself as in a fate.
So always firmly he:
He knew to bide his time,
And can his fame abide,
Still patient in his simple faith sublime,
Till the wise years decide.
Great captains, with their guns and drums,
Disturb our judgment for the hour,
But at last silence comes;
These all are gone, and, standing like a tower,
Our children shall behold his fame,
The kindly-earnest, brave, foreseeing man,
Sagacious, patient, dreading praise, not blame,
New birth of our new soil, the first American.

—James Russell Lowell.

ABE LINKUM'S BIRFDAY

ABRAHAM LINCOLN LEE was the only grandchild of his white headed, golden hearted, black faced grandmother, and lived in the city of Albany where there were thousands of white children and only a very few black ones.

His grandmother did fine washing and ironing, and Abe Linkum ran errands for her and took the dainty clothes home when she was through with them. He was a very useful little black boy and loved his granny very much.

"But I don' like dis yere town, granny," he said to her one day. "Hit's so lonesome whar dey ain't no yether little black chillun 'sides me."

"Nev' min' honey," she said, "if we all ever does fin' Lil' Missy ev'thing's gwine'r be alright. You run along now an' take dese yere clo's home fer granny."

Abe Linkum took the neat package of laundry and started to find the address his grandmother gave him. These directions led him to a pretty little two story house set back from the street in a friendly garden. He went to the side door, where granny had told him parcels must be delivered, and when he knocked a very pleasant and very pretty young lady opened the door and took his package. Then while he waited for his pay she did a very queer thing. She began talking into the wall by the door where he stood. He didn't see anyone around, so of course he knew she must be talking to him.

That was why he said to her, "Thank you, lady, an' I'll be shore to come and bring my granny."

She looked at him as if she didn't quite understand what he meant but of course he knew she did, for this is what she had said, "Yes, tomorrow is Abraham Lincoln's birthday and we have a half holiday—we are going to have a program in the morning and holiday in the afternoon, so please bring your grandmother and come over and help us celebrate."

Abe Linkum didn't know just what a "program" was but, "Hit mought be some kin'r new cake," he said to himself, and anyhow he surely knew that his name was Abe Linkum and that tomorrow was his birthday.

What he didn't know was that the pretty young lady was a teacher talking over the telephone to a friend, and inviting her to come and bring her grandmother to spend the holiday afternoon. And of course she was saying that they were going to celebrate Abraham Lincoln's birthday, at school, but poor little black Abe Linkum didn't know that. He was very young and he didn't know anything about the great man whose name he bore — he was named for his own father and he didn't know anything about his name back of that.

And that was why the next afternoon they came to the side door of the pretty home in the friendly garden and knocked — he and his kind old grandmother, dressed in their best and smiling all over their good black faces.

The truly invited friend and her grandmother were there, too, and when Abe Linkum's grandmother saw the friend's grandmother she forgot her manners and opened out her kind old arms as wide as she could to spread them around the slim shoulders of the other grandmother.

"Lawd bless my soul! Lil' Missy," she said, laughing and crying at the same time, "an' glory be ter His name, I'se done foun' you an' now we all can depart in peace! I knowed long ago you'd moved to dis yere town but I ain' knowed yer married name an' I ain' knowed jes how I'se gwine's fin' you, but I'se sho' prayed fer de comin' er dis day fer I'se got ter tell yer dat ole Marse William Churchill's will done be'n foun' an' when we all goes back to Virginny—you an' me an' Lil' Honey dar, an' Lil' ole Abe Linkum here, we all's gwine'r be de richest folks in de state. But what I wants ter know, Lil' Missy, is how come you all fer to know dat dis yere was dat chile's birfday."

Then the pretty young lady remembered it all, and understood and explained and then they all laughed and laughed, except Abe Linkum Lee, who had his mouth too full of "some kin'r new cake." — By Francis McKinnon Morton.

TO HELP BEAT H. C. L.

By Mrs. E. V.

Having noticed the call in your paper to help beat the H. C. L., I will give you a few items concerning economy that I have learned as a mother and household manager, hoping they will help someone else.

Now when materials are so expensive we need to take the best of care of clothes on hand by seeing that all spots are removed from woolen and silk garments. A very reliable method is to use turpentine. Saturate a clean cloth and apply it to all tar or grease spots and it will remove them when gasoline fails to do so. It will also remove chewing gum. If the garment is not otherwise clean, dip it in a basin of gasoline, and it will come out clean as new. To take the place of apron gingham, also underclothes in warm weather, you can buy sugar sacks at the grocery and large flour sacks at the city bakery for a small sum, and after taking out the lettering and washing clean you can color those you wish to use for aprons, and I believe you will be pleased with them for such a small outlay. Also old cotton dress skirts, shortened for underskirts, wear a long time and thus save new ones.

Then let us remember the "stitch in time" by mending hosiery and sometimes cutting new feet for the ever present supply of good legs. These feet should be made of good

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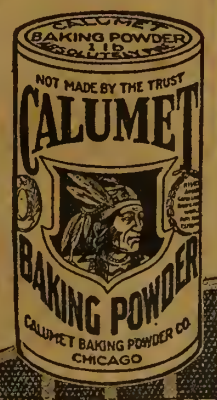

BEST BY TEST

The Cultivator Patterns

CATALOGUE NOTICE

Send 10 cents in silver or stamps for our up to date Spring and Summer, 1920, CATALOGUE, containing 550 designs of Ladies', Misses' and Children's Patterns, a CONCISE AND COMPREHENSIVE ARTICLE ON DRESSMAKING, ALSO SOME POINTS FOR THE NEEDLE (illustrating 30 of the various, simple stitches) all valuable hints to the home dressmaker.

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3077-3078. A Pleasing Costume. Waist 3077 cut in eight sizes: 34, 36, 38, 40, 42, 44, 46 and 48 inches bust measure. Skirt 3078 cut in seven sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. For a medium size, 5¾ yards of 44 inch material will be required for the entire costume. The width of skirt at lower edge is about 1⅞ yard. Two separate patterns 10 cents for each pattern.

3081. Girls' Dress. Cut in 4 sizes: 8, 10, 12 and 14 years. Size 12 requires 3¾ yards of 44 inch material. Price, 10 cents.

3072. Ladies' Apron. Cut in 4 sizes: Small, Medium, Large and Extra Large. Size Medium requires 3½ yards of 36 inch material. Price, 10 cents.

3066. Childs' Rompers. Cut in 4 sizes: 2, 3, 4 and 5 years. Size 4 requires 2¾ yards of 36 inch material. Price, 10 cents.

3070. Ladies' Dress. Cut in 7 sizes: 34, 36, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6 yards of 44 inch material. The width of dress at lower edge is 1¾ yard. Price, 10 cents.

2706. Girls' Dress. Cut in 3 sizes: 12, 14 and 16 years. Size 14 will require 4½ yards of 36-inch material. Price, 10 cents.

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3075. Childs' Dress. Cut in 5 sizes: 1, 2, 3, 4 and 5 years. Size 4 requires 2⅜ yards of 36 inch material. Price, 10 cents.

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest Chicago styles, all pattern orders are filled in Chicago. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

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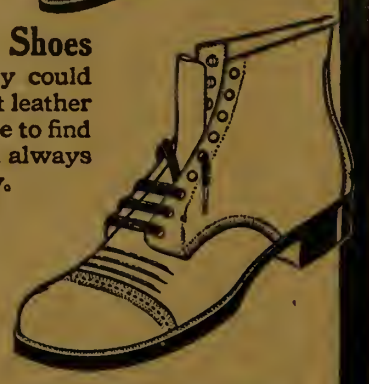

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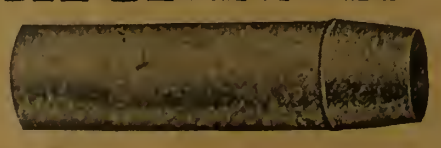

durable cloth. Some of your friends possibly have a good pattern.

In such ways we can save the price of some much needed new garment, and good material is always cheapest in the end. Yours for economy.

CUTTING SOME OF THE CORNERS

By A. E. W., Redondo

Here is the way I cut some of the corners in dressmaking.

I had a black and white crepe house dress, too short and too narrow for the prevailing season, so I took an old black skirt that had seen its best and second best days, and found enough good in it to lengthen the sleeves and skirt of the crepe, put in a black panel front, collar and belt, making a better looking dress than it was when new.

I also had a black satin skirt, worn out just above the knees in front. I did not know what to do, so I went to the scrap bag and found some strips of satin. Of this I made folds and put on two fashionable pockets and made the skirt good for some time.

Then I wanted a blouse like 3089, so I went to the grocery store and bought a sugar sack for 15 cents. I dyed it lavender and embroidered it in the fashionable heavy embroidery, and there was another dress.

Then I got a remnant of gingham—blue, tan and white—but not enough to make a dress without getting more for a band around the bottom and collar and cuffs and belt. I thought perhaps I could find another remnant, but could not, so I took an old blue dress that was quite worn and too faded to use. On the wrong side it just matched the blue in the new gingham. So I ripped it up and turned it wrong side out and used it, and with some large pearl buttons I had before the WAR I made quite a pretty new dress.

INEXPENSIVE HOUSE DRESSES

By Mrs. L. P. Miller, Brawley.

When gingham, calico and percale soared so high in price, I was puzzled to know how I could beat the H. C. of L. in the clothing sector until the thought came to me that I could use flour sacks and Diamond dye and have pretty dark inexpensive house dresses and aprons yet.

I buy 100 pound flour sacks at the bakery for 15 cents each, dust the flour from them well, cut and make them into dresses, smocks, middies and aprons before they are laundered. Then on wash day the garment goes in with the week's wash and after drying in the sun the print will most always have disappeared.

Then I buy a package of Diamond dye for each garment to be colored, of the color I like, and dye it in the wash boiler on the oil stove, some morning while I do the dishes, and it's so easy if one follows directions carefully. I wish you could see my pretty lavender dress I am wearing now, with belt and sailor collar. It is made from four sacks. It's pretty and I am proud of it. Middies and aprons are worn white and when bleached look like linen. One sack makes a good kitchen apron with band; three sacks make two large bib aprons, and they are so easily laundered. Try this plan. I'm sure you will like it.

WARDROBE NOTES

By Martha

Any girl can dress well on a small income if she has learned to be neat and careful with her clothes. Neglected clothing is never attractive, no matter how expensive the material or how stylish the make.

The best way to care for separate waists is to hang them over the back of a chair until thoroughly aired, then place over a coat hanger and hang up in the closet. They keep their shape and freshness much longer when cared for in this way than when folded and laid away in a drawer. Veils, ribbons and laces can be kept smooth and fresh looking by smoothing out after each wearing and winding over a roller. Kid gloves should be blown up by the breath immediately after stripping from the hand, then filled with a light shake of glove powder and laid away without folding, and not palm to palm, but separately between folds of tissue paper.

To polish fine shoes, kid gloves and leather hand bags, the white of an egg mixed with good black ink and applied with a soft cloth is excellent.

White laces and white silk shawls may be cleaned by sprinkling thoroughly with an equal mixture of borax and flour, rolling them closely in a white cloth and allowing them to remain a few days. To clean white angora hoods and furs, put them in a small flour sack and sprinkle plenty of this mixture over them, then squeeze between the hands and rub lightly between the hands, shake and brush until all powder is removed. To clean ostrich feathers add a cup of cornmeal to the mixture, put feathers into a paper bag, cover with this and shake until the soil has disappeared.

To give dainty laces, fine white waists and sheer white collars just the right degree of stiffness, wash as usual but do not starch. When dry, dissolve one tablespoon of borax in one quart of warm water. Dip the pieces in this, wring out and fold in a towel for a few hours, then iron dry. They will not get mussed nearly as much as when starch is used and they are much easier to iron. To whiten goods that has turned yellow, soak in sour buttermilk for two or three days, then wash as usual and dry in the sunshine.

GOOD APRONS

By Mrs. R. A. Odell, Tulare

I found a way to beat H. C. of L. and cut the corners in aprons. As ginghams are so expensive, I looked about to cut the expense. Well, I found it in grain sacks. I took two of them. Those made by machine rip easily. I took up darts at the waist, sewed on a large hook and eye, put an inch wide hem at the sides and bottoms, added a large patch pocket for gloves, etc. I had two aprons now. One I hooked at the back and the other in front. They completely cover my skirt, and if it is raining keep it dry. They are fine to wear in the garden also. They save much washing and ironing, also wear on gingham aprons. One can leave them at the kitchen door and go into the house clean. No extra cost, only a little time and thread.

Hoping this will help some other chicken woman as much as it has me I am—A Subscriber.

USE FOR WORNOUT SHIRTS

Mrs. Paul Waddell, Sacramento

I have been taking the Cultivator for a year and on reading it this evening I see where you offer to send it a year to every one sending in a suggestion. I would like to say that clothes are so expensive that I find good use for my husband's and son's wornout shirts. I make children's aprons and skirts, also small aprons for myself out of the front and back, as they are most always good. Then I tear the sleeves in strips and sew together for a carpet. I have a very nice carpet I made that way It will surprise you to see how soon you get enough for a carpet, besides other things to wear, from old shirts.

I like your paper very much and look for its coming every week, as it has so many helpful things to do about the house.

USING SACKS

The expense of muslins for underwear for both children and adults may be greatly reduced if you will buy the egg food sacks from poultrymen. Wash and bleach them and you have a yard of muslin for less than one-third what the same material would cost in stores. The material is heavy and wears well. It may also be dyed and used for children's rompers. The large flour sacks, which you may purchase reasonably at any baker's, may also be used advantageously for children's underwear or may be dyed a pale blue or pink and used for comforter linings.—Subscriber, Escondido Valley.

SUBSTANTIAL DRESSES

For house dresses there is nothing quite equal to Danish cloth. It lasts as long as three ordinary dresses, launders equal to the best of wash materials, never fades, requires no starch, so the ironing is negligible. With a very generous supply of white collars, made from any white material, one always looks neat and presentable.—Cultivator Reader.

CUTTING H. C. OF L.

By Mrs. F. I.

Cutting the H. C. of L. is one of our chief sports these days. In the matter of clothes the place to begin is with the pattern. Consider the kind of garment first. Suppose it is a house dress. There is a good pattern that is cut to fall straight from the shoulders with set in sleeves (and the sleeves are very important for comfort and looks). Do not use kimono sleeves, as they make the garment "creep up." A plain straight belt which buttons or snaps in front may be used, but just now sashes are popular for house dresses. The sash should be fastened at the front and tied in a bow at the back. Collar, cuffs and sash may be edged with rickrack.

By careful selection of material and merely changing shape of the collar and pockets, all the house dresses may be made from the same pattern, and it can also be used to cut nightgowns.

As to material, why pay 40 cents a yard for percale of doubtful wearing quality when you can get devonshire that will wear two or three times as long for 50 or 60 cents? It takes only three and one-half yards for this house dress in the medium size. By fastening the sash just below the bust line you have a comfortable and attractive dress for maternity wear.

Underwear, if made at home, should always be of good material. It does not pay to put in your time sewing cloth that will not hold together. Never buy long cloth or nainsook in less than ten yard lengths. There is so much advantage in cutting a number of garments from a large piece. Such goods never go out of style. Watch the January and June white sales for bargains in these. If you buy your underwear ready made, lay in a supply during these same white sales. You can figure out about how many gowns and petticoats, etc., you will need for six months.

Shoes and stockings are my worst problem. I can make everything else that I wear except corsets, and those I often get at a sale—discontinued models. I buy a corset because it suits my figure and my purse and not because it is the newest thing out. Good lisle stockings are far better than poor silk ones. Shoes that fit and wear well are not cheap, but the other kind are more expensive in the long run. Have more than one pair at a time if you possibly can and never do housework in your dress shoes. It will ruin them as quickly as it would your best dress. Often a pair of shoes that have apparently gone to seed may be freshened and given another start by having the heels built up and giving them a "professional shine"; don't just black them. And last, but not least, wear rubbers when you need them, for the sake of your shoes if not for your health. Keep shoe trees in them when they are not on your feet.

And now for street clothes. Is it necessary to warn the woman of limited means to avoid extreme styles as she would a plague? I am wearing a five year old hat which has not been out of style since I got it. It was hand made to begin with and of excellent material, and black. I have changed the trimming each season. It has never had but one piece of trimming at a time. Of course I am tired of it and hope there will not have to be a sixth year for it. Look until you find the shape that suits your face and your general style and then wear it even if it is small when everyone else is wearing them large.

As a general rule coat and dresses are more serviceable for the woman at home than is the suit and blouse. A good coat, if carefully chosen, will last at least three years, and dresses may be made at home. A suit is extremely hard to make at home and goes out of style much sooner than a coat.

It is a wise woman who doesn't get stung in a "cheap" store. Do not be afraid of the fine big stores. They carry no shoddy merchandise. You will be more sure of getting your money's worth at any time, and when they do have a sale you can expect real bargains!

Also, it pays to shop around. And use your ingenuity. The prettiest bedroom curtains I ever had were made of unbleached muslin (at 25 cents a yard), with blue birds worked in cross stitch here and there—not more than three or four on each curtain. I can boil them and they never fade. Did you ever see a cretonne that could be treated like that?

"CUTTING CORNERS"

By Mrs. J. O. Heletman, Willows

Dark voiles or lawns, self trimmed, are practical as well as simple and pretty for summer dresses. In buying select shades that blend well together so that the same hat, gloves, petticoat can be worn with all your gowns.

Gertrude slips for grown ups as well as chidren look well under all dresses. Make of plain colored ginghams or chambray or crepe and save laundry. To make: Baste hem on right side of skirt; cut in scallops; baste and sew scallops by machine; turn over and sew hem in place on wrong side of skirt. This finish saves trimming and looks well and outwears the slip.

In buying for children select good materials. Small plaids, checks or stripes in two or three tones are most practical. Buy several dresses off one piece of material—one can vary the dresses in style and trimming. I have bloomers to match. A wash hat of the same adds distinction to a simple garment.

Blue or brown denim makes good kitchen aprons and wears well. One or one and one-fourth yards of material cut with bib and apron in one, loop of tape around neck to hold bib in place and tape for strings.

I buy small remnants of cloth and make my small boy the little rabbit pants. They can be worn with white or colored waists or outgrown rompers.

TWO GOOD SALAD DRESSINGS

By Irma M. Landon, Watsonville

I am interested in your household department and always read that part of the paper first. The recipes and suggestions are very helpful. I am sending you a couple of recipes for salad and salad dressing.

"Dream" Fruit Salad

Twenty-four marshmallows, one can pineapple, two juicy apples, six oranges, lettuce leaves.

Dressing—One tablespoon Crisco, pinch salt, two tablespoons sugar, two tablespoons vinegar, two eggs, one-half pint whipped cream.

Directions—Cut the fruit and marshmallows into small pieces, then mix and chill.

For dressing, beat up the eggs in a double boiler, add vinegar, sugar, salt, Crisco, and cook until thick. Cool and add the whipped cream. Mix with the fruit and serve on a crisp lettuce leaf. This dressing is delicious, too, with bananas and apples.

A "last minute" salad dressing: Three tablespoons sugar, little mustard, pinch of salt, vinegar to taste. This dressing is good served on any kind of fruit.

IT STUCK TO THE ERASER

The teacher had written 92.7 on the blackboard, and to show the effect of multiplying by ten rubbed out the decimal point. She then turned to the class and said:

"Now, Mary, where is the decimal point?"

"On the duster, miss," Mary replied without hesitation.—Edinburgh Scotsman.

ADMIRATION

"Did you grasp the significance of that lecturer's remarks?"

"Not altogether."

"Then why did you applaud so much?"

"Well, I admire brains and I thought that man must be awful smart to understand what he was talking about."

TOO RISKY

"How would you like to live always on a farm and do chores and milk the cows, and everything?" mother asked little Emily.

"Oh, wonderful," was the quick response, "but I'm quite sure I could never get enough courage to sit under a bossy and milk, they have so many legs and their tails are so restless."—Hoard's Dairyman.

Such things as come to the man who waits are seldom the things he has been waiting for.—Implement Record.

A Good Piano Is an Investment Not an Expense

When a person buys a Piano that person is making an investment that carries a higher earning rate than for any other single thing that could be bought for the home. Good music rests the brain, helps the body to relax, melts away the memory of annoyances that arose during the day, tunes up the spirit and makes one more fit to do bigger and better things. It provides hundreds of little mental vacations during the year—and we all admit that vacations are good investments.

Many a good idea has clicked in the mind of successful people, as they listened to the inspiring music of the Piano—these ideas often have been turned into cash.

When company calls and conversation lags the Piano has proved a ready source of entertainment—it is paying back a part of the purchase price.

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We invite you to call at any of our stores—or write us asking for illustrated catalogs and prices.

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Your grocer pays your money back if you'd rather have it than Schilling Tea. We pay him.

Perhaps you didn't get the right flavor of Schilling Tea. Get your money back and try again. Do this until you have found the kind you like best. There are four kinds of Schilling Tea.

Now please do this. We mean it—and so does your grocer.

There are four flavors of Schilling Tea—Japan, Ceylon - India, Oolong, English Breakfast. All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

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The Return of Agricultural Gypsum

By U. S. Eaton, University of Chicago

IN science, especially agricultural science, our line of progress seems often to be an advancing spiral. The present revival of the use of gypsum as a fertilizer illustrates the point. There is no more interesting story in applied science than the discovery, early use, decline and now the revival of the use of gypsum as a fertilizer. Let us sketch some of the main points of this story.

Gypsum is a ground natural rock fertilizer composed mainly of calcium sulphate. It therefore contains two of the ten essential elements for plant nutrition—calcium and sulphur. Its value in promoting plant growth was independently discovered in France and Germany, in Germany in the year 1768 and somewhat earlier in France. In France some workmen in alabaster (gypsum) noticed that where they dusted their clothes the grasses (clovers) showed very much greater growth. They rightly attributed this to the gypsum. A monk gave it a practical trial. Its use spread over France and Germany. It was introduced into this country from France, Benjamin Franklin being one of the first to introduce it.

The farmers of this early period included some of the most prominent and able men of the time and in testing out gypsum as a fertilizer they carried on experiments that should be regarded by agriculturists today as legitimate fertility experiments. There are two prominent figures in these early investigations, John Binns and Judge Peters. Peters emphasized the use of gypsum in connection with green or stable manure. Using it in this way he succeeded in bringing worn out land to a high state of fertility. Red clover was especially benefited though it was beneficial also to flax, hemp, rape and other farm crops. Binn's account of the use of gypsum in London County reads almost like a fairy tale. He speaks of the doubling of the corn yield and the increase in the wheat yield three to four fold. The number and size of the stack was greatly increased. Threshing was delayed due to the increased yields and the grannaries and mills of the county were glutted. From what we know now in regard to how sulphur acts as a fertilizer it is probable that this increased yield in the non-legumes was due to greater growth of the legumes of the rotation.

From this country the use of gypsum was introduced into England. Here too it was used with success. Smithe in 1808 reported the following increased yields: Sainfoin 45 per cent, cow grass, 14 per cent, Dutch clover, 33 per cent, red clover 237 per cent. The value of the seed was increased 330 per cent, red clover 237 per cent. per cent for red clover. The cereals were not benefited. Like results by other investigators have been reporteded.

The use of gypsum as a fertilizer gradually declined. Perhaps the main reason for this was the invention of acid phosphate by Lawes in 1842 and the subsequent introduction and wide advertising of complete soluble fertilizers. But a thing that prolonged this period of decline and that gave general credence to the belief, which many of the later investigators held, that gypsum acted merely as a stimulant, was a misconception of the sulphur requirements of plants. This was due to the method of sulphur determination in use during this period. The sulphur was determined in the ash and we now know that during the ashing a large per cent of the sulphur is lost.

New extract methods of analysis have shown that crops contain much more sulphur than was at first supposed. In fact the average farm crops contain almost as much sulphur as phosphorus, and aside from nitrogen, phosphorus has been considered the main limiting factor to crop production. Most cultivated soils contain less sulphur than phosphorus, in some soils must less, as in certain Oregon soils where the ratio is 4:1. Add to this the facts that soils lose much more sulphur than phosphorus through drainage and that they lose much more sulphur in this way than is brought down by the rain and we begin to realize that the sulphur problem may be quite as serious as the phosphorus problem.

It is this realization that is causing a remarkable revival of fertilization by gypsum and other forms of sulphur.

For Market Reports
See Pages 214 and 215

Up to date perhaps there has been more work done on the analysis of crops and soils for sulphur than on sulphur fertility experiments. But there have been a number of experiments on the use of sulphur as a fertilizer. The most significant results have been obtained in Oregon and Washington. Here they are getting increased tonnage yields of legumes (clover, alfalfa, vetch) amounting to 25 to 1,000 per cent. They get these increases too with various forms of sulphur (iron sulphate, gypsum, flowers of sulphur and acid phosphate) but the use of gypsum as a top dressing is emphasized for alfalfa especially. The per cent of protein in the crop is also increased. With such an increase in the tonnage yields of the naturally protein rich legumes and also a further increase in the percentage protein content of the crop our gain in protein and nitrogen is almost incredible. And these are the most expensive animal and plant foods respectively. We are getting this gain too at a small cost, for gypsum is a cheap fertilizer.

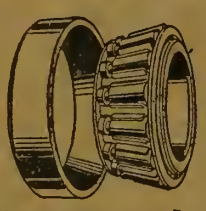
We have stated that gypsum is a natural rock fertilizer. We are fast returning to a raw rock system of fertility. Before 1850 the raw rock fertilizers, gypsum and marls, were, aside from manures, the most common fertilizers. The chief fault in this system was probably the lack of phosphorus. Today raw rock phosphates and lime are coming to be used quite commonly. But this system bids fair to fall because of lack of another plant food—sulphur. With the return of gypsum, however, we can supply this element. A logical system of soil fertility now is raw rock phosphate, gypsum, lime and potassium where needed, and the supplying of nitrogen by the growth of legumes.

Raw rock fertilizers are cheap per unit of plant food. They are slightly soluble, but by applying them in large quantities we can be sure of always having a sufficient supply of plant food in the soil. Soluble fertilizers are high priced per unit of plant food. They act quickly and they are applied therefore in small amounts.

HIGH COST OF LIVING, SHOES AND CLOTHING, NOT FOOD SAY FARMERS

Registering a vigorous protest against the high cost of living being charged to the farmer, the committee on the present milk situation of the Los Angeles County Farm Bureau in rendering its report to that body at the monthly meeting held January 15, brought out the fact that a survey of food prices shows an increase of only six per cent from January 1, 1919 to

Do You Know—



STANDARD PRACTICE

The use of Timken Tapered Roller Bearings at points of hard service in the great majority of motor vehicles is proof of leadership established on the tapered principle of design, quality of manufacture, performance on the road, and service to the automotive industry.

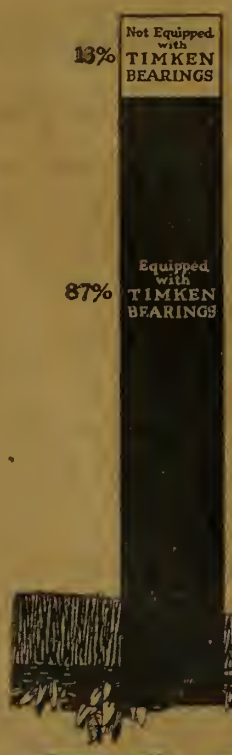
that out of 148 leading makes of trucks, 129, or 87%, are equipped with Timken Roller Bearings at points of hard service?

that Timken Roller Bearings were first installed in the motor truck in 1905?

that more than 15 years of hardest service tests have proved Timken Tapered Roller Bearings absolutely right in principle and manufacture?

that the Timken Bearing is practically the only part now used in motor truck construction that has never needed to be redesigned, that is used in its original form?

that the Timken Tapered Roller type of Bearing is the only type that will function properly under radial load or thrust load, and all possible combinations of the two?



THE TIMKEN ROLLER BEARING CO.
Canton, Ohio

Timken Tapered Roller Bearings for Passenger Cars, Trucks, Tractors, Farm Implements, Machinery, and Industrial Appliances.

TIMKEN BEARINGS

January 1, 1920, whereas everybody realizes the cost of living has risen from 20 to 25 per cent.

President J. B. Vaile in discussing the report said: "To charge the farmer with being responsible for the present high cost of living is a serious misstatement of the facts, and to blame the high cost of living on the increased food prices is simply obscuration. The fact is that housing, clothing, professional services, traveling, entertaining and everything else that goes to make up living, has increased in price considerably more than has food. There is an evident intent on the part of certain interests to throw the burden of this high cost of living on the food producer, ignoring the fact that the farmer has to live just as other people do. He has to pay the increased costs of housing, clothing, doctoring service, traveling, entertaining and everything else. Even should he produce all that his family needs to eat, he would still only escape six per cent increased cost as compared to the at least 25 per cent increase in cost of living due to other causes."

With special reference to the milk situation the statement was made that the present boycotts on the use of milk and eggs agitated in certain of our larger cities if it accomplishes anything whatever will make these products scarcer in the future and add to the present increased cost of living. Government figures show that compared to prices last year at this time milk is but slightly higher and eggs are cheaper. With the increased cost of labor and all other factors going into these two businesses it simply means that egg producers and dairymen are working on a narrower margin than ever before. As a matter of fact, compared to other food products, the two really cheap sources of food at the present time are milk and dairy products and beef. The boycotters are making two serious mistakes; first they are endangering an adequate supply of two important foodstuffs; and second, they are discouraging the two classes of food producers most easily led to leave their business.

AMERICAN DIET CHANGING

Whether it is because of the increased cost of meat or because people's tastes have changed, the fact remains that Americans are eating eight per cent less meat than they were 20 years ago. This is disclosed in a recent dietary survey made by the United States department of agriculture.

In this survey 2,000 dietary records, each covering a period of seven days, were collected from 1,425 families and 575 institutions in 46 states. Sixteen nationalities and many occupations and incomes were represented, as were also both urban and rural localities.

From a summary of 500 of these family records it appears that last year the average cost of food per man per day was 46 cents, with an average return in food value of 3,225 calories, 96 grams protein, 118 grams fat, and 405 grams carbohydrate. These figures are in fairly close accord with the dietary standards ordinarily used in discussing such problems of general nutrition.

A comparison of the food stuffs purchased by the 500 families with the amounts of the same food purchased by 400 families about 20 years ago shows that the amount of meat in the American diet has decreased about eight per cent, and the amount of grain products about 11 per cent. People are eating more milk, butter and cheese than they were two decades ago, for the amount of dairy products consumed has increased about six per cent. Four per cent more vegetables and eight per cent more fruit is being eaten now.

Some individual food habits undoubtedly need to be corrected, but judging by these studies it seems fair to conclude that the average diet seems to be adequate.

PROVED IT

A youthful aspirant for journalistic distinction, who was asked to write an article on superstition and imbecility began his essay thus:

"That imbecility is not on the wane, perusal of the following lines will amply demonstrate—Dallas News.

Nothing is so local as not to be of some general benefit.

To avoid confusion, the J. I. CASE THRESHING MACHINE COMPANY desires to have it known that it is not now and never has been interested in, or in any way connected or affiliated with the J. I. Case Plow Works, or the Wallis Tractor Company, or the J. I. Case Plow Works Co.

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The Case 10-18 Tractor drives 20 x 28 Thresher with Windstacker, Feeder and Grain Handler; No. 12 Case Silo Filler with 40-ft. blower pipe; 17 x 22 Hay Baler; will pull 2-bottom plow, 6 to 8 inches deep, depending on soil and field conditions; 8 ft. double-action Disc Harrow; 22 shoe Grain Drill; two 6 ft. Binders.

The Case 10-20 Tractor drives 22 x 36 Thresher and full equipment; pulls 3-bottom plow, under favorable conditions; other machinery requiring similar power.

The Case 15-27 Tractor drives 26 x 46 Thresher with Feeder and Windstacker; three 14 in. plows in hard plowing, or four under favorable conditions; 10 ft. double-action Disc Harrow; two 7 ft. Binders, etc.

The Case 22-40 Tractor drives 32 x 54 Thresher with Windstacker, Feeder and Grain Handler; No. 20 Case Silo Filler with 40 ft. blower pipe; four 14 in. plows in hard ground, or five under favorable conditions; battery of Grain Drills or Harrows.

The Case 20-40 Tractor will handle belt and drawbar jobs similar to 22-40.

The J. I. Case Threshing Machine Company also builds:

- Grand Detour Plows, all sizes and for all soils and conditions.
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- Road Graders,—three sizes
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Booklets, describing and illustrating any products above mentioned, furnished on request.

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How is this Year Different from Past Years in the History of Motor Transportation

YOU men who have watched the development of the automobile industry from the beginning remember how it used to be five or six years ago.

Some manufacturer announced a production of 5,000 cars for the coming year and everybody pitied him.

Registrations had already reached three millions.

* * *

The short sighted dealer shook his head and said it couldn't last.

He hurried to get his orders in and his cars out before it was too late.

Everything hinged on quick deliveries.

It is different today.

With nearly 8,000,000 registration ahead for the year 1920, we see the industry still in its infancy.

There can be no point of saturation short of the transportation needs of the country.

* * *

What are the transportation needs of America — passenger and freight — and when will they be met?

That is a question our children's grandchildren will still be asking.

So, with motor vehicles as with tires, there will be no limit to the demand for the most fit.

For example—today there is no scarcity of tires. You see no cars laid up for want of tires.

There *is* a scarcity of U. S. Tires.

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This company with its enormous stake—the largest in the industry — is taking the long view—the sound, constructive view.

We are building and equipping for greater capacity, but placing responsibility for quality above the temptation of forced production. When we have doubled and trebled our facilities, there will still be a scarcity of U. S. Tires.

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Two hundred and thirty-five branches

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — February 14, 1920 — No. 7

Survey of the Livestock Situation

THE ranges, the hillsides, and the valleys are going dry. We are all crying for rain. Every producer in the state is suffering, perhaps most of all the livestock man. At least, the livestock man most quickly feels the pinch, So he is not only scanning the heavens, hoping for some sign which shall promise rain, but he is looking over market conditions and production conditions to learn as to best future steps. And while figures are ordinarily considered as dry as California's weather has been for the past few months, they are wonderfully enlightenening to the careful reader. Dollars and cents often depend upon these tables and the construction put upon the statements they make, so at this moment there is much of interest in the table shown on this page which is compiled by Messrs. J. E. Rickards and E. E. Kaufman, field agents of the bureau of crop estimates, U. S. D. A.

The parallel columns of state and national statistics give opportunity to make intelligent comparison. One point is peculiar; horses have lowered in valuation during the past five years, while mules have advanced. Dairy cows have advanced somewhat in worth, but in numbers the increase in the five years has been very slight. However, here is the comment made by Messrs. Rickard and Kaufman:

		United States		California	
		Number	Price	Number	Price
Horses	1920	21,109,000	$94.39	400,000	$94.00
	1919	21,534,000	98.45	435,000	91.00
	1918	21,482,000	104.24	468,000	99.00
	1917	21,210,000	102.89	468,000	97.00
	1916	21,159,000	101.60	493,000	96.00
Mules	1920	4,995,000	147.10	59,000	122.00
	1919	4,954,000	135.83	63,000	125.00
	1918	4,873,000	128.81	66,000	115.00
	1917	4,723,000	118.15	70,000	116.00
	1916	4,593,000	113.83	70,000	110.00
Milch Cows	1920	23,747,000	85.13	571,000	97.00
	1919	23,475,000	78.20	561,000	79.00
	1918	23,310,000	70.54	597,000	72.50
	1917	22,894,000	59.63	591,000	67.00
	1916	22,108,000	53.92	568,000	69.00
Other Cattle	1920	44,385,000	43.14	1,634,000	51.40
	1919	45,085,000	44.22	1,650,000	48.20
	1918	44,112,000	40.88	1,701,000	42.10
	1917	41,689,000	35.92	1,636,000	38.10
	1916	39,812,000	33.53	1,558,000	36.30
Sheep	1920	48,615,000	10.52	2,972,000	10.80
	1919	48,866,000	11.63	2,943,000	12.00
	1918	48,603,000	11.82	2,776,000	11.30
	1917	47,616,000	7.13	2,524,000	6.70
	1916	48,625,000	5.17	2,450,000	5.00
Swine	1920	72,909,000	19.01	973,000	18.00
	1919	74,584,000	22.02	1,003,000	18.00
	1918	70,978,000	19.54	974,000	17.50
	1917	67,503,000	11.75	994,000	10.10
	1916	67,766,000	8.40	947,000	8.40

The winter of 1918-19 was favorable to the stockmen, and stock returned from the summer ranges in fair to good condition of flesh. The absence of the usual late fall and winter rains has brought about more or less serious conditions in many counties, and considerable apprehension is now apparent as to the immediate future. Stock will go on to the summer ranges and pastures weakened in vitality and with losses probably above the average. The outlook is more or less discouraging, particularly to the cattlemen.

HORSES—The Census Bureau counted 469,000 horses of all ages in 1910. A gradual increase in numbers was noted until 1915, since then the decrease has been rapid, a drop from 503,000 that year to 400,000 January, 1920.

MULES—The number of mules in California has never been large, and followed the same trend as horses—slowly increasing to a maximum of 74,000 in 1915 followed by a more rapid decline to the present number.

MILK COWS—From 467,000 milk cows counted by the census in 1910, a regular increase in number was noted for about eight years when high feed costs with a depleted supply of high priced labor caused a sudden slump in the total number. The present year, however, indicates an upward turn again.

The State Department of Agriculture reports for the year ending September 30, 1919, the production of 62,449,000 pounds of butter and 11,600,000 pounds of cheese compared to 60,399,000 pounds of butter and 9,796,000 pounds of cheese for the previous year.

OTHER CATTLE — Only one per cent decrease in the number of cattle other than milk cows compared with one year ago is disclosed by reports from regular correspondents, cattlemen and others. The total number, 1,634,000 compared to 1,608,000 in 1910, indicates only 1.6 per cent increase in ten years.

"Join the California Cattlemen's Association" is a good slogan for the cattle grower as it means greater cooperation in breeding, ranging and marketing problems, all of which tends toward an increase in numbers, better times for the cattlemen and cheaper beef for the consumer.

SHEEP — From 2,417,000 sheep in 1910 the number has jumped to 2,972,000 in 1920. Present conditions seem a little more favorable to the wool grower than to the cattle grower, but there has been more or less shifting of flocks on account of feed.

Unquestionably every owner of sheep can help himself and the industry by becoming a member of the California Wool Growers Association.

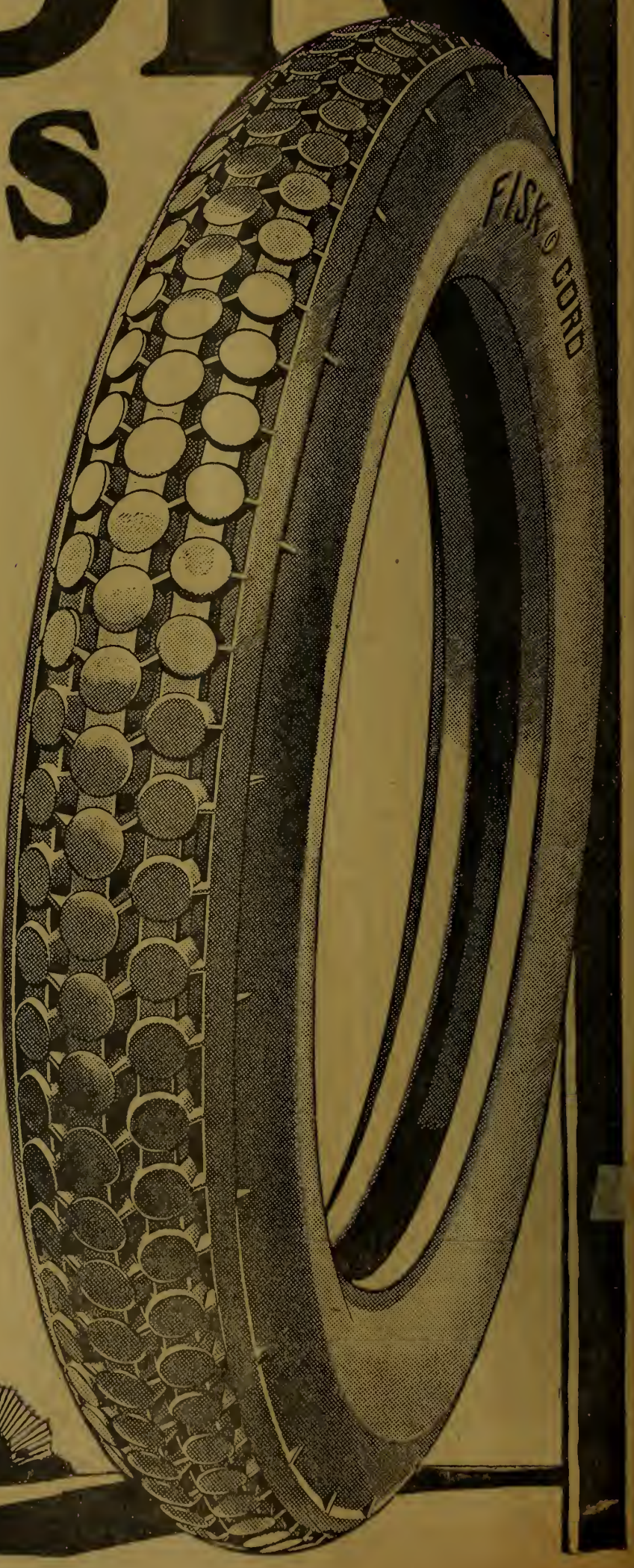
SWINE—About 27 per cent more swine in California than ten years ago, or 767,000 head in 1910 as compared with 973,000 in 1920, is indicated by the count of pig's noses on January 1. This is three per cent less than one year ago. Prices obtained by producers the past season were somewhat less, while feed costs were higher.

FISK TIRES

THIS YEAR—for excess mileage, buy Fisk. For any make of car, buy Fisk. For double-generous size, buy Fisk. For real service—dollar for dollar and mile for mile—buy Fisk!

Fisk Tires live up to the Fisk ideal—"To be the best concern in the world to work for, and the squarest concern in existence to do business with."

Next time—BUY FISK from your dealer



California Cultivator

Vol. LIV, No. 7 Los Angeles, February 14, 1920 One Dollar Yearly

Top Working the Walnut Orchard

By Ernest Braunton

A DEMONSTRATION and lecture on top working, the walnut was given at the Whittier state school orchard on January 30. The lecture was by Dr. L. D. Batchelor, professor of plant breeding, state college of agriculture, while the work of grafting was done by D. C. Wiley of the California Walnut Growers Asociation. The subject chosen was a northern black walnut ten years old, though it was stated the process was precisely the same for any native American species, or variety of the English or Persian nut.

The so-called northern black nut is the same as the one growing in the south except that it grows much larger, more erect, is deeper rooted and longer lived. It is not native to the northern sections where it grows and is found in a wild state in but two zones in the lower Sacramento Valley where it was taken by Indians before the advent of the white man. Between these stations and the southern range where it is widely distributed is a large zone without a single specimen, reaching from Contra Costa County, where but six trees are found, down to the Ojai Valley in Ventura County. From the latter point it is common to the Santiago Canyon in Orange County, its southernmost range. It is not advisable to use the southern nut for stock for the reasons given, but particularly because it is short lived.

The Lecture

Dr. Batchelor said: "Do not approach the task of top-working the walnut with any fear of results. Any man, woman or half grown child may do the work after being shown how. The purpose of the work is to put scions of the better or desired varieties into seedlings bearing poor nuts, blank nuts (meatless), or those bearing crops so small as to be unprofitable. The only remedy is to re-top. One wishing to try out new varieties at once will also find this the most expeditious solution."

Dr. Batchelor then called attention to several top-worked trees to illustrate the rate of growth of the new tops. These tops were from two to four years old. Among them were an Erhardt of four years growth, a Eureka, a Rutherford and several others named for the owner of the orchard or tree from which the scions were taken, often non-commercial varieties. Some of these new tops had borne five pounds of nuts the sec-

(Continued on Page 249).

At the Demonstration

Above is Mr. Weinshank, a pioneer in the production of walnut trees. He is holding in his hand a piece of walnut wood to represent a young seedling stock on which has been placed a scion of desirable variety, by the regular whip graft.

Below, native black which has been grafted to Eureka. Note large stakes or supports which have been spiked to the tree and to which the scions as they have started to grow have been tied for support.

The Grafting Operation

The native black tree from which the top has just been cut. The split has just been made in the short stub in the center. The angular wedge has been driven in to spread the split apart for insertion of the scion which is being prepared with a sharp knife in the hands of the operator. D. C. Wiley, who did the practical work in the demonstration.

Tools and Methods

Upper photo shows tools and appliances necessary. In the box beside the pruning shears are the scions preserved in moist shavings. Leaning against the tree is the large saw which should not be too coarse but fine enough to make fairly smooth cut. The large cleaver-like knife at left end of tool box is used for splitting the stub of the old tree, the mallet being used for this purpose. Next to the knife are a couple of wedges. These are ordinary blacksmith made, bent at right angle to facilitate prying open of the split for insertion of scion. Between the wedges and the mallet is a sharp knife for the careful work of cutting the scions. The two pruning saws at right end of the box are for emergency work under conditions where large saw would not operate. At the right of the picture is an ordinary five gallon oil can with top and part of one side cut out. Inside may be seen ordinary wick oil stove. The side opening is for draft and for access to the burner. In case of wind the "door" to the heater may be closed. The kettle of grafting wax is shown between the heater and the tool box.

Middle picture shows Mr. Wiley at work; also Prof. L. D. Batchelor of the Riverside experiment station, making a particular point as to methods of work.

Lower picture shows Prof. Batchelor opening the demonstration with general statement of benefits and the ease with which an orchard may be made over. The tree in the foreground is a California black which was grafted three years ago to Erhardt.

Agricultural News Notes of the Pacific Coast

Northern California

The Sacramento farm bureau is conducting a campaign for increased membership.

A plan is on foot for organizing a cooperative organization to dry and market California wine grapes.

Shasta County is making plans for its county fair. J. M. Moore of Inwood is chairman of the fair committee.

The price of jute bags has been fixed by the prison directors at San Quentin at 15 cents in lots of 10,000 or less.

Potato growers say that the high price of their product is due to shortage of the crop, not to manipulation of the market.

A great hoard of onions is reported to have been found by federal authorities in San Francisco, held in storage since last September.

A very successful farm bureau auction sale was held at Lincoln, Placer County, January 24. The crowd was large and bidding spirited.

Contracts are reported to have been made for more than 10,000 tons of wine grapes in the Napa Valley. These are to be dried before shipping.

The Chico chamber of commerce will have a rice inspection department that will make it possible for growers to get cash payments before shipping.

The Sacramento and Yolo County farm bureaus are discussing the advisability of joining in the organization of a marketing department to sell products cooperatively.

Report has been made from Butte County that several sheep have died from eating rice stubble. Dr. Hays of the veterinary department of the state university is investigating.

Ladybugs will no longer be transported free on the railroads for distribution to aphis infested fields as was the custom before the railroads were taken over by the government.

State Dairy Inspector Asseistine has just completed an inspection of dairies of the Chico district of Butte County. Scores of dairies in perfection of equipment range from 50 to 88 per cent.

Shasta County farm bureau meetings: Inwood, February 14; Cottonwood, 16; Bella Vista, 18; Stillwater, 20; directors meeting, 21; Whitmore, 24 p. m.; Palo Cedro, 25; Hat Creek, 27; Fall River, 28; Round Mountain, 29.

The California Prune & Apricot Growers Association has had orchard signs made for member growers. These will be placed at the entrance to the grove and read: "This is a Sunsweet Orchard."

As a result of its successful campaign for membership the California Prune and Apricot Growers is sending out notice that it will immediately take up all options on the growers' crop of the 1920-21 season.

Farm bureau meetings in Tehama County during February: Anteiope, 10; Dairyville, 11; Oak Park, 13; Richfield, 16; Corning, 19; Bend, 20; Los Molinos, 23; Proberta, 25; Directors meeting at Red Bluff, 10:30 A. M., 20.

Surveyor General W. S. Kingsbury will hold a public auction sale of scrip in the senate chamber at the state capitol, Sacramento, on Monday, March 1, 1920, at 10 a. m. At the last auction sale of scrip the average price received per acre was $9.82.

Central California

Tulare is shipping eggs to Chicago.

Dairymen of the Salinas Valley met at Gonzales, January 23.

In the egg laying contest at Santa Cruz only White Leghorn hens are entered.

Watsonville fruit growers are asking for a more rigid state inspection of the apple pack.

Large shipments of seed sweet potatoes are being sent out from Turlock, Stanislaus County.

The Visalia Growers Association is planning the erection of a $175,000 cannery at Visalia.

It is expected that cotton planting in the San Joaquin Valley this year will double last year's.

Forty-two new members were initiated last week in the Turlock Cooperative Union of America.

Fumigation of grapes for mealybug prevention is being conducted in vineyards of Dinuba, Tulare County.

It is estimated that about 6,000 acres will be planted to cantaloupes in the Turlock section this season.

Reports come to Portervilie that recent rains in the Sierra have been of distinct help to the stock ranges.

The Tulare County Poland China Breeders association held its second consignment sale at Tulare February 6.

The Pacific Fruit Express Company announces that it is building 4,000 new refrigerator cars to handle California fruit this season.

The farm bureau of Lindsay, Tulare County, is in the midst of a membership drive. Plans are being made for a big get-together meeting February 26.

At the annual meeting of the Atwater Fruit Exchange it was announced that 157 cars of deciduous fresh fruit has been shipped under its direction.

Max J. Crow of Gilroy, has purchased a 50 acre tract near Oakdale, Stanislaus County, where he will establish a nursery specializing in figs, almonds and raisin grapes.

Fairmead and Dixieland, Madera County, farm bureau members have organized the Fairmead Farmers Cooperation Association and will open a general mercantile store in Fairmead.

The Associated Raisin Company is planning the erection soon of a packing house in Tulare. The association wishes to be assured of a 15,000 acre planting to raisin grapes before beginning its erection.

Watsonville apple packers are protesting over the condemnation of their fruit. They assert that it is packed and shipped in perfect condition and then allowed to stand and decay in warehouses in the Bay cities.

W. J. Sinclair of Fairmead is the owner of the cow which topped the list of butter fat producers in the January test of the Madera-Merced County cow testing division of the farm bureau. Her record for 30 days was 78.4 pounds fat.

Sugar beet farmers of the Salinas Valley will confer with the Spreckels Company in regard to having a representative of the farmers at the factory to look after their interests in the weighing of beets, testing, ascertaining dirt percentages and other matters of similar nature.

Southern California

A cotton gin is to be built at Perris, Riverside County.

The experiment station at Meloland has a number of date palms for free distribution.

Beekeepers of Orange County met at Orange last Monday to discuss the foul brood situation.

The coming citrus crop of San Bernardino County is estimated at 7,145 cars oranges, 1,085 cars lemons.

The almond crop of Banning, San Bernardino County, was short last year, amounting to only 175 tons.

A home department center of the farm bureau of Highland, San Bernardino County, was formed last week.

Fourteen hundred acres of almond trees are in bloom in the Banning district of San Bernardino County.

At a recent meeting in Los Angeles there was formed the Los Angeles County Reforestation Association.

The farm bureau of Ontario, San Bernardino County, will plant 150,000 eucalyptus trees to serve as windbreaks.

Citrus institute will be held at San Bernardino during the National Orange Show. Institute dates, February 20-21.

Redlands is somewhat disturbed over the amount of heavy trucking on its streets which increases expense of road upkeep.

Hemet, Riverside County, expects to ship out a normal crop of oranges; Valencias are about two weeks earlier than usual.

The citrus experiment station at Riverside is putting up a fight to save the lives of the two parent navel trees at Riverside.

Manager Sandilands of the Anaheim Orange and Lemon Association estimates that Anaheim will have 150 cars more of oranges this year than last.

The Poultry Producers Association of Southern California held their annual meeting at Los Angeles, last week. Three hundred members were present.

The State Beekeepers Association met last week in Los Angeles at Exposition park. The work of the National Beekeepers Association was reported on.

Thousands of acres of land are to be leased from Indians on the Parker reservation. Many leases have been taken by cotton growers of Palo Verde, Riverside County.

The Poultry Producers Association of San Diego County at its recent meeting at Escondido appointed Tom Hurley of Bonsall representative in the state association.

Cotton Expert W. P. Camp of the United States department of agriculture has been visiting fields near Perris, Riverside County, where it is proposed to plant cotton the coming season.

The California Fruit Growers Association is discussing advisability of establishing at Riverside another cooperative cannery. This association already has canneries at Elsinore, Hemet, Fallbrook and Ontario.

The Automobile Club of Southern California is complaining to Orange County supervisors that farmers are plowing up too much land along sides of roads making it necessary for them to turn out on the highway itself and so hold up traffic.

The Coast and General

Another cotton gin is being established at Somerton, Arizona.

The creamery at Albany, Oregon, paid 74 cents for December butter fat.

Oklahoma has passed a law permitting farmers to organize cooperative buying associations.

Whatcom County, Washington, has a cow testing association with membership of 1,200 dairy cows.

The Oregon Horse and Cattle Raising Association will meet in annual convention at Burns, May 20, 21.

The Washington State Wool Growers Association held its annual convention at Walla Walla last week.

The new Hood River-Mosier section of the Columbia River highway will be formally opened the last of this month.

The Guernsey breeders of Whatcom County, Washington, have organized an association.

The agricultural college at Pullman, Washington, is giving a two weeks' course in the handling of farm engines.

A big camp for cotton pickers is being built at Chandler, Arizona. The camp will accommodate between 400 and 500 Mexicans.

One of the banks of Eugene, Oregon, has purchased two carloads of pure bred Holsteins to be sold to the farmers of Lane County.

Portland, Oregon, will hold a corn show and will maintain the exhibit for 60 days. One thousand dollars in cash prizes will be offered.

The postoffice service reports that rural mail carriers are quitting at the rate of 50 a day because they can get better pay as farm laborers.

At the recent convention of National Wool Growers held in Salt Lake City, M. J. Powers of Flagstaff, Arizona, was elected vice president.

A large crushed fruit and juice factory will be established in Sheridan, Oregon. This will be the fourth establishment of this kind located in Sheridan this year.

State Mine Inspector J. H. Bolin announces that Arizona mines produced last year minerals valued at $108,707,000. The value of copper was $98,000,000 for 1919.

Water users under the Salt River Canal of Arizona have asked the board of governors to discontinue the use of pumped water pending the receipt of analysis of the water from the state university.

The Washington State Beekeepers Association met in annual convention at Seattle, January 22-24, and took an important step in making plans for cooperative selling of honey. Owners of 3,600 colonies signed up.

Long staple Egyptian cotton, such as is grown in the Salt and Yuma Valleys of Arizona, has increased to more than four times its selling price of four years ago. At that time the price was around 20 cents and now it has held steady at slightly about 80 cents a pound for many weeks.

An attempt is being made to form a national farm loan association among land owners under the Salt River Valley project of Arizona. Under the present law farm loans cannot be made under the national act on land within government projects. Forming an association here is the first step towards making a change in the present law.

Shorthorn Type That Counts

By Frank D. Tomson, Editor The Shorthorn in America

THERE is a difference between owning cattle and being in the cattle business, a difference between a cattle producer and a cattle improver. There is a difference in the profits—gauged by the character of the animals produced.

Herewith are presented a few rough sketches suggestive of different types. I have not attempted to be painfully accurate in making these drawings, but they will serve to show the difference in types.

Figure I

Figure I shows the head of a bull inclined to coarseness and plainness. It will be noted that the face is entirely too long. A head of this character is often found on a bull of more than ordinary size, usually lacking in smoothness and inclined to be flat sided. One does not travel far without observing in the pastures bulls with heads like this.

Figure II

Figure II shows a bull calf of apparent ruggedness. The head is quite satisfactory in conformation, but it will be noted that too much "leather" is below the jaw. This in itself is a suggestion of coarseness. It is a characteristic that is found more frequently in a breed other than Shorthorn, but it appears too often in our own herds.

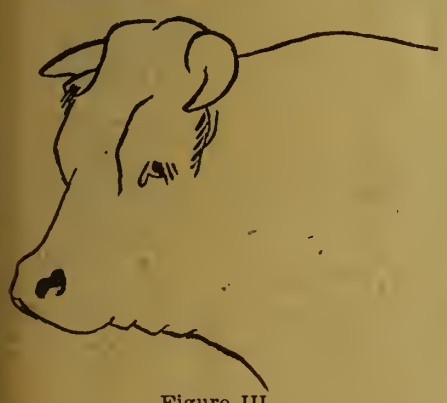


Figure III

Figure III shows a typical Shorthorn head of clean, attractive character, possibly too mild in its expression, but otherwise quite free from criticism. The horns are well turned, the face sufficiently broad and well dished.

Figure IV is quite similar in conformation, but reveals more alertness and energy, suggestive of prepotency. It will be noted that the nostril is wide and open—a condition that is desired, furnishing an ample intake for fresh air. The eye is large and sufficiently prominent, indicative of virility and good health. The neck is full and well rounded, the crest well proportioned. One would expect to

Figure IV

find a bull possessing a head of this character to be an impressive sire. This peculiarly clean cut head, strong but quiet expression, is characteristic of the Shorthorn.

Figure V

Figure V shows a head that might be expected to adorn a good feeder. Note the width of the muzzle, the large nostril, the broad face, the width between the eyes and the base of the horns. This head denotes the feeder rather than the sire. It lacks something in assertiveness and impressive masculinity.

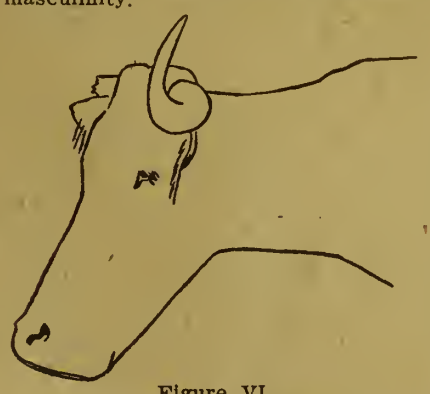


Figure VI

Figure VI is of a different type, illustrating the sort to avoid. Yet in those sections where bovine improvement has not been carried on to any great extent such heads as this are frequently seen on the cows that roam the woods or feed along the roadsides. There is a lack of good breeding clearly evident in the conformation and expression of this head. Note the distance between the eye and the nostril and the general indifferent, unresponsive expression as suggested by the outline.

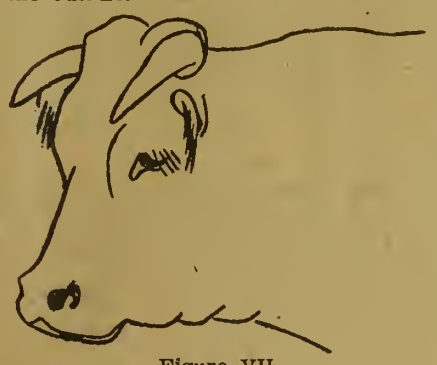


Figure VII

Figure VII approaches the ideal in the head of a Shorthorn female. Note its clean, refined, almost classy appearance, its sweetness of expression. Note here the large nostril and the full, expressive eye, the shapely horn, the graceful lines and the well set neck. One would expect a cow possessing a head like this to be of pleasing conformation and a responsive breeder. It is significant that those who study deeply the problems of bovine improvement attach great importance to the character of the bovine head as indicative of the dependability of the animal as a producer.

Figure VIII

Figure VIII shows the body outline of a Shorthorn cow approaching the ideal. Note the levelness of the back, the well rounded, well set quarters, the depth of body throughout and the large, well formed udder. Combine a body like this and the head as shown in Figure VII and little is left to be desired in the making of a Shorthorn

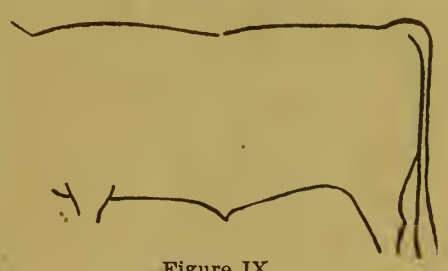


Figure IX

matron. With an outline such as this, one usually finds a well distributed and liberal flesh covering; the shoulders are usually well laid and the hips well covered. Note the graceful set of the tailhead. One thing to keep in mind in the selection of a brood cow or herd bull is ample depth of body such as is illustrated in Figure VIII.

Figure IX shows a bad top line. The neck does not join smoothly to the shoulder and there is an unsightly break in the back, and the tail-head

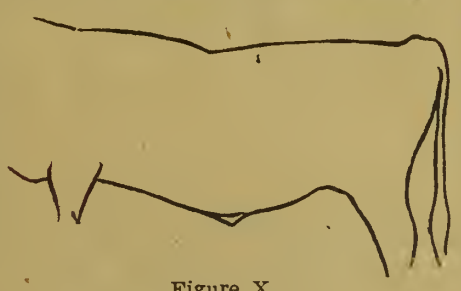


Figure X

is rough and high. These are three faults that the beef buyer at the markets objects to and cuts the price in harmony with his prejudice against them. The overwhelming majority of beef animals sold at the markets is inspected and purchased by men on horseback and these defects along the top line, as shown in Figure IX are quickly discernible and establish a bad impression with the purchaser. It should be remembered, too, that the highest priced cuts are found along the upper one-third of the carcass and defects appearing in that region are the more objectionable and costly on that account.

Figure X shows a similar top line, and in addition both the front and rear flanks are cut too high and the quarter is spare—"cat hammed." There is not a feature shown in this outline that appeals to the favor of anyone familiar with correct bovine form.

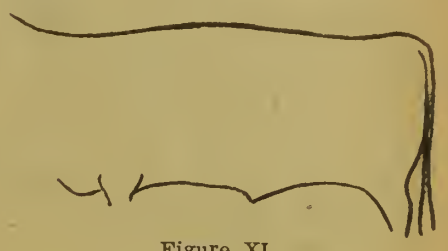


Figure XI

Figure XI shows the top line inclined to bow up too much and the tail-head is also a trifle high. As a rule, when the top line is "humped" as in this case, the under line is apt to show a similar tendency. The appearance is not pleasing and it is advisable in the selection of breeding animals to avoid this peculiarity.

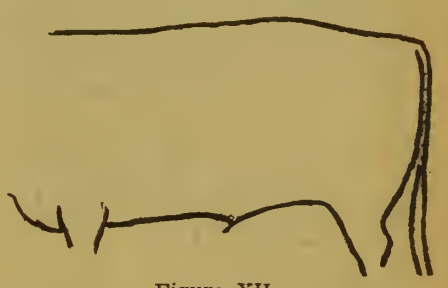


Figure XII

Figure XII illustrates the drooping rump—a characteristic that is found more generally among cattle imported from the British Isles. It appears that the Scotch and British breeders have not developed the prejudice against this peculiarity that exists in this country. Its chief objection is its lack of beauty.

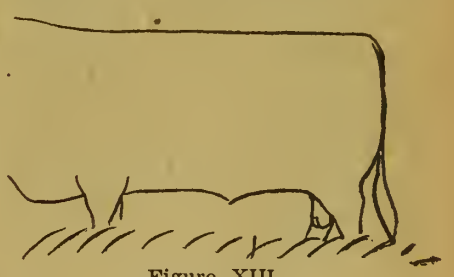
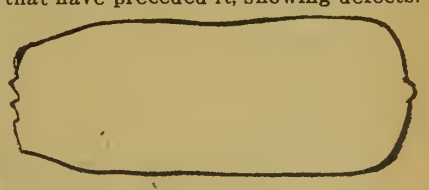


Figure XIII

Figure XIII approaches the ideal conformation for the Shorthorn bull. Note that the top and bottom lines run level; that the quarters are well proportioned and properly set; that the tail-head is perfect and that the neck joins the body in pleasing lines. Contrast this outline with the several that have preceded it, showing defects.



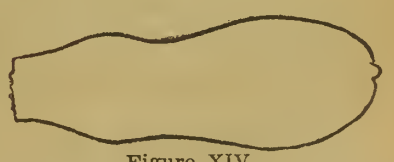


Figure XIV

Figure XIV shows a view looking downward over the backs. The one shows uneven side lines with flat foreribs as indicated by the in-curves back

(Continued on Page 257).

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Saturday Feb. 14, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

REGISTERING AUTOS

Automobiles are being registered in California at the rate of 18,000 daily.

Where do they all get them?

BARLEY

California's barley output for 1920 will total a million tons—drouth permitting. This will be 100,000 tons more than in 1918. This is according to estimates now being made by growers.

TRACTORS

A member of the California Tractor and Implement Association estimates that there are now operating in California at least 15,000 tractors.

The "world do move," especially when these 15,000 tractors get in action. It has been claimed that these tractors have displaced 150,000 horses and mules.

FARM POWER

The province of Quebec, including nearly a third of Canada, is promoting a campaign to increase power farming. A definite campaign of education is being systematically carried on by scores of agricultural experts, newspapers, farm papers, county agents and even the clergy to secure more power from farm power. The campaign is made necessary by labor shortage as acute in Qubec as it is in the United States.

NEW CHIEF OF MARKETS

The vacancy made some time ago by the resignation of Charles J. Brand, has been filled by the appointment to the office of George Livingston, formerly instructor in farm crops, Iowa state college of agriculture and later connected with the Ohio experiment station. Mr. Livingston has, however, been connected with the department of agriculture since 1915 as a marketing specialist.

NEXT WEEK

So many good things are in hand for this week's Cultivator that it has been necessary to hold over several for the next issue. Note Mr. Westcott's interesting short account of the dehydration and evaporation convention at San Jose. A longer discussion on "Important Dried Fruit insects in California," by E. O. Essig will be given next week. It will be illustrated, is intensely interesting and should be profitable to dried fruit producers and handlers. Further report of the convention will also be given. The article on Herefords with several illustrations, given in part this week, is continued. "Poultry in Our Orchards," an article written from a San Joaquin Valley standpoint, will be of interest to believers in diversified farming. The grape grower will find general discussion of pruning written by Prof. F. Flosfeder of the University of California. Jas DeCamp will write "Keeping the Move in Your Motor." Irrigation Development will be presented by the State Water Commission.

This is not all; there are other good things.

9000 CARS OF LEMONS

The Riverside Press canvass of the coming year's citrus output develops the fact that the lemon output of the state this year will approximate 9,150 cars. There are four lemon shipping districts which will handle 1,000 or more cars. These are Orange, Whittier, Ventura and San Diego County. San Dimas is also a heavy shipper with 800 cars.

The shipment of all citrus fruits from California last year was approximately 45,000 cars. It will not reach 40,000 this year.

RAIN IN THE SOUTH

Our weather is being given to us in homeopathic doses this year. The northern end of the state received a few light showers something over a week ago, and last Saturday and Sunday showers quite liberal in some sections were given to the southern end of the state. In Los Angeles the precipitation reached .87 inch, while in the San Fernando Valley it was only .52. From this it ranged to something more than an inch and a half in Redlands, Riverside and other sections. The northermost limit of this storm was Fresno which was given about .2 inch.

NEWS VS. FIELD NOTES

The attention of our readers is directed to another page of this issue to the statement regarding our attitude toward the "field note." We recognize the difficulty of drawing a hard and sharp line between what is pure news and what can be construed as advertising, and it is not our intention to adopt such a hard and fast policy. It is, however, our intention to keep from our columns such irresponsible statements as are often permitted by some agricultural journals. We believe that a paper's first concern is its reader's interests, and it will ever be our policy to carefully guard the confidence that we now enjoy. We believe that before the advertiser will reap the greatest returns from his copy the paper in which it is inserted must hold the confidence of the reader and of other advertisers. To illustrate our point more clearly: Not long ago a contemporary, in refering to a public sale, made the statement that the offering was so uniformly high class that it was impossible to write a different foot note in the catalog about each animal. The statement was made as a matter of news. The result of the sale in question disclosed the fact that individual animals sold at prices varying over $1,300. It may be possible that the writer of the article really believed his statement was true, but if such be the case he displayed a monumental lack of knowledge of livestock values that is astonishing and dangerous.

SOCIALISM?

These are times when any reference to a movement which may be construed as socialistic calls for drastic measures or the imputation that somebody is waving the red flag. At least, such is the attitude of some who are over-fearsome. It is true that in some educational centers there have been shown outcroppings of "parlor Bolshevism." For these we should all be willing to use, and use vigorously, the stuffed club. But we think the California Fruit News is seeing red and refraining from seeing the white and the blue in one of California's best citizens.

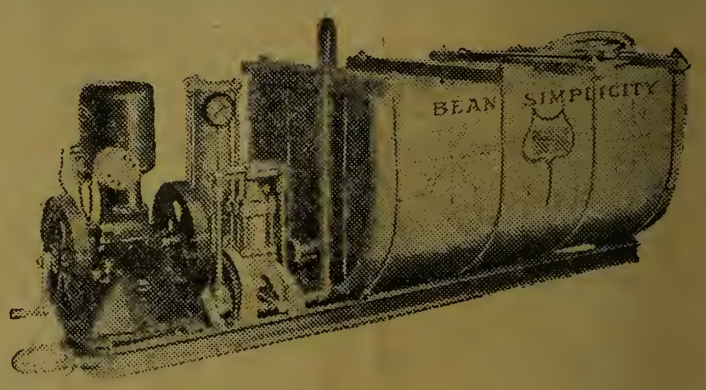
Under the title of "University Professor Dangerously Close to Socialistic Radicalism" Mr. Rowley quotes Dr. Elwood Mead as having said:

"We are living in a time when people are thinking as never before about the right of those who live on the land to own the farms they cultivate. We have come to the point when we must consider public resources like land and water as a trust to be administered in the public interest."

Then editorially adds:

"We are not sure of just what may have been in his mind in writing a thing of the sort quoted above, which we take from a part of this circular and which is, of course, not the whole of it, but are firmly of the opinion that such expressions come pretty close to the line of at least encouragement of radical socialism, and issuing from such a source and authority are quite regrettable, in our view. The meaning conveyed by such statements on reading and without analysis is just the sort of propaganda that has fed up an altogether too large number of our people during the past couple of years to a condition of inflamed hysteria, leading to nothing but destruction."

We have seen no denial on the part of Dr. Mead of his having uttered the above sentiments. But for the life of us we fail to find any incitement to "inflamed hysteria" or wherein "we are * * * thinking as never before about the right of those who live on the land to own the lands they cultivate," or "administered in the public interest" will lead to destruction. All honor to Dr. Mead and the work he has performed for California. We believe that his methods of making available a little portion of old Mother Earth for men who have never possessed it before will lead away from Bolshevism and toward a far higher citizenship.



Here's the New

Bean Simplicity Sprayer

The same Bean dependability—the same high quality of both materials and workmanship, just as much efficiency, in fact a little more—but a highly simplified product.

Ask for information on these new Simplicity outfits. The one shown above is distinctly a "One-man" outfit for the smaller grower.

It's thoroughly high class in every respect—maintains 200 lbs. pressure and operates one spray gun doing the work of two men. It is low in price. It is described in full in our Catalog 33.

Bean Spray Pump Co.

358 West Julian Street

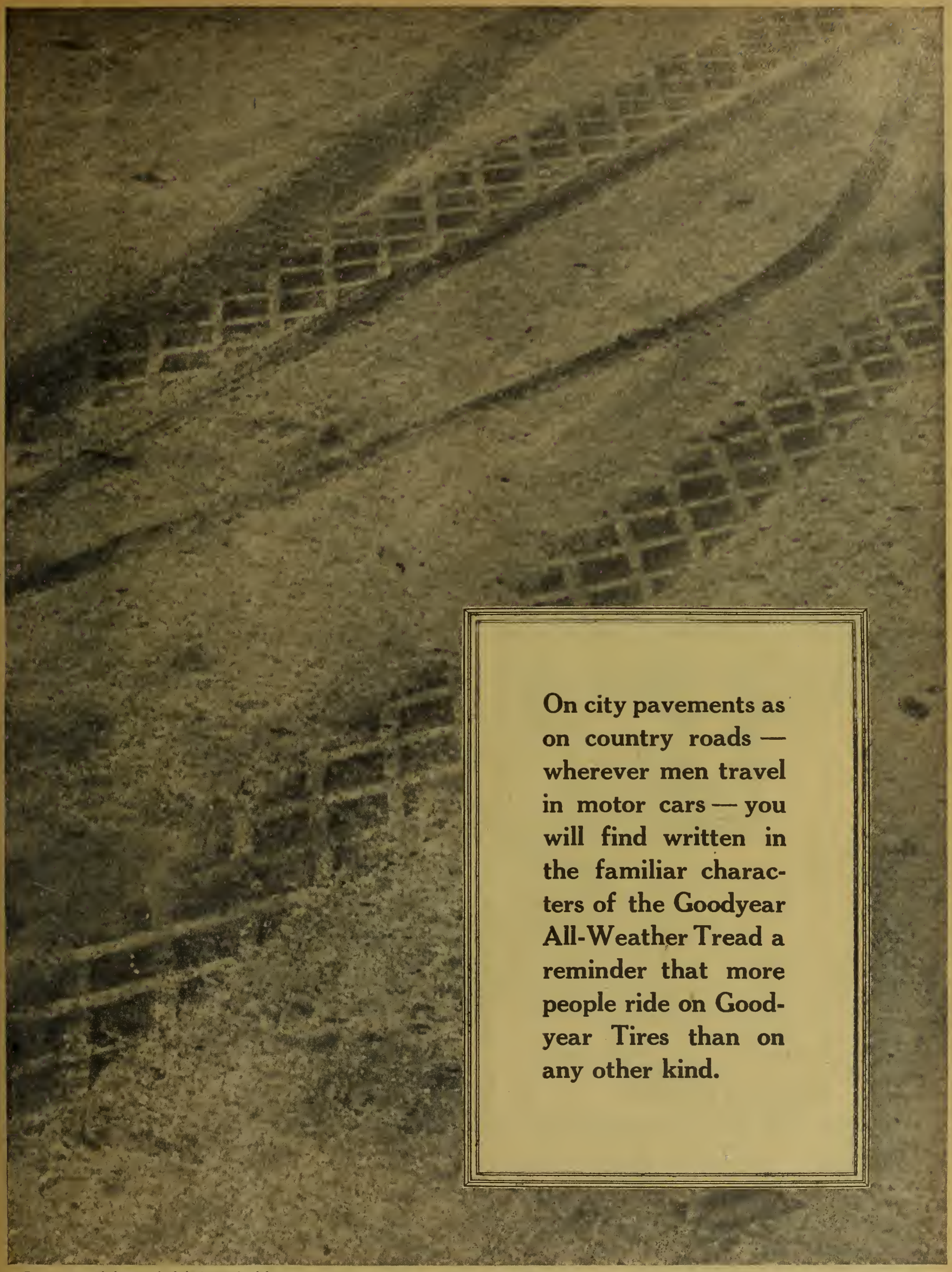
San Jose, Cal.

Clip and Mail

BEAN SPRAY PUMP CO.,
358 W. Julian St., San Jose, Cal.
Gentlemen: Without obligating me, please send me complete information on your Bean Sprayers.

Name.....

Address.....



On city pavements as on country roads — wherever men travel in motor cars — you will find written in the familiar characters of the Goodyear All-Weather Tread a reminder that more people ride on Goodyear Tires than on any other kind.

This is an actual photograph of the impression left on a concrete pavement by the Goodyear All-Weather Tread

GOODYEAR

Long Live the Citrus Industry

AS THE writer of the following communication partially admits in his first sentence that he may lay himself open to the charge of being a pessimist, we are going to accuse him of having a little bit of a twist in the wrong direction. The editor of the Cultivator became a grower of oranges nearly 35 years ago, and that almost within a stone's throw of the location of the Upland grower. As soon as the opportunity offered he became a charter member and booster for the organization known at that time as the Southern California Fruit Exchange. Those were the days when things really looked blue, at least through our eyes we saw blue. The packers, the car lines, the railways, all powerful interests, seemed aligned against the few struggling growers. Today the number of growers is vastly increased and they are more harmonious, and the big interests of other days are eating out of their hands. However, here is the comment of our Upland subscriber:

Upland, California, Feb. 5, 1920.
Editor, Cultivator:

I have been called a pessimist by several persons and I deny the charge as a general proposition, but there are times when I lay myself open to the charge.

What I have on my mind now is the future of the California Fruit Growers Association and I wish I had the ability to express myself briefly and intelligently on this subject.

In the daily papers I saw the news item some time last year that The American Fruit Growers, Inc., was organized by produce buyers and commission men, capitalized at $50,000,000; and since that time I have noticed several items concerning their activities and it caused me some uneasy moments.

Recently there appeared in the Upland News a quarter page ad headed "Cash California" and in the last issue of the same paper the local manager gave 11 reasons why orange prices would not go high this year.

I have been expecting some of our able minds to point out to the members of the C. F. G. A. the portent of these signs—but have been disappointed so far. I had hoped that some of the old timers who know by heart the history of the citrus industry in California would come out and show the membership where the danger lies.

I started here six years ago with young trees and have only been delivering fruit two seasons, but I was Association in spirit long before I left the East, so you may safely count on me as one in it to the finish.

Now, then, the danger as I see it: "Cash California" is a term that wields a tremendous power. Anyone who knows human nature knows that we have quite a few members who do not keep informed as they should on what our association is doing or has done for our industry. We also have a few who can be classed as "soreheads" and are prone to stir up discontent and trouble. We also have the element of human greed to contend with and every thinking, observing person knows that they don't practice the Golden Rule. And we must not forget that many men in our industry are working on a mighty narrow margin and often have to face the need of the dollar to keep their little grove in any condition to produce.

It will not take long to show the effect of "Cash California" on these various classes of our membership. When we have lost half of our members it will not be long when we will find that our market is not what it should be or even what it has been. With the market controlled by others and the transportation question far from satisfactory, anyone can see where we will end.

The men who have done the work that made the C. F. G. A. what it is have done a wonderful work, and I take off my hat to them; but none of us must think that our position is secure and go to sleep and drift. We must keep wide awake, stand in solid ranks and add new recruits. We must extend our selling organization, improve grading, packing and distribution so we can at all times deliver to the consumer the very best under our trade mark and at the lowest price possible.

There is a wide field for advance and we should not neglect our opportunities. I am not criticizing—only pointing forward.—Geo. L. Winter.

The suggestions of the subscriber are good and possibly his pessimistic view of the general situation may prove of value in causing us to devote a little time to thinking over the present situation. The world has been seriously upset and the wisest calculations are bound to be discounted until normal conditions return. But on the perfectly safe proposition that when the people are informed they are right we take it that a campaign of education only will be needed to hold California's 10,000 or more citrus growers in line. No class of producers is more capable of grasping the situation and really directing the affairs of its own organization. It is only a question of the rank and file keeping absolute control and preventing autocratic domination which will surely destroy efficiency and weaken the adherence of even most loyal membership.

FROM WOODLAKE, TULARE COUNTY

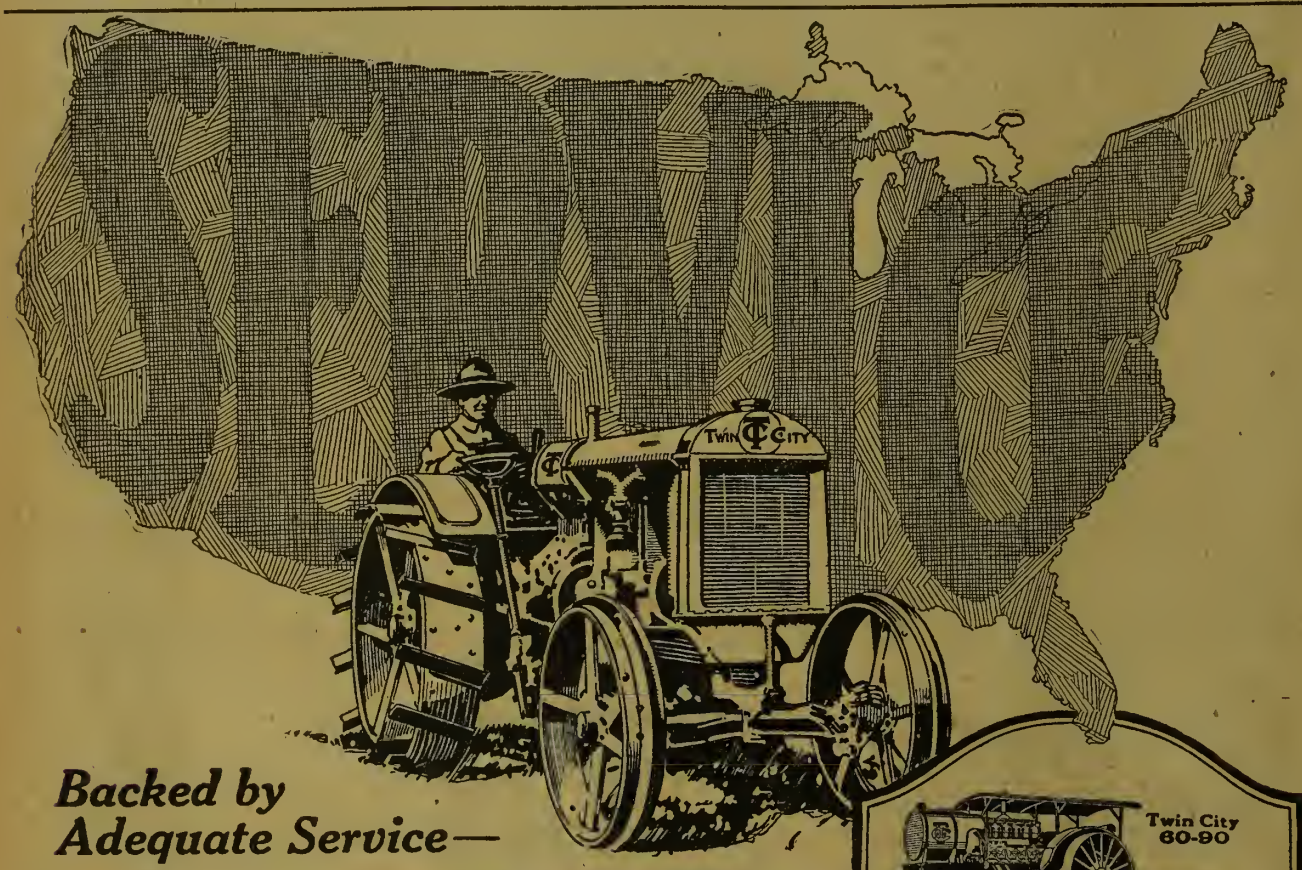
The fruit growers of this vicinity, Woodlake, Tulare County, are much interested in the excellent articles you have published on the important subject of pruning and hope to greatly profit thereby. While the citrus crop of this season is of good quality and fair quantity and none as yet has experienced any harm from frost, it has been very dry, the rainfall to date being below that of last season, which was short the normal supply. Many orchardmen are now getting busy in cleaning out and deepening their wells and in drilling new ones. This will make an extra demand upon the power companies who are now asking for higher rates to meet the increased cost of material and labor for the extensions demanded.

The labor problem among ranchmen and fruitmen is still a serious one and the high wages demanded, added to the enormous cost of feed, tools, machinery and every other item that goes to maintaining production at its maximum, cause much anxiety over the future. A very large acreage of hay and grain will be grown this season. —F. L. Kern.

COMPLAINTS

It is your right—possibly your duty—to complain of any fault in the management of your organization; whether the fault hurt you most, or all alike. Let the complaint have improvement as its aim. No fault should be long tolerated that can be corrected. But in the name of reason, don't back the complaint with a threat of leaving or smashing the association. You would not uproot your orchard because the hired man made a bad blunder in pruning it. This really great and profitable cooperative enterprise should not be endangered, discredited or abandoned because some hired man serving it makes a blunder. Kick him, if he needs it, but don't kick yourself out of a good thing.—Sunsweet Standard.

Another word—Start something, and then be a sport and stay with it. If there are features which are wrong, be one to help make them right, but don't be a kicker.



Backed by Adequate Service—

the TWIN CITY 12-20 fulfills the desire foremost in the minds of thinking farmers, fo a super-powered economical tractor.

Its sixteen-valve (valve-in-the-head) engine makes use of power heretofore wasted. Its TWIN CITY-Ho-ley vaporizing system prepares the kerosene for perfect firing. Its burned gases are quickly and completely discharged.

The result is that the TWIN CITY 12-20 gives you a surplus of power from the same fuel, and delivers it more dependably.

Then, back of this great tractor you have a big organization with branches, repair stocks and experts to give service.

TWIN CITY Power for Every Size Farm

There is a TWIN CITY tractor to meet the needs of every size farm —12-20, 16-30, 25-45, 40-65 and 60-90.

Write for complete story of this super-powered 12-20 tractor and for information on the complete TWIN CITY Line.

TWIN CITY COMPANY
Selling Products of
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TWIN CITY
12-20 Kerosene Tractor with 16-valve engine

Allwork II
KEROSENE TRACTOR

No More Distillate

Now You Must Burn Either Kerosene or Gasoline

Which shall it be, 13c or 21c fuel?

The larger oil companies have discontinued the manufacture of distillate. They are now using a cracking process which leaves no distillate, but separates the light oils into just two grades, gasoline and kerosene. Some of the smaller refiners are still making some distillate, but very little if any of this fuel will find its way to the open market. As long as crude oil is refined we will have kerosene. Tractor engines are divided into two classes, gasoline engines and kerosene engines. Either engine will burn distillate. Gasoline engines will not successfully burn kerosene.

Don't ruin your engine by trying to burn kerosene

Gasoline engines will RUN on kerosene if the fuel is sufficiently heated before entering the cylinders but this does not mean that the engine is SUCCESSFULLY burning kerosene. If ALL the kerosene is not burned, the unburned portion will get past the pistons and into the crankcase, thin the lubricating oil, taking out its lubricating qualities and ultimately ruin the engine. An engine running on kerosene and not burning it successfully will smoke, will run unevenly when idling at a slow speed, will soot up spark plugs, will show loss of power as compared with gasoline and during a run of several hours will noticeably thin the lubricating oil. The final proof comes after weeks of running when the engine will be completely worn out, the cylinders worn large, the pistons worn small, rings worn thin, bearings loose, etc., etc. Our experience of seven years of successful kerosene burning and eight years PREVIOUSLY of unsuccessful kerosene burning has proven to us conclusively that if the engine is not designed and manufactured to burn kerosene it is far cheaper to burn gasoline at many times the cost of kerosene.

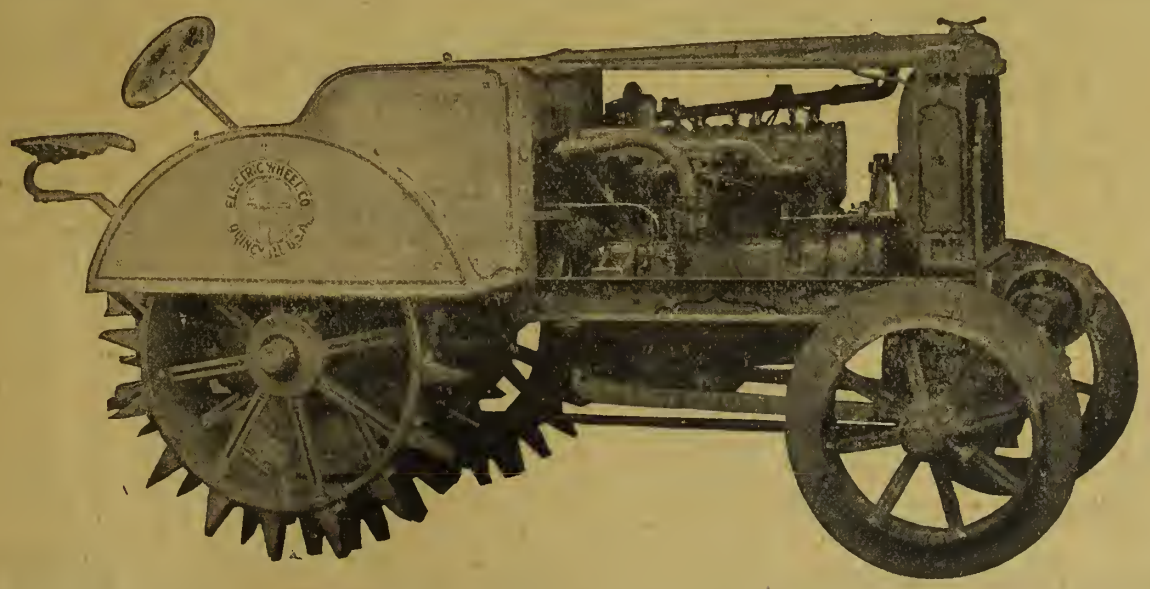
Only a very few tractors are equipped with kerosene engines

Very few tractors are equipped with kerosene engines. All gasoline engines will burn distillate fairly successfully. There is very little difference between the present day gasoline and distillate. But these engines will not successfully burn kerosene and attachments will not turn them into kerosene burning engines. Kerosene carburetors will not do it. Stoves will not do it. Hot spot manifolds will not do it. Water sprays will not do it. Air saturated with water from water clarifiers will not do it—and the combination of all these will not do it.

Allwork II burns kerosene successfully

The Electric Wheel Company of Quincy, Ill., for seven years have manufactured the Allwork tractor to SUCCESSFULLY burn kerosene. Testimonials from Allwork users after years of Allwork service prove this absolutely. The Allwork II kerosene engine is the same engine that has made the Allwork Tractor so famous east of the Rockies. The Allwork engine is manufactured throughout, after years of experiments, to burn kerosene. The cylinder compression is correct, the piston clearances are correct, the piston rings are correct, the valves are correct, the valve clearances are correct, the intake manifold is correct, the water-cooling space is correct, and all other parts of the Allwork engine are correct for successfully handling low grade kerosene. A standard GASOLINE carburetor is used—no special so-called kerosene carburetor is required: all necessary changes were made years ago in the engine itself. Just as much power is produced with kerosene as with gasoline. Allwork cylinders and pistons are kept free from carbon—spark plugs stay clean and valves do not require frequent grinding, all of which is proof that the Allwork engine does successfully burn kerosene. Our written guarantee is your further protection.

Buy an ALLWORK II and Burn 13c Fuel Successfully



This is the tractor that has proven so successful in California. Manufactured strictly for California, it is the one tractor suitable for ALL California conditions. Low, narrow and with a short turning radius suitable for the most closely planted orchard and vineyard and still with sufficient power to pull three or four bottoms anywhere in open field work. Traction equally good in light sand or hard adobe, wet or dry. All working parts completely inclosed and running in oil. More power than was ever put into such a small tractor.

On Exhibition at the National Orange Show, San Bernardino, February 13th to 23rd

Production has now reached a point where a few good substantial dealers can be opened in several good open territories.

Manufactured by Electric Wheel Company, Quincy, Ill.

Lm. Railsback Co.

222 North Los Angeles St., Los Angeles
Southern California and Arizona Distributors
After Feb. 15th at 234 North Los Angeles St.

Southern California Allwork Dealers:
Anaheim—Walter and Day.
San Fernando—Randolph F. Doll, Valley Automotive Co.
Thermal—H. J. Sternberg
Ontario—Freemire and Nichols
Puente—Puente Garage

Grant & Company

1217 7th Street, Sacramento
Northern California and Nevada Distributors

Northern and Central California Allwork Dealers:
San Jose—Pacific Tractor and Implement Co.
Visalia—Fresno Hamill Tractor and Implement Co.
Marysville—Chico—Rodifer-Davis Motor Sales Co.
Sacramento—Harvie Hardware and Implement Co.

TOP DRESSING TALKS, No. 11

How to Fertilize the Orange

Rate of Application

For the lighter types of soil the rate of application of Arcadian Sulphate of Ammonia should be from 300 to 500 pounds per acre, divided into three applications. On the heavier types of soil about one-half this amount.

Time of Application

The first application should be about four weeks before blossoming; the second when the fruit begins to set, and a third about the middle of June. Very often it is advantageous to make a fourth application in September. This not only helps "size" the fruit, but promotes wood and bud growth for the following season.

Write for free bulletin "Citrus Fertilization"

Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past. Arcadian is the kiln-dried and screened grade, made fine and dry for top dressing purposes. Ammonia 25¼% guaranteed. Made in U. S. A.

FOR SALE BY

CALIFORNIA: San Francisco: Hawaiian Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Pacific Guano & Fertilizer Co., Western Meat Co., California Fertilizer Works. Los Angeles: Pacific Guano & Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Agricultural Chemical Works, Hauser Packing Co., Hawaiian Fertilizer Co., Ltd., Southern California Fertilizer Co. OREGON: North Portland: Swift & Co.

For information as to application, write The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.

PLANT Fruit Trees

WE SPECIALIZE ON FRUIT-BEARING TREES

We grow our trees in the choicest spot in California. Here in Central California the most favorable climatic, soil and water conditions prevail, making possible the production of superior trees and vines. Added to this is our intimate knowledge of the business which enables us to exercise the most intelligent care in growing and handling nursery stock.

You should have our catalogue. Our descriptions of varieties are more complete and comprehensive than in any other book. This book tells you what you ought to know in order to select trees intelligently. Sent free on request.

Fresno Nursery Co.

P. O. Box 615-C Fresno, Calif.

Free Trial---Oregon Seeds

We are convinced that our Oregon grown, acclimated seeds are superior, and know YOU WILL BE CONVINCED when you try them. LET THE SEEDS TALK!

We offer the following 4 regular sized packets, worth 50c, free, except we ask you to send 10c in wrapped coin or stamps to cover cost of labor, envelopes, mailing. Mention California Cultivator.

OREGON GROWN SEEDS

	Regular Price.
1 Pkt. carrot, Oregon Chantenay	10c
1 Pkt. St. Valentine Special Broccoli	15c
1 Pkt. Orange Winter Luxury Pie Pumpkin	10c
1 Pkt. Gill's Improved Golden Bantam Corn	15c
	50c

Will also mail you our 50-page catalogue describing our OREGON GROWN SEEDS, DAHLIAS, ROSES, PERENNIALS, AND NURSERY STOCK.

This offer is good only once to each family.

GILL BROS. SEED CO. PORTLAND, ORE. Route 1

At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

ARTIFICIAL DRYING OF FRUITS

By Robert Westcott

THERE was a large meeting of orchardists and grape growers at San Jose on Saturday, February 7.

It was an all day gathering under the auspices of the agricultural extension department of the state university, and was presided over by Professor W. C. Clarke.

The subject under discussion was dehydration, or methods for the artificial drying of all kinds of fruit, with particular reference to prunes and grapes.

Prof. Cruess spoke at length concerning the various types of evaporators that have been used on a commercial scale, and Prof. Christie discussed the experiments in fruit evaporation conducted at Davis covering a period of five years. Prof. Lufto gave a resume of the experience that prune growers in Oregon and Washington have had with dehydration.

After these, the principal speakers of the day, came short talks by growers who had had personal experience with artificial dryers as well as by representatives of some of the patented devices now on the market.

The consensus of opinion was that there is a distinct advantage in dehydration, due chiefly to elimination of weather conditions in regard to drying, though there is also a greater uniformity of product and, many thought, a better quality in the fruit so treated, and with some of the devices an actual saving in the expense of artificial drying over sun curing.

This latter point applies more particularly to the drying of wine grapes in the coast counties, where, in fact, on account of their lateness in ripening, it is almost impossible to dry the grapes in the open.

The cost of dehydrating under the different systems varied widely. Some reported an actual expense as low as $5 per ton, while others reported as high as two and one-half cents per pound or $50 per dry ton.

Taking this liberal variation into consideration, it would seem to justify the grower in closely investigating the operating cost of any such plant that he considered installing as well as its initial cost and the quality of the product.

It seems quite certain, however, that some of the systems do turn out a superior product in record time and with a saving of labor and drying space, at a total cost approximating the old sun curing method.

Another year or two should eliminate the inefficient dryers and perhaps improve upon the best of those now in operation.

CITRUS INSTITUTE TOPICS

The annual institute of California citrus fruit growers, to be held at San Bernardino February 20 and 21, in connection with the National Orange Show, will be featured by talks by the leading experts of the state. Following is the program:

Forenoon Sessions, Feb. 20, 9:30 A. M.

Topic — Ranch Organization and Extension.

Address of Welcome—President R. E. Swing, National Orange Show.

Cooperative Grove Organizations—T. R. Woodbridge, Upland.

Housing of Ranch Labor—J. D. Culbertson, Limoneira Ranch, Santa Paula.

Trend of Development in the Citrus Industry—Prof. R. S. Vaile, citrus experiment station.

Are We Using the University and the Experiment Station as We Should?—W. H. Fleet, Rancho Sespe, Sespe.

Discussion.

Afternoon Session, Feb. 20, 2:00 P. M.

Topic—The Making of a Citrus Orchard.

The Selection of Stocks—H. J. Webber, director, California agricultural experiment station.

Bud Selection and Nursery Methods—C. S. Milliken, California Fruit Growers Exchange.

Planting Citrus Trees—F. H. Nusbickel, Glendora.

Handling a Young Orchard—W. M. Mertz, manager, Foothill Frostless Fruit Company, Alta Loma.

Discussion.

Forenoon Session, Feb. 21, 9:00 A. M.

Topic—Orchard Management.

The Fertilizer Situation — A. E. Barnes, Fruit Growers Supply Company, Los Angeles.

The Conservataion and Application

(Continued on Page 251.)

Stifel's Indigo Cloth
Standard for over 75 years

Remember—it's the cloth in your overalls that gives the wear!
The only way to tell that the

OVERALLS and COVERALLS

you buy are made of genuine Stifel's Indigo—the strong, last-long, fast-color cloth that positively will not break in the pirnt—is to look for this trade mark *on the back of the cloth inside the garments.*

Dealers everywhere sell garments of Stifel Indigo. We are makers of the cloth only.

J. L. STIFEL & SONS
Indigo Dyers and Printers
Wheeling, W. Va.
260 Church St., N. Y.

NATIONAL
ORANGE SHOW
California's Greatest Midwinter Event
at San Bernardino, Feb. 13th to 23d
Gorgeous Spectacle Portraying the Splendor and Riches of the Citrus Fruit Industry
A Million Oranges in a Beautiful Wonderland
Garden of Fruits and Flowers
Continuous Entertainments—Bands, Vaudeville and Midway
INDUSTRIAL and AUTOMOBILE SHOW
Citrus Institute for California Growers
February 20-21
Set Among the Gardens of the Great Playground of the Orange Belt at Urbita Springs
Admission Fifty Cents

PRUDENTIAL BUILDINGS

Indestructible, portable buildings for the Farm. Garages, Pump Houses, Barns, Bunk Houses. Erect your own buildings. Save labor. Tell me your requirements.

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Los Angeles, Calif. 618 So. Spring St.
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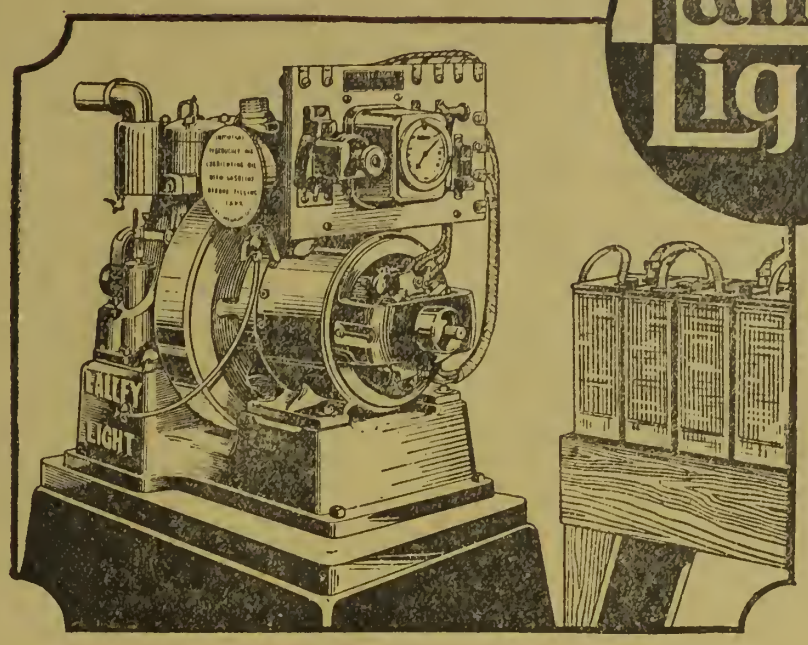

Lalley Light is a complete unit—engine and generator—with 16 cell storage battery. It supplies ample electricity for lights, water pump, washing machine, sweeper, cream separator, fanning mill, iron, etc.

Ten Years' Owner-Experience Has Proved Lalley Light

Naturally, there are fundamental reasons why progressive farmers everywhere are installing Lalley Light Plants now.

They recognize that Lalley Light is the most highly perfected electric light and power plant.

They know this because Lalley Light has stood the test of owner experience for ten years.

They know that only through such an experience can an electrical unit like Lalley Light be developed, refined and perfected as Lalley Light has been.

Install Lalley Light NOW

Right now is the best time to begin enjoying Lalley electricity.
You have the time now to make this installation.

You can begin enjoying Lalley benefits and comforts immediately and be ready for the saving in time and labor that Lalley Light will give you when the rush of farm work comes.

Furthermore, delay may mean that you will have to pay an increased price for this essential money-making farm equipment.

Do not delay. See your Lalley Light Dealer today, or ask him to call upon you.

Lalley Light Corporation

774 Bellevue Avenue — Detroit, Michigan

Lalley Light Corporation
963 Pacific Building
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F. C. Morris, Manager

LALLEY LIGHT

THE ELECTRIC LIGHT AND POWER FOR EVERY FARM

Standardization

By G. H. Hecke, Director of Agriculture, Before Western Fruit Jobbers

WEBSTER has defined a standard as that which is set up and established by autbority as a rule for the measure of quantity, weight, extent, value or quality, and he also says that to standardize means to render standard by comparison with a standard. Before any given business can perpetuate itself and become a permanent part of our economic and social life it must meet two general requirements. It must supply some human want or need and it must yield a reasonable profit to those engaged in it. The reason that the fruit business for many years occupied so precarious a foothold in our commercial life was that it did not produce regularly and adequately enough to create and stimulate a demand, and that it did not return a fair profit to the fruit grower. Improved methods of production and modern machinery have gone far to make up the deficiency in farm labor. The markets have been brought closer to the farmer by means of better transportation and systematic, scientific distribution. In addition to these factors, however, important though they are, there was need for some common basis whereon buyer and seller could trade in a particular commodity in language which would mean the same thing to each of them. So long as each individual grower or dealer has his own idea of what is meant by a 'number one' fruit there is nothing to stabilize the business of growing fruit and there is nothing to operate towards the creation of a permanent demand on the one hand or a reasonable profit on the other. Standardization, then, by establishing a rule for the measure of quantity, weight, extent, value or quality, sets up a standard for a given commodity and standardizes that commodity by comparison with that standard. Such a standard stabilizes the business by providing a common ground where buyer can meet seller with the assurance that each is talking in the same language."

* * *

Mr. Hecke follows with history of standardization as applied by the federal government and in several other states. Referring to standardization in this state, he gave its history, and in regard to methods, said:

"In California we have two methods of supporting the standardization work. The one used in the apple law provides finances from the sale to growers and packers of stamps which go on apple boxes. The use of the state stamps is optional with the packer but compliance with the grade and marking requirements is compulsory. The other method of carrying on standardization as seen in the fresh fruit law is by charging its enforcement to the director of agriculture and the county horticultural commissioners. The expense under this system is borne by the state and county treasuries. Each of these methods has advantages and disadvantages. The comparison cannot be carried as far as I should like to carry it because it is not possible to get a definite idea of the exact cost of standardization work in some counties.

"The apple law is charged to the director of agriculture for enforcement. He employs men, so far as funds will permit, in the localities where their services are most needed. The districts assigned these men are not confined to certain political lines but may cover all or part of several counties, based on reasons of geographical convenience and efficiency. Employed by the director of agriculture in accordance with the civil service rules of the state, they may be discharged in the same way and they are at all times subject to the direction of the central office. Under the fresh fruit law the director of agriculture is made ex-officio chief inspector of fresh fruits for the state. In each county the county horticultural commissioner serves as fresh fruit inspector within the boundaries of his own county. He is assisted by horticultural inspectors who serve as deputy inspectors of fresh fruits. These men receive their appointments within the county and draw their salaries from the county treasury. Because of the difference in the sources of revenue of the various counties there is necessarily a corresponding difference in the amount of funds available and hence some counties are able to employ more inspectors than others. This variation does not bear a true proportion to the needs of the same counties for inspectors, and as a result the fresh fruit inspection is carried on to a much greater degree in one county than another. The director of agriculture surveys the apple situation of the state and deals with it as a state wide problem with uniform rulings and policies applied equally and impartially in each section. Under the fresh fruit law the county horticultural commissioner is more familiar with the conditions of his own county and his attitude towards the standardization work is necessarily influenced by this fact, so that he does not obtain a true perspective of the industry as a whole. The result is a lack of uniformity in executing regulations designed primarily to promote uniformity."

* * *

In closing Mr. Hecke said:

"The essential purpose of standardization is to stabilize the business of producing and marketing farm products. This stabilizing influence exerted by standardization will depend directly upon the quality and quantity of the inspection forces. The inspection forces must be made efficient to the highest degree.

"The efficiency of the inspection and the value of the inspection depends upon the freedom of the inspector to make his decisions on the basis of merit only, which requires that he be relieved of any possibility of a financial interest in the number of cars certified. Therefore, after five years of standardization in California the time has come when we know our needs, we know what we want and we knew that if we get together and pull together we will surely get it—a system of standardization that really standardizes."

SOME RAISINS

Here are some interesting figures taken from the last issue of the Sun-Maid Herald regarding a portion of the raisins handled in California. Figures are rather "dry stuph," but it is interesting to know that if Seedless Raisin cartons used last year were placed end to end they would reach from Fresno to Constantinople, a distance of 9,349 miles.

A single day's pack would cover 122 miles.

And this does not include the million cartons of cluster raisins packed.

We used over 21,866,000 board feet of lumber to furnish shook for our wooden packing cases. This means that a small forest of 15 acres, containing some 6,247 pine trees, was cut, hauled to saw mills and made into the various sized shook. To give you an idea of what an immense business this one item is, it would take the average size shook mill ten months to cut and saw this lumber, and over 900 freight cars to deliver it.

Besides this great quantity of wooden cases, over 1,750,000 fiber containers were used. To seal these paper cases it took 11,000 gallons of silicate of soda, or about as much as the rain we've had all winter.

If one should take all the wood and fiber cases and place them end to end they would cover a distance of 3,500 miles.

Eleven thousand four hundred fifty kegs of nails were used in making the wooden cases, and over 500 miles of "Ribbonzene" was tied in bow knots on our fancy layer pack. On government and export cases 937 miles of strap iron was used to reinforce the cases.

Over 60,000,000 sheets of "parchmyn" paper was wrapped about our seeded pack. If it were spread upon the ground it would completely cover more than 640 acres.

From the looks of things, the way

THE E-B LINE
EMERSON BRANTINGHAM
FARM MACHINERY

Eight Feet at a Round

With its 8-foot swath the E-B Standard Mower does a lot more work in less time. And it does it with no more pull on the horses than many a 5-foot mower.

The E-B compensating lever and spring carries the weight of the cutter bar on the drive wheels. Side draft and weight on the horses' necks are eliminated. The life of the mower is increased because there is less wear and tear.

There are other sizes, too—4½, 5, 6 and 7 foot swaths, all with correspondingly easy pull. They mean quick, thorough work on the most economical basis.

Since 1852 the Standard Mower, now known as the E-B Standard, has been recognized as the true measure of excellence in mowing machine construction. It can be seen now with other haying tools from the full E-B line at any E-B dealer's.

The E-B Hay Loader
gets all the hay—without wadding, rolling or twisting. Cleans the windrow as it goes along. Handles the hay gently. Does not tear straw or leaves or thresh out seeds.

The E-B Side Delivery Rake
rakes three swaths instead of two. Light, fluffy windrows that allow hay to cure gradually and thoroughly.

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Rockford, Illinois
Established 1852
A Complete Line of Farm Machinery Manufactured and Guaranteed by One Company

Since 1902

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DUPLEX-PLUNGER
Pumps

One Pump Will Do Your Work

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

Send for Catalog 103

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Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

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our business is constantly increasing, our hopes will soon be realized, and we'll have a chain of Sun-Maid raisin consumers clear around the world.

TOP WORKING THE WALNUT

(Continued from Page 239.)

ond year and 15 pounds the third year. After this period they developed lateral growths rapidly and the crops increase correspondingly.

The new growth will start strongly and during the first year should be supported by lath or inch stakes firmly fastened to the tree stubs. They may be nailed, but the second year they should be supported by tall stakes two inches square, starting at the ground and may be fastened to the trunk by a spike or large nail. Wires may then be run between the supports so they will lend strength to each other in holding steady the new top during strong winds. To these uprights the branches must be securely fastened, not alone to guard against windstorms, but the weight of foliage may be so heavy that unsupported branches would droop and produce a one sided top. As three-fourths of the three year old top is produced the second year, support beyond the second year should not be needed. Do not head back the first year's growth; let it grow as high at it will, or you will get broom like tops. The next year the top will fill laterally.

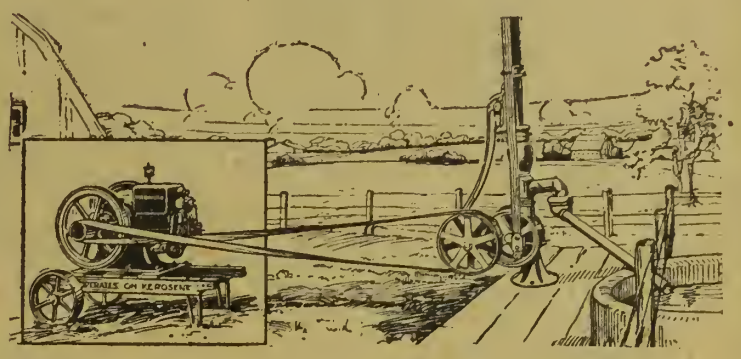
The Operation

The ten year old black walnut had been cut back to stubs of three to five inches, diameter before the audience gathered. This was the first rough surgery. A second cutting of each was made to produce a smooth even surface and this double cutting was advised for all. After the saw the next tool used was a large knife for splitting, made from a blacksmith's rasp or file, the blade about two inches wide and six inches long. A mallet is used to force this into the wood. A smaller but thicker right angle wedge is then driven in to keep the splits open while the scions are being inserted. On stubs of this diameter two splits are usually made and two scions put in each, making four to a stub, about equidistant though if but two grow there will be plenty if the old tree had several branches.

V-shaped scions of about six inches length are inserted. These are generally solid one-year growth that is not too pithy. Some of the more successful work of the past has been done with scions having a two year old base and a one year tip. It is not necessary, however, to use tips or terminals for secondary parts will do. Each should have about four good buds.

The scions are so placed at the outer edge of the splits that the cambium, or soft inner bark, will come in contact with that of the stub. This is the most particular part of the operation and to be sure that some contact is made it is better not to place scion so barks are parallel, but to tilt scion slightly. After properly placing, the wedges are taken out and the scions are securely held in place by the closing splits. There is no danger of this pressure forcing the scion out. After all are in place a few wraps of string or raffia are wound about the stubs, as the bark may loosen during summer, though this precaution is hardly necessary as the splits hold the scions by a strong pressure and bark seldom loosens if heavily waxed. Now comes the most necessary precautionary measure—the air must be kept out of every part. Therefore stub, splits, base of scions and all wounded parts are thoroughly painted with a grafting wax. This is made with four pounds of resin, one pound beeswax, one-fourth pound tallow, mutton preferred, or a pint of boiled linseed oil instead of tallow. The whole stub with the scions is then covered with paper bags until the scions grow and push bags off. This also prevents sun from melting wax so it will run away from wounds, and all should be repainted with this wax once or twice during the summer, depending on the weather. Success hangs on the first year's care, and the most important point is to keep air out. The best time for top-working is the month of February. The scions may be cut earlier, if desired, and will keep from four to six weeks packed in moist sawdust.

The Farm Drudge
" Handyman
" Chore Boy
" Burden Bearer



THESE nicknames and others are frequently attached to the good kerosene engine of which we sing the praises. But, since it is a very serious and practical prose song, the engine shall here be called strictly by its proper name—International.

International Kerosene Engines are annually doing millions of hours of work: Annually taking the menial, toilsome, everyday farm jobs—pumping, sawing, separator turning, washing, grinding, shelling, etc.—off the lame shoulders of grateful men, women and children the nation over: Annually adding to the service that makes farm leisure possible and farm life more than ever worth while.

International quality in general and **International Kerosene Engine** quality in particular are everywhere admitted and admired. These engines are reliable, simple, long-lasting and economical. Among the sizes—1½, 3, 6, and 10—is your correct size. See the International dealer.

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helps the best seeds to produce more abundantly because it cultivates carefully, accurately and properly. It makes your work more profitable because it saves time, labor and money. Strongly and carefully made to last a lifetime. Fully guaranteed.

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SPRING plowing in damp ground presents no difficulties to the Bates Steel Mule.

Its dependable Crawler traction makes the Bates Steel Mule independent of poor footing conditions.

This feature brings quick appreciation from the farmer who knows.

Yet, its reliability for Spring work is only one of the reasons why each season sees a greater demand for the Bates Steel Mule by experienced tractor farmers.

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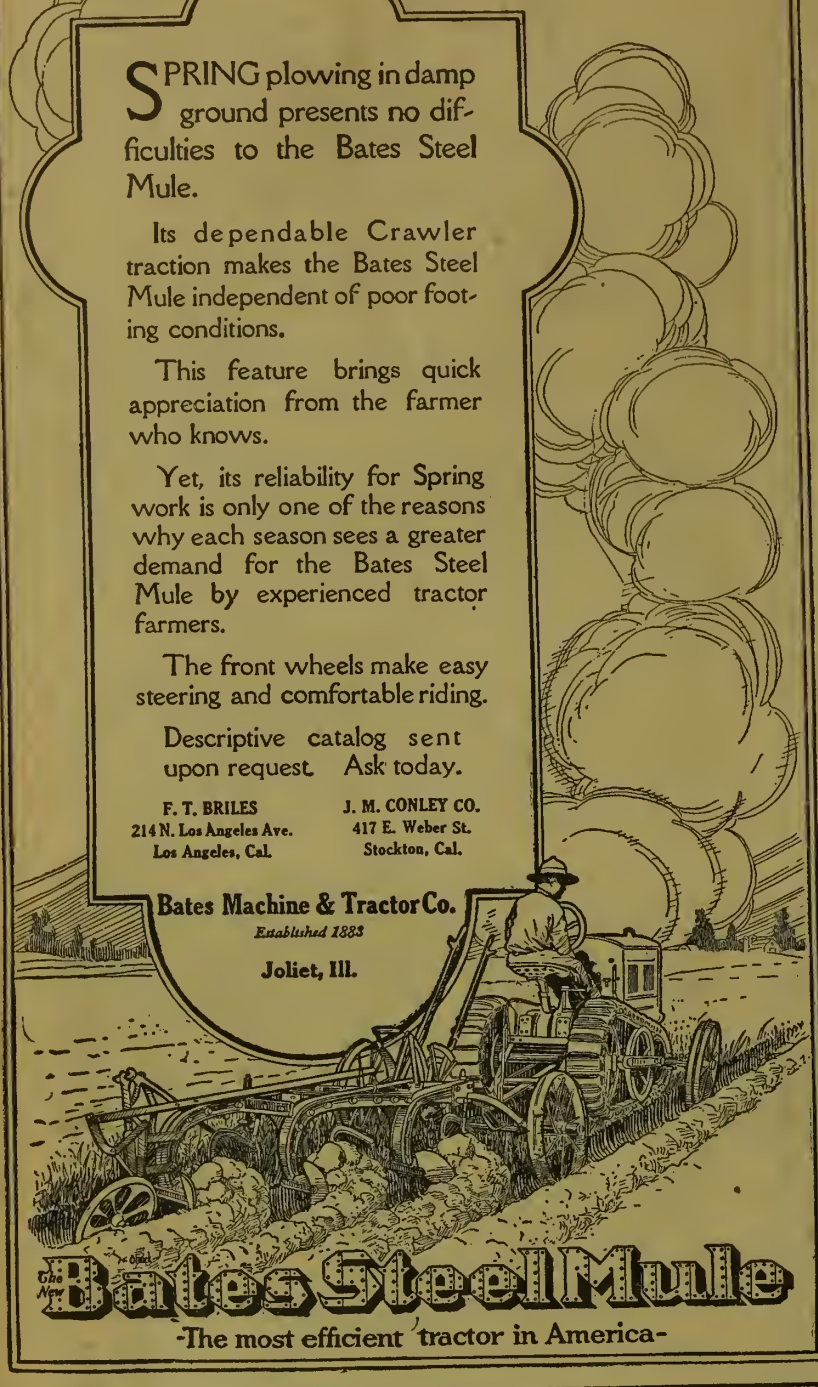

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Saves Farm Labor

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Here is a tool that has swept through the West, winning enthusiastic friends everywhere. It makes and cleans ditches up to 4 feet deep, any width. Builds dikes, grades roads, does every dirt moving job in one-tenth the time and cuts the cost to almost nothing, compared with old methods.

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Get a Martin on trial. Try it on level or hillside land—anywhere. Money back if not absolutely satisfied. The Martin has no wheels, cogs or ratchets to get out of order.

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The Home Garden

By A. F. Clarke

I'M genuinely sorry for the person who hasn't felt the urge before this to make a garden. If he hasn't studied the seed catalogues with their alluring colored plates picturing vegetables of almost unbelievable perfection; if he hasn't figured out where he could stick in a few rows of beets and radishes and turnips and tomatoes and green corn—then such a person is an incurable misanthrope and he should be allowed to mingle only with bankers and brokers and such like folks who never feel the urge of the soil and an internal hanker to turn the good brown earth and make things grow in it, fruit and flowers and berries and vegetables.

During the war the home garden reached its era of highest popularity and achievement. And its need has not passed even should the solons in Washington get together and sign the peace treaty. The fact is that housewives are paying the Chinese and Japanese more for vegetables today than ever before and the home garden is a greater necessity—and this applies as well to the big farmer and fruit grower as to the amateur back lot gardener.

No garden is a real success unless it has been carefully planned, a plot worked out on paper to best utilize the ground and to provide for a wise crop rotation.

Sandy loam is the recognized garden soil of California, but many of the lighter soils have been made to yield good crops, and even the unyielding adobe has possibilities if treated right after each irrigation.

It is not advised that gardens be planted in any but newly planted orchards. Where trees are full size they need all the food there is in the soil and the vegetables and trees will both be losers. Beans furnish about the only exception to this rule.

The farm garden should be planted in long rows to make horse cultivation possible; in fact, the patchwork garden beds of our youth have disappeared. They were too fussy and unhandy. Room must be allowed at the ends of rows for the horse to turn around. Garden ground should be thoroughly worked and pulverized. The dust mulch is a real factor in conserving moisture and aiding growth. Well rotted stable manure is the best growing garden aid, but if it is not available 300 pounds of commercial fertilizer to each 1,000 square feet will do.

It's a good plan in making up your garden schedule to provide for three plantings of sweet corn and two of string beans. The corn should be planted in rows rather than in hills. Golden Bantam and Oregon Evergreen are the popular California varieties for early and late planting, with the Country Gentleman as second choice.

Early peas and potatoes may be followed by beans, peppers and eggplant, and the soil kept busy the while.

February the Big Planting Month

February is the big planting month for Southern California for all except such tender plants as peppers, beans, tomatoes, roselle, melons and squashes. It is the month for potatoes, all the hardy root crops, peas, onions, asparagus and rhubarb.

Some of the New Ones

The amateur gardener is ever alert to try new things, and this season he will likely add to the old favorites such comparatively new things as sea kale, New Zealand spinach, Chinese cabbage, chayote, French endive, lemon cucumber and Monstrous lima. Full cultural directions appear on the seed envelopes and in the seed catalogues.

Currants and gooseberries find a congenial habitat in some of our coast localities, and where the climate is favorable they should have a larger planting. The roselle is a good substitute and seems to thrive most anywhere if planted late enough to avoid the late frosts.

Garden Notes

Potatoes will get a much quicker start if "greened off" in the sun and allowed to start short sprouts before planting. If the cut seed is dipped in ashes or gypsum or air-slacked lime the seed will retain its moisture and absorb a needed fertilizer. Do not plant on newly manured ground. The manure should have been worked into the soil in the fall and allowed to thoroughly rot.

Good time to give the asparagus bed a top dressing of stable manure, and rhubarb will appreciate the same treatment.

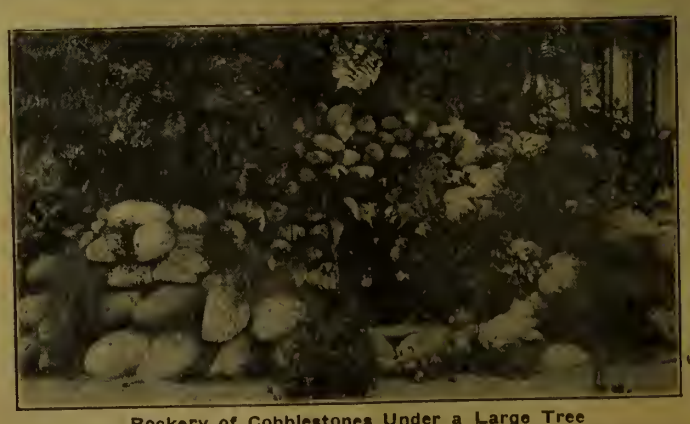
Beets should be planted often as they are best when no larger than hen's eggs. And if you haven't tried them you will find the sugar beet a fine pickling beet.

A last word of caution—don't plant garden seeds too deep.

Rockeries

It has been said that gardening to harmonize with its surroundings should partake of the nature of the country in its composition and material. If this be good logic we should have rockeries in the gardens of much of the state. In Stockton and vicinity rockeries might not be proper, for never was a soil or district more free from stones, but in the south end of the state and in many other parts stone clad hills or mountains are in plain view from thousands of gardens.

A rock garden is best some distance from the house, out of sight of it if possible, for it is so far apart, so distinct from gardening in general, that it should be isolated. But simple rockeries have a place about the base of buildings to fill in that hard angle between the house wall and ground. If the house is of incombustible material the rockeries may lie against the walls; otherwise they should not be higher than the foundation unless by furring with lath and covering with with boards to allow air between house and rockery to protect paint and house from discoloration and decay. Plants for rockeries need not be different from those for gardening in general. Usually rockeries are turned into ferneries, but if in the sun they would do as well for cactus. Of course the conditions would not be favorable for bog plants, but conversely they are



Rockery of Cobblestones Under a Large Tree

In this case a fine araucaria had been trimmed up eight feet by some vandal and the rockery was built to remedy the lack of foundation. It contained many tons of boulders and thousands of plants of many kinds.

fine sites for plants requiring superb drainage. In a shaded spot, with a leaf mold filling, a rockery may be made a fine "begoniary." And a collection of well grown begonias is not surpassed in beauty by any group of garden plants.

POTATO HISTORY

Mr. T. H. Lambert of El Monte, Los Angeles County, a pioneer potato grower of that section, says:

"I shipped my first potatoes about 20 years ago as an independent shipper. The two leading varieties at that time were known as Chinese Pink Eye and Centennial. About five years later the White Rose was introduced and from that time has been the variety I have most largely grown.

"During the season of 1910 potatoes were selling for $1 a hundred, but later dropped by degrees to 60 cents. Then we called the growers together and formed the San Gabriel Valley Potato Growers Association. After this, by reason of an ultimatum delivered to the shippers, the prices gradually rose, and at the close of the shipping season were about $1.25 a hundred. In 1911 the price went up to $2.50, and this resulted in so many potatoes being planted in 1912 that the bulk of the crop brought the grower about 70 cents. The tuber moth was also bad that year and many shipments were found in bad condition when they reached the Eastern markets. In 1909, before the association was organized, I shipped from Irvindale to Las Vegas, Nevada, the first carload of potatoes that was iced. The ice plant at Las Vegas had been destroyed by fire and the buyer wished the potatoes shipped under ice. They reached there in excellent condition and I learned subsequently that the ice remaining sold for enough to pay for the entire icing.

"In 1917, the growers, realizing that considerable loss had been occasioned by decay when potatoes crossed the desert in ordinary refrigerator cars, decided to ice the cars and persuaded the buyer at the other end of the line to pay for icing, and there have been practically no losses since they started to ship in this manner. Icing the cars not only guarantees the potatoes to go through in good shape, but opens up a larger market for the product as they can be shipped farther east. Therefore the association and the California Vegetable Union, who were the pioneers in the icing of potato shipments, made possible the larger market for this product. In spite of the fact that we have been unsuccessful in getting all of the growers into the association, we are holding our own and not losing ground and we hope in due time the growers will all understand the advantages to be gained through the association and will join in with us, which would result in satisfactory returns to the growers. In 1917 another branch association was organized at San Fernando and in 1919 one at Shafter, Kern County."

CITRUS INSTITUTE TOPICS

(Continued from Page 246.)

of Manure—A. D. Shamel, United States department of agriculture.

What We May Do to Increase the Future Supply of Organic Matter—Joy G. Jameson, Corona.

Use of Cover Crops in Citrus Orchards—Dr. J. G. McBeth, Leffingwell Ranch, Whittier.

Afternoon Session, Feb. 21, 2:00 P. M.

Topic—Insect and Fungus Diseases of Citrus.

Important Fungus Diseases of Citrus—Dr. J. T. Barrett, acting director citrus experiment station.

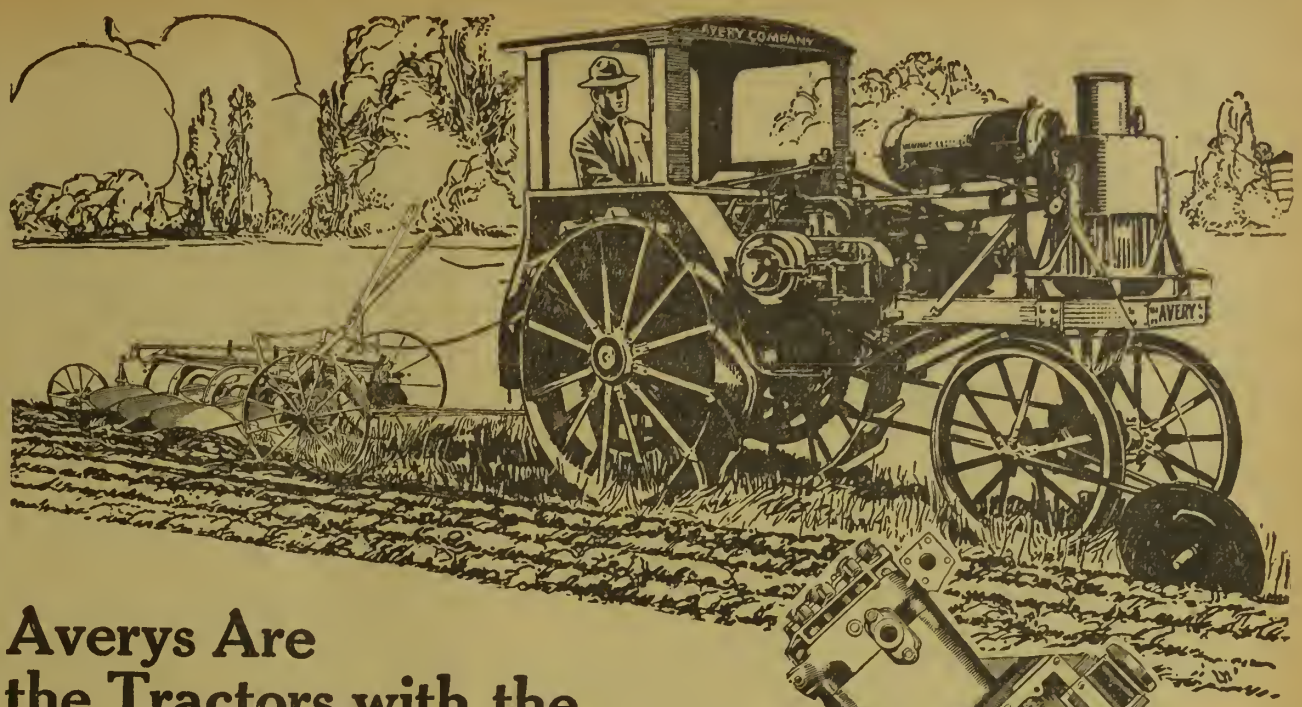
The Use of Parasites in the Control of Mealy Bug — Prof. H. S. Smith, state department of agriculture.

Fumigation Methods in the Control of Citrus Insects—Prof. H. J. Quayle, citrus experiment station.

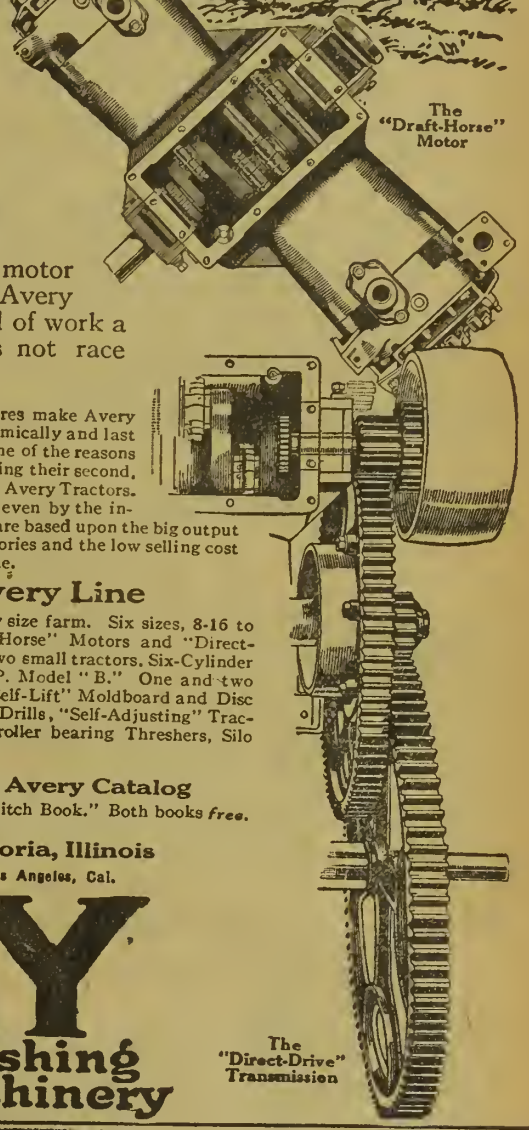
Observ tions on Electric Wind Injury—Dr. H. S. Reed, citrus experiment station. The following commit tee arranged the program:

Dr. H. J. Webber of Riverside and Berkeley, W. G. Frazer of Riverside, J. T. Barrett, acting director of the Riverside experiment station; J. H. Strait and D. C. Lefferts, Redlands growers and packers; C. N. Burton, Pomona; W. H. Fleet, Sespe; S. W. McCullough, Fullerton; R. O. Price, Upland, and H. R. Yerxa of Highland.

The sessions will be held at the First Methodist church at San Bernardino. The dates of the National Orange Show are February 13 to 23.



Averys Are the Tractors with the "Draft-Horse" Motor and "Direct-Drive" Transmission



WHEN you get an Avery, you get a tractor with a motor especially built for tractor work, and exclusively for Avery Tractors. It is built like a draft-horse for the kind of work a tractor must do. *Powerful, heavy duty, low speed*—does not race under light loads or stall under heavy pulls.

It is a horizontal opposed motor improved and perfected with many exclusive Avery features. Its length distributes the weight properly between the front and rear wheels. Its narrow width makes possible a narrower tractor with less side draft. Also a short, heavy, practically unbreakable crankshaft—requires only two main bearings—always in perfect alignment—quickly adjustable with an ordinary socket wrench.

It is built with five-ring pistons, thermo-siphon cooling system, valves-in-the-head, renewable inner cylinder walls, and gasifiers that turn the kerosene or distillate into gas and *burn it all.*

Because of its low speed the power of the Avery "Draft-Horse" Motor is delivered through

The Avery Patented Sliding Frame Transmission

giving "Direct-Drive" in high, low, reverse, or in the belt. The belt pulley is mounted right on the motor crankshaft. You get a larger percentage of the power developed by the Avery "Draft-Horse" Motor at the drawbar, and *all* the power in the belt.

These and other big features make Avery Tractors run steady, economically and last a long time. These are some of the reasons why Avery owners are buying their second, third, fourth and even sixth Avery Tractors. They are easy to operate, even by the inexperienced. Avery prices are based upon the big output of three large Avery factories and the low selling cost of the complete Avery Line.

The Avery Line

includes tractors for every size farm. Six sizes, 8-16 to 40-80 H. P., with "Draft-Horse" Motors and "Direct-Drive" Transmissions. Two small tractors, Six-Cylinder Model "C" and 5-10 H. P. Model "B." One and two row Motor Cultivators. "Self-Lift" Moldboard and Disc Plows, Listers and Grain Drills, "Self-Adjusting" Tractor Disc Harrows. Also roller bearing Threshers, Silo Fillers, etc.

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100 lb. drums	per lb.,	.36
50 lb. drums	per lb.,	.39
25 lb. drums	per lb.,	.42
10 lb. packages	per lb.,	.55
5 lb. packages	per lb.,	.60
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UNCLE SAM AT ALHAMBRA

The United States department of agriculture seems to regard the Alhambra district, 12 miles east of Los Angeles, as a favorable field for study, for it now has two staffs in the field there, and another plant pathologist, here from Washington to study diseases of the strawberry, has been advised to settle there, although at present in another center.

D. G. Milbrath, plant pathologist, has some interesting field subjects which he is watching closely. Among these is a block of cauliflower plants just maturing. One row is of a standard local variety, and next to it are 14 rows each of a different variety, the seeds coming from a famous English seed house. The chief purpose in growing these is not to find varieties best adapted to local use, but as host plants to be inoculated with the "ring spot" disease to determine what varieties are most resistant to it. This disease is not present in Southern California and so far efforts to inoculate the cauliflower in that section have failed. It is thought the air may be too dry. In other parts of the United States and in damper parts of California, however, the growers are much troubled with it. One plot during the summer was in tomatoes for Mr. Milbrath says six fungi attack the southern tomatoes, and their control is one of the coming big prohlems.

Not far from the laboratory just noted is one known officially as the United States truck crop insect lahoratory, under the charge of Roy E. Campbell, entomologist, and housed with him is W. M. Davidson, who is studying insects infesting deciduous fruits. He has plenty of host plants in the orchards of the neighborhood, but Mr. Campbell has a nearby field planted to vegetahles seriously subject to insect pests. Not far away the California state department of agriculture has an insectary where Harold Compere is specializing on parasites of the hlack scale. So that the Alhambra fields are well covered with hunters for hoth insect pests and plant diseases.—E. B.

FIG DEVELOPMENT

Five years ago I planted some varieties of figs on my ranch at Woodlake, Tulare County, among which were some Smyrnas or Calmyrnas as they are called in this state. As advised I planted a wild, or caprifig, near the others, and the first year the capri produced the regular crop of little, hard fruits which in time developed the little blastophaga which seemed to duly fertilize the Smyrnas, giving well developed fruits. Owing to a leak in the irrigating pipe near the wild tree, it made an unusual growth and is now double the size of the other trees, but for the past three years its few fruits have developed into large edible figs with no blastophaga and consequently no matured crop of the Calimyrnas. Is this a common experience and can the caprifig he made to revert back to its proper business of producing insects as well as fruits? —F. L. K.

This is certainly a most uncommon experience, for excessive irrigation could hardly change the nature of the tree so as to cause the quality of the fruit to change as is suggested above. However, we will be glad to hear from any others who may have observed similar behavior on the part of trees thought to be caprifigs.

ROOTSTOCKS FOR STONE FRUITS

To secure information for an inquirer, we recently wrote Prof. W. L. Howard, in charge of the new deciduous fruit station at Mountain View. We asked as to best rootstocks for various soils and conditions. Prof. Howard writes:

"Peach has been the favored rootstock for peaches, almonds, and even plums and prunes, and sometimes apricots, where the soil is especially dry and warm. In a deep moist soil, peach has proved to be a good stock for almonds, hut, so far as I can see, the almond does just as well. Near Davis there is an almond orchard a little over 50 years old, where the trees are still quite vigorous and are perhaps the largest in the state. This orchard was believed to be on peach root, but I recently noticed that one of them, in sprouting from the rootstock, has proved to be an almond.

"Peach as a rootstock will undoubtedly stand a wetter soil than the almond; in other words, overirrigation may kill almonds on almond stock, when the same treatment would not injure them on peach stock.

"Crown gall or root knot is somewhat more virulent on almond than on peach, and for this reason many people prefer to have their almonds on peach stock. I think this point is comparatively unimportant, as the disease is about as likely to attack above the union as helow it. Both almond and peach have been successful as rootstocks for the almond, and unless one has an unusually dry or unusually moist soil, there would be little choice as to which should be used."

CHEMISTS REPORT ON OLIVES

The board of health of Pennsylvania has gone after California ripe olives and gone after them right. The "poison" scare was responsible for this activity. The board secured the services of Chas. H. Wall, dean of Philadelphia College of Pharmacy, and Randle C. Rosenhergcr, bacteriologist, Philadelphia General Hospital. These specialists report:

"The investigation of the quality of the ripe olives as sold upon the Pennsylvania market, which we have been making under your direction during the past month, has been complcted. Two hundred and fifty-four samples have been examined, representing 71 different brands and 100 styles and sizes. The investigation included a thorough, comprehensive serics of chemical tests for adultcrants and proservatives, including boric, benzoic and salicylic acids, formaldchyde and also alkaloidal poisons. Nothing ahnormal chomically was detoctcd in any of the samples.

"Most of the samples woro in cans

"I made one mistake—But this time I think I picked a winner"

(From a letter to the Western Electric Company)

"If I was a mechanic instead of a farmer, I would have bought a Western Electric Outfit in the first place, and not waited till I was several hundred dollars poorer and wiser in the bargain. I am not going to say anything against other plants, because I know that isn't the way you work. I can't even tell the whole truth about your own outfit for fear that people might think you paid me to boost it. You don't have to. H. W. Levis

EDITOR'S NOTE: Mr. Levis is a farmer near West Chester, Pa.

When it comes to electricity I give up

"I believe the wiser a man is, the quicker he will admit how little he knows about electricity. We can see and touch mechanical things, but when somebody gets talking about electricity, he can tell us pretty near what he pleases, and we can't dispute it.

"Take batteries for instance—the most important part of any light plant. We farmers, and even the wiser ones, talk about current flowing into a battery and out of it. But how many people go beyond that? Now look at it this way. If you shoot a stream of water into a bucket fast enough, most of the water will splash out as fast as it splashes in. And if the bucket is an average wooden one, it won't be long before the bottom pushes out. To you men whose batteries are giving trouble, and you who haven't bought yet, I'd suggest first of all that you consider how the battery is charged by the generator. If the current comes in fast at first and then slows up gradually when the battery fills—as with the Western Electric—that means you'll have long-lived batteries. Otherwise you're 'out of luck,' as my son says since he came back from France.

Power and light, or light and power—which?

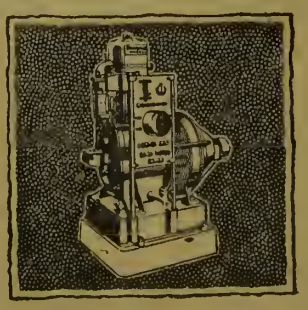
"When I started to buy a plant, I was dead wrong about the lighting end of it. I had a lot of gentle hints at home and heard talk around the neighborhood about how nice electric light is—and it is nice. But what I needed, and what I think nine farmers out of ten need, was a piece of machinery, first and last—an engine to help me do the farm work. Because if I had power enough, light would go with it as a matter of course.

"It took me quite a while to wake up to the fact that it would be an economy to pay a little more for a large outfit that supplied plenty of power, as well as light, rather than to buy a slightly cheaper and much smaller plant that would furnish light only. Right here's the important thing, and the farmer who buys an undersized plant is fooling himself just as I came near doing, because on a farm, power is about the only thing you need except brains, and the only thing that costs nothing when you don't use it.

What I insisted on was an engine that would *run*

"Of course getting plenty of engine is one thing and whether the engine will run is another. You don't want to buy till you've seen the engine in action, any more than I did. Now I don't know what your experience has been, but mine tells me that for genuine dependability you can't beat a valve in head, 4-cycle kerosene engine—that starts just by pressing a switch and runs in all kinds of weather. These are only some of the points about my new Western Electric Outfit. There are lots others I could talk about for pages yet—like that feature of the throttle governor to give uniform speed under any load you please, and the splash system of oiling that's as certain as it's easy. But I figure you'd rather find out about these points for yourself than read my remarks.

"Please don't get the idea I am trying to convince you that there are no good farm plants except the Western Electric. There probably are. But if you can tell me one that's any better, or made by people who are fairer to a buyer or who have been in the electrical business more than 50 years —I'd like to congratulate you, because you are some little finder."



Western Electric Power and Light

Maybe some of the information that helped Mr. Levis decide will help you too in choosing a Power and Light outfit. Just write for booklet CC-I, Western Electric Company, at Los Angeles or San Francisco.

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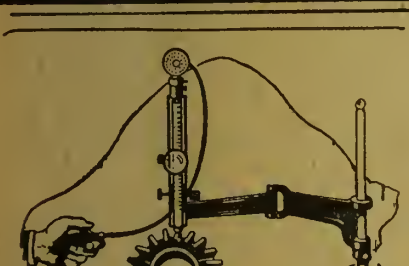

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and jars and all of these were in perfect condition as regards their preservation. There were no swelled buckles or leaky containers, although some of the packages were dirty and shopworn. None of the samples possessed any offensive, putrefactive or decomposition odor and in the majority of cases the flavor was good, some few being insipid. The consistency and color were both variable, probably due to different stages of ripeness and to the treatment before being packed.

"From the chemical and bacteriological examinataions and the results of animal inoculations it can be safely said that none of the olives submitted contained anything poisonous or harmful. The bacillus botulinus (or other disease producing organism) was not found, nor were any of the samples found to be adulterated in any manner whatever.

"If ripe olives were likely to cause botulism there was abundant opportunity among the laboratory workers for the disease to develop, for, supplementing the preliminary tests, they were eaten freely throughout the work with no untoward results. In our opinion, the chances of such poisoning are so extremely remote that the olive consuming public who favor the ripe variety may resume their diet with a feeling of perfect security."

PROTECTION AGAINST APRICOT BROWN ROT

Declaring that science has not yet found a way to give the farmers complete protection against the apricot brown rot, W. T. Horne, associate professor of plant pathology in the University of California, points out methods of reducing trouble caused by the disease. He states:

'Where the disease was present last summer or the year before, there are now left at least a few old dried rotted fruits in the trees. These, called mummies, have the fungus still alive in them and await only abundant moisture to start forming spores which are carried by the wind to all parts of the tree. The mummies are easily seen now and can be gathered without difficulty. Dead twigs killed by the twig blight last spring should also be gathered from the trees as far as possible since some of these also contain living fungus. The material should be burned or buried deeply enough so that it will not be plowed out for several years."

Professor Horne suggested three sprayings with lime-sulphur solution after the clean-up; first, as the buds begin to swell, second as the first blossoms open, and third, when most of the petals have fallen. "Full winter strength, that is one to ten, may be used for the first two sprayings and a weaker solution one to 30 for the third. A crude oil emulsion spray shortly before the buds start to swell has been reported to be favorable and might take the place of the first lime-sulphur spray."

In recent years, Professor Horne stated, there has usually been enough injury apparently to justify spraying in all except the most frostless situations. The interior districts of California particularly with dry atmosphere in fruit ripening time escape injury to the fruit and apparently also the twig blight phase of the disease. "California suffers less than countries with more moist summers," Professor Horne declared.

Orchards with heavy cover crops have been observed to suffer more from twig blight than those with bare ground since a large growth of vegetation in the orchard at blossoming time and immediately thereafter considerably impedes the circulation of the air about the trees and increases the moisture in the air, according to Professor Horne. "Do not allow a heavy cover crop to stand after early full bloom, and if possible, the surface of the ground should be stirred with some form of light cultivator."

Professor Horne states that no treatment can yet be recommended for preventing rotting of apricots near the time of ripening on account of danger of injuring the fruit by soiling it or of injurng the trees. "Therefore, every possible effort should be made earlier in the season, as suggested, to control the disease."

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Any Farm Lighting System is more reliable, more dependable and more enduring when powered with a Bosch High Tension Magneto Equipt, properly designed gas engine.

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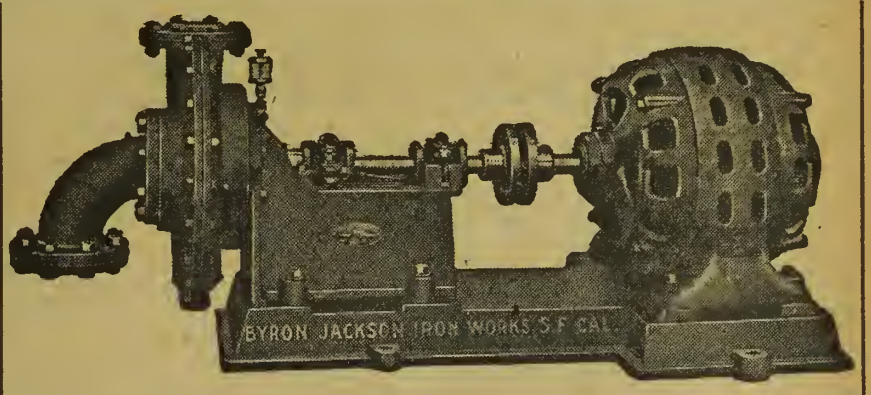

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"I Plowed 9.28 Acres from noon until 8:00 P.M"

"The day this snapshot was taken, I plowed 9.28 acres from 12 o'clock noon until 8 P. M. The field was 290 rods long and I plowed nine rounds. This Fall I pulled a 26-inch separator, threshed about 1,000 acres of grain. One day we threshed 800 bushels of wheat in less than eight hours. I think the LAUSON is a good machine."

CLAUDE KAMP
WOLVERTON, MINN

The John Lauson Mfg. Co.,
New Holstein, Wis.

Gentlemen:-

Your favor of the 28th ult. received and am enclosing kodak pictures together with some negatives I happen to have on hand, also a snapshot of myself plowing with the tractor. The day in April 1919 this snapshot was taken I plowed 9.28 Acres from 12 o'clock N. until 8.00 P. M. The field was 290 rods long and I plowed 9 rounds. I pulled a 36" Case Separator this fall, threshed about 1000 Acres of grain, it handled the Case nicely, one day we threshed 800 Bu. of wheat in less than 8 Hrs.

I think the Lauson is a good machine if properly taken care of.

Yours respectfully.
CLAUDE KAMP.

This is what Claude Kamp of Wolverton, Minn., says after owning his tractor for two seasons.

Year after year LAUSON TRACTORS have gained favor with the better class of business farmers—men who consider service and satisfaction rather than price. You will usually find LAUSON owners the leading and most prosperous farmers in the locality.

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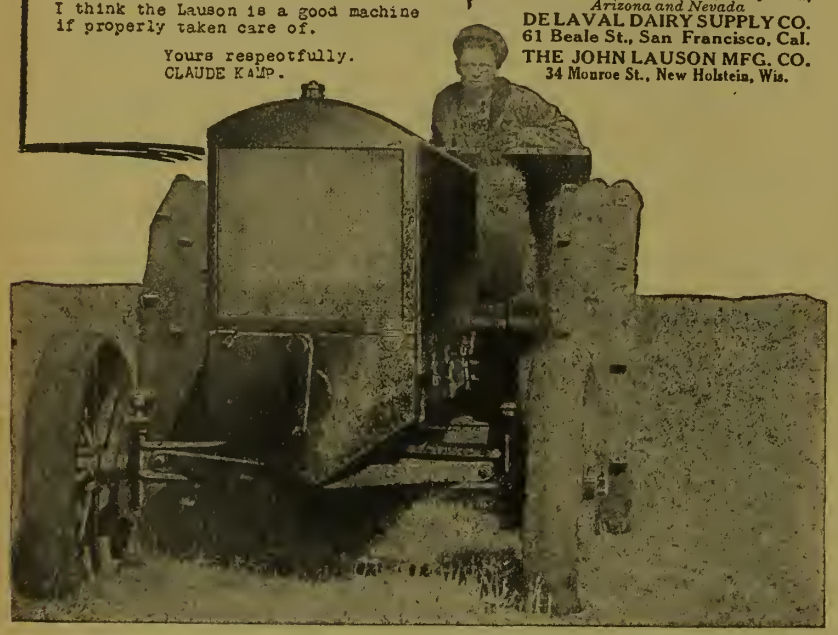

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Measuring and Estimating Corn

Will you kindly advise me how many pounds of corn in the cob makes a bushel? Also how many pounds in a bushel of shelled corn? How many cubic feet of corn in a crib does it take to make a bushel. This refers to what is called big yellow corn grown in the Sacramento Valley.—Subscriber, Sloughhouse.

One bushel of shelled corn is 60 pounds, corn in the ear, 70 pounds to the bushel. This in most states, though in various states of the Union it is 68 to 72 pounds. Shelled corn per bushel from 54 to 58 pounds, in most states 56 pounds. To measure corn on the cob in cribs multiply the length in inches by the breadth in inches, and that again by the height in inches, and divide the product by 2,748 (the number of cubic inches in a heaped bushel), and the quotient will be the number of bushels of ears. Take two-thirds of the quotient for the number of bushels of shelled corn. If the bin is circular or has flared sides all that is necessary is to compute the number of cubic inches and proceed as above.

CROSS BRED HENS

In reply to "Farmer" who inquires about cross-bred hens, I will say that my experience is that crossing breeds is not advisable either in poultry or other livestock, says a writer in the National Stockman and Farmer. Whenever two breeds are crossed uniformity is sacrificed and nothing is given in return. The breeder of full-blood animals or poultry has some object in view, such as in poultry either to produce a strain of birds that will produce the largest and best carcass; or else he may be breeding for fancy points that are not interesting or profitable to the poultryman who is interested in egg production as a source of revenue. We have never had experience with crossing the Brown Leghorn and the Rhode Island Red as "Farmer" suggests, but we have had experience with Brown Leghorns and Silver Laced Wyandottes and their crosses and find all of them good egg producers. The crosses are no improvement over the full-bloods of either. I know of some Rhode Island Red flocks that make good records as egg producers and as they are of good size I can not see any advantage in crossing the breeds.

The larger breeds will most likely consume more feed for the number of eggs produced but the main point in getting eggs is careful culling and good feeding. An old hen will not produce many eggs no matter how well she is fed and cared for.

Young hens will pay well for care and feed, but if they do not get good treatment they will not produce much profit. We kept a few white guineas for several years but in the course of time we got some pearl guineas and the result of the first cross was a pretty uniform guinea with white breast, a few white feathers in the wings and the balance of the body color of the pearl guinea. Further crossing of these cross-bred guineas produced some white guineas, some pearl guineas and some of all kinds of mixed colors, so that there was no uniformity of color after the first cross. It is very much the same with other cross breds, and so if a person undertakes to produce cross-breds he must be at the expense of buying pure breds continually for producing the crosses, so it is not economical on this account.

POULTRY LICE REMEDY

A remedy for poultry lice was developed by the Connecticut station. It is a mixture of one part of mercurial ointment, also called "blue ointment," and one or two parts of vaseline. These are mixed thoroughly, and a bit the size of a pea is rubbed onto the fowl under the wings and about the vent. It is not necessary, nor even desirable, to rub it over the entire fowl as the chicken lice are restless insects and in crawling over the

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Bartlett Pears on Jap Root
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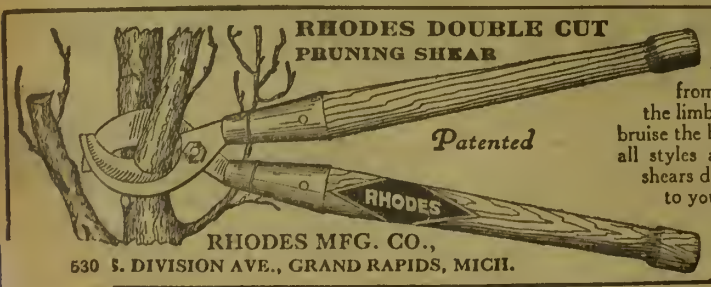

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5,600,000 gals fresh buttermilk
-to fill one purchase
for these 3 Great Poultry Feeds!
Watch Baby Chicks Thrive
SEVENTEEN GALLONS of fresh buttermilk are used to produce the dry buttermilk contained in each hundred pounds of Globe "A-1" Baby Chick Mash—a combination of nutritious hearts of grains, meatine, selected whole ground grains and *plenty* of pure dry buttermilk—nature's health protector and growth maker—*why shouldn't chicks thrive and grow well on Globe "A-1" Baby Chick Mash.*
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"I am a Husky, Healthy, Lively

CHICK

I am getting the Right Start to Heavy Egg Production---

I am

LACTEIN

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Buttermilk

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—and LACTEIN Condensed BUTTERMILK SUPPLIES me with the correct nourishment and at the same time protects me from the ravages of chick diseases—those fatal diseases that decrease your hatch by fifty per cent. It is lucky for me that I happened to be hatched by a REAL poultry raiser, who knew the great value of LACTEIN Condensed BUTTERMILK.

I have a lot of brothers and sisters just like me who are thriving wonderfully on this scientific feed for baby chicks!

Lactein

Ask Your Poultry Supply Dealer for

Lactein Condensed Buttermilk

fowl are sure to get into the mixture. This remedy is cheap, efficient and easily applied.

Another good mixture for killing lice is called Lawry lice powder. It consists of two parts gasoline mixed with one part crude carbolic acid. Plaster of paris is then worked in until all the liquid is absorbed. This is allowed to dry and is then rubbed onto the fowls.

To destroy lice in the poultry house, spray with kerosene or, better, crude petroleum. Make three applications about a week apart, and follow with air slaked lime.

One important condition in controlling chicken lice is to give the fowls abundant opportunity to dust themselves. For this purpose, dust, air slaked lime, ashes, or any light, dusty material is suitable. Fresh, slightly damp (but not wet) earth in which to scratch or dust should always be available.

CALIFORNIA EGG LAYING CONTEST

The eleventh week of the contest saw quite a number of new hens getting back into laying after their siege of molt. Mr. Walls of Petaluma had a close competitor in the Enterprise Poultry Ranch of Chino this week and lost to them on the last day when they came through with a perfect score of ten eggs, making them 53 eggs for the week against his 50. High records are as follows:

Leading pens to date: D. B. Walls, Petaluma, 442 eggs; W. J. Neef, Santa Cruz, 398; B. F. Rose, Santa Cruz, 373; Enterprize Poultry Ranch, Chino, 357; C. T. Brown, Santa Cruz, 328; S. L. Gibson, Santa Cruz, 316.

High individuals to date: No. 16, D. B. Walls, Petaluma, 67 eggs; 272, Hollis Peck, Santa Cruz, 58; 292, G. G. Barker, Santa Cruz, 57; 18, D. B. Walls, Santa Cruz, 57; 177, R. C. Gibson, Newhall, 56.

High pens for week: Enterprize Poultry Ranch, Chino, 53 eggs; D. B. Walls, Petaluma, 50; Bellow Bros., Lakeside, 45; B. F. Rose, Santa Cruz, 44; A. W. Amsbaugh, Santa Cruz, 43; Mrs. M. B. Wilson, East San Diego, 42.

EXTERMINATING HARMFUL ANIMALS

Livestock and wool valued at $20,000,000 are l st annually through the depredations of wild animals. The value of farm produce and forage destroyed each year by rodents is approximately $300,000,000. It is estimated that the households of this country sustain an annual loss from rats and mice of $200,000,000.

These figures sum up certain of the larger losses due to destructive wild life which the biological survey is engaged in reducing as rapidly as possible. A force of between 400 and 500 experienced hunters was employed by this bureau during the past year to kill predatory animals, many of which were infected with rabies; this disease often is spread from the wild creatures to domestic animals and frequently endangers humans. In this work of extermination the states and numerous private organizations have had an important share.

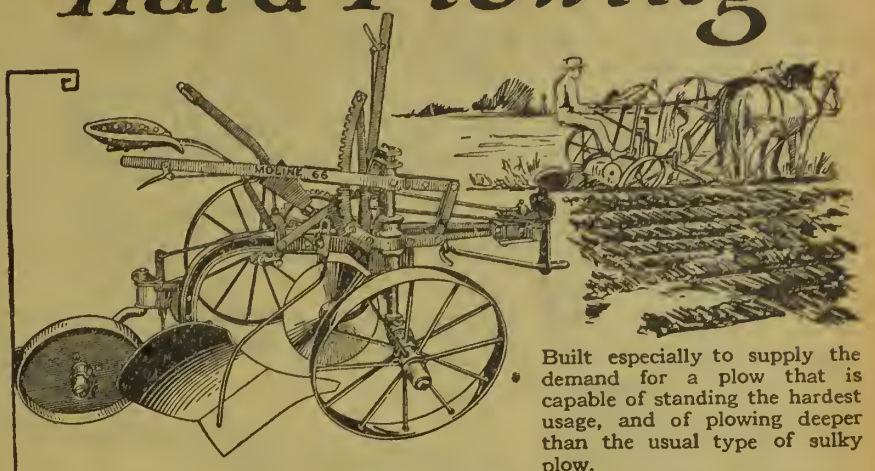
The work of killing rodents—prairie dogs, ground squirrels, jackrabbits and cottontails, pocket gophers, native mice, wood rats, cotton rats, etc.—is also carried on with the cooperation of the states. During the past fiscal year ground squirrels were poisoned on more than 14,000,000 acres. In one Idaho county alone 40,000 rabbits were killed. In the same period from 75 to 95 per cent of the prairie dogs found on a total of 2,200,000 acres was destroyed.

County Agent H. C. Heard of Maricopa County, Arizona, is cooperating with Professor D. A. Gilchrist of the United States biological survey in a campaign for the extermination of gophers. Considerable damage is done by gophers, particularly to ditch banks and fruit trees, and they believe that by a concerted effort a campaign will result in considerable saving to the farmers of the Salt River Valley.

The Wyoming ground squirrel is rapidly extending its range southward and becoming a pest throughout northern Colorado.

Over 50 per cent of the lumber supply of the United States is located in the Pacific Northwest. Over half of this is Douglas fir.

For Extra Deep and Hard Plowing



Built especially to supply the demand for a plow that is capable of standing the hardest usage, and of plowing deeper than the usual type of sulky plow.

MOLINE "66" SULKY

Has a range of adjustment for the wheels which will allow it to plow 11 inches deep This is made possible by using in the construction a very high beam, very high throat and by providing ample lever adjustment for the wheels. Moline "66" Sulky is particularly adaptable for dry farming regions and for plowing for root crops such as sugar beets.

A guiding lever operates both the hitch and the furrow wheel—this gives the operator the means for holding the plow to the proper amount of land through varying soil conditions. By means of the dial hitch the draft is applied through the draft rod directly to the beam.

The Moline "66" Sulky can be equipped with a great variety of either Moline Acme Steel or Moline Chilled Bottoms for good work in any kind of soil. All styles of bottoms in 12, 14 and 16-inch sizes are interchangeable on the same frame.

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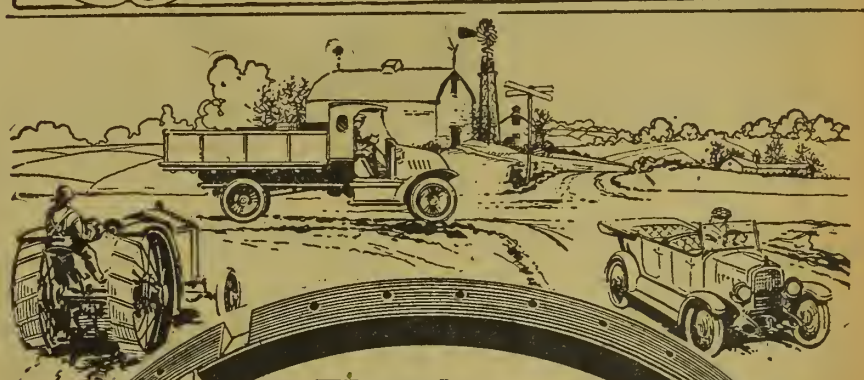
Hay Stackers
Grain Binders
Corn Binders
Pitless Scales
Spreaders
Wagons
Moline-Universal Tractors
Stephens Salient Six Automobiles

If you have extra hard and deep plowing to do it will pay you to see your Moline Dealer about this plow, or write our nearest branch for full information.

Moline Plow Company, Moline, Ill.

Nearest Branches at Los Angeles and Stockton

SINCE 1865 "MOLINE" ON A FARM IMPLEMENT HAS BEEN A MARK OF QUALITY



They lower up-keep

Splitdorf Peened Piston Rings

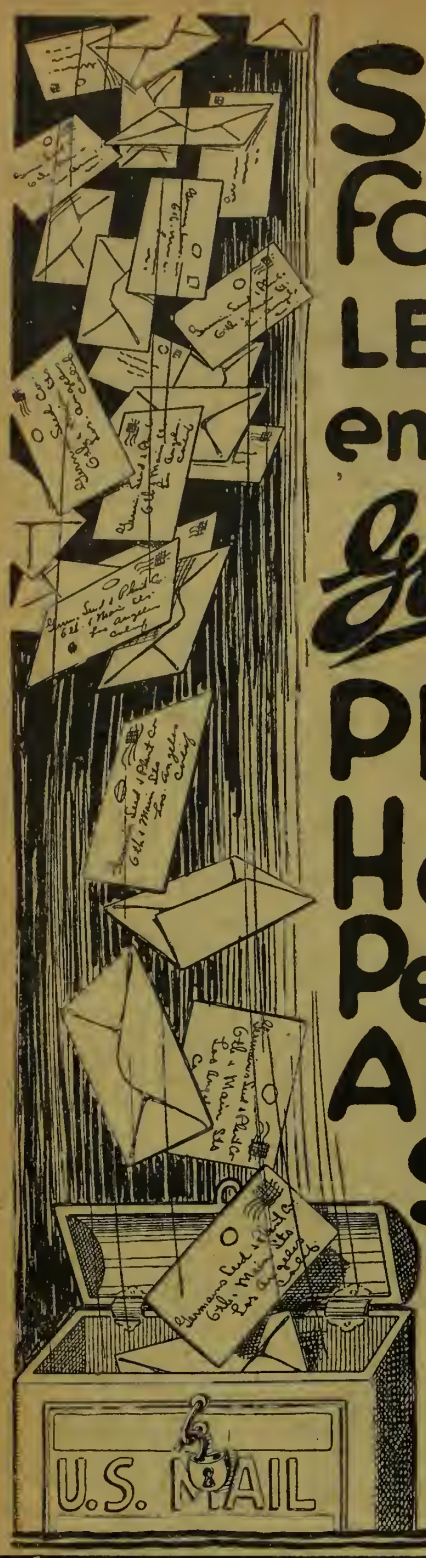
place an impassible barrier between the firing chamber and the crank case of a gasoline engine.

They *make sure* that every ounce of power that your engine is capable of developing is *yours*. They make certain that you are not wasting fuel; that gasoline is not getting down into the crank case and destroying the lubricating qualities of the oil.

Learn the true value of Piston rings for all internal combustion engines. Send for "The Story of the Piston Ring." It is FREE.

SPLITDORF ELECTRICAL CO.
91 Warren Street, Newark, N. J.

TRADE SPLITDORF MARK



Only Thrifty Stock Pays Big Profit

WHETHER it's cattle, hogs, sheep or horses, the more vigorous you keep them the more money you are sure to make from them. For it's the healthy, vigorous cows that produce the great quantities of the best milk. It's the sound, good-conditioned steers that put on the pounds of beef. It's the well, sturdy horses that can do the big day's work.

You'll make sure of thrifty stock by giving them

Pratts Animal Regulator

AMERICA'S original and guaranteed stock tonic and conditioner. It sharpens the appetite. It improves the digestion. It regulates the bowels. It makes rich, red blood. It makes the stock more thrifty and vigorous—and more profits for you—every time.

"Your Money Back if YOU Are Not Satisfied"

Sold by 60,000 dealers. There's one near you.

Write for Pratts NEW Stock Book—Free

PRATT FOOD COMPANY
Philadelphia Chicago Toronto

Makers of

Pratts Poultry Regulator, Pratts Baby Chick Food
Pratts Roup Remedy, Pratts Lice Killers

Pratts

Packed in bags, pails and handy packages.

California Shorthorn Breeders

THE rapidly growing interest in pure bred Shorthorn cattle in Callfornia is shown by the numerous inquiries received by the California Shorthorn Breeders Association from prospective entrants into the business of brecding Shorthorns. Indications are that many farmers and orchardists will attend the fourth sale of Shorthorns to be held February 25 at the university farm, Davls, ln connection with Stockmen's Week. That sale probably will bring about the establishment of a number of small herds of Shorthorns.

There will also be present at the sale breeders from all parts of the state seeking choice stock to improve their herds.

It will be recalled that Little Sweetheart, grand champlon cow at the Chicago International Livestock Show, was purchased at the first sale of Shorthorns in 1918 for $425. It is improbable that her present owner, T. S. Glide of Davis, would take $10,000 for Little Sweetheart today. The sale on February 25 will include a half brother of Little Sweetheart.

In its announcement for the sale, the California Breeders Association says:

"The seasonal demand for bulls has been taken into account by the consignors to our fourth sale of Shorthorns.

"Attention is called to the superlative breeding of a number of the entries, and there are several bulls in the group fit to grace any pure bred herd. The needs of the range man, too, have been considered and there can bc found in the offering bulls old enough for immedlate service, or younger animals which can be carrled along for a few months until required.

"In attending this sale an opportunity ls offered visltors of participating in the lnteresting program prepared by the university farm authorities, a fund of attractlons havlng been provided of lnterest to the range man, the sheep breeder and the producer of swine.

"The announcements contained in the catalogs of our former sales have each drawn attention to the prospective era of development of the pure bred livestock industry in California. Each successive month confirms this analysis of the situation.

"It is eloqucnt to note that the permittees from Fresno County ranging in the Sierra Natlonal Forest have unanimously approved a regulation preventing the entry of any other than pure bred bulls of a recognized beef strain into the forest. This plan must of necessity be followed by similar action in the other forests, and the question immedaitely arises—from what channels of supply can this greatly augmented demand be filled? The solution is simple. Only by the establlshment of greater numbers of pure bred herds can the supply be increased and the demand, in more or less degree, be filled.

"Intelligent producers of pure bred cattle need have no fear for the future, and moreover have the satisfaction of knowing that besides embarking on a business enterprise susceptible of gratifying pecuniary success, they are assisting also in the development of California's greatest industry."

Speaking of the cattle he is sending to the sale, W. M. Carruthers, of the Carruthers Farms at Llve Oak, and one of the best known breeders in the state, sald:

"The six bulls and four heifers we are consigning are the best lot we have ever sent to a combination sale.

"The bull Clarlon was two years old last December and has an unbroken Clara pedigree. His half-brother won the yearllng class at the last Kansas City Royal. Hls sire is a grandson of Whltehall Sultan, the maln herd bull at John Thompson's Farm, Dover, Kansas. This is a real herd bull with a great heart girth, a beautiful roan

CONCERNING THE FIELD NOTE

A letter from a livestock advertiser:

Publishers of California Cultivator:

Gentlemen:—I herewith enclose my check to cover recent statement for advertising. Speaking of advertising, I am pleased to note the conservative way in which the Cultivator is handling its livestock advertising. I do not know how other livestock breeders feel, but I for one find it difficult to swallow a lot of the so-called field notes that constitute the principal reading material in many of the Eastern papers, and not a few of the Western papers. They all seem to be written in superiatives indicating that each man has the best of his breed. At least they are confusing and to me they serve to detract from the value of the advertisement. What I like to see is well written news and I have never felt that a lot of hot air stuff would attract the kind of patronage that I seek. Such publicity must surely cheapen the breeder's business.

* * * *

The Cultivator very much appreciates the above letter for the reason that the writer, who happens to be a prominent livestock man of this state, brings up a point on which this organization has some very definite notions, and it serves as an excuse for stating our position to both the advertiser and the reader.

The California Cultivator is dedicated to the cause of better agriculture and it is our ambition to touch as many phases of agriculture as possible and to assist in whatever way we can to build up and make strong this great industry. As part of the program better livestock will naturally have a very definite and important part. We expect and will depend upon the support of our readers and our advertisers to just the extent that we deserve. If at any time we are found derelict in our duty; if at any time it appears that we are putting our own interests to the fore, to the detriment of the industry we seek to serve, we will expect to receive substantial rebuke.

On the other hand if it ever becomes necessary to seek support on a basis where the advertiser expects the California Cultivator to prostitute its columns on behalf of any advertiser to the extent of publishing a lot of pure guff concerning his herd or flock, that advertiser will not be solicited for business.

The men responsible for the California Cultivator believe in the economic importance of better livestock. They believe that better livestock is fundamental to a prosperous and permanent agriculture. They believe that the trend toward a higher average quality of livestock is constant and inevitable and that the whole movement should be anchored on the firm foundation of the general acceptance of that primary importance rather than upon the flimsy and unstable basis that the production of registered livestock is a game for the speculator to be aided and abetted by that slap-stick form of publicity commonly known as the "field note."

We regard the field note as an illegitimate offspring of an antlquated type of agricultural journalism that is fast being relegated to limbo at the demand of the big, clear-visioned livestock producer who believes in the dignity of his business and its strength to stand alone—without the aid of such far fetched bolstering up.

At the same time we recognize the importance of live news as a stimulus to the business and an effective form of propaganda, and we will continue to print the news that we feel will be of interest and help to our readers. We will not, however, reflect upon their intelligence by introducing the slap-stick variety, written in jazz time and as an excuse for passing the hat.

R. P. ROYCE, Livestock Editor.

SANTA ANITA RANCHO

Anoakia Breeding Farm

Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion and Don Castano, five gaited saddle stallion, winner in many prominent shows.

Mammoth Jacks

We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

Poland China and Berkshire Boars

Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited

Anita M. Baldwin

Santa Anita Cal.

W. H. Taylor, Supt.

Facts in BLACK & WHITE

Ten Pure Bred Holstein Cows Against 20 Scrubs

Two neighbors, on adjoining farms—one milks 20 scrub cows—the other 10 pure bred Holsteins. They care for their cows in the same way; they get almost the same amount of cream and the same sized check from the factory where both sell their milk. Though both men take in the same amount of money, the man with the scrubs uses the whole of his receipts to pay running expenses, while the Holstein man lays aside nearly half. Another item: The Holstein man feeds his skim milk to purebred calves; the other man feeds his to scrub calves. It costs no more to raise a $100.00 pure bred than to raise a $30.00 scrub.

Send for Free Illustrated Booklets.

THE HOLSTEIN-FRIESIAN ASSOCIATION
120 Hudson Street
Brattleboro, Vermont.

Quality Holsteins

Our herd is headed by a grandson of the world's greatest dairy cow, Tilly Alcartra,

Sir Aaggie Korndyke Alcartra

whose dam and sire's dam average:
Butter, one year..... 1096.58
Milk, one year.....27316.60
Females and bulls from A. R. O. dams for sale
All animals guaranteed

Leeman & Kilgore, Ripon, Calif.

Brighton Farm Herds

Registered Shorthorns and Berkshires---Both Sexes

H. L. & E. H. Murphy

Perkins, Cal.

Beef Cattle Specialist

For 30 years I have been devoting my entire time to pure bred beef cattle. I know the kind of cattle California needs and where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited. R. M. DUNLAP, Hotel Land, Sacramento, Cal.

DIAMOND G HEREFORDS

are the kind that make good under all conditions. They have the size, bone and constitution that the range operator wants. Herd headed by Don Perfect 2d, one of the best bulls in the West. Correspondence invited and visitors welcome.

H. H. Gable Esparto, Calif.

with a fine breeder's head. He is thick and close to the ground.

"Live Oak Glory 5th is red with white feet and has a Clara Victoria pedigree. He is a full brother to the yearling heifer Mr. Bond paid $1,850 for at my last sale. He will make some one a mighty good herd bull.

"Villager's Stamp, a red roan from a Cruikshank and by Hallwood Villager, has an ideal head and is one of that low down blocky kind the breeders like to see. He resembles his sire very much but will make a better show bull. It will take a good yearling to beat this bull at the shows this year.

"Villager's Duke, a Cruikshank Orange Blossom, is much like his stable mate, Villager's Stamp. He is a nice roan, wide and low down, also sired by Hallwood Villager. Ruth's Count and Signet's Count are two good ones by Count Glory. The first named is a flashy roan with few holes in him, the kind the stockmen like. Signet's Count is of a solid red color.

"It was only with a good deal of persuasion that we consented at all to consign any heifers but to help the breed along we are sending four head, an Orange Blossom, a Secret, a Dorothea and a Red Lady. These are four elegantly bred heifers, two roans and two reds. Three of them are sired by Count Glory and one by Hallwood Villager."

The University of California offers two heifers. One is Mayflower Gloster out of Lavender Miss 2nd, she by Fond Lavender. The heifer is sired by the university farm's great white bull, Sultan Mayflower, sire of the bull California Model, which as a calf brought $5,500 at the second sale of Shorthorns in 1918. The farm's other offering is California Lady 2nd, also sired by Sultan Mayflower and out of Lady Bug 3rd, she by the Clark bred bull, Noble Knight.

Eaton and Ward, Blackhawk Ranch, have entered four bulls. These are Blackhawk Favorite, sired by their head breeding bull Roan Radium and out of a Violet Leaf cow; White Emblem, sired by Pride's Emblem, he by Village Pride; Belle's Sultan, grandson of Whitehall Sultan and out of Knight's Lady Belle; Pride's Emblem 2nd by Pride's Emblem, out of a Clara cow. The first two named have six crosses of Cruikshank strains, while Pride's Emblem 2nd has five crosses of Marr bred Claras in his pedigree. Three of these bulls are full two year olds.

SHORTHORN TYPE THAT COUNTS

(Continued from Page 241.)

of the shoulders. Note, too, the tendency to narrowness at the rump. The other shows the straight side lines and ample thickness of the perfect beef carcass. Note the width back of the hips.

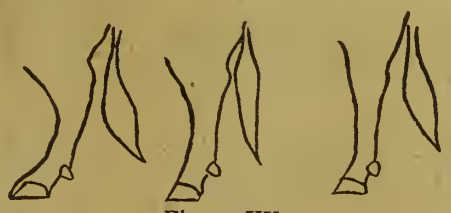


Figure XV

Figure XV shows the difference in conformation of the hind leg. Note that one is badly crooked, furnishing an inadequate support to an animal when it acquires any considerable weight. The one shown in the center approaches the correct position—not too crooked nor too straight, but designed to furnish the best support and stand the necessary travel. The one at the right is entirely too straight and interferes with the proper movement when in action. The tendency of an animal of this conformation when it becomes heavy is to buckle forward.

I offer these few suggestions in the hope of enabling the readers of this magazine, who may not be skilled bovine critics, to more readily discern the peculiarity of animal form. These by no means cover the ground fully, but they draw attention to a few fundamental characteristics that everyone interested in livestock improvement must understand. It is a good practice to make comparisons of animals wherever found. When looking through a herd take time to note the difference in conformation. It is always an interesting study, and a profitable one if you have money invested in the business. An experi-

More Milk and Easier Milking!

—Care of the Udder Insures It.

It is impossible to obtain a maximum milk-flow from an udder that is not entirely healthy both inside and out. The slightest hurt or congestion will interefere with the delicate milk-secreting process, and at once reduce the production of an otherwise healthy cow.

Bag Balm has the soothing, healing, and penetrating qualities needed to make the tissues and surface of the udder soft, smooth and pliable—easy to milk and encouraging production to the last ounce.

A little care pays big returns; keep Bag Balm on hand and insure against milk losses and disagreeable milking. Especially valuable in treating Caked Bag, Cow Pox, Chaps, Bunches, Wounds and any inflammation.

Sold by druggists, feed dealers and general stores, in liberal 60c packages. Be sure to obtain a package at the first opportunity. It's a little wonder-worker in any udder trouble. A great remedy at the calving period, when so many abnormal udder conditions arise.

DAIRY ASSOCIATION CO., Lyndonville, Vt.

BAG BALM

MADE BY THE KOW-KURE PEOPLE

"FEEDFINE" FEEDS

are scientifically compounded in proper proportions for dairy and all livestock feeding, of the following ingredients with the most economical results always in view.

YEAST — A concentrate high in PROTEIN and FAT content, sterilized and predigested.

CANE MOLASSES — The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.

ALFALFA MEAL — Gives body to the ration and supplies the mineral matter which is absolutely essential to all animals.

The greatest known combination for health, strength and productiveness.

YEAST, CANE MOLASSES and ALFALFA

Mason By-Products Co.

No. 2 Pine Street
SAN FRANCISCO

Factory:
Sausalito, Cal.

Economy Stock Powder

will keep your pigs in condition by acting on the liver, kidneys and blood. Will keep the stomach sweet, expel worms, aid digestion and prevent white scours and thumps.

Send for a free sample and our booklet "Economize Your Farm."

Economy Hog and Cattle Powder Co

1016 Hearst Building San Francisco

Bunting's Mission Herefords Are Profitable

They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.

JOHN A. BUNTING
Mission San Jose Calif.

Veramont Herefords

HAVE GREAT

Quality and Breed Character

See the sons of PATRICIAN 5th in the February sale at Davis. Young stock for sale.

H. M. Barngrover, Prop.

SANTA CLARA, CAL.

enced judge will, at one quick glance, detect the defects and strong points of the animals composing a group. An inexperienced person may spend hours among them without observing these defects. It is this ability to observe that makes a man skillful in his judgment. Here is an interesting feature: that the more skillful one becomes the more readily one detects the different characteristics, the more deeply interested one becomes in animal improvement.

The California farm bureau marketing association has issued a calendar which gives the dates of all hog sales to be held by the association during 1920, with names of the local managers of the farm bureau, the auctioneers, and the officers and directors of the marketing association.

HEREFORDS

30 Females---At Public Auction---40 Bulls

University Farm, Davis, Cal.

Tuesday, February 24, 1920, at 1 P.M.

An offering by leading Pacific Coast breeders in which the females are of high character and breeding, and those in calf are bred to the outstanding sires of the West. Especial thought has been given to the needs of the rangeman in the bulls to be sold, and the result should prove attractive to range buyers.

HEREFORDS ARE SAFE CATTLE

The comparative freedom of HEREFORDS from some of the more serious cattle diseases, and their firmly established ability to successfully withstand the hardships of winter and the droughts and resultant scant feed of summer, contribute largely to the tremendous popularity the whiteface breed has earned throughout America. Their dependability on the range and in the feed lot has created a sound and dependable demand for registered HEREFORD breeding animals, and the purchase and development of such animals in one of the safest investments in the agricultural field today.

The cattle in this sale represent the breed families that have played a large part in establishing HEREFORD quality, and the consigning breeders are offering only such individuals as they believe will prove satisfactory and profitable in the hands of new owners.

Contributors to Sale:

University of Nevada, Reno, Nev.
J. H. Cazier & Sons Co., Wells, Nev.
J. A. Bunting, Mission San Jose, Cal.
W. J. Bemmerly, Woodland, Cal.
Chas. Rule, Jenner, Cal.
W. D. Duke, Gazelle, Cal.
H. M. Barngrover, Santa Clara, Cal.

Catalog of sale free on request.

Sale under auspices of

Pacific Coast Hereford Cattle Breeders Association

J. I. Cazier, Pres., Wells, Nev. J. A. Bunting, Sec., Mission San Jose, Cal.

Auctioneer—Col. Ben. A. Rhoades, Los Angeles

Sale Manager—C. L. Hughes, Sacramento.

REMEMBER Stockmen's Week, Feb. 24-27 University Farm, Davis REMEMBER

The Fourth Sale of Shorthorns

Under the Auspices of the

California Shorthorn Breeders' Association

Will Be Held At

University Farm, Davis, Calif

on Wednesday, Feb. 25th, at 1:00 P. M.

promises much to the discriminating seeker after quality, both from the viewpoint of the range man needing range bulls and the beginner seeking to establish a herd of Shorthorns.

There Will Be Entered At This Sale

FORTY-FIVE HEAD of BULLS

from one to two years old, and

TWENTY HEAD of COWS and HEIFERS

many of which are of Scotch breeding

For Catalog and Further Particulars, apply

CALIFORNIA SHORTHORN BREEDERS' ASSOCIATION

222 Sharon Building, San Francisco, California

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

Thursday, March 25, Guaranty Sale, Sacramento.

April 8, Breeders Sale, Tulare.

Wednesday, April 21, A. M. Bibens, Modesto.

Wednesday, May 12, Leeman & Kilgore, Dispersal, Ripon.

Herefords

During last week of February, Pacific Coast Hereford Cattle Breeders' Association.

Shorthorns

April 17, Butte City Ranch, Butte City.

Berkshire Swine

February 18, Western Berkshire Congress, Davis.

April 17, Butte City Ranch, Butte City.

Poland Chinas

China Breeders Association, Lodi.

February 21, J. F. McSwain, Merced.

February 26, California Poland China Breeders Association, Davis.

February 28, Kings County Poland China Breeders Association, Hanford.

March 13, Haag & Bernstein, Hanford.

April 3, Kings County Pig Club sale, Hanford.

April 24, W. T. Dice and Harrold Waltz, Hanford.

Shetland Ponies

April 17, Butte City Ranch, Butte City.

Shropshire Sheep

April 17, Butte City Ranch, Butte City.

In the Western Hereford Breeders Association sale held at Denver, January 21, during the National Western Livestock Show, R. C. Jacks of Monterey, who has been a very heavy purchaser of Herefords the last few months, paid $4,000 for Ruth Domino, the January 1919 calf that was made junior and grand champion at that show. Ruth Domino was sired by Prince Domino, the bull that made a record on his get at the Denver show. In the same sale five sons of Prince Domino averaged $3,370 and three daughters averaged $2,142. Prince Domino was sired by Domino by Publican and out of a Beau Brummel dam. Other purchases made at Denver by Jacks include two two year old bulls and two heifers.

California Hereford breeders will be interested to know that Miss Rialto 2nd, champion Hereford female at the 1918 Los Angeles show and again at the 1919 Los Angeles and San Francisco shows, has been sold by her breeders, the Hereford Corporation of Wyoming, to Senator J. N. Camden of Kentucky for $10,000. She was recently senior champion at the Denver show.

Announcement has just been made by C. L. Hughes of the California Breeders Sales and Pedigree Company, Sacramento, that on April 21 he will sell at public auction 100 head of registered Holstein heifers and 20 registered bulls from the herd of the Bonita Stock Farm. The heifers are said to represent one of the most attractive lots to be sold in some time, and range in age from calves to bred heifers. The sale will be held on the Bonita farm.

The Henderson Company of Sacramento has recently sold 23 daughters of their herd bull, King of the Black and Whites, to S. O. Walker of Visalia. By this purchase Mr. Walker secured a particularly desirable foundation herd.

At the National Western Livestock Show the grand champion carlot of bulls was won by yearling Herefords. They sold for $600 around. The champion load of females was won by yearlings and they were sold for $1,000 around. Sixty-five carloads of breeding cattle were exhibited.

The interest now being accorded Hereford cattle in this state is indicated by the extreme demand for catalogs and information concerning the sale to be held under the auspices of the Pacific Coast Hereford Breeders Association at the university farm, Davis, February 24. The sale, which is to be managed by C. L. Hughes of the California Breeders Sales and Pedigree Company, Sacramento, will consist of 40 bulls and 30 females from the following breeders: Chas. Rule, Duncans Mills; W. J. Bemmerly, Woodland; University of California, Davis; University of Nevada, Reno; John H. Cazier & Sons, Wells, Nevada; W. D. Duke, Gazelle; John A. Bunting, Mission San Jose; H. M. Barngrover, Santa Clara, and probably the Hereford Corporation of Wyoming, Cheyenne, Wyoming.

Dr. J. P. Iverson, during his recent trip to Salt Lake City and Spokane,

in addition to attending the meetings of the woolgrowers and cattlemen's conventions, called on a number of state livestock officials and believes that it will be possible to call a conference of all officials west of the Rocky Mountains this summer. During the last few years many new problems have developed which are proving very difficult to handle, due to lack of uniformity of methods and policy, which it is believed could largely be corrected by a meeting of these officials.

The fourth semi-annual sale of the California Shorthorn Breeders Association will be held at the university farm, Davis, February 25, during the Livestock Week. Forty head of bulls and 20 females will be consigned from the following herds: W. M. Carruthers, Live Oak; Caledonia Farms, West Sacramento; Dr. H. M. Elberg, Woodland; Thornton S. Glide, Davis; university farm, Davis; Blackhawk Ranch, Diablo; Ormondale Farm, Redwood City; Pacheco Cattle Company, Hollister; Fair Oaks Ranch, Willits; G. A. Murphy, Perkins; H. L. & E. H. Murphy, Perkins; Chas. A. Trosti, Vinton. The bull end of the offering is said to be particularly attractive and of a class that will meet the needs of the range men and many breeders. Not a few of the bulls are sired by the leading sires of the West and many of the females are either sired by or carry the service of the best bulls owned in California herds.

H. W. Rice, Paia, Maui, Hawaii, has purchased from Steybrae Farm of San Mateo, the Ayrshire cows Maple Leaf Lily, Steybrae Anne, Steybrae Jeanie Deans, Sunnyside Gouverness and Willowmoor Happy Girl. Maple Leaf Lily is a sister to the famous show cow, Maple Leaf Jean, now owned by Capt. A. Henry Higginson of South Lincoln, Massachusetts.

Epochal, the noted English bred Berkshire boar that has been at the head of the herd owned by the Gossard Breeding Estates, Martinsville, Illinois, died recently. This boar was the cause of much discussion in the Berkshire ranks owing to the fact that he represented a direct outcross from American bloodlines. Epochal proved himself a valuable sire and has left a strong impression on the breed.

In referring to the recent purchase of Shorthorns made by Dr. H. M. Elberg, Roselawn Stock Farm, Woodland, the Breeders' Gazette says: "H. M. Elberg, Woodland, has selected from the Hopley Stock Farm, Atlantic, Iowa, 10 females, including the red Select Beauty by Selection by Whitehall Sultan, with a roan heifer calf at side by Village Beau, at a cost of $5,000. At the same figure he secured the roan Ravenwood Lady by the Gentry-bred Wooddale Stamp, with a roan bull calf at foot by Village Beau. The roan Village Queen with a heifer calf by Village Beau and two Village Beau yearling heifers also were purchased."

The Sonoma County Fair Association has been organized by the following incorporators: J. Francis O'Connor, Castleview Ranch; Thomas Harrison, L. L. Cannon, P. W. Bussman, Sheridan W. Baker, Ida D. Pyle, John T. Summers, Al Trembly and E. A. Vaughan. The directors are planning to lease the old Santa Rosa stock farm for a fair grounds.

One offering at the Western Berkshire Congress sale, to be held at Davis on February 17, is Wilsonia King Laurel, consigned by the Sandercock Land Co. He is the 800 pound boar that is a litter mate to Real Type, claimed to be one of the greatest boars in the world. The only time these two boars were shown Wilsonia King Laurel defeated Real Type. The Sandercock Land Co. sold a full sister to this boar to the Italian Vineyard Company for $500. The boar is two and one-half years old, and was one of a litter of seven that was shown, all of which have been sold for high prices and are in some of the best herds in the United States.

FOUR STATES IN BERKSHIRE CLASSIC

The following program has been announced for the annual meeting and sale of the Western Berkshire Congress to be held at the university farm, Davis, Tuesday and Wednesday of next week: 10:00 A. M., students judging contest; 11:00 A. M., women's judging contest; 11:30 A. M., judging sale hogs; 1:30 P. M., annual congress meeting; 7:00 P. M., anual banquet, Traveler's Hotel, Sacramento.

Wednesday will be occupied with the sale of 40 bred sows and gilts from the following herds: Anchorage Farm, Orland; Frank B. Anderson, Sacramento; Calac Orchards, Martinez; Castleview Ranch, Santa Rosa; E. J. Ferguson, Santa Rosa; R. C. Gruhlke, Dixon; A. B. Humphrey, Escalon; Italian Vineyard Company, Guasti; Kounias Registered Stock Farm, Modesto; Will Long, Orland; R. J. Merrill & Son, Morgan Hill; H. C. Muddux & Son, Sacramento; Walter Olsen, Chimacum, Washington; W. F. Sandercock, Sacramento; Silver Glenn Stock Farm, Silverton, Oregon; C. P. Warwick & Son, Pleasant Grove, Utah; George M. York, Modesto and D. J. Bastanchury, La Habra.

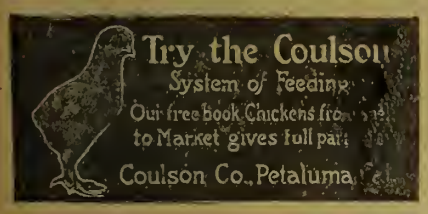
According to Secretary Anderson the offering is the most representative of the best Western herds that has ever been sold through a congress sale.

The Pride of Petaluma

KRESKY'S 1920 VENTILATING brooder stove forces proper ventilation in spite of the operator and sweeps the room with FRESH AIR. PETALUMA'S latest sensation and result getter. TRY it. Keep it if you like it, or send it back if you do not.

Catalogue No. 3, free for asking.

KRESKY BROODER STOVE CO.
Petaluma Cal.



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MODERN, efficient farming demands the use of FAIRBANKS Scales.

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First Sale of BERKSHIRES

CONSISTING OF

20 Bred Sows and Gilts and a Few Selected Weaned Pigs

Will Be Held At

Rhoades & Rhoades Sales Pavilion,

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Saturday, Feb. 21, 1920

— AT —

1:00 P. M. Rain or Shine.

Sealed Bids will be received by the auctioneers, addressed to them at 1501 South Main Street, Los Angeles, Calif.

RHOADES & RHOADES, Auctioneers.

Have all Breeds of Registered

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Registered and Unregistered.

All Animals Sold Under a Guarantee.

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I Want a Hog Man and a Chore Boy

Man that understands business and not afraid of work. Boy to milk cow and do general chores and help in hog house. Have three room house.

Address Box M, California Cultivator

Our Position

Lendorris Ranch could not have gained and held the enviable position it now holds as a breeder of big type Poland Chinas if the animals bred did not meet the approval of our customers.

True—Lendorris Liberty Bond and Young Jumbo have proven to be superior sires which accounts in part for our present position. Our sows, of course, have been of material assistance. We will be pleased to answer your inquiry.

W. L. Haag and Son **Hanford, Cal.**

Bred Sow Sale, March 13

ASK THE MAN

WHO HAS SEEN

Golden West King Grand Champion Poland China Boar at the San Francisco Livestock Show

Blue Valley King by King Big Bone and the Sire of Typical Poland Chinas

about these two Poland China boars. We are willing to accept his judgment. When you want the profitable, big type Poland China it will pay you as it has others to get in touch with us.

A. Buckland & Son, R.F.D., Fresno, Cal.

The Practical Test

of any breeder is satisfied customers. Recent sales to old customers indicate to me that my practical herd of big type Poland China sows headed by Forrestview Bob, a son of Caldwell's Big Bob, are producing the kind that satisfy. I will be pleased to satisfy you. Write me.

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AV-I-A-TOR

represents the highest accepted standard of a Poland China boar. As breeders who have seen him say; he has everything to recommend him—nothing to condemn him. Get a sow bred to him. Merced County Breeders Sale, Feb. 21

CROSS BROS. **MERCED, CAL.**

King's Big Bone Leader

has amplified our greatest expectation as a sire of big type Poland Chinas.
GIANT BOB 2nd is a young boar of great possibilities.
We feel confident they represent the type most desired.

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You Can Buy Choice Pigs Now

from my herd of big type Poland Chinas I can offer some exceptional buys. Bred sows and gilts or pigs. First that write me will get some choice animals. Priced very reasonable. Write me at once for full description.

Exceptional Herd Boar For Sale.

Eugene Miner **Lodi, Cal.**

SEQUOIA HERD of Big Type Poland Chinas

Senior Herd Boar—GIANT BOB, grand champion at state fair. Highest priced boar in the West and the sire of the right type of Poland Chinas.
Junior Herd Boar—THE SEQUOIAN, by Blue Valley Big Bone, a young sire of remarkable possibilities.

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THIS IS WHAT COUNTS

If you are raising hogs the quicker you can make 200 pounds of pork the more money you make. I breed Poland Chinas that mature quick.

BIG MODEL FELLOW—my herd boar was Reserve Grand Champion at last state fair. Buy a sow bred to this boar and secure both quick maturing and show qualities.

Bred sow sale, Merced, Feburary 21st.

J. F. McSwain **Merced, Cal.**

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. **Los Angeles**

TOYON HOLSTEIN SALES AND RECORDS

In a recent letter from Horace L. Hill of the Toyon Farm Association, he writes:

"We wish to report the recent sale to A. E. Smith of Sumas, Washington, for $4,000, of a son by Judge Segis and out of Ava Model Hengerveld 2nd who had completed a record of 1,129.37 pounds butter from 25,874.1 pounds milk in 365 days. We now have in our herd five daughters and granddaughters of this cow and a 30 pound sister by the same sire. We regard this as one of the greatest foundation families of our herd and intend to develop fully all these animals in long time work. A daughter of Ava Model Hengerveld, freshening with first calf, last April as a junior two year old, made a record of 17.72 pounds butter from 401.5 pounds milk in seven days and continuing on semi-official test now has to her credit 550.73 pounds butter from 12,639.0 pounds milk in 255 days. A granddaughter, Korndyke Model Hartog 3d, made as a junior two year old a record of 23.77 pounds butter from 490.4 pounds milk in seven days and now has to her credit about 586.64 pounds butter from 13,850 pounds milk in 244 days.

"We have also sold to the Whittier state school a son of our Finderne Soldene Valdessa out of Valdessa Clarkhurst Pietertje 2nd who has a junior three year old record of 25.78 pounds butter from 507.4 pounds milk in seven days. Valdessa Clarkhurst Pietertje 2nd has again freshened and will probably be run for 305 days. This young bull is particularly strong in the blood of Valdessa Scott 2nd, the first 41 pound cow, tracing to this great animal through both his sire and dam.

"During the past few months we have completed in addition to those mentioned above the following seven day records: Dominita Clem De Col 3d at seven years—butter 31.48 pounds from 486.2 pounds milk; Finderne Jondine Pontiac at three and one-half years—butter 25.87 pounds from 461.3 pounds milk; Pearl De Kol Netherland 5th at eight years—butter 27.96 pounds from 556.2 pounds milk; Yuba Dam at eight years—butter 23.35 pounds from 547.6 pounds milk; Evelyn Princess Pontiac at seven years—butter 24.45 pounds from 521.5 pounds milk."

DUROC-JERSEY SALE

The Fresno district Duroc-Jersey Breeders Association held its first sale in Fresno February 4. The top of the sale was Brookwater Fashion 2nd from the consignment of J. P. Mallory, selling to C. E. Ellis, Visalia, for $225. The prices for the other animals sold ranged from $60 to $200. The attendance was not as large as had been expected and the buyers seemed undecided as to the future of the hog business. However, the breeders, while realizing that the animals did not bring their real value, announced that they would hold another sale in August. The offering in this sale was attractive, in fact, better than is usually found in the first consignment sale of like organizations. No doubt by the time they hold their next sale market conditions will have improved to such an extent that their offering will be readily absorbed.

SHIRES TO THE SOUTH

E. Lovell, manager of the Blackhawk Ranch, Contra Costa County, recently delivered ten pedigreed Shire mares and Lightsome's King, a young Shire stallion, to the Fred H. Bixby Ranch in Los Angeles County. Among the bunch of mares were some first prize winners at recent state fairs.

Mr. Bixby is the largest breeder of pure bred horses south of Tehachapi, and recent introductions from the Mount Diablo Ranch will enable Mr. Bixby to make some fine entries at next fall's fairs and shows.

Dairymen of the Riverside County farm bureau have been hearing this week talks on feeding by Profs. Voorhies and Thompson of the state university. A meeting was held at Fruitvale Thursday on the ranch of A. M. MacKersie; another at Arlington Friday on the ranch of George Thomas midway between Arlington and Corona; a Saturday meeting (today) at Hall Brothers ranch, Perris—subject, hogs.

ABSORBINE

TRADE MARK REG.U.S.PAT. OFF.

Reduces Bursal Enlargements, Thickened, Swollen Tissues, Curbs, Filled Tendons, Soreness from Bruises or Strains; stops Spavin Lameness, allays pain. Does not blister, remove the hair or lay up the horse. $2.50 a bottle at druggists or delivered. Book 1 R free.

ABSORBINE, JR., for mankind—an antiseptic liniment for bruises, cuts, wounds, strains, painful, swollen veins or glands. It heals and soothes. $1.25 a bottle at druggists or postpaid. Will tell you more if you write. Made in the U. S. A. by

W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

The Leading Live Stock Auctioneers

Col. Ben A. Rhoades
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Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References. The leading breeders in the state. Write or wire for dates and terms.

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GUERNSEYS

$546 Was The Average Price

paid for all Guernseys sold at public auction in 1919. This figure indicates the buyer's high estimation of the value of the breed. Let us tell you WHY Guernseys lead in popular favor.

THE AMERICAN GUERNSEY CATTLE CLUB.
Box C 44, Peterboro, N. H.

QUALITY ECONOMY QUANTITY

Some of the finest

GUERNSEYS

In the West are at

Hollow-Hill Farm

Colton, Cal.

Only Bull Calves For Sale

JERSEYS

3 BULLS		3 BULLS
No. 2 born Oct. 1, 1919. Sire Our Kathie's Eminent.	No. 1 born Mar. 1, 1919. Sire Our Noble Mayfair Hero.	No. 3 born Dec. 20, 1918. Same as No. 2.
	All from high record cows in Arden herd.	

ARDEN DAIRY CERTIFIED, EL MONTE, CALIF.

Whittier State School

Registered

BERKSHIRES — HOLSTEINS

Only one kind—the good kind
Young Bulls Bred and Open Gilts

--Vaughn's Jones--

By Giant Jones out of the $1,400 Daisy A. A Poland China boar of the right type. His pigs show quality and recognized breeders pronounce them the correct type.

Poland Chinas of the Right Type

A. J. Van Cleef **Riverdale, Cal.**

Duroc-Jersey

Registered Big Type Bred Gilts

California George Junior Republic
Chino, Cal. P.O. Box 157

WE ARE PAYING RECORD PRICES FOR FURS

Trapping is highly profitable—big demand for furs. We pay most liberally and promptly on furs, regardless of quantity. Send for free copy "Trapping for Profit." It tells about trapping and handling of skins. PRICE LIST FREE

E. R. SKINNER & CO.
1121 FRONT ST. SACRAMENTO, CAL.

WHAT PERCEHERONS HAVE DONE FOR ONE IOWA FARMER

That there is satisfactory money in the pure bred draft horse business and that no great outlay of cash is needed is indicated by the experiences of C. F. Curtis of Ames, Iowa, who says:

"Rookwood Farm consists of a half section, about one-half of which is in wooded pasture land. The balance is tilled for crops. Twelve years ago, I stocked the farm with four Percheron mares, two imported weanling filleys, and one pair of medium weight geldings. The total outlay for horses at that time was $2,185. I have made no expenditures for Percherons since, and three animals of the original purchase are still in service on the farm. Two and one-half years later I disposed of two of the less desirable mares and replaced them with younger stock raised on the farm, without additional cash outlay.

"The policy has been to maintain just enough brood mares, in addition to the pair of geldings, to do the farm work and to breed the mares to the best stallions available. The present stock consists of six head of brood mares, two geldings, and two colts. The total sales of colts during the 12 year period amount to $8835. All colts have been sold under two years of age, and four of them were sold under one year of age. Two mares have died during the 12 years, and one colt was crippled and of little value.

"As an indication of the value of a good sire, two colts were sold at one year of age in succeeding years, from the same mare, both sired by imported sires, but one sire was very much superior to the other. The colts were equally well grown, and in good condition at time of sale. One of them sold for $350 and the other one for $1000. The total sales for colts from these horses might easily have exceeded $10,000 if a better sire for mating the mares had been available during the earlier years."

PROGRAM FOR STOCKMEN AT UNIVERSITY FARM

Arrangements for "Stockmen's Week" at the University of California farm, Davis, the last week of February, will include a series of important meetings of cattlemen, swine breeders and dairy farmers, and auction sales of pure bred Shorthorn and Hereford cattle, Poland China hogs, and bulls of the main dairy breeds, on the afternoons of February 24 to 27.

Addresses by well known speakers on the subjects of cow testing associations, cooperation among dairy farmers and the present dairy situation, are scheduled for Friday, February 27. Demonstration of representatives of the different breeds in the University of California dairy herd will follow in the afternoon of the same day. An important address on the "Better Sires—Better Stock" movement inaugurated by the federal department of agriculture, and a discussion on important points in a good dairy bull, which will directly precede the auction sale of pure bred dairy bulls, are also on the program.

Dairy farmers throughout the state have been invited by Dean Van Norman to attend the university farm "Stockmen's Week" ceremonies, and especially February 27.

DAIRY HEIFERS OFTEN NEGLECTED

Raising dairy heifers from weaning time until ready to calve is generally considered easy—so easy, in fact, that they are often neglected, says Chas. W. Turner of the dairy department of the University of Missouri. A heifer stunted by the lack of suitable feed will never develop into as good a cow as one kept growing from birth to maturity. During the summer while the young animals are on pasture not much attention is needed, as pasture grass furnishes the best and cheapest feed available. Shade and an abundance of fresh water are two essentials which the careful herdsman always provides. In the winter it is not necessary that a heavy grain ration be fed if suitable roughages are at hand. Corn silage and legume hay make an excellent combination. With this combination of roughage and succulence satisfactory results can be obtained with a minimum amount of grain.

The most satisfactory ration of all tried in a recent experiment at the Missouri station was silage at will, legume hay, clover or alfalfa, limited to about six pounds daily and two pounds ground corn daily. On this ration heifers of all ages thrived and made gains above normal.

When the well grown heifers are from 16 to 20 months old they should be bred to the best pure bred dairy sire available. A winning combination for dairy improvement and success lies in a bred-for-production bull mated with home grown heifers. As the time for calving approaches the heifers should be brought in and conditioned for the strenuous lactation period to follow. It has been shown repeatedly that fat on a heifer is soon milked off. Professor Eckles was first to show that a cow in good condition will test higher during the first part of her lactation period than one in thin flesh. The breeder can use this fact to advantage in preparing the heifers.

If it is possible, the breeders of pure bred stock should place their heifers on official test, as it has been found that heifers with first calf make the requirements for advanced registry or registry of merit the easiest. It also gives the best indication of progress made in breeding for production.

STERILIZING THE MILKING MACHINE

The use of milking machines is increasing and at the same time difficulties are encountered in obtaining a low count milk when these milking machines are used. It is frequently claimed that all that is necessary to do is to place them in a disinfecting solution, but Chester F. Hoyt of the dairy inspection service of the state department of agriculture says that experience shows that this is not sufficent. Some progressive dairymen have found that by first washing the tubes well and then by placing them in water and bringing the water to nearly boiling point or up to say 170 degrees and leaving the tubes in this water until ready for another use, satisfactory results may be had.

STATION BEGINS CATTLE FEEDING

According to Dr. R. H. Williams, animal husbandman of the college of agriculture, the university of Arizona just purchased 36 steers and placed them on feed on the Mesa Experimenal Farm in the Salt River Valley. Twenty-seven of these were cross-bred steers sired by a Polled Shorthorn bull and nine of them were high grade Holsteins. They were all valley raised and in fairly good condition, averaging 889 pounds at about 30 months' old. These steers were divided into six different lots, each containing six animals as nearly alike as possible except Lot 1 contained high grade Holsteins. They are to be fed as follows:

Lot 1—Alfalfa hay ad lib.

Lot 2—Alfalfa hay ad lib.; and silage ad lib.

Lot 3—Silage ad lib.; cotton seed meal, 3 pounds.

Lot 4—Silage ad lib.; cotton seed meal, 3 pounds, alfalfa hay ad lib.

Lot 5—Silage ad lib.; cotton seed meal, three pounds, ground milo maize, six pounds.

Lot 6—Silage ad lib.; cotton seed meal, three pounds, ground milo maize, six pounds, alfalfa hay, ad lib.

The test will run for two months and possibly longer. Much will depend on the condition of the market. It is hoped to be able to secure sufficient data with this feeding test to indicate the rate of gain, length of time required to finish cattle, cost of grain, the effects of the different rations and other information regarding the cattle feeding business which will prove valuable to stockmen.

VALUE OF PURE BRED BULLS

The first cross of a pure bred bull on the average dairy herd increases the income $32 per cow. These figures were secured in the province of Ontario in a comparison of 140 herds using grade bulls and 31 using pure breds. Rex. E. Willard, of the farm management department of the North Dakota agricultural college, in applying these figures to North Dakota, shows that if one farmer with 20 cows using grade bulls received an income of $1680, his neighbor with 20 cows but who began using pure bred bulls five years ago should receive $2320 or $640 more.

DE LAVAL
Cream Separators
are the cheapest as well as the best

This is the unanswerable argument in favor of the purchase of a DE LAVAL Cream Separator.

Everyone wants the best, provided its cost is within his means. Fortunately a DE LAVAL costs but little more than an inferior cream separator and saves that difference every few weeks.

Moreover, an inferior separator wastes in time and labor, and in quantity and quality of product what a DE LAVAL saves, and goes on doing so every time it is used, twice a day every day in the year.

If you doubt this is so, try a new DE LAVAL alongside any old machine you may be using or other make of separator you may have thought of buying. Every DE LAVAL agent will be glad to afford you the opportunity to do so.

If you don't know the nearest De Laval agent, simply address the nearest De Laval main office, as below

The De Laval Separator Co.

165 Broadway NEW YORK — 29 East Madison Street CHICAGO — 61 Beale Street SAN FRANCISCO

50,000 Branches and Local Agencies the World Over

Holstein Opportunity
50 Registered Holstein Cows and Heifers
For Sale at Private Treaty

The females in offer are well bred, nicely marked, of good individuality and all have A. R. O. records. All are fresh or springing and are bred to a 32-lb. bull. They must be moved quickly and are priced accordingly. This is a real opportunity to be taken advantage of quickly. Also offer a few high producing grade Holsteins.

For particulars, address

V. L. Heath — **Lodi, Cal.**

The Highest Priced SIRE and SON

KING KORNDYKE PONTIAC 20th
and HIS SON
KARLRAY PONTIAC TOLA

King Korndkye Pontiac 20th, our junior herd sire, at $6500, is the highest priced Holstein bull ever sold at public sale in California.

Karlray Pontiac Tola, a three months old son of King Korndyke Pontiac 20th, and the great heifer K. P. Tola Joe. has been sold by Gotshall and Magruder, Ripon, to A. B. Spooner, San Luis Obispo, at a price never exceeded in California for a bull calf at private sale.

In these instances price is a true measure of quality.
Why not put a son of this sire at the head of your herd?

OUR ENTIRE HERD IS TUBERCULIN TESTED

Tulare Holstein Farm

W. J. HIGDON, Owner — TULARE, CAL. — H. L. REDD, Herdsman

Is a Calf Worth 23 Cents?

For 23 cents you can insure your calves against death from Blackleg by having them vaccinated with PURITY BLACKLEG AGGRESSIN. (The Kansas Germ Free Blackleg Vaccine.) One treatment immunizes for life and there is no danger in introducing Blackleg into healthy herds of cattle. We also manufacture and sell PURITY ANTI-HOG CHOLERA SERUM, PURITY MIXED VACCINE for swine, and PURITY HEMORRAGHIC SEPTICEMIA VACCINES for cattle and sheep. Stop your losses and increase your profits—it's good business. For service that counts, and does not end by selling, write, wire or phone

PURITY SERUM CO., J. L. Thatcher, Manager (Successor to Thatcher Serum Co.)
Riverside, Cal. — Sacramento, Cal.

LAST CALL

FOR THE

Western Berkshire Congress

Annual Guaranty Sale

University Farm - Davis, Cal.

February 18, 1.30 P.M.

30 Bred Sows and Gilts
5 Young Boars

Nineteen breeders from four states are making up an offering, exceeding in excellence any consignment sale heretofore held by the Western Berkshire Congress. The object of these sales is to afford the farmer and beginner an opportunity to buy at their own prices, foundation animals of proven blood-lines and the kind of individuality that will produce a better hog.

Every female in the sale is bred and guaranteed to be safe in pig.

Farmers and breeders are invited to participate in the annual congress meeting, show and sale, commencing on Tuesday morning, February 17, at the University Farm, Davis, and continuing all day with a banquet in the evening at the Travelers Hotel, Sacramento.

The sale on the afternoon of Wednesday, February 18, will be last on the program.

Western Berkshire Congress

A. B. Humphrey, Pres.
Escalon, Cal.

Frank B. Anderson, Sec'y
Box 724, Sacramento, Cal.

Ord L. Leachman, Auctioneer

Special Notice to Duroc-Jersey Breeders

I leave for the East soon. Several breeders have given me orders to buy bred sows and gilts for them. I will be pleased to purchase for you anything you want. Will personally select them. Write me what you want and the blood lines. I'll tell you just what I pay for them.

Clayton Slocum **Willows, Cal.**

N.B.—Write me at once

When Writing Advertisers, Mention the Cultivator.

Hereford Points and Pointers

By R. R. Miller, the American Hereford Breeders Association

(From the booklet "Hereford Cattle" published by the American Hereford Breeders Association.)

THE success which the Herefords have attained has been achieved on their proven merits. The early progress of the breed in the United States was made under severe handicaps imposed by supporters of rival breeds which were imported earlier into this country, and therefore more firmly established. At the shows and fairs no prizes were allotted to the Herefords and oftentimes exhibitors who desired to show their cattle were not even permitted on the fair grounds. When exhibitors were allowed to show Herefords they were shown in classes with the rival breeds and under judges whose sympathies lay entirely with the opposing breeds.

Even though subjected to such treatment the cattle were of such superior quality and beef type that they acquired many friends, the growth of the breed from an early date being very rapid.

The Hereford is singularly resistant to tuberculosis and other diseases prevalent among bovine stocks. Their constitution has never been impaired by inbreeding nor by excessive pampering, consequently "The Whiteface" has been found to successfully endure hardships and resist disease. Among thousands of Herefords tested for tuberculosis, "reactors" are rarely found.

Hereford cattle are ample in size. Mature bulls weigh up to 3,000 pounds, averaging 2,100 to 2,300 pounds, and mature females average 1,500 to 1,700 pounds. These weights have been determined by the actual average weight of all Herefords shown at the American Royal Stock Show for a period of five years.

Coupled with their ideals in evolving a type of cattle carrying the desired conformation and ample scale, the Hereford breeders have not lost sight of the fact that it was necessary to produce cattle of high individual quality as well as an ideal beef type.

The unerring prepotency of the Hereford to reproduce like is responsible for their wide popularity. No matter what the degree of breeding of the scrub, grade or pure bred cattle with which they are crossed, the calves uniformly bear the characteristic whiteface and desirable qualities of the breed. Just as one is attracted by a well packed box of uniformly colored and sized apples, the buyers of feeders, fat or pure bred cattle are attracted by the uniformity in markings and size of a group of Hereford cattle. Such uniformity adds dollars and cents to their value and produces a more easily salable product.

Previous to the introduction of Herefords and before their influence on the beef market had reached any importance, the most common ages of the fat cattle sold were three, four, five and six year olds. Thus the farmer's and feeder's capital was tied up for a much longer period than at present prevails, because the cattle then marketed were slower in arriving at their maturity. The increase in the population of this country, the rise in the value of the land and cost of feed, made some vital change necessary in the production of market beef. Here the Hereford stepped into its own and saved the day, for it was soon discovered that the Hereford steer would fatten and could be made ready for market at a very early age. Their propensity for early maturity won them wide favor in those times when the "Whiteface" was subjected to the most severe criticism. These qualities of early maturity are resulting in a daily increasing popularity for the Hereford breed.

Over two-thirds of the cattle on the range carry the mark of a Whiteface, which in itself shows the great confidence with which rangemen regard this breed.

The reason for the great Hereford popularity on the range is their ability to endure the hardships of outdoor weather. Not only do they withstand these hardships, but it has been found that they produce a larger calf crop than any other breed.

The same qualities which gained the Herefords their popularity with the rangemen has also contributed in a large measure to their popularity with the farmer. As a breed, the cattle are docile, easily handled, require no pampering and thrive on the waste products of the farm. Their ability to quickly and cheaply put on satisfactory gains, combined with the rugged constitution and consequent freedom from disease, particularly tuberculosis, has also contributed greatly to enhance the Hereford's standing with the owners of small herds and farmers. These farmers have seen through experience that pure bred Hereford bulls have more than paid for themselves the first year by adding $20 to $100 to the value of each steer marketed.

Because of attractive prices for pure bred Hereford cattle and the commercial demand for breeding stock, this field offers the most alluring inducements at the present time that have ever marked the progress of this great industry.

There are fundamentals that underlie the founding of a pure bred herd of Herefords that must not be overlooked. These essentials are founded first in integrity of the farmer, coupled with common sense and finances to back the undertaking.

Unless a man intends to found a herd on integrity and with an ultimate purpose, it is advisable that he sever himself from ambitions that cannot materialize in good to himself or the industry of pure bred cattle production.

There has been an ultimate and well defined purpose in the breeding of pure bred Herefords ever since the industry was founded, and that was to honestly produce the animal that would yield the most beef on the least feed in the shortest possible time.

(Continued Next Week.)

Practically Perfect

California Prime Duke, first junior yearling pure bred Hereford steer at the Chicago International, owned by University of California.

There is said to be a movement in Northern Sonoma County to withdraw and form a new county.

Ninth Semi-Annual Sale

of King's County Poland China Breeders Association

Saturday, Feb. 28, 1920

King's County Fair Grounds — Hanford, Cal.

75 Bred Sows and Gilts

To be sold without reserve from the best herds in King's Co.

Association Members:

G. I. McCune,
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For Catalog or information write to
Royal L. Waltz, Sec'y, Hanford, Cal.

45 REGISTERED HOLSTEINS 45

at PUBLIC AUCTION

Modesto, Calif., Thursday, March 18, 1920

A consignment of cows, heifers, and bulls from some of the leading herds of Stanislaus County.

Cows and heifers with good A. R. O. records, many of them in calf to highly bred bulls out of dams with records up to over 41 lbs. butter in 7 days, and up to over 1000 lbs. butter in one year.

Every animal positively guaranteed to be a breeder; no animal tuberculin tested.

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No greater insurance of more profits on the farm could be secured than the purchase of one of these animals. Farmers and dairymen be there—start right now raising the kind of hogs that always make a profit. We are breeding the kind that make us a good profit and we are going to sell the same kind in this sale.

Sale will be held on Cross Bros. Ranch, South Edge of City of Merced, California.

Sale at 12:30 P. M. Lunch at 11:30

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Land Settlement Through English Eyes

OUR readers may recall references made some months ago to the inspection of California land settlement in Butte County by a noted Englishman, Herbert E. Easton, Honorable Secretary British Immigration League. Mr. Easton was at the State Fruit Growers' Convention in November at Chico and at that time made careful study of the situation at Durham. He had hardly finished his report to his government when he was stricken and suddenly died. His report, however, has been issued, and in view of the renewed interest in land settlement as encouraged by California, pioneer state of all the Union in this movement, we quote liberally from Mr. Easton's report. First, however, let us quote from Dr. Elwood Mead a fundamental principle underlying California's effort to take the land to the people:

"'Nations may battle, and the world rock with revolution, but the land will care for him who cares for it.'"

"Realizing that the only prospect of encouraging the birth of healthy children is to provide them with an environment in which they can flourish, and knowing that the root of most of the serious economic and industrial troubles the world has to face can be traced to the congested state of cities and large industrial centers, America is today actively engaged in promoting small land ownership on a community basis."

Mr. Easton reports:

"Durham is a concrete expression of the California land settlement act, the object of which is to help people of small means to become owners of farms. It was passed because the rapid growth of alien tenantry was causing political and social unrest. It was felt that private enterprise was not doing the things that public welfare required and that as a result the growth of the country was not keeping pace with the growth of the cities.

"Under this act, the state land settlement board is buying privately owned land, cutting it up into small farms and selling these to worthy landless people on long time payments at a low rate of interest. It is giving them the benefits of practical advice and training. It is helping them to organize cooperative buying and selling agencies and in many ways saving them from costly mistakes and enabling them to become self-supporting in less time with less money or effort than is possible in an unplanned development.

"The California legislature was the first body to give government aid and direction in settlement in the United States and was regarded as an experiment. The area of land which could be bought was restricted to 10,000 acres. The first appropriation was only 52,000 pounds sterling. This is to he repaid in 50 years with interest at four per cent. Certainly the state was not overgenerous, and the board, which outside of its chairman is made up of hard headed business men who work without pay, inaugurated this experiment under rather hard conditions."

* * *

"The first step after the purchase of the land was to make it ready for settlement. To do this a soil survey was made and a soil map prepared which showed the land that was best adapted to the growing of grain, fruit, alfalfa, lucerne, and vegetables. This soil map was the foundation of the valuation of the different farms and farm laborers' allotments, and has proven of marked practical usefulness. Then a contour survey giving every change of elevation of six inches was made. It was the basis for laying out the irrigation ditches and for the leveling of the surface of the different farms so that water would flow over it evenly. Following the preparation of the soil and contour maps a subdivisional plan of the area was adopted and when the boundaries of the different tracts had been marked out and permanently witnessed by concrete posts the different farms were valued. It was necessary that the total sum received from the sale of the land should equal the amount paid for it, plus the amount that had been expended in building the irrigation system and the estimated amount of money needed to cover further expenses and possible losses.

"This has to be provided for, as the enterprise has to pay all expenses. The state gives nothing. It loans the hoard money at four per cent. The whole worked out to an average cost of 30 pounds sterling an acre and the different farms were to be valued with a view to making them all equally attractive at this average price.

"To obtain these farms, settlers are required to make a cash payment of five per cent of its cost. The remainder is paid in 40 semi-annual amortized payments of four per cent, which pays off the debt (principal and interest) in 20 years. In a later settlement, the semi-annual amortized payments are three per cent, which pays off the debt (principal and interest) in 34 years; the interest in both cases being five per cent.

"It was evident that if settlers' farms had crops growing on them they would be in a much better position to meet their payments than if they took the land wholly unimproved. The board, therefore, purchased a 75 horsepower tractor and cultivation equipment which would enable large areas of land to be cultivated and settled quickly. Using this tractor day and night with three shifts of men, more than half of the land had crops growing on it when the farms were sold.

"The California act contemplates only community development, and it is the board's intention not to purchase any areas which will provide homes for less than 100 families.

"The act provides that the lands to be allotted shall be thrown open for inspection for 30 days, during which time intending settlers can make their applications. The forms filled out give full information as to their past experience, the amount of capital and equipment they have, and state the assistance they desire. The board is authorized to lend £600 to farmers and £160 to farm laborers to be spent in the improvement of their places. The amount of capital which a settler is required to have is left to the discretion of the board. At Durham it was the board's belief that to prepare the land for irrigation, erect the needed farm buildings and buy the farm equipment would involve a minimum outlay of £900. Of this the board could furnish £600 as a loan. It held, therefore, that the settler must have the other £300, and no settler was accepted who had less than that. As the farm laborer would meet his payments from wages and would need nothing but the house, which the board could build, he was not required to have any capital.

* * *

"The settlers at Durham had an average cash capital of £600. They could borrow £600 from the state land settlement board, and this has enabled them to finance themselves without loans from outside sources.

"When the board purchased the land in the spring of 1918 no one had lived on it but tenants or hired laborers for 20 years. Now there are about 120 families with more than 200 children, all living in comfortable houses, cultivating farms that are in most cases fully improved and on which there are many dairy herds of unusual excellence. What a contrast to the menace of the slum life of the cities; and how it should encourage those who believe in an enlarged use of the state as an instrument of direct service in those things that affect the general welfare.

"The average income of settlers who have been on these farms for a year is over £400. They have met their payments to the state and they are in good condition to continue to do so. In 1919 a committee of the state legislature, after investigating the colony, reported that it was a kind of development that the state could expand indefinitely. An appropriation of £200,000 for immediate extensions was made without oppositions and a bond issue of £2,000,000 was authorized."

* * *

"The first duty of a government heing the welfare of its citizens, administrations planning extensive arrangements for the settlement of people on the land can today confidently rely on receiving public support.

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"As most sections of the community, including the banks and other large financial institutions, are alive to the fact that in supporting measures of this kind they are furthering the only movement that will act as an effectual antidote to the seeds of destructive poison which since the war have been so widely sown. And well known institutions such as the Young Men's Christian Association have already decided upon a vigorous campaign for the brightening and betterment of country life.

"In the near future the number of small land owners will be increased by millions, and their influence will be felt to such an extent that those whose business it is to ferment discontent will find that they have lost their chief asset, namely, people who have no interest in a country beyond a parliamentary vote."

FARM WAGES HIGHEST KNOWN

At no time have the wage rates of farm labor been as high in this country as they were in 1919, certainly as far back as 1866, when the first investigation of this subject was made by the bureau of crop estimates. Averages for the United States are in mind, and not local rates. For labor hired by the month with board, the average rate was $39.82, and among the geographic divisions the average was as low as $30.54 in the South Atlantic and as high as $62.96 in the Western, including the Mountain and Pacific states. Without board, the average for the United States was $56.29, and the lowest was $44.03 in the South Atlantic states and the highest, $87.12, in the Western. Extras, such as firewood, milk, etc., are not included.

Harvest wages per day with board reached the top figure of $4.48 in the North Central states west of the Mississippi River and the lowest figure of $2.28 in the South Atlantic, and the United States average was $3.15. Without board, the United States average of $3.83 was most exceeded by $5.33 in the former states, while the latter states had the lowest average, $2.82.

Statements in similar form for day dages for work outside of harvest with board make the United States average $2.45, that of the North Central states west of the Mississiuppi River $3.22 and of the South Atlantic states $1.85; the rates without board, in the same order, were $3.12, $4.03 and $2.39.

THE VERSATILE TRACTOR

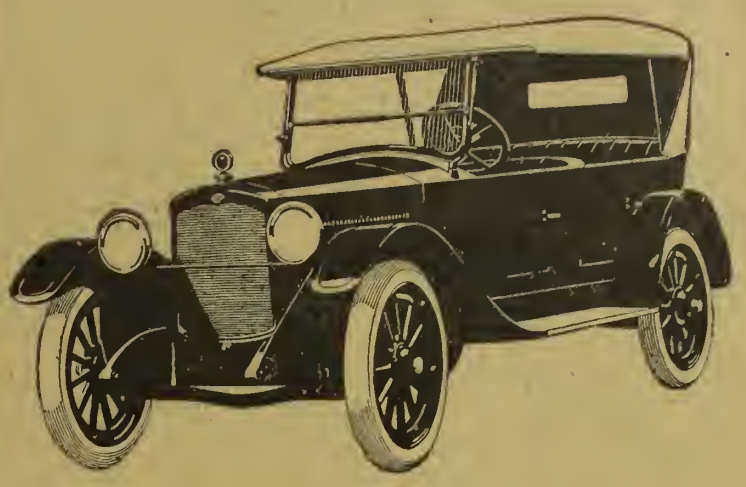
That the tractor on the farm has more uses than merely ordinary work formerly done by horses is shown by the following incident:

The manager of a large ranch near San Bernardino had occasion to prune an orange orchard very severely. They had been large trees and needed the whole top to be renewed. The result was that when the pruning was completed the ground was a network of brush four or five feet deep. Economy of labor was imperative, as it had to be cleared away promptly and labor was at a premium. To burn it on the ground was not safe for fear of scorching the trees. To haul it off to a bare space would cost much labor. So the manager decided to put it under with a disk harrow and tractor. The brush was trimmed up and the limbs hauled off for firewood. The balance had by this time become dry and brittle. The tractor started in with a heavily loaded disk harrow and after attacking it from several directions the entire mulching had disappeared. The writer saw the orchard a month after it had been irrigated and harrowed again, and almost every vestige of the brush had disappeared. Possibly this could have been accomplished with horse work, but certainly not so economically nor expeditiously. The manager of this ranch says they use the tractor for all sorts of special service. Pulling stumps, moving a stalled wagon, and many other devices are resorted to when the habit is once acquired.—E. L. Koethen.

SAN BERNARDINO INSECTARY

The San Bernardino County branch insectary has been completed and is now occupied. Paul Howard, formerly with the department of agriculture, is in charge of the breeding work and the ant control work, which is a necessary accompaniment to the biological control of mealybugs. In this district the citrophilus mealybug is the particular pest to be controlled.

IT SURPASSES COMPETITION



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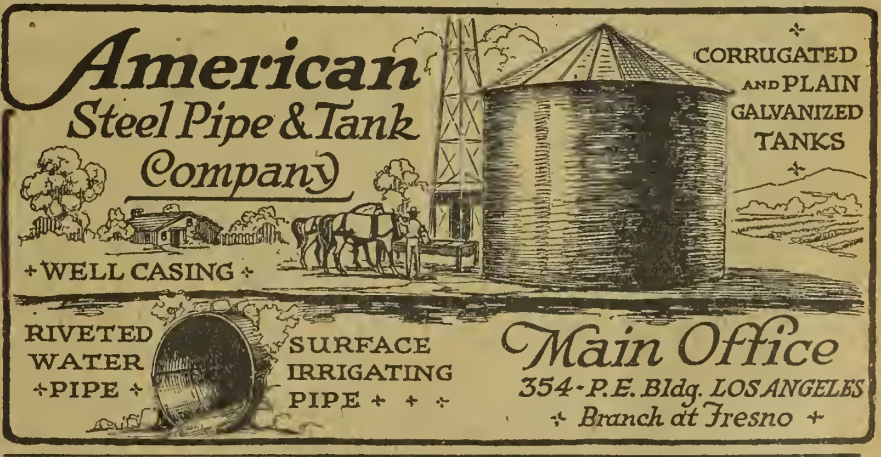

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We Are Now Booking Orders for Eggs. Eggs from our Mammoth Bronze Turkeys, $1, $2, $3 from show stock and 50c utility stock. Eggs from Toulouse Geese, winners at seven shows, $1 each. White Muscovy Duck Eggs, 35c. White Wyandotte Eggs, $3 and $5 a setting. Young unmated pairs, White King Pigeons $2, old mated pairs $3. Pearl Guineas $4 a pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY (Electric), Box 122, Artesia, California.

For Sale—Baby Chicks from my thoroughbred carefully selected flock of S. C. White Leghorns. Orders accepted now for spring delivery, at $15.00 for 100 chicks, $140.00 per 1,000. Every order receives my personal and most careful attention. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Thoroughbred Barred P. Rocks—Egg records 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 5599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

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Just Rite Chicks from selected eggs. Barred Rocks, R. I. Reds, Black Minorcas, Brown-White Leghorns. Prices just rite, shipped just rite. We deliver free. Willow Glen Poultry Yard, 582 So. 9th Street, San Jose.

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Ringlet Strain Barred Rocks. (Thompson foundation direct.) Cockerels, pullets, mated pens and eggs for sale. Identically same matings as our prize winners. Fine laying strain. C. W. Angier, 1011 S. Columbia Ave., Glendale, California.

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For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

Sly's Single Comb Rhode Island Reds prove their quality by winning at Los Angeles, 2 firsts, 4 seconds, 2 thirds, 2 fourths, 2 fifths, 2 shape specials, 2 color specials, 1 gold special, 3 silver cups. A top notch exhibition and utility strain. Send for Catalogue. A. G. Sly, 1642 E. Middleton Place, Los Angeles.

Day Old Baby Chicks—From mature hen eggs—February—White Leghorns $17.00 per 100; Black Minorcas, Barred Rocks, Rhode Island Reds $22.00 per 100—March $2.00 per 100 less. Terms. One-third cash with order. T. C. Hawley, 504 East Elm Street, Lodi, California.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Buff Orpingtons, Black Minorcas, Anconas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306. San Jose, California.

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Santa Cruz Chicks—We specialize on very best White Leghorns, hatching many thousands each week; also Brown and Buff Leghorns, Anconas, Minorcas, Wyandottes, Orpingtons, Barred Rocks and Rhode Island Reds. Write for folder. B. W. Archibald, Soquel, Santa Cruz County, California.

Thoroughbred S. C. White Leghorn Chicks—In 100 and 1000 lots from our Hoganized and Trapnested Stock. Order now for spring delivery. Inventors and Distributors of "Forbros" Separator and Trapnest combined. Write for circular. Forster Brothers, 2918 Otis Street, Berkeley, California.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

White Leghorn Baby Chix. Heavy laying. Hoganized stock. May and June delivery. $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks hatched from our S. C. White Leghorn Utility Stock, bred for commercial laying. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Chix or Eggs—Hoganized W. Leghorns—also limited quantities of Buff Leghorns, Buff Minorcas, B. P. Rocks, L. Brahmas, Reds. S. Martina, R. 2 —627, Santa Cruz.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

Columbian and White Wyandottes, Rhode Island Reds, White Leghorns. Best exhibition and utility stock and eggs for sale. Circular free. George Aumock, Palo Alto, California.

For Sale—Pure bred Buff Orpington eggs $3.00 per setting of 15; incubator lots $10 per hundred. Mrs. M. L. Trewhitt, Rt. B, Box 47, Hanford, California.

Rhode Island Red hens and pullets to exchange for Black Minorcas same age. Mrs. G. E. Rasdall, Shawmut, Tuolumne Co., California.

For Sale — White Wyandotte eggs $2.00 per setting, $8.00 per hundred. Mrs. F. A. Cox, R. 1, Buena Park, California.

Pit Games, Cocks, Stags, Hens, Eggs. R. H. Crane, Route 3, Santa Rosa.

CATTLE

DAIRY COWS
Our entire herd of 20 T. B. tested dairy cows, eight heifers and the registered Guernsey bull, Pilot of Mayhew, a son of Don Adonis of Linda Vista, whose two nearest dams averaged 683.01 lbs. of butter fat yearly. 12 of the herd are daughters of Pilot of Mayhews. A 3 unit Calf Way Milking machine included with cows. Pope's Dairy, Box 1100, R. D. 4, Sacramento.

For Sale—One of the best bred registered Holstein bulls in California. McAlister & Son of Chino, breeders. His dam at two years old made nearly 21 lbs. butter in 7 days and at three years 31.48 lbs. The dam and grand dam of his sire averaged over 35 lbs. butter in 7 days. He was three years old last Dec. Is half black and white. Price $500.00. A. Everett, Moorpark, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Staider, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

DUROC-JERSEYS

Registered Duroc-Jersey Hogs for Sale—Spring gilts at pork prices, open or bred to prize boar of Grand Champion stock. Also a fine lot of weaned pigs and a few bred sows. For further particulars write to Green Canyon Ranch, Fallbrook, California.

Duroc-Jersey Swine for Sale — Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Three or Four Toppy Duroc Gilts, also matured brood sows, all safely bred to our great yearling boar Nutmeg Gano 292547. Write or call. L. R. Hitchcock, Van Nuys, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

Weanlings—Gilts open or bred to a son of Great Wonder I Am. Service boars. Derryfield Farm, Capital National Bank Building, Sacramento, California.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Wondergerst, California's leading Poland China sire—big himself, bred big and his pigs show the same qualities. His dam was Giantess Wonder, his sire Big Jones—both big, both winners—a combination of the greatest blood of the breed. Breed big type Polands. Start right by using this blood. Write for special offer. A liberal consignment made to the Tulare Poland China Associated Breeders' sale held Tulare, October 21st. OXBONE Herd Poland Chinas, Tipton, California.

For Sale—Reg. Poland China Boar, Big Dan 208903, 2 years old; also 1 high grade Poland China sow, 2 years old, bred for March farrow. First litter 9 pigs, 2nd litter 10, raised all. Must sell at once. Address E. M. Perry, R. D. 1. Box 180, Inglewood, California, or take Hawthorne car to Lennox, 2 blocks west of car line. Car House, Phone 19653.

For Sale—Registered Poland China, one brood sow Daisy Girl $110, two year old; one brood sow Belladonna $75, one year old; one boar Wonderlust $50, one year old; all from Orange Blossom and A Wonder. Address route 2, Box 62, Van Nuys, California.

Big Type Poland China Bred Sows and Gilts. Also a few open Gilts sired by A Price. Am booking orders for winter and spring boars. Address: W. S. Adams, Gridley, California.

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

TURKEYS

For Sale — Turkey Eggs, from Wild-Domestic crosses. Raise more turkeys. Introduce wild blood into your flock. Get hardy, vigorous poults. Mammoth Bronze eggs also. Write for circular with directions how to raise 90 per cent of all you hatch. Orders booked now for February eggs and 5 day old poults. The Wild-Domestic Turkey Home, R. D. Box 26-A, Hemet, California.

For Sale — Breeding Toms. Pure Bred White Holland Beauties $12.00 each. Orders booked for White Holland Eggs, shipped in laying season. 75 cents each. Order early, supply limited. Mrs. L. A. Robinson, Hemet, California.

Giant Bronze Turkey Eggs for hatching from the famous Gold Nugget strain. Range raised, insuring strong poults. Phone city agent Lincoln 333. Mrs. A. H. Aiken, R. F. D. 13, box 315, Los Angeles.

Turkeys—Breeding Stock—Cockerels $25 each; two year old toms, $50 each. Eggs in season. Robinson Turkey Ranch, San Dimas, California. Covina Phone 902.

GOVERNMENT LAND

300 Million Acres of "Free" land in U. S. "The New Homeseeker" a 100-page book describing millions of acres of vacant public homesteads, timber, mines or grazing lands contains township plats and illustrations. Founded on historical facts. DOES NOT MISLEAD. Read warnings "official," eliminates crooked land agents. Tells the whereabouts of government land in Arizano, New Mexico, Nevada, California, Idaho, Oregon, Montana, Washington, Utah and Old Mexico. Describes water, soil and climatic condltions, all the prinicpal U. S. land laws. A marvelous publication just off the press. Mailed anywhere, $2. Address "THE HOMESEEKER," Dept. M., 3rd Floor Grant Bldg., Los Angeles, California.

RABBITS

The Only Exclusive Rabbit and cavy magazine published in California. One year for 25 one cent stamps, Pacific Rabbit and Cavy Breeders, Eagle Rock, California, Dept. CC. "Tell them your troubles."

Learn to Raise, breed, tan and make up your own furs. Furbearing Rabbits will teach you—50 cents. Fine stock for sale. Mrs. C. O. Richey, R. 7, Box 854, Los Angeles.

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beechling, 1578 W. 46th Street, Los Angeles.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

FARM LANDS FOR SALE

FOR SALE:
A HOME AND RANCH COMBINED.
An extremely well laid out plot of land 220 ft. by 464 ft. with full width city streets on three sides and an alley 30 ft. wide on the fourth, only eight blocks from Santa Barbara Post Office and business center. The land is first class sandy loam and will grow anything. There are 146 full bearing fruit trees, including apples, pears, peaches, nectarines, plums, apricots, oranges, lemons, figs, walnuts, loquats, avocados and berries; a good assortment of the best varieties and planted in perfect order. The place is planned for a first class chicken ranch and is fully equipped for 10,000 to 12,000 head of fowls, including houses of the best construction and all modern, with cement floors, automatic drinking fountains, feed hoppers, brooders and houses, manure shed; feed house with alfalfa cutter motor driven, in fact everything in order for a first class farm. There is a well built house containing three bedrooms, living-room, diningroom, kitchen and bath, (oak floors) for a home, and a two story, eight room house for working men. Garage for two cars. The fruit from the place will more than pay expenses. This property must be seen to be appreciated. It is offered at the low figure of $12,000 to settle up an estate. Come and see it, or write for fuller particulars and terms to F. H. Lingham, 10 West Anapamu Street, Santa Barbara, California. (Exclusive Agent.)

Stock and Dairy Ranch—500 acres; will sell all or part; one mile from Valley Springs R. R., Calaveras County. Over two thousand cords of wood on the stump, oak and pine. Well fenced and cross fenced; water runs in pasture all year, springs and creek run through the place; 100 acres bottom plow land; Burr Clover, hay and pasture; pumping plant on creek; 4 acres alfalfa, large barn and corrals, garage, blacksmith shop, bunk house, sheds, etc. Pump at house and large storage tank; variety of fruit trees around house. Splendid large house, hot and cold water in kitchen and on back porch, bath. Price $30,000. Can give any terms at 6%. Would consider small City Property or business or small farm 10 to 20 acres in trade. For further particulars apply to owner on place. H. W. HANMAN, Valley Springs, California.

20 ACRES IN PRUNES

$8,000

About the value of the raw land

Three miles northeast of Biggs on the Oroville-Biggs road, 1 mile north of Rio Bonito station on Northern Electric. One half in bearing trees balance 4 years and under. Over 12 tons of dried fruit past season. Roomy dwelling house, barn, etc. Prime grader and dipper, about 1,000 trays and fruit boxes.
G. P. Dreher,
R. D. 2, Box 62, Biggs, Calif.
P. J. Dreher,
Long Beach, Calif.

120-ACRE MISSOURI FARM,
$8,100; with pair Horses,
27 head of stock, 3 blooded Poland China sows, poultry, quantity crops, all included. 100 acres productive tillage and alfalfa; woven-wire-fenced pasture, wood, timber, 100 apple trees, 50 plum, 50 cherry. Good house, big barn, granary, smoke house, etc. Good management should net $2000 to $3000 annual profit above living expenses. Owner with another big farm cannot handle well; $8100, part cash gets all. Details Catalog Bargains 23 States; copy free. STROUT FARM AGENCY, 831 A. G. New York Life Bldg., Kansas City, Mo.

For Sale, One Hundred Ten Acres, at three hundred dollars an acre. One mile and half west of Visalia on Goshen Road. Price includes stock, implements, chickens and blooded Duroc hogs. Two houses on the place; one six room and one four room, two barns; family orchard of peaches, apples, mulberries, almonds and blackberries. One separator, one separator house, two bored wells, plenty of shade trees and 40 acres under good cultivation, all fenced. Best buy in California. Act quick; won't last long. Only reason for selling is account of my old age. ADDRESS Mary M. Menken, R. D. A. Box 319, Visalia, California.

For Sale—$11,000—Will sacrifice my ranch 15 acres, one and half miles from Porterville. Good pumping plant all under irrigation, good for fruit, grain or dairy. 5 acres in alfalfa, 5 acres in prunes. Two houses, four rooms each, good barn, separator and separator house, fine water, cows, chickens, hogs, horses and implements, all go with the place. For particulars address W. B. LYON, Porterville, California, Route 3 Box 44.

For Sale—Dairy Ranch 250 acres of land in best farming section of California, the Turlock District. 64 head cows and heifers. 100 acres of alfalfa, 4 miles from Turlock, good melon or sweet potato land. Ideal for subdividing. Price reasonable, write to or see C. J. Densmore, R. F. D. 1, Box 305, Turlock, California.

FOR SALE AND EXCHANGE
10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.
FOR SALE
Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

Equipped for Irrigation—95 acres rich gravelly loam, bordering on rice creek, ¼ mile from Sacramento River; all oak tree land, ½ cleared; will sell all or 20-25-50 acre tracts; first class for all crops, especially alfalfa and trees. Buy from owner and save commission. Box 123, R. D. 2, Orland, California.

For Sale or Exchange—6 acres Washington navels, 4 miles east of Porterville. In frostless area. Never has been damaged by frost, 2½ acres 12 years old; 2½ acres 8 years old; 1 acre 4 years old. Ideal home place. Reason for selling, living outside of state. Write Chas. Wentworth, 1721 Faraon Street, St. Joseph, Mo.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

If Interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

FARM LANDS FOR SALE

An Ideal Dairy Ranch—The Redlands & Yucaipa Land Company is offering for a limited time a 1500 acre Dairy Ranch in the famous Yucaipa Valley—two miles from Redlands city limits—on the Ocean to Ocean paved highway. This ranch is equipped with buildings; no better soil in the state; has 500 acres suitable for alfalfa; 800 acres grazing land with live oak trees and living springs; also 100 inches water. One of the best dairying locations in the state. Price reasonable and terms easy. Address Dike & Logie, Sales Agents, Redlands, California.

For Sale—A Farm near Oxnard, 39 39-100 acres of good bean and beet land; beet dump right by; 14 acres now sowed to barley and 25 acres plowed to beans. Irrigation not necessary. With the help of irrigation will grow all kinds of garden greens all through the summer; 6 room California house, also barn, shed, and corral; Artesian well for house use; water piped to house and corral. Price now $12,000; terms if desired. Address L. Chumi, Santa Ana, California, Box 103, R. D. 1.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

For Sale—Ten or twenty acres Apple Orchard; plenty of water (20 shares in canal). Varieties, Wine Saps and Jonathans. Three miles south of Bishop, Inyo County, famous apple belt. John A. Liedy, Bishop, California.

Shawnee, Oklahoma, center of a great farming country. Write for information. Board of Commerce, Shawnee, Oklahoma.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

MISCELLANEOUS

Wanted to Know where in California we can find a good all-the-year round climate, where there is very little fog, no snow and not too rainy. Where there is good soil that will produce a large variety of fruits, vegetables, berries, alfalfa, wheat, etc. Must have good domestic water and some for irrigation. Also wood for fuel. Please address: W. A. Linkletter, Calipatria, California, and give full information about prices, etc.

Fords Double the Mileage with Picard Carburetors. Easy starting. More power. Free trial. Agents wanted. York Sales Co., Dept. CC 1518 East Jefferson, Detroit, Michigan.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley. La Mesa, California.

PIPE PIPE PIPE
For Sale—1000 ft. of 2nd hand 10-inch steel irrigation pipe practically as good as new. Apply L. A. Henrich, Box 92, Perris, California.

Alfalfa Hay for Sale—Bright, clean, No. 1. Prompt shipment. Price, terms on request. Thomas Williamson, FALLON, NEVADA.

For Sale Cheap—Five 10,000 and nine 5,000 gallon redwood tanks. Apply OLD HERMITAGE VINEYARD, 1623 No. Main, Los Angeles.

Honey—Pure California honey in 5 gallon cans $12.50. H. W. HAMPTON, Chowchilla, California.

SEEDS AND PLANTS

The Garden Beautiful in California by Ernest Braunton; a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant; also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

Tomato Seed — Save 100% on Hummer Glove, Stone, San Jose. Postpaid $3.00 pound. Send money order. 20 cents ounce, stamps accepted. Order today, supply limited. Dana Walden, Wholesale Terminal Bldg., Dept. 25, Los Angeles, California.

For Sale: Tomato Seed—Spark's Earliana, New Stone (improved), Livingston's Favorite; $4.00 per pound each. Postpaid any quantity. All these varieties are the very best select stock. Patton Seed Co., South Pasadena, California.

Strawberry Plants—Americus everbearing. Strong, healthy plants. Do well in California. $2.50 per 100, $5.00 per 250. Postpaid. Catalogue free. F. I. Moffet, Ellensburg, Washington.

Seeds—Alfalfa Seed 40c f. o. b. San Francisco. All varieties Vegetable and Flower Seed. Write for special prices. Bay Counties Seed Co., San Francisco, California.

Grow Your Own Melons. Secure a package of seed, 25 cents. The world's finest musk melon "Casad's Special." Roland C. Casad, Covina, California.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

For Sale—Madera Vine Roots, 25 cts. per dozen, postpaid. Order early as these will not last at this price. A. G. LOVEALL, Glenn, California.

Rhubarb Roots—1 year old roots, $3.00 per hundred; 50c per dozen. Two year old roots $1.00 per dozen. Currier Bulb Company, Santa Cruz, California.

Cory Thornless Mammoth Blackberry—Write for price list on plants. Wm. Mortenson, Rt. A, Box 209, Lodi, California.

Write amount and kinds of seed wanted. Four kinds of alfalfa, 25c and up; free samples. Box 501, Fowler, California.

Rhodes Grass for alkali soils. Write: Imperial Valley Nursery and Seed House, El Centro, California.

Stock Beet Seed—Any variety. Write for prices. Aurora Seed Mill, grower, Stockton, California.

TREES

Washington Navel, Valencia, Marsh Grapefruit, Eureka and Libson Lemon trees. Sour stocks. One year old buds. We used "Supply Company" buds only. Nurseries Riverside, Puente. Frank A. Tetley & Son, 405 Eighth Street, Riverside.

Beauty, also Maynard Plums, on Myrobolan roots; **Royal Apricots,** extra large size. Transcendent and Hyslop Crabapples, Apple and Peach trees. Bartlett Pears on Japan root. LOS NIETOS VALLEY NURSERY, DOWNEY, CAL.

100,000 Florida Sour Orange Seed Bed Trees; 100,000 Sweet Orange Seed Bed Trees. Valencias, Grapefruit, Kadota Figs, Olives, Umbrella trees. Southland Nurseries, 1941 East Colorado Street, Pasadena, Phone Colorado 6352.

Walnut Scions for Sale—Parisienne, the largest and most uniform of French nuts, heavy bearer Payne, heaviest bearer of all walnuts. Tribble Bros., Lodi, California.

For Sale — Seed Bed Stock, sour and sweet. Budded Valencias, navels, lemons. Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena, California.

For Sale—Scions, Eureka and Placentia Perfection from choice grafted orchards. The WALNUT NURSERY, W. A. Litten, Prop., Whittier, California. Phone Home 6294.

Genuine Kadota and other variety fig cuttings. Walnut, pecan and standard and new varieties fruit tree scions for sale. Tribble Brothers, Elk Grove, California.

For Sale—About 500 2 year old rooted Tokay cuttings at 5c each. Address: Old Hermitage Vineyard, 1623 North Main, Los Angeles.

For Sale—3,000 select orange trees. Also 3,000 lemon trees; first class trees; 20,000 seedbed stock. A. R. Rideout, Whittier.

For Sale — Valencia Late and Eureka Lemon Trees, one and two year buds; choice stock. W. V. SKILLMAN, R. F. D. Box 387, San Fernando, California.

You Want to Plant Good olive, persimmon and citrus trees; thornless blackberries, figs, rhubarb, etc. Bishop's Nurseries, Highland.

Walnuts—Send in your orders now for grafted and budded walnuts. 1921 delivery. J. G. Grundel's Walnut Nursery. Oakdale, California.

For Sale—1000 Santa Rosa. 1000 Wickson Plum, 250 Burbank Plum, all 4x6, 45 cents. Wire if you want. W. N. Burton Nursery, Porterville, California.

For Sale—Walnut Grafting Wood; Payne 10 cents. Eureka 8 cents foot. A. C. Kuhn, Route B, Box 351, San Jose.

Place Your Orders Now for all kinds of Citrus Stocks. Butler's Morningside Nursery, Lamanda Park, California.

Citrus Seed Bed Stock — Budded citrus trees. L. A. Tuttle, R. 2, Box 404, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—4 Year Old Manzanillo and Mission olive trees. E. E. Barnes, Highland, California.

Avocado Trees—Mathers' Avocado Nursery. Home of Field Grown Trees. P. O. Box 585, Pasadena.

For Sale—Eureka Walnut Scions. R. D. 4. R. M. Fay, Anaheim, California.

LIVE STOCK

For Sale—500 Milk Goats, all bred to pure registered Saanan bucks from imported stock. The female kids will be eligible to registry and will be worth twice what we ask for the mothers, viz., $20 to $50. The milk goat is the best answer to high prices for milk and scarcity of feed. The idea is spreading everywhere. We have 625 goats to exchange for land. WM. RITCHIE, ARLINGTON, CALIFORNIA.

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Third sale at the Ranch—all breeds—April 17, 1920. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

Just Arrived—3 carloads heavy blocky built Shire horses and mares, 4 to 7 years old, weighing 1,100 to 1,600 lbs. All sized city used horses and mares. New and used chain and leather harness. All kinds, single, double. Mill and lumber wagons and buggies. G. Lindauer, 122 Clara St., off 4th St. near Harrison, San Francisco.

For Sale—Four well bred mammoth Spanish Jacks 1 to 6 years old, also five Jennetts 1 to 6 years. Tennessee ancestors. Price $1200.00 for the lot. A. Everett, Moorpark, California.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

For Sale—Good Jack 6 years old. R. S. Seydel, Lincoln, California.

WANTED

Wanted—Men with rigs preferred, all or part time, taking orders among farmers for an old reliable California Company. Good pay and several weeks' work. ADDRESS: J. H. Yetter, 115 North Broadway, Los Angeles (upstairs).

Wanted—Married man, who has made at least a thirty pound record, to milk and feed test cows and take care of small herd of registered Holsteins. Wife to cook for few men. State age, experience, and salary expected, first letter. Todos Santos Rancho, Daggett, California.

A Qualified Veterinary Surgeon of exceptional experience and highest recommendations offers services in charge of stock ranch or dairy farm. Box 14, California Cultivator, Los Angeles.

FOR LEASE

Dairy Ranch For Lease—50 acres alfalfa, 50 acres barley land, 100 inches water. Complete equipment, 63 head feed carriers, litter carriers, electric motors, milking machines, boilers, brine circulators. J. E. Mayberry, Los Nietos.

MACHINERY

USED RANCH MATERIAL
WE SELL FOR LESS. SEE US. SAVE HALF. WHY PAY MORE?
SURFACE IRRIGATING PIPE
3 in. galv. irrig. pipe ..$14.50 per 100 ft.
4 " " " .. 24.50 " " "
(very heavy).
6 " " " .. 28.50 " " "
8 " " " .. 38.75 " " "
10 " " " .. 48.75 " " "
(single piece material, finc).
NOTICE
We're closing out plows, discs, harrows, planters and will specialize in tanks, windmills, pumps, cylinders, irrigating pipe.
DON'T WAIT A MONTH AND THEN GET SORE BECAUSE WE HAVEN'T THE SNAPS WE ADVERTISE NOW.
SPECIAL BARGAINS WHICH SHOULD INTEREST YOU OR YOUR NEIGHBORS
Single Flying Dutchman plow, $35; plows, $5 to $12; 2 gang disc, $57.50; 3-4 gang disc plows, $85 to $140; 4 gang Stockton, $28; new corn planter, $45; new 2 hole corn sheller, $45; feed chopper, $22; bone grinder, $8; double disc harrow, $48; mowers, $48; potato planter, $65; walking potato digger, subsoilers, hillside plow, 10 in., $12; 4 row beet planter, $30; 2 row bean cultivator, $35; cable, plow discs.
WINDMILLS
8 ft. steel windmill wheels, com.. $38.50
10 " " " " " 48.50
12 " " " " " 68.00
STEEL WINDMILL TOWERS, $35 to $45
NEW AND USED REDWOOD AND GALVANIZED TANKS, ALL SIZES. SPECIAL BARGAINS IN USED OAK AND REDWOOD TANKS
GUARANTEED
1600 gal., $32.50; 3000 gal., $38; 5000 gal., $58; 6000 gal., $68; 160 gal., oak barrels, $7.75.
NEW, USED GALVANIZED TANKS, ALL SIZES
New 1000 gal., $42.75. 2000 gal., $56.75
SHALLOW SQUARE AND OBLONG RIVETED TANKS
Fine for watering troughs, or cooking vats for hog feed, $15.
PUMPS
Plunger, Centrifugal pumps. Few specials: Fine No. 3 AMES double acting 24 in. stroke, deep well plunger pump, costs $1000 new, $350; 4 in. horiz. centrifugal pump, $69; 6 in., $125; Duplex boost pump, $80; new double geared windmill and power pump jacks, $28.50; diaphram pump, $28; double acting Rotary, $35; 2 in. horizontal centrifugal, $27; 2½ in. blower, $9; 4 in. blower, $12.50; Pomona single acting pump, $87.50; 8 in. new double acting draw valve cylinder, $150.
HAVE YOU ANYTHING IN OUR LINE FOR SALE? MATERIAL GUARANTEED AS REPRESENTED OR MONEY REFUNDED.
DEMMITT CO., OFFICE UPSTAIRS, 120 N. MAIN, LOS ANGELES.

For Sale—12-20 Yuba Tractor, Killifer 8-foot chisel, 2-gang John Deere plow, 8-foot Cyclone harrow, good as new. Right price. R. B. EASLEY, Compton, California. Phone 41.

Bean Threshing Machine, "American"—26x26, 8 H. P. International Gas Engine mounted on heavy truck with iron wheels, belts all complete, outfit nearly new; worked about 50 hrs. Price $750.00. Will take a team of two mules and harness in part payment, or will trade same for land. A. Bayliss, Anaheim, California.

Having Sold My Ranch, I offer for sale my practically new 1920 model 30 Sampson Sieve Grip Tractor. 18-35 horse power, for $1000. Satisfactory demonstration given. D. J. Carpenter, Del Rosa, California.

For Sale—Holt 60 Caterpillar, good condition and 6 disc Sanders engine plow, also belt power attachment. Write for further information. Roy Lux, Route 1, Box 14, San Diego County, Encinitas, California.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—Sharples Suction Feed Cream Separator No. 7; can be operated either by hand or power. good condition, can be bought for less than half its value. J. G. France, Fontana, California.

For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

Agency Discontinued—New floor sample S.25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros. Co., Carpinteria, California.

For Sale—Pomona Pump, 28 head, nearly new; 25 H. P. Bean Distillate Engine. Clarence W. Wagner, Terra Bella, California.

Samson Tractor in good condition for sale or trade. Apply to Mel. Harding, East Telegraph Road. Phone 9132, Santa Paula, California.

Holt "18" Caterpillar in A1 condition, cheap. Pehrson Bros., Turlock, California.

GEESE

McNeely's Mammoth Geese. Fine stock, ready to ship at the old price of $5.00 each for as many as you want. First come first served so order early. Chas. McNeely, Alpaugh, California.

DUCKS

Caldwell's White Muscovy Ducks, quackless, hardy, rapid growers. Eggs, Ducklings, Breeders. Free circular. Caldwell Farm, Box 274, Los Angeles.

Additional Liners on Page 270

Comfort-

With

COLGATE'S

you always shave with comfort.

It cools and soothes, no matter how tough the beard.

Nor is there any need to rub the lather in with the fingers. Don't do it —it only adds "mussiness" to what may be a genuine pleasure. (We've said this for years — men who use Colgate's are learning to give up the mussy "rubbing in.")

Lather with Colgate's— Shave with Comfort.

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Either form you prefer —Stick, Powder or Cream

Dye That Skirt, Coat or Blouse

"Diamond Dyes" Make Old, Shabby, Faded Apparel Just Like New.

Don't worry about perfect results. Use "Diamond Dyes," guaranteed to give a new, rich, fadeless color to any fabric, whether wool, silk, linen, cotton or mixed goods,—dresses, blouses, stockings, skirts, children's coats, draperies,—everything!

A Direction Book is in package.

To match any material, have dealer show you *"Diamond Dye"* Color Card.

Save 1-2 on Fuel

CHEAPEST HEAT YOU CAN BUY

The Slevert Oil Burner burns distillate costing only 8½ cents per gallon in cook stoves heaters, furnaces, pasteurizers, boilers, prune dippers, dairy sterilizers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Install it yourself. Write for circular and prices on different sizes. Address Slevert Oil Burner Co., 710 North Main St., Los Angeles.

The California Cultivator Costs Only $1 Yearly

Household Department

"PEP"

Vigor, vitality, vim and punch—
That's pep!
The courage to act on a sudden hunch—
That's pep!
The nerve to tackle the hardest thing
With feet that climb, and hands that cling,
And a heart that never forgets to sing—
That's pep!

Sand and grit in a concrete base—
That's pep!
Friendly smile on an honest face—
That's pep!
The spirit that helps when another's down—
That knows how to scatter the blackest frown—
That loves its neighbor, and loves its town—
That's pep!

To say "I will"—for you know you can—
That's pep!
To look for the best in every man—
That's pep!
To meet each thundering knock-out blow,
And come back with a laugh, because you know—
You'll get the best of the whole darned show—
That's pep!—By Grace G. Bostick, American.

LITTLE BEAR'S CHOICE OF A SLEEPING CAVE

By Frances Margaret Fox, in Youth's Companion

LITTLE Bear, if be stopped to think about it, was somewhat down in tbe moutb when tbe maple leaves turned gold and crimson and the Deer children began to talk about making tracks in the snow and playing winter games. He did not like to hear any talk about the sleeping cave.

"If I could have my choice," he said one October morning when Father Bear and Mother Bear were putting away the rain barrel and otherwise getting ready for winter, "we should take my playhouse for the sleeplng cave, because it is near home."

"The entrance is too small," objected Father Bear, and nothing more was said.

The weather that fall was wild and stormy; so Little Bear went every day to his playhouse cave under the west hill. Other children came to play with him, and they had merry times while the wind howled outside and the rain fell.

"The first pleasant day we must look for our sleeping cave," said Father Bear to Mother Bear one night as tbey blew out their candle and went to bed. They thought Little Bear was asleep, but he sat up quickly.

"Please do not take me!" he piped up. "Let me stay here instead and play with the Beaver children."

"Very well," promised Motber Bear. "But cuddle down, now, and go straight to sleep!"

On the first pleasant day Father Bear and Mother Bear fared forth in search of a sleeping cave, and Little Bear went singing down tbe river road to visit the Beaver children.

It was a beautiful, warm morning, but about noon the wlnd changed, and the sun went under a cloud.

"It looks to me as if a snowstorm were coming," said Father Bear.

"We must hurry!" said Mother Bear. They did go as fast as they could, considering that they were both so plump, as bears always are in the fall, and that both wore heavy winter coats.

When Father Bear and Motber Bear reached their favorite sleeping cave they were delighted to find it just as they had left it in the spring.

"Now let's go home and then come back to tbis cave early tomorrow morning with Little Bear," suggested Father Bear.

"We must surely hurry," agreed Mother Bear, "for I do belleve that winter is about to set in."

It was late in the afternoon when Father Bear and Mother Bear reached home; they were dlsappointed because Little Bear did not come to meet them.

"I didn't think he would stay to dinner with the Beaver children," Mother Bear said. "Perbaps you had better go and bring him home."

Father Bear agreed, and off he trudged through the storm to Beaver Lodge. It was growing cold, and he turned his fur collar up round his ears, and hunched his big shoulders.

Sally Beaver was sorry, but she did not know what had become of Little Bear; he had not stayed wlth the Beaver family more than half an hour. Perhaps he was playing with his cousin, Blackberry Bear.

Straight as he could travel, Fatber Bear went to Blackberry Bear's summer camp; but Blackberry was not there. His camp was in order, and it was plain that he bad prudently sought a sleeping cave. Up tbe river and down the river went Father Bear, calling and callIng, but no Little Bear answered. Tben Mother Bear came to join in tbe search. They inquired at all the neighbors' houses, but no one had seen Little Bear. Tbey searched far and near through tbe ancient forest, but did not find him.

It was Mother Bear who thought of the playhouse. By that time snowflakes were In the air, and sbe knew tbat winter had come. Sbe hurried to the cave and through the little door. "Here he is!" she exclaimed joyfully. "Come and see for yourself!"

"I cannot get in!" objected Fatber Bear. "The entrance is too small!"

"If you cannot get in, whatever shall we do!" exclaimed Mother Bear. "Little Bear is sound asleep, and we can never carry him all tbe way to our cave without rlsking our lives in the storm! Do look in, Father Bear!"

Father Bear looked in, and then he understood. Blackberry Bear was sound asleep on a bed of pine boughs, and Little Bear was beside him, dreaming hard, with a smile on his little face. He bad fallen asleep trying to cover Blackberry Bear with a blanket from tbe house.

"Blackberry was probably looking for a cave," said Mother Bear, "and Little Bear brought him here and put him to bed; then he fell asleep himself, poor child! Now, of course, we shall bave to stay here all winter, and we must bring all the blankets from the bouse at once, and settle as soon as possible."

"But I cannot get in!" protested Father Bear. "The doorway is too small!"

"But you must!" Mother Bear insisted. "You will just have to make yourself as flat as you can and squeeze in!"

"All rigbt, just as you say," agreed Fatber Bear; but he groaned.

"You will be tbin enough by spring to go through a crack," Motber Bear added, trying to comfort huge Father Bear. "You won't have any trouble in getting out!"

After Father Bear had brought the blankets the trouble began. He turned sidewise, he made himself as flat as he could, he squeezed and squeezed and squeezed, but he could not get into tbe cave. Worse yet, he could not get out of the cave. Mother Bear tried to pull him in, and tben she tried to push him out, but there he stuck.

It was growing colder every minute and Father Bear began to call for help. Fortunately, Grandfather Grizzly happened to be passing by just tben. He backed up against his friend and gave a hard but kindly bump, and in went Father Bear.

"Good night!" called Grandfather Grizzly.

"Good night, and we tbank you!" answered Mother Bear as she tucked poor, breatbless Father Bear into hls bed.

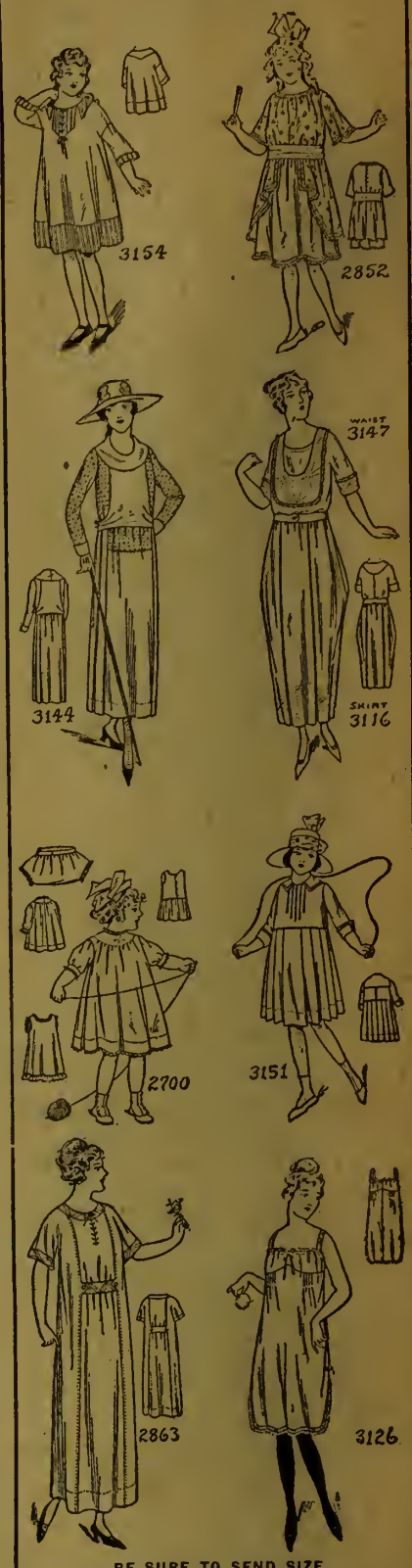
The next day it snowed and snowed and snowed. In the spring when the Three Bears waked from their long nap there was a laughing time In that cave, you may be sure!

THIS WEEK'S PATTERNS

The little girl's frock 3154 shows fascinating possIbllIties of individual adaptation. Made of one color chambray, gingham or Devonshire lt would be charming. Of white, witbout tbe laced-up front, it would be the daintiest kind of a best dress. An outgrown dress can be lengthened and brightened by adding the band around skirt, yoke, collar and cuffs of some contrasting material of a favorite color, or a touch of embroidery on tbe yoke back and front may be added with a swift needle — or there are dozens of variations that will occur to as many different tastes and needs. Such a pattern which may be adapted to many uses is invaluable.

No. 2852 sbows daughter all dressed up for her first party, with slde fullness in the overdress which is just the thing nowadays. That overdress and skirt of contrasting material at

The Cultivator Patterns



BE SURE TO SEND SIZE

3154. Frock for School or Play. Cut in 4 sizes: 4, 6, 8, and 10 years. Size 6 will require 2½ yards of 36 inch material. Price, 10c.

3144. A Stylish Dress. Cut in 3 sizes: 16, 18 and 20 years. For an 18 year size, it will require 5¾ yards of 44 inch material. Width of skirt at lower edge with plaits extended, is about 2¼ yards. Price, 10 cents.

2700. Child's Set of Short Clothes. Cut in 5 sizes: 6 months, 1 year, 2, 3 and 4 years. It will require for the Dress, 2⅝ yards of 36-inch material. For the Drawers, ¾ yard. For the Slip, 1½ yard, for a 2 year size. Price, 10 cents.

2863. Ladies' Apron. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. A Medium size requires 5⅜ yards of 36 inch material. Width at lower edge, is about 2¼ yards. Price, 10 cents.

2852. Girl's Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. Size 10 will require 3⅝ yards of 36 inch material. Price, 10 cents.

3147-3116. A Stylish Gown. Waist 3147 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3116 cut in 6 sizes: 22, 24, 26, 28, 30, and 32 inches waist measure. To make the dress for a medium size, will require about 6¾ yards of 27 inch material. The width of skirt at lower edge, with plaits extended, is about 2¼ yards. Two separate patterns, 10 cents for each pattern.

3151. A Good Dress for School. Cut in 4 sizes: 4, 6, 8, and 10 years. Three yards of 36 inch material will be required for an 8 year size. Price, 10 cents.

3126. A Dainty Under Garment. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42 and Extra Large, 44-46 inches bust measure. A Medium size will require 3¼ yards of 27 inch material. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest Chicago styles, all pattern orders are filled in Chicago. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles.

once appeals to the mother of small girls who insist on lengthening out from summer to summer.

A very pretty and stylish sports dress is shown in 3144. Made of one material or of contrasting materials, as shown in the illustration, of jersey, silk or cotton, it would be found serviceable and timely.

The apron dress 2863 we think is particularly clever, confining the fulness at front and back so it will not "slop down" in the way when you are working, while leaving the sides loose and gracefully hanging, it combines good looks and practicability in a high degree. Here again are chances for the individual good taste to make a thing of beauty of a utilitarian garment. Belt, yoke and cuffs of contrasting material or with addition of fancy stitching, buttons or quick embroidery will make it your frock, not a made by the thousand apron. It has all the charm of the prettiest gardening smocks, which are exhibited in the best stores at fancy prices, while getting away from the bunchy effect they too often have. The kimono sleeve style is always welcome to the inexperienced dressmaker, for it does simplify the fitting problem.—R. P. D.

CAN YOUR SURPLUS MEAT

There is a tendency in many farm homes to feast on meat during December, January and February and to some extent fast, as far as fresh meat is concerned, during the other months. This is not at all necessary if some of the meat is canned when animals are killed on the farm. Canning meat is as easy as canning vegetables and the process is the familiar cold pack one which many housekeepers already use. Most farm women will not have to buy equipment for cold pack canning. All that is needed is a wash boiler, a rack which will fit in the bottom of the boiler and will hold the jars an inch from the bottom of the boiler, air tight jars and new elastic rubbers. A canning rack with handles is a great convenience, but a home made one of strips of wood nailed together will serve nicely. If the rack does not have handles a jar lifter will save time and possibly burned fingers. Before beginning to can, see that you have new rubber rings which will stretch without breaking and which can be bent back sharply without showing any signs of holes or of cracking. (Test rubber rings before buying and do not attempt to can unless good rings can be bought.) The jars that are used must be clean and tested to see that they are air tight. The simplest way of testing is to put some water in the jar which has a rubber ring on it, screw or clamp down the lid tightly, invert the jar and shake. If even the least bit of water comes from around the top, air can get in and the jar is not air tight. If the jar which leaks is a bail jar, tighten the bail; if it is a screw top jar try a different lid until one is found that will make the jar air tight. Jars for cold pack canning do not need to be sterilized, but should have warm water added to them so that they will not break when they are filled.

The meat may be packed raw in the jars and have boiling water poured over it, or it may be boiled, fried or roasted, packed in the jar while hot and have the hot fat or meat juice which has been used in cooking, or hot water poured over it. The meat is more easily sterilized if it is not in too thick chunks. Gravy may be made of the fat before it is poured over the meat, but the meat should never be sifted with or rolled in flour before it is cooked, as the flour may form a coating that will prevent thorough sterilization of the meat. One teaspoon of salt should be added to each quart jar of meat unless the meat is cooked with sufficient salt before it is put in the jar.

Place the rubber and lid on the jar. If the jar used has a screw top, screw it down tightly and loosen by turning back not more than half an inch so that enough steam can escape to keep the jar from breaking. If the jar is a glass top one with a bail, do not clamp down the lower bail until the jar is removed from the boiler or the jar will break.

Place the jars in the wash boiler or in the pail of hot water on a rack which holds them up from the bottom about an inch. (To prevent the jars from breaking, have the water in the boiler about the same temperature as the jar and do not plunge the jar in the water, but put it in gradually.) The water should cover the jars about an inch. Put the lid on the wash boiler, or, if a pail has been used, cover it tightly.

After the water has reached the boiling point begin counting the time and sterilize for three and one-half hours to four hours. Sterilize four hours if the meat has been put in the jar raw or has been cooked only long enough to brown, and sterilize three and one-half hours if the meat has been partially cooked.

Remove the jars from the boiler, being careful not to place them in a draft, and at once clamp down the bail on the glass top jars or tighten the lid on the screw top jars as tightly as possible. It is possible to tighten the lid of a screw top jar after it is cool but this should not be done, as it breaks the seal formed by the lid with the hot rubber. Jars should not be opened to refill with hot water or gravy after they are sterilized. The meat will keep even though there is an air space, because the air that may be in the jar has been sterilized just as the meat has been and cannot contain any bacteria which will cause the meat to spoil.

Ham, steak, sausage, pork chops, pork tenderloin, pork roast, beefsteak, meat for beef stew, veal or chicken for salad or creaming, ground meat for sandwiches or hash, rabbit, squirrel, lamb chops, or lamb for stew are all possibilities for meat canning and will prove a boon to the housekeeper on her busiest days, when unexpected company comes or when meat is needed for the day's meals and a trip cannot be made to town.

SPRING AND SUMMER FASHION CATALOGUE

The Cultivator's Spring and Summer Fashion Catalogue is now ready. It shows 550 designs, with helps and directions to the dressmaker, fully illustrated to make easily understood. French seams, feil seams, faced hems, seam binding, couching, fagot stitch cording, cutting bias folds, etc., are clearly explained and illustrated. It will be found a friend in many a time of puzzlement.

THEY CAN ALWAYS FLOAT A LOAN

People who invest in watered stocks ought not to complain if they get soaked—Cartoons Magazine.

Winds and Rains; Aches and Pains

EXPOSURE to bad weather means *rheumatic twinges* and other handicapping after-effects. We can't be too careful in relieving *pains* and *aches*, *stiff joints*, *sore muscles*, *lumbago*, *sciatica*.

"We keep a large bottle of Sloan's Liniment in the house all the time to use when an attack comes on. You know Sloan's is one of the old timers. Doctor Earl S. Sloan put it on sale 38 years ago.

"We get the biggest bottle because it's more economical. A little applied to the spot *penetrates without rubbing* and promptly eases up the pain and ache."

Sloan's Liniment Keep it handy

These Fascinating, FREE Publications about *Furniture* and *Home Furnishings*

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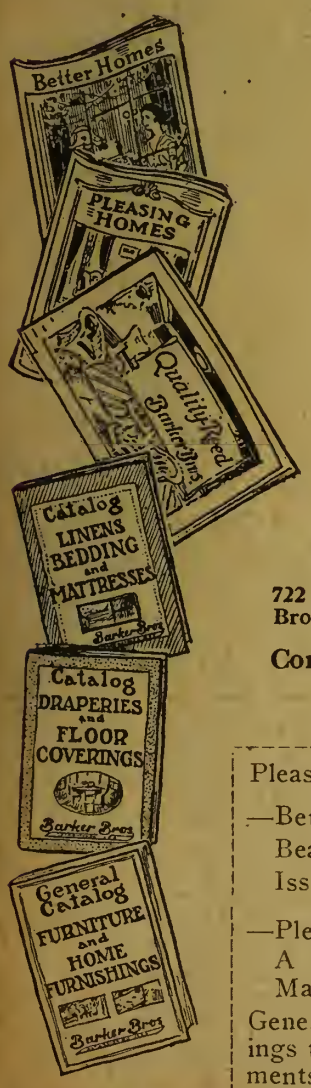

—They give fresh new ideas for cheerfulness in rooms.

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—They show how to select Rugs, Draperies and Furniture to create effects desired.

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They are FREE for the asking. Use the Coupon. On it they are listed and briefly described. Mark the ones you want and mail to us with your name and address. Send to Dept. D.

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Please send me the following publications:

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— Linen-Bedding-Mattress Catalog

—Drapery-Floor Covering Catalog

General Catalog of Furniture and Home Furnishings to be issued in Spring. See later announcements.

LOTS of chores about the farm—up late and early—out in all sorts of weather. Farm folks need a food-drink like Ghirardelli's Ground Chocolate—delicious, rich, strengthening! A steaming cup of Ghirardelli's has saved many an exposure from developing into a serious illness. Made in a jiffy, too!

Never sold in bulk—but in cans only. In ½ lb., 1 lb. and 3 lb. sealed cans—at the store where you do your trading.

Say "Gear-ar-delly"

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"Why don't you let dynamite do your digging? Man alive, the energy you waste would plant twenty times your acreage if you used explosives. And think of the money you're paying out for help. You don't have to pay any wages to dynamite. Try it and see how easy it is. One blast and the hole is ready for the tree and, say, how those trees will grow when you plant 'em in holes dug with

HERCULES DYNAMITE

"Send for a copy of 'Progressive Cultivation'. This book will give you detailed information, with pictures and diagrams, about tree planting, ditching, stump blasting, subsoiling and doing many other things with the help of explosives. Every rancher and orchardist should have this book—*and they can have it for the asking.*"

The Hercules Powder Co. sends "Progressive Cultivation" free to any rancher or orchardist who will sign and send in the attached coupon.

Hercules Dynamite is for sale at leading dealers.

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I am interested in dynamite for _____

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Still Going Strong
There is no stronger proof of a tractor's value than its length of life. For the greater the number of years of service, the farther is the initial cost distributed.
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At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

Los Angeles Markets

Los Angeles, February 11, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 64 cents.

Dairy Exchange prices last week on extras:

Feb.	4	5	6	7	9	10
'20	68	68	..	..	64	64

CHEESE

Brokers' prices:

California, lb., 29; price to retail merchants, 29@31.

EGGS

Fresh extras, Produce Exchange closing price, 43 dozen; case count Produce Exchange closing price 41 dozen; pullets, Produce Exchange closing price 40 dozen.

Dairy Exchange prices last week on extras:

Feb.	4	5	6	7	9	10
'20	44	44	..	..	45	43

POULTRY

Price to producers: Hens, 35; colored over 4 lbs., 38; broilers, 40-42; fryers, 40; roasters, 33; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; turkeys, live, 40; dr., 41; squabs, 45@47.

Belgian hares, 3 to 3½ lbs. live, 17.

LIVE STOCK

Los Angeles, Feb. 10 — Weighed and delivered off cars without food or water:

Hogs (hard-grain fed), 125 to 150 lbs., 15.00; 150 to 175 lbs., 15.50; 175 to 225 lbs., 16.00.

Cattle (on foot, gross weight): Steers, good, 11.50@12.00; medium, 11.00@11.50; heifers, good, 9.50@10.00; fair, 9.00@9.50; bulls and stags, 6.00@6.50; calves, 125 to 150 lbs., 12.50; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock February 3, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Market weak. New stock: Stockton, Burbanks mostly 5.00@5.50; special brands, 5.40@5.60; fancy, 5.25@5.35; choice, 4.90@5.00; some poorer, low as 4.25@4.50. Idahos: Russets, 4.50@5.10. Local, lug boxes, 1.75@1.80; local White Rose, 5.25@5.50.

Sweet potatoes: Market strong. Lugs, 1.35@1.65; cwt. mostly 4.00@4.75; best, 5.00.

Carlots: Demand and movement slow, market firm, supplies limited. Stralght cars, too few sales to quote, mixed cars, 4.50 per cwt.

Onions. Demand and movement moderate, market firmer. Home grown and Stockton: White Globes, cwt., 6.25@6.75; few 7.00; Yellow and Browns, 5.50@6.50; lug 1.75; lb., 6@7. Garlic, lb., 40.

VEGETABLES

These are the actual prices obtained February 10, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.65@1.75; Jerusalem, 1.50.

Beans, green, lb., best, 15@17; other 8@9.

Beets: Doz., 40@55; lb., 4@5; sk., 3.00@3.50; other 2.00@2.25.

Brussels Sprouts: Per lb., 10@13, poorer low as 13; best shipping stock 14@17.

Cabbage: Market strong. Per lb., 4@4½; per cr., 3.50@4.25; shipping stock high as 5.00; red, lb., 5@6; sacks, 3.50@4.00.

Carlots: Demand and movement moderate, market weaker, supplies scarce. Winningstadt and Cannonball, in straight cars, very few sales, some consigned, 65.00@75.00, mostly 70.00; mixed cars, wide range in price, 70.00@85.00, mostly 80.00.

Carrots: Doz., 30@40; lb., 1½@2; sk., best 1.50@1.75; other 1.00@1.25.

Cauliflower: Market stronger, supplies scarce. Local stock: per dozen, best 90@1.25; others 80@85; field crates, best 2.00@2.25, poorer 1.75@1.85.

Carlots: Demand good, little movement, market stronger, quality and condition variable. Half Early and Pearl, straight cars, very few sales, 1.10@1.25; mixed cars 1.25@1.40, mostly 1.25@1.30.

Celery: Market strong. Local and Northern: per dozen bunches, 1.40@1.65; some best high as 2.00; poorer low as 60; crates, 6.75@8.25; fancy shipping stock, 8.00@8.50.

Carlots: Demand and movement moderate, market firm, supplies limited. Per dozen, stralght cars, few sales, No. 1's, 90@1.00; No. 2's, 80@90; No. 3's, 70@80; mixed cars, No. 1's, 1.00@1.15; No. 2's, 95@1.00; No. 3's, 80@90.

Cucumbers, hothouse, 1.00@3.00 dozen.

Eggplant: Florida and hothouse, 25 per lb., local, scarce, 14@17.

Peas, local, scarce, lb., best 10@11; others, 8@9.

Lettuce: No carlot arrivals. Local stock, market weaker. Dozen, 30@35; crates, wide range in quality and condition, 75@85; poorer low as 40; best shipping stock, 1.00@1.25.

Carlots: Too few f. o. b. sales to quote, many rolled unsold.

Peppers: Supplies very light. Local stock: Bells, mostly 18@20; poorer, 15@17. Chilis, best, 18@20 per lb. Floridas: Bells, 25@35 per lb., Chilis, 25@35.

Parsley: Doz., 30@35.

Parsnips: Lugs, 80@1.00; sacks, 2.75@3.50; per dozen, 40@50.

Rhubarb: Local stock scarce, bx., 1.40@1.65; few best, 1.85@2.00.

Spinach, doz., 20@25.

Squash: Hubbard, cwt., 4.00@4.50; lb. 4@4½.

Tomatoes: Mex. cr. repacked, 2.75@3.00; lug, 3.25@3.50; few best 4.00.

Turnips: Doz. 40@50; sk., 2.75@3.50.

FRUITS

These are the actual prices obtained February 10, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: 4-tier Bellefleurs, best 2.00@2.25; quality and condition ordinary 1.85@2.00; 3½-4½ tiers, 1.50@1.75; loose 3@4 lb. Yellow Newtown Pippins 2.00@2.35 per lb., 4@6; Winesaps 3.75; loose, 6@6½ per lb.; Delicious, 2.50@3.50; fancy, large sizes, 4.00@4.25; 5@7 per lb.

Bananas, 8@8½; Red, 9.

Cranberries: Barrels, 18.00; best shipping, 18@20 per lb.

Pears: Winter Nelis 6½@7 lb.; bx., 3.00@3.50.

Grapefruit. Porterville and Imperial Valley stock: box, mostly 3.50@4.00. Locals, 2.00@2.75 box. Arizonas: 3.00@4.25.

Lemons: Market firm. San Fernando Valley stock; fancy packed, 5.00@5.50; loose, 4.00@4.50; juice, 2.50. Local stock: packed, 2.50@3.00; loose, 1.50@2.00 box; 2@3 per lb.

Oranges: Navels, 4.00@5.50 box. Local stock: packed, 3.50@4.25; large sizes low as 2.00. Tangerines, lb., 6@8.

HONEY

Demand and movement good, market steady. Carloads f. o. b., usual terms, per lb.; white orange blossom, mostly 19; white sage 19@20; extra light amber sage 18½; light amber sage, supplies cleaned up; light amber alfalfa, 16½. Beeswax, local lots, 40@43.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.

1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6: Limas 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	25.00@28.00
Barley	25.00@29.00
Alfalfa	25.00@30.00
Barley Straw	10.00@13.00

GRAIN AND FEEDS

Price bid local grain exchange, February 10.

Oats, Cal. Feed, 3.05; seed, 3.06¼; Eastern White, 3.00.

Barley, 3.25@3.35.

Corn, Yellow, 2.92½@3.10.

Egyptian Corn, 3.45.

Eastern Kafir, 2.46½.

Wheat, mixed feed, 5.20@5.60.

Milo, 2.83@2.85; Eastern, 2.43@2.60.

Money-Making Liners

Continued from Page 267

BERKSHIRES

"ACHIEVER"

The Boar that puts more vitality, more bone and more pork-making qualities into his pigs, is sired by Onward 4th by "Epochal" out of a Grand Champion Sow. An opportunity to purchase Sows and gilts bred to this Boar will be offered at our coming sale, Feb. 14th.

Castleview Ranch, Santa Rosa, California.

ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

3 Long, Stretchy Boar Pigs farrowed in July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St. at Third, San Francisco. In charge of Natomas Land Sales.

BERKSHIRES

are bred on the Lark Meadow Ranch for big bone, strong backs and the right type to produce profit for the purchaser. Bred and open gilts from most popular strains for sale now.

GEO. A. STINGLE, El Monte, California

Grape Wild Farm Berkshires—Guernseys—spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. R. Humphrey, Prop., Escalon, California.

Solano Berkshires. Choice stock for sale, service boars of varying ages, bred gilts, unrelated pairs and trios. Reasonable prices. Write for information. R. C. Gruhike, Dixon, Solano County, California.

Real Good Berkshires, choiera immune. Frank B. Anderson, Box 724, Sacramento, California.

San Francisco Markets

San Francisco, February 10, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras 63½
Prime Firsts 63

Feb.	3	4	5	6	7	9
'20 ...	67½	67½	66	64	63½	63½
'19		47½	48½	49	49	..

Rcts. week ending February 9, 4,578 centals.

CHEESE

Dairy Exchange quotations:
Jack, full cream .....27@28
Cal. Flats 31
Cal. Y. A. 35
Oregon Trip 32

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 48½
Prime firsts 47
Extras, pullets 44½
Undersized 41½

Feb.	3	4	5	6	7	9
'20	52½	47½	52	52½	50½	48½
'19		41	41½	44	44	..

Rcts. week ending February 9, 317,670 ium, 12@12½; heavy, 9@11½.

POULTRY

Wholesale prices are:

Leghorn. 38@39; small, 38@39; large, 39@40; roosters, young, 38@40; old, 21@23; broilers, 40@43; fryers, 42@45; turkeys live, 38@40; dressed, 52@53.
Ducks, Indian Runner, 25@27: Pekin, 28@32; geese, 30@32; Squabs, 50@65.
Belgian hares, live, 18@20; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company are:
Cattle—Grass steers, No. 1, weighing 1000 to 1200 lbs., 12½@13; do 1200 to 1400 lbs., 12@12½; do, second quality, 10@11½; thin, 9@9½.
Cows and Heifers—No. 1, 9@10; second quality, 8½@9; common to thin, 5½@6½.
Calves—Light weight, 13½@14; medium, 12@12½; heavy, 9½@11½.
Lambs—Yearlings, 13@13½.
Sheep—Wethers, 11@12; ewes, 9@9½.
Hogs—Weighing 100 to 150 lbs., 14; 150 to 225 lbs., 15; 225 to 300 lbs., 14½; 300 to 400 lbs., 13½.

Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:
Cattle—Good steers, 1000 to 1200 lbs., 12½@13¼; good heifers, 1000 lbs. and over, 9@10; good cows, 1000 lbs. and over, 8½@9; canner cows, 5@6; good bulls, 6@7.
Calves—Light, 13@14.
Hogs—Top packer, hard and well finished; 100 to 150 lbs. 14½; 150 to 225 lbs., 15; 225 to 300 lbs., 14½; over 300 lbs., 13½; under 100 lbs, 13½.
Ewes—9@10.
Wethers—13@13½.
Yearlings—13@13½.
Milk Lambs—14@15.

POTATOES

Wholesale selling price:
Per 100 lbs.: Rivers, fancy, 4.50@4.75; choice, 4.25@4.50; Idaho Gems, 4.50@5.00; Salinas, 5.25@5.50; sweet, 4½@5 per lb.

ONIONS

Wholesale selling price:
Onions, fancy brown, 4.75@5.00; choice, 4.50@4.75; yellow, 5.00@5.25; white, 5.00@5.50. Garlic, China, 14@15; other, 25@30 lb.

VEGETABLES

Wholesale selling price:
Artichokes, No. 1, 1.00@1.10; No. 2, 75@85; No. 3, 50@60.
Asparagus, 30@40.
Brussels Sprouts, lb., 8@9.
Carrots, per sack, 1.00@1.25.
Cauliflower, doz., 1.25@1.45.
Cabbage, doz., 40@50; lb., 2½@3.
Celery, doz. bunches, 45@50; cr., 5.00@7.00.
Eggplant, lb., 15@20.
Lettuce, cr., 50@1.50.
Peppers, Bell. lb., 12½@15; Chili, lb., 10@15.
Peas, lb., 6@8.
Radish, 7@9 doz. bunches.
Tomatoes: Southern, 2.75@3.00.
Spinach, lb., 5@7.

FRESH FRUITS

Wholesale selling prire:
Apples: Bellflower, 1.25@1.50; Newton Pippins, 1.75@2.00.
Bananas, 7@8½.
Cranberries, 4.00@4.25 per standard box; barrel, 8.00@8.50.
Olives, lb., 8@12½.
Pears, box, 2.50@4.00.
Pineapples, doz. 2.50@3.50.

CITRUS

Wholesale selling price:
Per box: Lemons, fancy, 4.25@4.75; choice, 3.50@4.00; standard, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00@2.50; grapefruit. fancy, 2.50@3.00; choice, 2.00@2.50; navel, 4.00@5.00; limes, 1.50@1.75 per crate; tangerines, 1.50@3.25 per crate.

HONEY

Jobbing prices: Extracted, Water White and White, 18@20 lb.; Light Amber, 16@18; Amber, 14@16½; Comb, 25@28 for White and Water White and 20@22½ for Wh. Amber.

DRIED FRUITS

Prunes:
Prune prices announcel by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:
Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.

For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:
Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:
White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.35; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:
Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

Raisins:
California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅜; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12⅛; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾. Suitanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown, flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown, tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, 2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

GRAIN

Wheat: The prices are based upon federal grades and standards at the terminals in San Francisco Bay and Los Angeles, and are as follows, per bushel of 60 pounds:

Hard White—	Per Bushel	Per Cental
No. 1	$2.20	$3.66 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.09	3.48½

The above are minimum prices.
For sacked grain add 4½ cents per bushel of 60 pounds to above prices. Deductions of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.25@3.30; black, 3.00.
Corn: California yellow, 3.15@3.25 per cental; Egyptian white, 3.75@3.80; milo maize, 3.15@3.25.

Barley: Spot feed, per cental, 3.50@3.60; brewing, 3.65@3.75.

HAY

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses are to be added according to conditions:

Fancy Wheat Hay (light 5 wire bales) .....30.00@32.00
No. 1 Wheat or Wheat and Oat Hay .....27.00@31.00
No. 2 Wheat or Wheat and Oat Hay .....26.00@28.00
Choice Tame Oat Hay .....29.00@32.00
Other Tame Oat Hay .....26.00@29.00
Wild Oat Hay .....25.00@28.00
Barley Hay .....25.00@28.00
Alfalfa Hay .....27.00@32.00
Stock Hay .....22.00@25.00
No. 1 Barley Straw, bale..... .50@ .80

Citrus Markets

Los Angeles, February 11, 1920.

Market conditions are very satisfactory though there is fearful range in prices paid in the auctions. This is more because of wide variation in fruit quality.

Keen demand is clearing up the lemon markct and every offering is immediately taken. The most serious situation during the past week has been the abnormal weather conditions which have prevented moving the fruit from the cars.

Shipments

Shipments of oranges to date from Southern California since November 1, 1919: 6,296 cars; lemons, 1,363; total, 7,659. To same date last season: Oranges, 5,444; lemons, 1,858; total, 7,302. From Central California this season: Oranges, 3,428; lemons, 182; total, 3,610. To same date last season: Oranges, 2,210; lemons, 223; total, 2,433. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

February 9

New York: 20 or., 2 lem. Higher. Nav., 1.85@7.80; seedlings, 2.75@2.90. Tang., halves, 3.45; lem., 4.45@6.30.

WEATHER REPORT

San Francisco, Cal., February 7, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.00	10.92	26.48	60	44
Red Bluff	.01	4.63	14.85	72	42
Sacramento	.06	3.44	11.59	66	42
San Francisco	.41	4.99	13.51	64	45
San Jose	.09	3.41	9.66	70	38
Fresno	.02	2.21	5.55	68	42
San Luis Obispo	.52	6.91	11.65	76	46
Los Angeles	.02	4.80	8.89	82	50
San Diego	.00	2.64	5.75	76	48

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More than 20,000 Bell telephone employees went to war; some of them never returned. For eighteen months we were shut off from practically all supplies.

War's demands took our employees and our materials, at the same time requiring increased service.

Some districts suffered. In many places the old, high standard of service has been restored.

In every place efforts at restoration are unremitting. The loyalty of employees who have staid at their tasks and the fine spirit of new employees deserve public appreciation.

They have worked at a disadvantage but they have never faltered, for they know their importance to both the commercial and social life of the country.

These two hundred thousand workers are just as human as the rest of us. They respond to kindly, considerate treatment and are worthy of adequate remuneration. And the reward should always be in keeping with the service desired.

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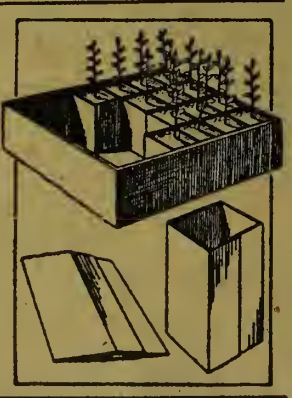
Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus, Olive Cuttings. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.



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Grower of .....
Tonnage .....
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Address .....
City State

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Choosing Proper Implement for Tractor Use

By Clyde L. Clarke

ONE day last week I accompanied the local distributor of a well known tractor to a private demonstration. Fortunately for my friend, there were only three farmers in attendance, and he was able to explain to the "crowd" the reasons why his tractor failed to perform in its best light.

The tractor in question is a good one. The reason why it failed to give a 100 per cent demonstration on this particular day was because of the implement it was drawing. The agent who sold this tractor recommended and urged the purchaser to buy a certain kind of plow to go with it; one which he knew (and I know) works to perfection with the power the tractor delivers, regardless of the soil and grade. However, the farmer had "his eye set" on another plow, and in spite of urging and pleading of the tractor salesman, made the deal.

The farmer's mistake was evident in less than five minutes after the tractor was hitched to the plow. The first hitch was not successful and it took two solid hours for a blacksmith to get the "hitch" in working order.

Finally the tractor was started and headed down the field. The plow did not work right. The balance was wrong. The two machines simply did not like each other and didn't care who knew it! The laugh was on the implement as long as they were going down hill, but when they made the turn and started back up the grade that plow simply laid back and chuckled while the tractor sweat and struggled on. The draft on the tractor was at least 20 per cent more than it should be asked to handle. While it might have pulled even a slightly heavier load it was a wearing, tearing strain that no machine could stand for long.

A few months ago I was vistting a friend of mine in Kansas City—a distributor for a tractor quite popular in that section. While I was in his office a man came in who said that he wanted to look over the "Blank" tractor. As I wanted to write a letter I took advantage of my friends' absence and used his desk. In the course of half an hour the two came back, and the order was signed up for the tractor. It seemed, however, that the matter of the plow to go with it was not yet settled.

Now my friend had the agency for two lines of plows—we'll call them the "Smith" and the "Jones." I happened to know that his profit on the "Jones" was several dollars more than his profit on the "Smith". Yet he was urging the buyer to take the "Smith." Of course he was not acting headstrong about it, but although the farmer wanted the "Jones" he finally decided to take my friend's suggestion.

When the two of us were alone again I asked for an explanation, calling attention to the fact that I knew the two plows were practically identical, and also that he had lost money in changing the buyer's notion.

"I don't know as I can give you a really satisfactory answer to your question," he said. "But I have noticed one thing. Usually the man who buys one of my tractors and takes along a 'Smith' plow is a satisfied and happy owner. I can't say that I have had any complaints of the 'Jones'—maybe it's just a matter of plain luck, but somehow, I feel that I have done better when I have sold the plow that has the least profit of the two."

To my mind the problem is easily solved. While the two plows are almost identical in construction and quality, the one simply fits in with the "Blank" tractor better than the other. A difference of half an inch in some angle about the machine may make a difference of many pounds in the draft.

California in 1868

The 1868 Yearbook of the United States department of agriculture known as the "Agricultural Report," has some interesting facts and figures on California. Among these we find our state has 120,947,840 acres of which at that time 1,198,874 acres had been sold, and 368,321 acres entered under the homestead laws. These lands doubtless were largely in the central and northern sections, for of six United States land offices listed, Visalia is the most southern. Under the title "The Public Domain," it says of California:

"It is estimated that there are not less than 89,000,000 acres of land in California suited to some kind of husbandry. Of this amount over 40,000,000 are tillable, and the remainder adapted to stock raising, fruit growing, etc. The southern portion of the state is more particularly devoted to horticulture. It is said that no better soil and climate are afforded in any country for the cultivation of the grape than this part of California. The yield exceeds that of the most celebrated European vineyards. Three hundred varieties have been introduced. The acreage in vines is about 45,000, with an average of 900 vines to the acre. The vintage of 1867 was estimated at over 4,000,000 gallons of wine and about the same quantity of brandy. One thousand pounds of grapes to the acre is the minimum yield, while as high as 20,000 pounds have been produced. The orange, lemon, fig, lime, olive, apricot, nectarine, pineapple, pomegranate, and other tropical and subtropical fruits grow in great abundance. Fruit trees grow more rapidly and produce larger varieties than in almost any other part of the world. The pear thrives in all parts of the state. In the markets of San Francisco strawberries are sold every month in the year.

"The cereals, potatoes, tobacco, sorghum, and in some localities cotton and the sugar cane, are successfully and very profitably grown. Sixty bushels of wheat to the acre is not an unusual yield. The cultivation of the mulberry tree and the rearing of silkworms promise to become an important source of wealth in the state. The worm seems to be exempt from the diseases which for 20 years have prevailed in many of the cocooneries of Europe, threatening the destruction of the native species. The California silkworm eggs are in great request among European breeders. The state has undertaken to foster this important branch of industry by offering liberal premiums for the planting of mulberry trees and the production of cocoons. Silk factories are being erected in the state.

"Stock and sheep raising is a leading branch of husbandry. The mild winters and perpetual pastures enable stock to graze throughout the year. In the year 1867 there were 2,000,000 sheep in the state, yielding a wool product of 9,000,000.

"California has an abundance and great variety of timber. The redwood, found only here and in the southern part of Oregon, is a valued commercial wood. It grows in dense forests, which are estimated to cover in the aggregate 10,000 square miles. The trees frequently reach a height of 270 feet and a diameter of 18 to 20 feet."

Cooperation has solved the farm labor shortage for a group of seven ranchers in the vicinity of Tulare. When the men, C. O. Martin, Sam Burgan, H. E. Martin, Henry Beckman, M. B. Crossley and M. B. Hargis, found it impossible to secure labor for their ranches they held an informal meeting, selected Mr. Riley, secretary, and Albert Martin, manager, named their organization the Tulare Silo Company and proceeded to build a silo on each place, each man putting up his own. Then the group purchased a 45 horse power gas engine, mounted on a truck, an ensilage cutter and a corn binder. Twelve men are necessary to operate the machinery, the members of the company forming the nucleus of the crew. The company also has between its members some 80 acres of excellent Indian corn, and this crop will be handled by the company, which is just completing the filling of its silos.

Benjamin Franklin said:: Remember that money is of the prolific, generating nature." Buy W. S. S.

A Profit Making Poultry Ranch

By Jean A. Koethen

FIFTEEN years ago Charles G. Weaver bought five acres in the arroyo between Garvanza and South Pasadena and began building poultry houses and filling them with bred-to-lay White Leghorns. Three and a half acres of this five acre ranch is covered with laying and breeding houses, colony houses for the youngsters, brooder houses, incubator house and feed house. The commodious new residence, and a field of a little more than an acre, in which greens are raised, fill the remainder. It takes an acre of greens to supply a thousand hens, Mr. Weaver says. His houses ha e encroached so upon the original acreage allowed for this purpose that he is obliged to raise a large part of his green stuff on rented land.

Barley and Sudan grass are the main dependence for greens, barley being grown from the middle of October till the first of June and Sudan grass the other four or five months. Each planting of barley makes three or four cuttings. Run through a clover cutter and fed daily in the late afternoon it keeps the hens supplied with an abundance of succulent green. The Sudan grass is fed in the same way and grows with even greater rapidity.

Hatch in March

All the hatching on this ranch is done in March and the four weeks between the middle of September and the middle of October. Contrary to the experience of many poultrymen, Mr. Weaver finds the molting of January and February pullets in the fall a decided objection to very early hatching. March pullets are in good laying form before fall and do not molt if properly fed, while those hatched in October are excellent spring and summer layers. The incubators are started in February, and during the month of March from 4,000 to 5,000 chicks will be hatched to keep up the flock of 3,500 layers. Other years the Weaver ranch has sold baby chicks. This year all the eggs are contracted for hatching at a price which makes them more profitable than chicks.

Public Should Be Educated

"There has been an almost unprecedented demand for chicks," said Mr. Weaver, "but it is slowing up now on account of the rise in feed prices. I don't see, myself, how all these new folks that are going into the business are going to break even. I have a letter on my desk now from a chap back East who wants to come out here and put four or five thousand dollars into the poultry business, and I don't know how to answer him. If I say, 'Don't come,' he will think I am afraid of his competition. If I say 'Come,' he will blame me if he fails. Overproduction is bound to bring down prices, and goodness knows they are little enough now. If the public could only be made to understand how small a profit the poultryman makes under the most favorable conditions it wouldn't be so quick to boycott eggs. Why, I haven't a doubt his eggs are costing the small producer 75 cents a dozen right now, and he is selling them for 60 or thereabouts. Later in the spring when production becomes heavier the balance will be on the right side of the ledger again, but prices and production during the summer have got to be big enough to average the loss during the winter. The farm papers understand this, of course. If the big newspapers would now and then publish an article telling folks what the poultryman is up against with these awful feed prices, instead of always helping along the boycotts, shouting "Profiteer," if the poultryman does happen once in a while to break even, it might do some good. The public is always reasonable when it understands."

Feeding for Fertility

As all the eggs are sold for hatching, the 2,600 breeding hens are fed to secure high fertility. A breeding mash is kept before them, and the scratch mixture consists of 40 per cent wheat and 20 per cent each of barley, cracked corn and milo. Sprouted oats are fed freely.

No feed is given in the morning. The hens have their dry mash in the hoppers and some scratch grain left over in the litter from the night before. At 10 a. m. three days in the week a five per cent solution of a buttermilk preparation is set before them, a gallon and a half being allowed each hundred hens. The other days, at 11 o'clock, buckets of moist mash are carried around by one of the men. At 4 o'clock the scratch grain is fed, the allowance being so liberal that some is left for morning. About 4:30 cut green feed is fed in the troughs. The purpose of feeding so late is to keep the greens from wilting as long as possible. The hens eat what they want at night and find some still fresh in the morning.

Instead of sprouting grain in boxes, Mr. Weaver drills it into the yards. The hens eat some as soon as it is planted, and the rest in various stages of sprouting, but it keeps them digging. They get a lot of exercise, and they also get the grain.

The long house used on this ranch is similar to that in general use among commercial poultrymen. It is 16 feet wide and 200 feet long, and is intended to house from 1,000 to 1,200 hens in three flocks. The runs are 100 by 200.

POULTRYMAN'S CALENDAR—FEBRUARY

Hatching continues this month, and brooding begins. Some chicks are out in January, but from the first to the middle of February is generally considered the choicest time for a chick to come into the world.

Brooding cannot be too carefully planned for, whether it is done naturally or artificially. If hens are used, they must be in coops tight on three sides, and kept in a sunny, protected spot. If brooding is artificial, see that the chicks have a warm place to go to when they feel the need of heat, a cooler place to play in, and a chance to run out of doors on the ground. They will soon learn where to go for comfort.

Don't neglect to guard against mites by frequent spraying or painting with insecticides, and dust occasionally for lice. Chicks that are warm and well nourished and clean ought to grow very rapidly this month.

Poultry Queries

Conducted by J. A. Koethen

Possibly Poisoned

Can you tell me what to do for my chickens, mostly pullets and young roosters, White Leghorn and Barred Rocks? They seem all right in the morning, but in the evening their combs look dark and the next day they are dead. I feed them Gyp corn and wheat and they have all the range they want.—Subscriber, Willows.

How many of the flock are affected? I am not told, and that is the very heart of the whole matter. If the trouble is general, your hens and roosters must be finding something on range that they ought not to eat, a dead gopher or chicken, some poisonous preparation that has been used for spraying trees or vines, or perhaps paint skins or salt. If only an occasional bird is affected the trouble may be due to liver trouble which has been coming on gradually without your noticing it. Your ration of Gyp corn and wheat is not sufficient but it ought not to make the birds ill unless they are allowed to stuff themselves with the Gyp corn till their intestines are overlaid with fat. Better shut them up till

GET MORE EGGS

"Lady Victory"

1918 Champion laid 304 eggs in 365 days. Highest official record of any living hen. She laid 25 eggs in Jan., 27 in Feb., 29 in March.

Milkoline will help make your hens lay more eggs.

Feeding Milkoline will make you more money—reduce mortality of your flock—keep flock healthy and less liable to disease.

Increase Poultry Profits Any poultry raiser can easily double his profits by doubling his egg production. Feeding Milkoline with other feed greatly assists assimilation, keeps digestive organs vigorous and is a wonderful appetizer, tonic and bowel regulator. Milkoline contains nutritive elements vital to egg production and not found in grain rations.

13,000 More Eggs

Jas. E. Keyes, Petaluma, Calif., says: "After feeding Milkoline for eighteen months to 2,500 hens, I find that worms cannot exist in poultry where Milkoline is used. I reduced mortality with laying hens 10 per cent. I increased the egg production of my flock thirteen thousand eggs in one year. Feeding Milkoline to laying hens keeps them in splendid health thereby preventing disease and derangements of all kinds."

Milkoline has a base of modified buttermilk with essential fats and acids added. Milkoline comes in condensed form. Will not mould, rot or sour. Keeps indefinitely in any climate. Milkoline is simply "Good Buttermilk Made Better for Feeding." Flies don't bother it.

Lowers Feeding Cost

Many feeders say Milkoline lowers feeding cost one-third, because their hens assimilate all feed they eat. Our liberal Guaranteed 30 Day Trial Offer enables you to try Milkoline at our risk—to prove that it will make you mighty good money.

Prevents Disease

Milkoline is not featured as a cure for anything or a preventative, but due to the acidity in the buttermilk it is a germ destroyer and helps keep poultry healthy, which is the best preventative against disease. Milkoline is invaluable as a life saver for baby chicks.

PRICES

These prices are F.O.B. Kansas City or the address of our nearest dealer. Dealers in all parts of the United States.

5 Gal. Keg - $7.50
10 Gal. Keg - 12.50
15 Gal. Keg - 16.50
32 Gal. Barrel 32.00
55 Gal. Barrel 49.50

Prices on smaller packages given in booklet. Buy in barrel lots—it saves you money.

Only 2c a Gallon

For feeding mix one part of Milkoline to 50 parts of water (small feeding 5 tablespoons to gallon of water). Feed either with water or mash feed. Milkoline keeps their appetite keen and its action is highly essential to normal egg production. When fed as directed Milkoline costs only 2c a gallon or less. Trauhaft & Newman, Lankershim, Calif., say: "We would not go back feeding straight buttermilk at any price."

Guaranteed Trial Offer

we will ship you 1 Gallon for $2.25, express prepaid. Take 30 days—feed half to your poultry. If not entirely satisfied simply return unused portion and we will refund every cent you paid us. No charge for portion you have used. Milkoline is legally guaranteed to be satisfactory. You are always the judge. We suggest ordering larger quantity—you get the benefit of lower price—you risk nothing—you must be satisfied or we refund every cent you paid us. Make this test now. The sooner you begin using Milkoline the quicker you will be making money.

Send This Coupon

THE MILKOLINE MFG. CO.
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In accordance with your guaranteed offer, please ship me .....Gallons of Milkoline for which inclosed find $.....
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Every entry won in the late shows: Los Angeles P. B. Assn., and San Diego Exhibitors Club.
Our birds are fed no stimulants or patent mashes to increase egg production. They are fed to produce strong vigorous chicks.

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Wright's FARM BUTCHERING SET (Nine regular butchers' tools, including saw and cleaver) should be on every farm. We buy in carload lots and Re-sell at Cost—$3.95. Send for instructive booklet: *"The New Way of Smoking Meat."*

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California Conditions
Send for Booklet, "Fertilizer Efficiency," Tells You Why.
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you have searched their range. Meantime give the whole flock a good dose of Epsom salts. Dissolve a scant teaspoon for each bird with water, and moisten sufficient mash to give a scanty meal. If you have no laying mash, bran will do. Feed greens freely, keep a dish of bran before them and give no grain but a little wheat at night till they are better. If you have sour milk moisten their bran with it once a day. When the trouble is past get one of the good laying mashes on the market and keep it in hoppers where the hens can have free acress to it. Feed hard grain only at night, and not more than a quart to 15 hens.

Bantams

In your issue of January 24 the question of Bantams for Eggs is answered by J. A. K. in a way that makes the Bantam a toy. What other Bantams are I do not know, but I do know that a few years ago, I think it is three years, a breed of Bantams, the Golden Spangled Hamburg, was imported from England. These birds are splendid layers, eggs weighing 19 to 22 ounces per dozen. Birds mature in six months. Cost of feed about one-half that of any Mediterranean breed. I do not own any, but had occasion to observe them and have secured a setting of eggs to raise layers for home use.—Careful Reader.

After receiving the query referred to, realizing that my own acquaintance with Bantams was not extensive, and wishing also to secure some eggs for my small daughter, I took a day off and went to visit a Bantam fancier in a neighboring city. He didn't exactly set the dog on me, but he told me I had come to the wrong place and almost "shooed" me off the premises. After such a jolt I did not feel like pursuing my search for Bantam lore any farther. Thank you very much, "Careful Reader." I am glad to know something definite about these beautiful pets as producers and shall have some of those Golden Spangled Bantams before I am a year older.

Pullets for Fall Delivery

I notice your reply to inquiry of Subscriber, Falibrook, in the issue of January 10, concerning the raising of pullets for fall delivery. Boys in the poultry course in this school are now beginning their incubator and brooder work, and I am quite interested in the matter of providing an outlet for their production. I feel that we are in a shape to handle such a contract as you mention. We have two incubators and plenty of facilities for the growing of the chicks. I would be pleased to near from you along this line and to receive any suggestions you might make. While our plan must consider education first, yet I feel an incentive of profit is necessary for our best work.—G. B. H., Pasadena.

The only way I know of to secure such a contract is to let it be known that you are after it. The inquiry we published January 10 brought a reply immediately from a man who wanted 400 pullets raised. Very likely your letter will meet the eye of some one who is interested both in pullets and in education. I would sooner trust the raising of pullets to high school boys who have a genuine interest in their work than to many an "old stager" who thinks he knows all there is to be known. If the publicity I am giving your query does not bring the desired result, try an ad in the Cultivator. Whether or not you are able, at this late day, to secure the contract you would like, I think you would be quite safe in raising the pullets without it. There is always a good demand in the fall from people who are just beginning poultry work or who have not been able to raise their full quota of pullets.

Healthy and Vigorous Fowls Mean Strong Livable Chicks

Mating Time

One of the most important seasons of the poultry year is at hand. At mating time your hens and roosters should be in the pink of condition. Start in now to condition your breeding stock for the spring hatch.

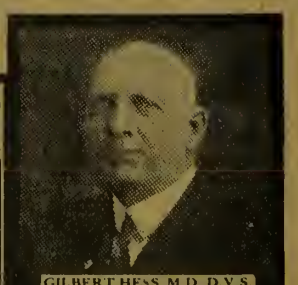
Dr. Hess Poultry Pan-a-ce-a

increases the vitality of the parent stock, gives you fertile eggs, insures a hatch of good, strong, vigorous chicks.

Speed up egg production during winter with Dr. Hess Poultry Pan-a-ce-a. It contains tonics that promote a hen's digestion, tonics that tone up the dormant egg organs—so that the proper amount of food goes to egg production—and not all to flesh and fat and laziness—when it's action and eggs you want.

Pan-a-ce-a supplies the additional iron for the blood—which is essential to the speeding-up process. It contains certain forms of lime, that supply needed material for making egg shells. Also internal antiseptics.

Feed Pan-a-ce-a to all your poultry to make and keep them healthy. The dealer refunds your money if it does not do as claimed. Tell the dealer how many fowls you have and he will tell you what sized package to buy. Always buy Pan-a-ce-a according to the size of your flock. 30c, 60c and $1.25 packages. 25-lb. pail, $3.50; 100-lb. drum, $12.00. Except in Canada.



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Dr. Hess Stock Tonic
A Worm Expeller.
A Conditioner for Spring Work.

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Dr. Hess Instant Louse Killer Kills Lice

FEED GREENS

California is dry and the laying hens are being denied the greens they usually get at this time of the year. If cut green alfalfa is not available try sprouting grains. Sprouted barley and oats make a very good green feed and are used quite extensively. The grain can be soaked for 12 hours in warm water and then spread out in a layer of from one-half to one and one-half inches deep on a floor or in a tray or tier of flats which have openings or holes or a three-sixteenths inch mesh wire bottom, so that the water drains freely. They may be stirred daily, sprinkled, or allowed to sprout without stirring, until ready for feeding. They are usually fed when the sprouts are from one to one and one-half inches long, although some poultrymen prefer to allow the sprouts to grow to two or three inches long. Sprouting of grains calls for a moist and warm atmosphere in which to sprout quickly, so that it is necessary to furnish heat or to keep them in a warm room during the winter, while they may be sprouted out of doors during the rest of the year. It takes from six to ten days to sprout oats, depending on the temperature of the room.

MITES REMAIN IN FEATHERS

Chicken mites, the night pest of poultry, may not always leave the fowls before daylight, as commonly supposed, but may remain in the feathers in such numbers as to make poultry possible carriers of this pest to uninfested places. This fact was brought out recently by an entomologist of the United States department of agriculture in the course of a study of the life history and habits of the chicken mite, undertaken to discover principles on which combative measures might be based.

AS A LAST RESORT

The Professor—"After years of effort I must confess defeat. I cannot write. There is no originality in me; neither can I present the thoughts of others pleasingly. But," and his face brightened at the thought, "I will teach others to write." So he became a professor of English.—Life.

HIS FINANCIAL DEGREE

Neighbor: So your son got his B. A. and his M. A.

Father: Yes, but his P—A still supports him.—Boston Transcript.

POOR PAPA!

"Father, you took a science degree at college, didn't you? "Yes, my boy; I spent two years on science." "When you look in a mirror the left side of your face appears to be the right side and the right side seems to be the left. The looking-glass reverses it, doesn't it?" "Yes, my lad." "Then, why, papa, doesnt it reverse the top and bottom of your face in the same way?"

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Workmen's Compensation

Is one violating the law and subject to penalty if he does not maintain compensation insurance on a ranch where a man is hired occasionally? I was told that I would and was quoted section 29-B, chapter 586 of the laws of 1917. Is the state of California state compensation insurance fund a state institution or private company?—Subscriber, Paso Robles.

The section of the workman's compensation act quoted was amended in 1919. The section provides that the employer shall secure the payment of compensation by insuring in a duly authorized insurance carrier or by securing from the commission a certificate of consent to self insurance. Subdivision B provides that in case of failure to secure the payment of such compensation, in either of those methods, in case of injury to an employe he or his dependents may file application for compensation with the commission and in addition thereto bring action against the employer for damages, in which he shall be entitled to levy attachment on the property of the employer in an amount to be fixed by the court, to secure the payment of any judgment which may ultimately be obtained, which said judgment shall also include an attorney's fee to be fixed by the court. After a judgment is obtained in such action and compensation which has been included by the commission paid, such payment shall be credited upon the judgment. The burden of proof in any such action shall rest upon the employer to rebut a presumption of negligence upon his part, and the defense of contributory negligence or assumed risk shall not be available to the employer. However it is only employes within the meaning of the act to whom these provisions apply. Under section 8-A of the act, persons whose employment is both casual and not in the course of trade, business, profession or occupation of the employer, and any employe engaged in the household, domestic service, farm, dairy, agriculture, viticulture, or horticulture labor, in stock or poultry raising are excluded from the operation of the act. Section C of the act provides that the term casual refers to employments where the work contemplated is to be completed in not exceeding ten working days without regard to the number of men employed and where the total labor cost is less than $100. The phrase "course of trade, business, or occupation" includes services tending towards the preservation, maintenance or operation of the business or business premises or property. The state compensation insurance fund is a state [illegible]n.

[illegible]AINAGE LEGISLATION

By Prof. C. F. Shaw, University of California

More than 1,000,000 acres of formerly productive lands in California have already become practically worthless because of rising water table and the resulting alkali accumulations, and additional millions of acres of highly productive irrigated lands will become barren and worthless unless drainage district legislation providing for an equitable assessment and spreading costs, is immediately adopted. The most serious problem before the farmers of the arid regions today is the protection of their irrigated lands from poor drainage and its attendant evil, the accumulation of alkali. In its original condition the irrigated lands had a very deep water table, often 60 to 100 feet below the surface; through the seepage from irrigation canals and through overirrigation this underground reservoir has been filled up and the water table brought close to the surface.

This high water table has not only caused injury to trees and other deep rooted crops by drowning out the lower roots, but it has also introduced the problem of alkali accumulation. In regions where poor drainage is causing damage or where the water is rising and threatening early injury, means must be taken to check the rise to prevent further loss. This can be most readily done by the installation of adequate drainage systems, preferably by tile drainage. Drains must be laid deeply, as the water table should be kept six feet or more below the surface.

One of the most serious needs in solving the drainage problem in California is the passage of suitable drainage legislation. California has satisfactory laws covering the reclamation of swamp and overflow land, but wholly inadequate laws covering the drainage of farmed lands. Under the present laws it is exceedingly difficult to organize drainage districts covering lands just beginning to suffer from high water—where the drainage is not uniform or general, but occurs in the lower lands. The owners of the undamaged or slightly damaged lands are unwilling to enter a drainage district unless they can be assured that they will be asked to bear only their fair share of the expense of drainage and that the district will have a capable and effective administration. This our present laws do not assure.

A drainage district law is needed that will provide for an assessment of benefits accruing through drainage, and a spreading of the costs on the lands in proportion to these benefits. The law should provide adequate means for financing the district, for a sound administration of the business of the district, and for maintenance of the canals and other works necessary for good operation.

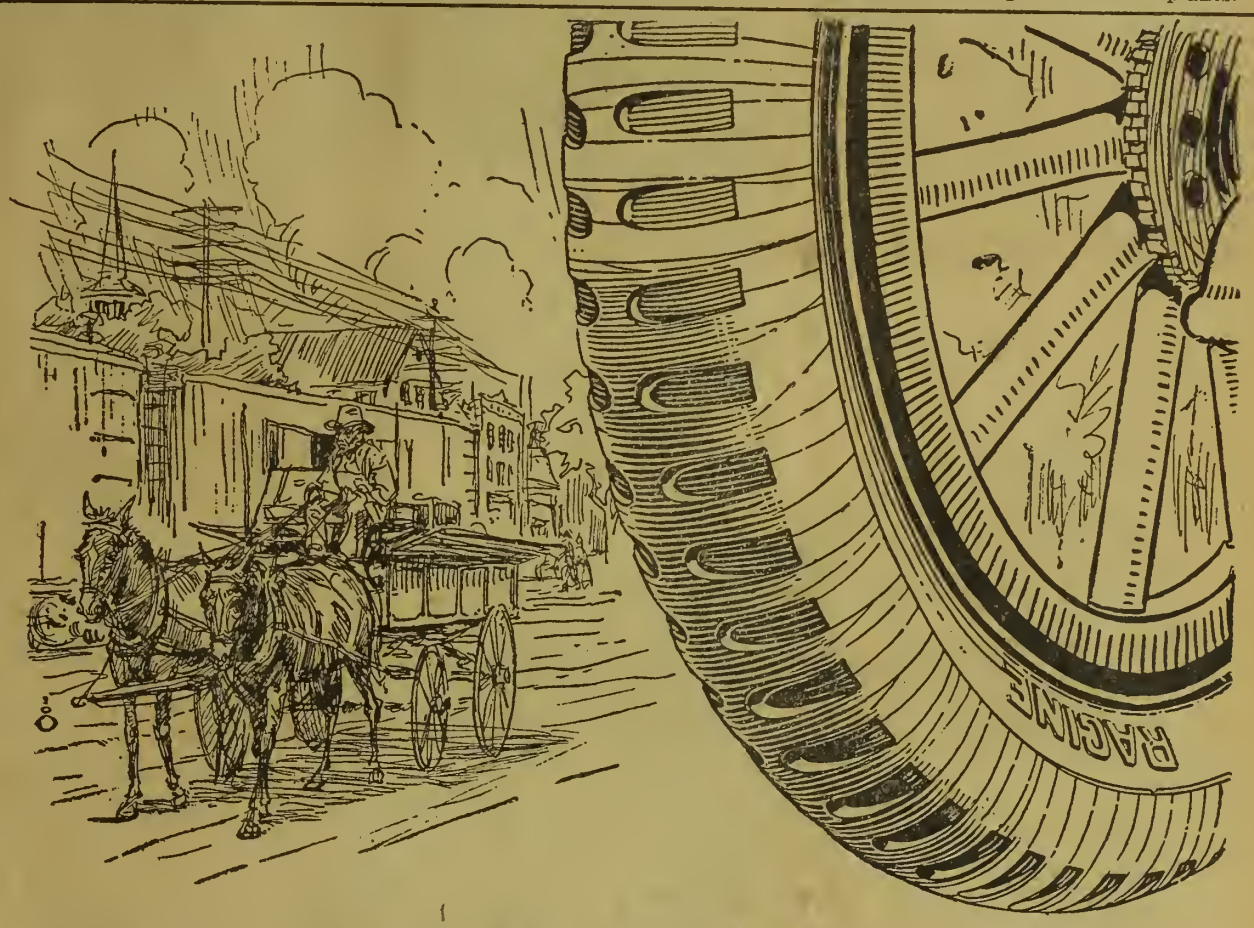
If we devote our time disparaging the products of our business rivals, we hurt business generally, reduce confidence and increase discontent. The best way to get new business is not to undermine a competitor, but to create new markets and encourage increased demand.

THE WAYSIDE MARKET

The wayside market has become popular with small growers whose fields front much traveled highways. The crops cost much to transport to city markets and the prices are not always satisfying. So many wayside growers have become wayside dealers, selling the produce at retail and thereby eliminating the middleman. Some fortunately situated also handle the crops of neighbors whose fields do not touch busy highways and have thus become more than growers. Marketing the small crop at home is each year becoming more popular.

SOUTHERN CALIFORNIA FISH

The principal source of the fish food supply for Southern California is the west coast of Lower California, some of the supply going as far north as San Francisco. A Japanese company of San Diego owns a fleet of 12 small fishing vessels, three regular tenders and two combination fishing and tender boats. This company maintains five camps and has 80 Japanese fishermen regularly employed. The principal food fish caught are halibut, corbina, bass and rock cod. Tuna, sardines, mackerel, abalones and turtles are supplied to California canneries, and non-edible and spoiled fish go to the fertilizing and fish oil plants.



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Racine Tires are all carefully Extra Tested, step by step, through each manufacturing stage, so that only perfectly built Racine Tires can reach the car owner. The proof of this high quality is the continually matchless performance of Racine Tires everywhere.

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Success in the dairying business hinges largely on two things: the character of the herd and the character of the feed—for the feed tells in the flow. This little handbook—which is yours for the asking—takes the feeding question and simmers it down to actual profit-figures that you can use every day. You'll find it a big little help.

It has been the experience of successful dairymen that the highest priced concentrates are usually the cheapest in the long run and the full flow. They have found that a cow will produce the greatest amount of milk at the lowest cost when fed on an ideal *roughage* like alfalfa hay and an ideal grain *concentrate* like SUREMILK.

How to measure the true food value of different stock feeds—how to cut down the cost of milk production—how to know which cows are really profit-producers and which are not—all this is explained in the new edition of our booklet, "Converting Feed Into Money."

You'll find the booklet decidedly practical and worth while. Full of "real meat" and profit-hints to every dairyman. Send for it now—it's free! Simply cut out the coupon and mail today!

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Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — February 21, 1920 — No. 8

Pruning Grape Vines in California

By F. Flossfeder

MERY many pruning systems are applied to the grape vine. The systems differ in the body of the vine and the management of the annual growth. Some of the differences depend on variations of the nature of the vine, on the cultural and growing conditions of the district, and on the objects of the grower.

Ideals of Pruning

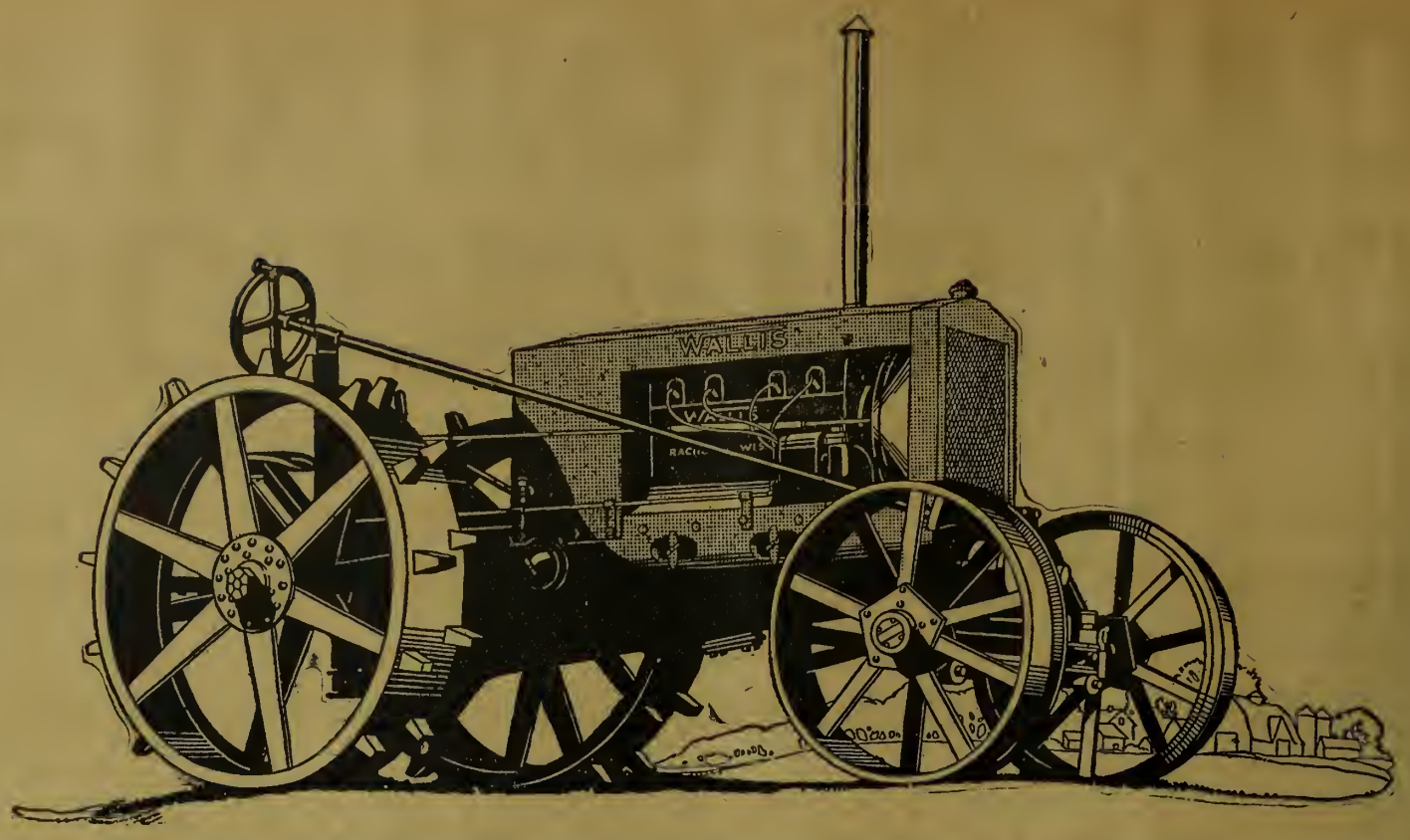
Before the pruner starts to prune his vines he should have formed a mental picture of an ideal grape vine and the form most desirable for his vineyard. Grape vines are subject to so many accidents of weather, cultivation, disease and insect pests that even with the greatest care and skill it may be impossible to obtain a single ideal vine in the vineyard. The ideal grape, however, always should exist in the pruner's mind.

Rooted grape vines which were planted in the spring of 1919 will have made several shoots of various lengths during the last growing period. The number will depend on the number of buds left when the "rooting" was prepared for planting. Very often people are under the mistaken idea that the more stems they leave the more grapes they will get. Such, however, is not the case. If the young vine before planting was pruned in a manner leaving nothing but one shoot, and if this shoot was then cut to two buds, we will find that it has made a few shoots varying from one to six feet in length, depending upon the care the plants received during their first year in the vineyard.

Sometimes vineyards are started by planting unrooted cuttings. Owing to the large demand for certain varieties it seems that the nurserymen of this state have not been able to fill all their orders, and the writer was informed sometime ago that a good many growers intended to plant unrooted cuttings. The soil in many of our best vineyards is useless for rooting grape cuttings. If it is very sandy and plenty of water for irrigation is available, this scheme will work, but it may be advisable to plant two cuttings instead of one; these should be planted in such a manner that, in case both of them grow, one can be removed without injuring the other. It also may happen that none of them will grow, and in this case one of the rooted cuttings can be taken and transplanted from where two are growing. "Never allow two vines to grow where there should be only one." If the grape vines have made a good growth during the first year, and if stakes were driven before planting, a young shoot, after the rest of the growth has been carefully removed, when about six inches long, should be tied to the stake; this, however, is very seldom done. As a rule, the one year old canes are lying on the ground, pointing in every direction. It makes no difference what kind of grapes we are growing, be they raisin, table or grape juice, "Every grape vine should have a distinct stem or trunk;" for Muscats, at least 15 inches high, for stronger growing table grapes, such as the Emperor, Cornichon or Tokay, at least 18 inches high, and the same height would apply to the Sultanina (so-called Thompson Seedless).

Staking

The young grape vines should, if possible, be staked before pruning and the stake driven in such a manner that the vine will be between the prevailing direction of the strong winds and the stake; this will prevent a great deal of trouble. If the stake is driven in the opposite direction, strong winds will break the tying material which will require the going over of the vineyards more than once to retie the loose vines. After the stakes have been driven, which should be done in such a manner that all the stakes have the same height, the measurement of which can be marked on the handle of the sledge hammer, the pruning can be done, and it will pay to have a man for this job who has had more experience and possesses more skill than the average so-called expert pruner. He will select a nice strong cane and—(Continued on Page 284)



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California Cultivator

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Important Dried Fruit Insects in California

By E. O. Essig at Convention of Fruit Evaporators at San Jose

THE packer, distributor and consumer of dried fruits has to reckon with insects in much the same manner as the orchardist, and while these parties appear to be far removed from the producer the latter must in the long run stand the losses occasioned by insect pests often due to the negligence of the former. It is not at all difficult to understand that consumers desire and demand a clean wholesome product and that state and federal regulations are aimed to secure it for him. Therefore the fruits that most nearly meet or, better, that more than meet his requirements in this respect, are the ones which will command the best prices and greatest sales. It is the producer who must be convinced that it is to his interest to see to it that his fruit is put on the market free from insect or other contamination and to keep it that way until it gets to the consumer if that be possible.

The accomplishment of this entails not so much financial consideration as care in processing and packing. There are not many insects to consider in this state, but the few are often responsible for a great deal of damage and loss. Those which might be briefly considered may be roughly placed in two groups, moths and beetles. The young or larvae of these two groups resemble each other considerably and their method of work is much the same, but the adults are widely different.

Moths Attacking Dried Fruit

The larvae or caterpillars of the moths are usually whitish or yellowish with sometimes a pinkish or even greenish cast. They have three pairs of true legs near the head and also five pairs of fleshy prolegs along the middle and posterior portions. They are able to move quite rapidly and often wriggle violently when disturbed. They are great web-spinners and their presence is usually first manifest by the webbing of the fruit and the package or container. When full grown the caterpillars spin a felty white cocoon in which the chrysalis stage is passed and from which the adult or moth subsequently emerges. With a wonderful scent and good powers of flight the moths are able to search out any food which may be in storage in a packing house, warehouse or storeroom and immediately deposit eggs directly upon the dried fruit if possible or upon the container. The eggs hatch quickly and some of the very minute caterpillars get to the fruit if there is a crack, however small, available. If the package is not sealed it is sure to become infested if exposed. Each generation from egg to adult requires but a month or two under favorable conditions so that the pests are able to reproduce very quickly and in great numbers.

The Indian Meal Moth

The most generally distributed and most serious pest to dried fruit in this state is the Indian meal moth, Plodia interpunctella Hubn., which breeds in all cereal products, nuts, seeds, dried fruits and many other foods. The caterpillars are yellowish white and average about one inch in length. They are profuse web spinners and their webs, covering the fruit and containers, are more injurious to the appearance of the dried fruit than the work they do otherwise. Their presence is easily detected by the webs. The small brown chrysalids are enclosed in small white cocoons about one-half inch long. The moths average from one-half to three-fourths of an inch long and are readily distinguished from the other food infesting moths by the distinctive two-colored pattern of silvery gray and bronze; the anterior portion of the wings being silvery and the posterior half bronze or coppery. The very minute eggs are laid on or as near the dried fruit as possible mostly at night. This moth is the one most often found in the hold over dried fruit or in the refuse boxes in packing houses and is almost sure to appear in any fruit which has been kept, especially in a store or warehouse for several years. Because of its general feeding habits, it is a very great nuisance in public warehouses and in stores where so many kinds of food are stored and where some at least is likely to be infested with the moth when brought into storage. As a rule such places always harbor the pest and clean products will invariably become infested. Besides feeding in the fruit the caterpillars are often found in loose cocoons or webs in the corners and cracks of the packing houses during the winter months and emerge as adults in the spring and early summer. They can easily remain over from crop to crop without difficulty so that a house once infested will remain so unless a thorough clean-up and fumigation is resorted to.

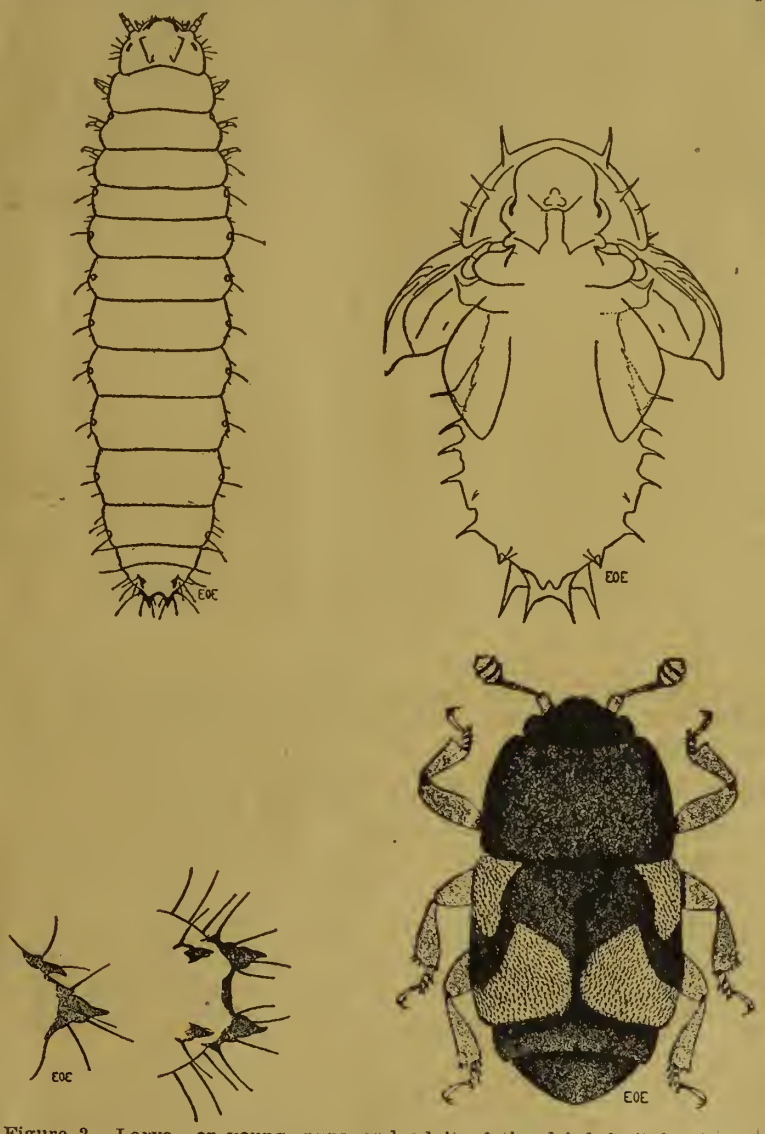

Figure 2. Larva or young, pupa and adult of the dried fruit bettle. Author's illustration.

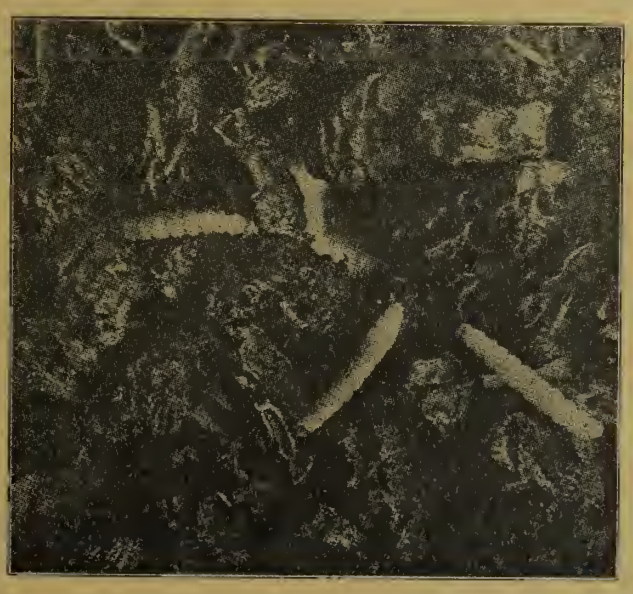

Figure 1. Larvae or young of the Indian meal moth in packed raisins. After Bioletti.

The Fig Moth

The fig moth, Ephestia cautella Walk., has been repeatedly introduced into this country in Smyrna figs and has become established in many sections. Its work is much like that of the Indian meal moth already discussed and it freely attacks cereal products, nuts, seeds and dried fruits. As yet it has not become established in California and is a pest we should be on the lookout for and guard against in every way possible.

Beetles Infesting Dried Fruits

The larvae or young of the beetles infesting dried fruits are easily confused with the caterpillars, but may be easily recognized by the presence of only the three pairs of true legs and the absence of the fleshy prolegs and their inability to spin webs. They work their way through the fruit and when mature pupate directly in the food and emerge as small beetles which are very active on foot and wing. Like the moths they have marked ability to search out food and to place their eggs directly upon it or in its near vicinity. They also develop very rapidly except during the cooler winter months, which does not interfere much if stored in a warm warehouse.

Dried Fruit Beetle

The most injurious beetle to dried fruit in California is the dried fruit beetle, Carpophilus hemipterus (Linn.). The larvae are small and whitish yellow while the adults are short and robust, scarcely one-fourth of an inch long, black with the posterior portions of the body a reddish or cinnamon brown. The larvae reduce the fruit to a fine powder or frass which is the excrement left behind. This insect ordinarily infests the fruit while it is still upon the trays in the drying yards and is thus carried into the packing houses where it may easily become distributed throughout the plant and generally infest the fruit. It is specially common in the central valleys and the southern parts of the state.

(Continued on Page 288.)

Agricultural News Notes of the Pacific Coast

Northern California

Fall River Mills, Shasta County, has decided to hold a community fair.

Tehama County farm bureau has just been increased by 100 new members.

The state normal school at Chico is conducting a junior college department.

The farm bureau of Butte County has established an employment office at Chico.

Placer County farm bureau meetings: Applegate, February 16; Weimar, 18.

Tehama County has a farm bureau market department which is proving of great value to the producers.

The new rice mill of the Sperry Company at Chico will have a capacity of 2,000 bags milled rice per day.

Breeders of registered livestock met at the Palace Hotel in San Francisco, February 7, to form a state association.

More eggs have been shipped out of California so far this year than in any similar period; 22 cars were shipped out last week.

Stockmen of Indian Valley, Plumas County, have formed a livestock association, electing W. B. Perry, and G. L. Curnow, secretary.

Professor W. T. Horne has just completed examination of citrus groves in Sacramento County and reports finding no trace of citrus blast.

The Western Fruit Jobbers Convention is meeting at San Francisco this week. Among the speakers will be Herbert Hoover and J. L. McNab.

At the recent annual election of the Franklin Center of the Sacramento County farm bureau, Adolph Kloss was elected president and Eugene Frye, secretary.

A convention of all those interested in fruit drying was held at San Jose February 7. Discussion was principally on types and erection of dehydrating plants.

Wine grape growers have been given warning not to be too anxious to contract for wine grapes for many shrewd observers believe that prices are still due to advance.

County Horticultural Commissioner Winkelman of El Dorado County reports 1919 shipments of fresh fruits as 406 carloads. Three hundred and forty-nine cars went East.

A majority of the warehouse companies of the state storing rice have come to an agreement with the Pacific Rice Growers Association to charge $2 for handling paddy rice.

It is estimated that the rice acreage in Colusa County this year will be increased more than 20,000 acres. One irrigation district will bring over 10,000 acres into rice planting.

Director Hecke of the state department of agriculture, has appointed Theo. D. Urbahns field entomogist. Mr. Urbahns was formerly with the United States department of agriculture.

A suit brought by the Security Investment Company of San Francisco against a firm of olive packers in Butte County has been decided in the plaintiff's favor. The suit called for $5,000 damages for failure of the packers to accept olives contracted for. The packers claim the olives were damaged by frost.

Central California

Tulare County reports heavy shipments of vines and nursery trees.

Irrigators in the Turlock-Modesto irrigation district are now following winter irrigation.

Santa Cruz County supervisors have been requested to appoint a county bee inspector.

The Merced irrigation district has appointed J. B. Galloway chief engineer of the district.

Several Stanislaus County farmers have made filings with the state water commission on waters of the San Joaquin River.

Fancher Creek nurseries of Fresno have purchased tracts of choice land south of Tulare for the growing of nursery stock.

Monterey County horticultural commission has been conducting an anti-squirrel campaign. Poison has been spread on over 15,000 acres.

The Santa Cruz County farm bureau is considering the advisability of asking the county supervisors to enact a foul brood bee inspection ordinance.

The Oriental Exclusion League is preparing initiative petition for a law which will prevent Orientals from owning or leasing land in California.

The Fruit Growers Association of Corralitos, Santa Cruz County, has decided to commence erection at once of a drying plant to care for its fruit.

Farmers of western San Joaquin County are organizing the West San Joaquin irrigation district which it is hoped will cover about 200,000 acres of the West Side.

Dairymen of Monterey County recently met at Soledad and witnessed movie pictures showing up-to-date dairy methods and discussed more efficient handling of milk, butter and cheese.

The California irrigation board is holding hearings on the application of Miller and Lux for establishing a 105,000 acre irrigation district, largely within Kern County. The farmers want the district to comprise about 400,000 acres.

San Joaquin Valley irrigators who depend upon pumping from wells are now irrigating, using electricity at night so as to save electricity for lighting purposes. The situation is becoming serious and steps are being taken to conserve so far as possible.

The Associated Raisin Company is making its second payment of three cents per pound on Malagas, Muscats and Feherzagos and four cents on Thompsons and Sultanas. The original payment was five cents for Malagas, Muscats and Feherzagos and eight cents for Thompsons.

Heavy plantings of walnuts throughout the San Joaquin Valley have completely exhausted all available nursery stock according, to nursery firms in this section. An effort is being made by the Fresno chamber of commerce to bring all walnut growers into the Walnut Growers Association.

Checks amounting to $11,000,000 comprising the second payment for the 1919 raisin crop are being mailed out by the California Associated Raisin Company. The amount represents the greatest second payment in the history of the industry. Approximately 9,000 growers will share in the dividends.

Southern California

Imperial Valley is shipping asparagus.

Contract has been let for highway from Brawley to Indio.

All Southern California has been visited by heavy rainfall.

Antelope Valley, Los Angeles County is making test plantings of cotton.

Riverside County farm centers are holding special lemon pruning demonstrations.

Big crowds are attending the National Orange Show at San Bernardino this week.

A regional farm bureau meeting was held at El Centro, Imperial County, February 16.

Lemon prices are becoming rather spectacular, some sales having been made around $10.

Potato planting is proceeding in all sections of Southern California but handicapped by lack of seed.

Walnut growers of Los Angeles County are holding meetings discussing winter injury to walnuts.

About 1,000 tons of prunes were grown in the Banning district of San Bernardino County last season.

F. Q. Story, for the past 16 years president of the California Fruit Exchange, has resigned his position.

Walnut growers of the San Fernando Valley will organize a walnut growers association at Lankershim.

The alfalfa growers are launching extensive campaign for new membership for their marketing association.

Cover crops in citrus groves are being turned under and disked because of fear that later rains may not come.

Riverside bee keepers are taking steps to stop wintering of colonies of Middle Western bees in Riverside County.

Members of the Indio center of the farm bureau have organized a cotton division. Growers estimate that 3,500 acres of long staple will be planted in the valley this year.

The Riverside Press suggests that with the establishment of new canneries in many sections of the county this year it would seem advisable for many growers to get busy and set out deciduous fruit trees.

Engineers report the floor of the Colorado River is two feet higher than at former sounding a few weeks ago. The reports from headwaters in the Rocky Mountains indicate there will be greater run-off this year than last.

Records of the Pacific Fruit Express show that during January that firm shipped out from Brawley, Imperial County, 533 carloads of produce. One hundred sixteen carloads of lettuce was the heaviest shipment of one product.

Los Angeles County farm center meetings: Covina, for discussion of scaly bark, February 21; Burbank, 23; Little Rock, 24; Del Sur, 25; Roosevelt, 26; Newhall, 26; Owensmouth, 26; Pomona, 27; Inglewood, 27; Glendora, March 1; Downey, 1.

Dr. Maynard Rosenberger, for many years in charge of milk inspection of the health department of Los Angeles, has tendered his resignation to take up other work. Dr. Rosenberger has given to Los Angeles the purest milk of any city of its size in the United States.

The Coast and General

Mesa, Arizona, recently held a dry farming conference.

Cotton picking has been completed in the Salt River Valley of Arizona.

The bureau of entomology of the U. S. D. A. reports 36 states as more or less infested with grape phylloxera.

There are 160,000 head of reindeer in Alaska. The first of these were brought into the territory in July of 1892.

The American Berkshire Congress will be held this week at the Kentucky agricultural experiment station, Lexington.

Oregon has been given more moderate temperatures and increased rains which has stimulated farming operations.

Northern Arizona stock ranges were recently visited by a heavy fall of snow, causing some loss. The desert forage of the South is reported excellent.

Notwithstanding the serious situation in pastures of the Coast Range and Sierra Nevada it is now reported that losses from starvation have been greatly overstated.

Over 4,000 cars of California fresh wine grapes were shipped to Eastern states during the last shipping season. These were largely used in making of unfermented juices.

Arizona's livestock has a value of $81,895,000, an increase of $1,967,000 over a year ago, according to a survey of the state which has just been completed by L. M. Harrison, Arizona field agent of the bureau of crop estimates.

Long staple cotton sold at 90 cents a pound on the Phoenix market last week, a high water mark. A considerable amount of long staple cotton in the valley yet unmarketed has been consigned to the East where it is expected that at least $1 will be received for it.

A fund of $110,000, state and federal funds, will be spent in reclaiming lands in Arizona. With the $10,000 donation from the federal government, and the $100,000 state reclamation fund, work will be accomplished, it is expected, on the Virgin River and the San Carlos projects. The former is to include a storage dam in the Colorado below its confluence with the Virgin River.

The annual meeting of the members of the American Cotton Association has been called by President J. S. Wannamaker to meet in Montgomery, Alabama, February 17-20. This will probably be one of the most largely attended and most important conventions ever held in the South. Many subjects of intense interest will be discussed and definite action taken upon them at the convention.

A record cotton yield apparently has been made by Ernest A. Leitzel of Glendale, Arizona, judging from figures quoted by him. On 3 4-5 acres he harvested six bales and 86 pounds of seed cotton, or in other words, 2,860 pounds per acre, which was sold for $2,487.52, or at the rate of $654.61 per acre (gross). The chamber of commerce, which has two other high yields under consideration, announced that it was difficult to reach an exact calculation because of the consideration which must be given the lint and seed figures.

Keeping the "Move" in Your Motor

By James De Camp

THERE is one fundamental difference between the horse and the automobile. The former was created by Almighty God while the latter is a product of the ingenuity and patience of man. In the last analysis they are both formed from the same basic elements of earth to which all things must ultimately return.

If we stop to think it over we will find that there are many similarities between the living beast of burden and his mechanical successor. The old bay mare and the stocky draft team had carburetors, valves, circulatory and eliminating systems, universal joints, bearings, bushings, shock absorbers, cooling and breathing devices and, when harnessed, were controlled by a sort of steering gear!

These various units of the entire assembly were designed to function with a minimum of care and attention and to continue their services until the natural days of the beast were terminated by accident, illness or old age.

The farmer making his first shift from hay consuming transportation to the gas burning variety finds himself confronted with a multiplicity of details that at the first seem confusing and involved. He was accustomed to feeding and watering Dobbin and letting it go at that, with occasional recourse to the services of the blacksmith and veterinarian.

He finds that his new automobile is provided with an ingenious folding cover device called a hood. By tinkering with a couple of patent fasteners he can lift this metal canopy and look upon the queer combination of metal parts that conspire together to whisk him back and forth across the countryside. In the car the new owner finds an instruction book which seems loaded from cover to cover with cabalistic information and insistent demands that this or that portion of the machine must have regular attention or dire results will come to pass.

The problem is not really as complicated as it seems. Every person who has driven a car long enough to become initiated into the mysteries of ownership knows that there is one magic word which will keep grief and repair bills as scarce as ice factories in Greenland. This amulet is—Lubrication.

Every good instruction book contains what is known as a lubrication chart, an outline drawing of the chassis, calling attention to the places needing lubrication and stating the frequency with which these spots should be attended to. A number of motor car manufacturers will provide on request an enlarged copy of this chart, suitable to be posted in the barn or garage. A new owner should pore over this information so thoroughly and persistently that each of its details will be as thoroughly rooted in his mind as the names of his family and the addresses of his debtors.

By rigid and complete observance of the lubrication schedule, coupled with reasonable consideration in driving, it is safe to say that the average life of a car may be prolonged two years. This is a fact worth tacking on the inner wall of one's derby in these days of rocketing prices and scarcity of machines.

The buyer of a new car should provide himself at once with the oils and greases which will be needed to keep his outfit running at top efficiency. The most important item in this purchase is the lubricating oil which is to be used in the crank case and forced through the bearings and over the wearing surfaces of the motor by the oiling system. There are nearly as many kinds of oils to be had as there are profiteers ranging loose in our native land. However, the brands and densities suited to your particular car can probably be told off on the fingers of one hand.

Ask the agency where you purchase the car what oil they use and recommend and which grade of this oil is preferable for summer and winter use. They should know which products will give the best service and leave a minimum carbon deposit in the combustion chamber. Several of the large refining companies have employed experts to investigate the peculiarities of each make of car and determine what qualities of oil should be used in the various seasons. A postcard to any of these organizataions will bring you the information you require.

The man who lives in the country will find it to his interest, both for convenience and economy, to purchase oil in large quantities. A substantial saving can be secured in buying by the five gallon can or the 25 gallon drum. California conditions usually call for an oil of medium density during the winter and one of greater body to withstand the heat of summer days. In Eastern states extremely light oils are used during the winter to avoid freezing in the crank case and clogging of the oil pump and feed pipes.

The second item in the car owner's lubricating outfit is an inexpensive but important one, a can of good quality cup grease. The lubricating chart will show the location of the grease cups and how often they should be turned down. When filling a cup use a knife or a small wooden paddle. Do not gouge into the grease with the cup itself since this may introduce dirt and grit into the lubricant and will also gum up the exterior of the cup for future handling.

A pail of transmission lubricant and a small quantity of graphite comprise the remainder of the equipment. The instruction book should specify the nature of the lubricant to be used in the transmission (gears). This same material is often adaptable to the differential as well, although some makers suggest that a special grease be used for the latter. Steam engine cylinder oil often proves ideal for transmission and differential and in some cases is used to lubricate the clutch collar as well. The graphite is spread between the leaves of the springs to insure easy riding and minimize jars

(Continued on Page 289.)

Water Development in California

By Commissioner W. A. Johnstone

THE state water commission of California has recently compiled data which shows in a striking manner the resumption of activity in agricultural and hyrdo-electric power development during the past year. Not only does this data indicate a return of normal activities, but it shows in addition an increase of nearly 40 per cent over the average for the past five years. California is launching upon a period of unprecedented development.

The state water commission has supervision over the use of unappropriated waters of California. These waters were declared to be public property under the water commission act which went into effect December 19, 1914. Under this act applications must be filed with the commission for permit to use unappropriated water. The principal applications received are for irrigation and generation of hydro-electric power, but the demand for mining and municipal uses is also considerable. During the six months ending December 31, 1919, 62 per cent of the applications received were for agricultural, 30 per cent for power, six per cent for mining and two per cent for municipal uses.

The relative number of applications received by the commission is a reliable index of the general business and financial condition throughout the state. The data for the period since the commission was organized in 1915 has been made available in the form of a diagram showing the number of applications for permits which have been received monthly. The outstanding facts shown by this diagram are the influence of the war and the resulting high prices upon agricultural, power and mining development in the state. Prior to the active participation of the United States, there was a normal increase from year to year with a periodic summer peak. In 1917 the peak did not reach its anticipated climax but fell off rapidly immediately after the declaration of war in April. The efforts to stimulate food production resulted in a partial recovery late in 1917 which reached its climax early in 1918. The average for the year 1918, however, was 18 per cent less than in 1916 and 15 per cent less than in 1917. The month of the armistice, November, 1918, produced a sharp decline with a minimum below that of any previous month in the history of commission. The subsequent recovery has been rapid, the rise continuing steadily to December, 1919. The number of applications received during December, 1919 was 33 per cent greater than in any previous month, and for the year was 37 per cent greater than the average for the past five years. This unprecedented activity is the result of the prevailing high prices for agricultural products and the more intensive cultivation of the soil by means of irrigation.

The applications are for widely varying amounts of water and for the irrigation of from a few acres by homesteaders in the hills to several hundred thousand acres by irrigation districts in the San Joaquin Valley. The extent of the immediately proposed agricultural development in the state is indicated by the fact that the total area of land for the irrigation of which applications have been filed during the six months ending December 31, 1919, is 2,140,000 acres. This area is 22 per cent of the total irrigable acreage of the state for which water is available and is more than one-half of the present irrigated area. The lands applied for are principally in the great valley of Central California and include the Merced, Madera, San Jose, proposed Kern Delta, and other large irrigation districts in the San Joaquin Valley, as well as rice lands in the Sacramento Valley.

Hydro-electric power development is fully as active as agricultural development. For the same six months period applications were received for permits to divert water to generate 2,103,000 theoretical horse power, largely on streams tributary to the San Joaquin Valley. This quantity is 26 per cent of the maximum ultimate power development of the state as stated in the report of the United States commissioner of corporations in 1912. The largest proposed installations are those of the Southern California Edison Company on the San Joaquin River, totaling more than 1,000,000 theoretical horse power at nine power plants, two of which are already in operation. Others are the San Joaquin Light and Power Corporation plant on the San Joaquin River with 33,000 horse power; the Modesto and Turlock irrigation district plant on Tuolumne River with 45,000 horse power, and the Mokelumne River Power and Water Company on South Fork Mokelumne River with 32,250 horse power.

This phenomenal increase in the use of the waters of the state brings forcefully to attention the absolute necessity of the storage of surplus waters for use during the periods of shortage. This is necessary not only for irrigation but for power development, and most of the applications filed with the commission include storage of greater or lesser amounts. The acuteness of the situation is indicated by the fact that even in the Sacramento Valley during the late summer a shortage is imminent in the flow of the Sacramento River. The normal flow of the river is being appreciably reduced each year by the increasing amounts used for the irrigation of rice. If this industry continues to expand as it has during the past four years, storage must be provided. There is strong probability during the coming season not only that the river will be largely diverted, but that a considerable acreage will be without water during the latter part of the growing season, unless a limit is placed upon the acreage planted.

The difficulties of financing large storage projects and the diverse interests depending upon the use of storage water, both point to the desirability of the construction and operation of large reservoirs by the public. The federal government is not prepared to undertake storage projects on a broad scale in California, principally because of lack of funds. The logical procedure is for the state to undertake such enterprises.

Guavas in California

By Ernest Braunton

GUAVA culture in California is attended with but one difficulty and that is climatic. The Paraguay guava, Feijoa Sellowiana, is hardy throughout the state and in parts of Oregon. The strawberry guava, Psidium Cattleianum, will stand 22 degrees when in active growth and several more if the plants are large and the wood well ripened. The large yellow lemon and pear guavas should be planted only in practically frostless spots.

The latest introduction, and the hardiest of the group, is the feijoa, found in a wild state in a wide region of South America, but principally in Paraguay, and the latter country gives it the name in common use in South America. It has thriven as far north as Eugene, Oregon, to our own knowledge and may be hardy in still colder sections. In California the shrub will thrive, as do other guavas, in almost any kind of soil. Those grown from seeds range so much in size, flavor and other points that one is not justified in planting them. After several years' trial at the H. E. Huntington ranch near Los Angeles, a two and a half acre plot of them is now being cleared and the plants burned. Splendid types may be had in a half-dozen budded and named varieties, and no others should be planted.

Other Species

Next to the feijoa in hardiness is the strawberry or Cattley guava, a prime favorite over a large part of California. If it has any choice of soil I have been unable to determine what is best. Years ago I had 65 old bushes at Glendale, Los Angeles County, growing on a loose shale bench where six inches of good soil had been brought in so they could gain a foothold. The bushes grew fairly well and under the stimulus of water and stable manure produced a very heavy crop of fruits. In heavy deep garden soil they will thrive if drainage is good. In sandy soil they satisfy if well fed. Even in this species the range of excellence is considerable and we have great need of named varieties, either through grafting or growing from cuttings. There is also one called the yellow strawberry guava, or variety lucidum. The flavor of this one is a little milder than that of the red, yet it is an excellent sort to grow

A number of forms and flavors lurk under the botanical name of Psidium Guajava, but the two varieties known in California are popularly named lemon and pear guava, by reason of their respective forms. Neither are hardy except in spots usually claimed to be frostless. During the past winter, however, some are known to have experienced several slight frosts, for in midwinter they were gathered in a ripe state by the writer and the larger or pear type is herewith illustrated. Few persons care much for these in a fresh state but in all tropic and semi-tropic climes they are preferred to all others for the making of jams and jellies. This pear shaped type is the largest of guavas and those photographed were two and a half inches in diameter. They were grown in black adobe soil that had never been fertilized, and received no care aside from destruction of weeds.

Pear Guava; Largest Guava Grown in California
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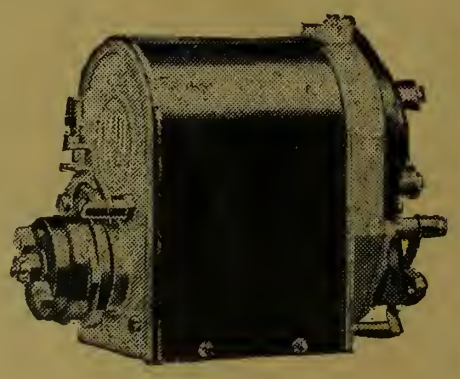

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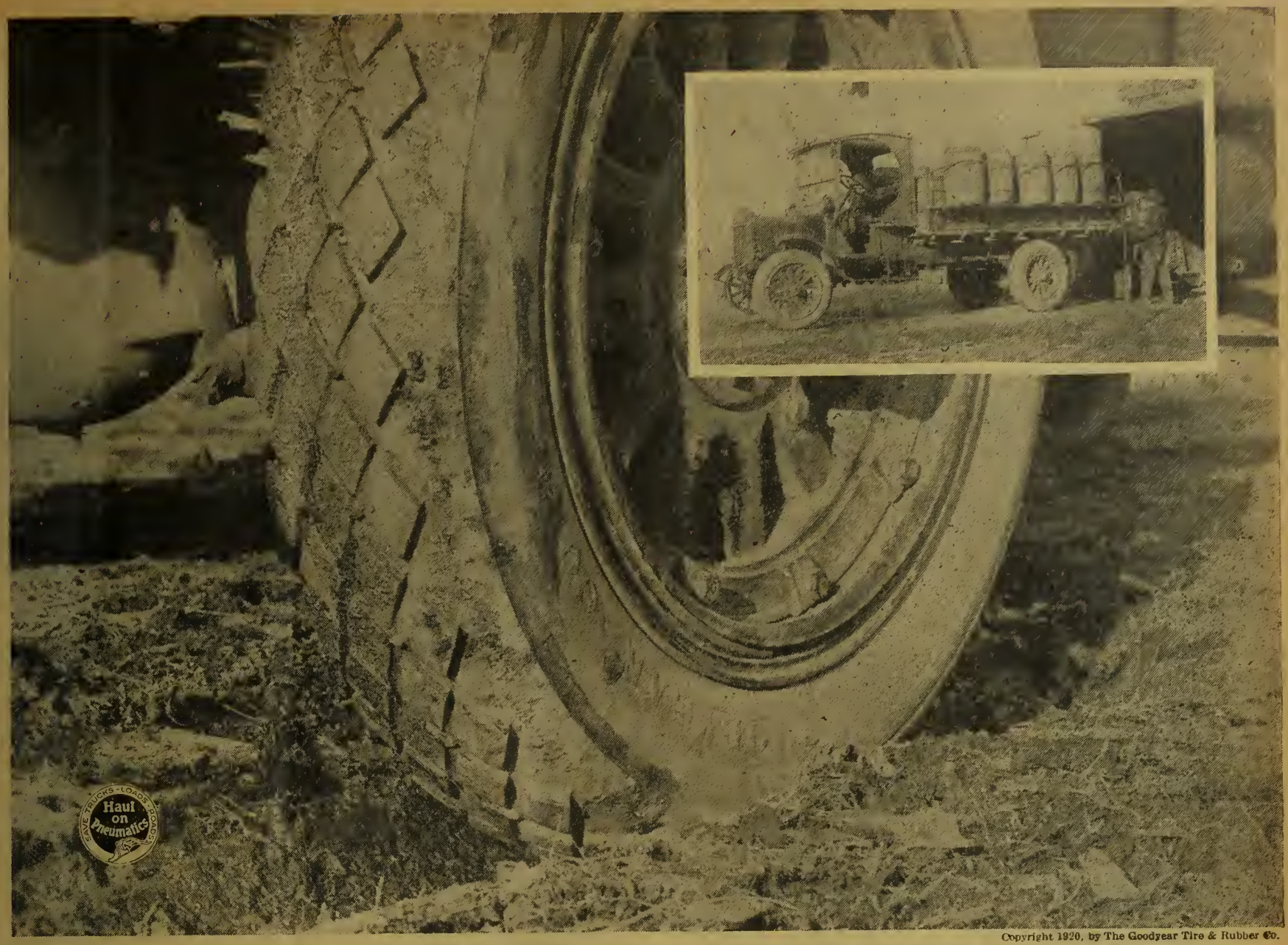
FLORIDA ORANGES

E. M. Chace, chemist in charge United States branch laboratory at Los Angeles, has just returned from several months study and observation in Florida. Asked if there was any marked change in the varieties of oranges grown as against those 1 ading a few years ago, he said he did not discern any. The industry appears in good healthy condition, with seedling groves still leading in production. The acreage in Valencias is increasing, and close to this comes the Pineapple. The Lue Gim Gong is quite a favorite in present planting as it is a late Valencia and claimed by the introducers to be superior in other respects. At Orlando, Mr. Chace saw a new orange called Temple for which much is claimed. It was not ripe at the time he left there, but states it is a fine looking fruit and the deepest color of any orange he has seen in Florida. The Etrog, or sacred Jewish citron, is grown in Florida but not in California and Mr. Chace expressed the hope that it might be introduced. It is grown principally in the island of Corfu and used by the Jews at the Feast of Tabernacles. The small greenish yellow fruits, if they are of exactly the prescribed size, form and color, may bring as much as $5 to $10 each, according to Walter T. Swingle, in the Standard Cyclopedia of Horticulture.—E. B.

PINEAPPLE WILT

Florida is experiencing a severe blow to the pineapple industry, one that bids fair to wipe it entirely away. The plants are attacked by a wilt which so far has not been in the least controlled. The acreage of pineapples is therefore the smallest since the industry was launched. There are about 25 acres on the west coast near Punta Gorda and about 50 acres on the east coast from Vero down to Stewart. No canneries are in operation and the growing of the pineapple is about at an end. In the Indian Ri[illegible]ntry, south of Titusville, the or[illegible] planting section, there are n[illegible]ntso-ever.



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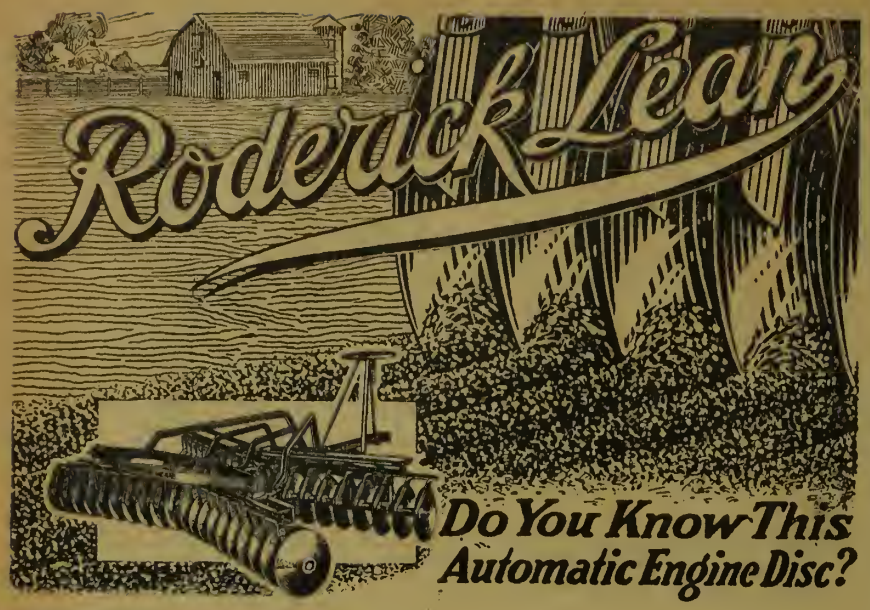
CORD TIRES



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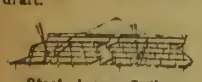

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PRUNING GRAPE VINES

(Continued from Cover Page.)

before he uses the shears at all will bring the cane to the stake in order to find out whether he can do so without breaking it. It is not seldom that the cane breaks off, especially if the man goes at it in a careless way, but as long as there are other canes left, no great harm is done. If the canes are very thick it may be necessary to give the cane a gentle twist; it will split open in a longitudinal direction, which will not injure it permanently, and the same cane can be put against the stake in the desired position.

First Pruning

All the stakes being equally high, the cane is cut off, usually about the top of the stake, but it is desirable to leave as much internode above the last bud as possible. This piece of internode is usually made use of when the cane which is to form the stem is tied to the stake. After the selecting of tbe stem all the canes, regardless of how vigorous they may be, are removed as closely as possible. If we should happen to leave a little stub one-half inch or less long we would find that in due course one or more new shoots will commence to grow. Very often we will notice shoots which have their origin below the surface of the ground; in such cases it will be absolutely necessary to dig down with a spade, find the place where the shoot originates and remove it as near the base as possible. If this work is done very thoroughly the first three or four years the less trouble there will be later on. If the canes are short and thin and none can be used for the formation of the stem, then the grape vine has to be treated as last year, that is, all shoots except the most favorably placed one are cut off as close as possible and the one left is cut to two buds.

As soon as the vine starts to grow a good number of buds commence to grow, but before they get very large, those not desired should be removed. This should be done when the shoots are two or three inches long. When done at this time the shoots can be rubbed off and very little injury will result. All shoots should be removed except the two which are nearest to the stake. These will grow very rapidly and in order to protect them from being broken off by the wind one of them should be tied loosely to the stake; as the young shoots are very brittle, great care should be exercised in doing this, and as we use only one stem the other shoot can be removed too.

Within three or four weeks the young shoot which was tied to the stake will have made a growth exceeding the height of the stake by 12 to 18 inches. All vines which show such a development should be topped, that is, the young shoot must be cut back to about 18 or 20 inches and securely tied to the stake. Having removed the upper part of the young growth, we will now get a given number of laterals which we need for the formation of the head.

We will find laterals right down to the surface of the ground. The lower ones are not needed and should be pinched back, leaving one or two leaves which will shade the stem and can be removed during the next winter pruning. The same treatment should be given to the vines where the canes were tied against the stake. Sometimes the laterals may grow too vigorously and in windy locations the danger exists that a number may be broken by the wind. Under such conditions it would be advisable to pinch out the tip of the young laterals when they are, say, 15 inches long. Only one or two inches of the extreme growth should be taken off. This operation will cause the vine to force secondary laterals and will strengthen these so that they will be more resistant to the wind. In order to do this work well it will be necessary to go over the vineyard three or four times, sometimes even more often.

Second Year Pruning

The winter following, the grape vines, if they have been treated as above, will have made a good growth consisting of a number of well matured canes. The pruning to be pursued from now on will deepnd upon the fruiting habit of the variety. In the case of the Muscat we should prune the canes back to spurs, leaving two or three buds to each spur. The number of buds per spur will depend on the thickness of the cane. If the cane is very thick we can leave three buds; weaker canes get two only and thin canes only one. In counting the buds, the base bud is never considered.

Sultanina

If we have to deal with the Sultanina (Thompson Seedless) which have made a good strong growth, it may be possible to leave one or perhaps two canes. This applies to very strong plants only. It is a great mistake to have bearing canes on weak vines for we should bear in mind that we have to get a good strong vine first and get the grapes afterwards. Unfortunately a good many growers lose sight of this important fact. In addition to that most of the people do not realize that in pruning Sultanina we must prune for two things, one just as important as the other—fruit production and wood production. If we would prune a Sultanina like a Muscat, that is to say, to short spurs, we would get a large amount of canes but very few grapes. This is due to the fact that the lower buds of a year old well matured Sultanina cane are not very fruitful; the upper buds are. Hence, in order to get a full crop of grapes, we are forced to leave long bearing canes which have to be disposed of in such a manner that they will not interfere with the cultivation, irrigation, etc. Grape vines bear grapes on one year old wood only, hence we must always make provisions for a good supply of bearing canes for the next year, and this can only be accomplished by pruning a certain number of canes to wood spurs having only one bud. The question arises now, how many canes shall be left and how long shall they be? This is perhaps one of the hardest questions to answer without seeing the vines. Very often growers imagine their grape vines are strong and vigorous but when one goes there and looks at them they are anything but that. The average experienced pruner, before he starts to prune, is going to ask himself the question: Has this vine made a good growth last year? He has the plant in front of him, he selects his canes for fruit bearing and prunes accordingly. If the vines are planted, say, six feet by 12 feet, he will make his fruit canes about three feet long. The number of canes will depend entirely upon last year's growth. If, in pruning older Sultanina vines, four canes were left last year, the vine made a good growth, and produced a good crop of grapes, there is no reason why four canes should not be left this season. On the other hand, if the canes are short and thin, badly matured, and if the vine has made a poor growth due to overbearing, lack of moisture, or cultivation, etc., the vine has to be pruned shorter. Two canes only should be left, and sometimes less.

The rest of the canes are pruned to one bud spurs, so-called wood spurs, and if there are too many, a few of them may be taken out altogether. Muscat vines of bearing age are always pruned to spurs which will gradually elongate the arms to such an extent that they will interfere with the cultivation, and, in order to facilitate the working of the soil, these arms have to be shortened. If this is not done at the proper time, a great deal of damage will be done by the plow and other implements.

In order to shorten the arms, we always must make use of a one year old cane growing on the same arm as closely to the center of the head of the vine as possible. If this cane is weak, we prune it to one bud, and while we are growing our grapes on the spur or spurs at the end of the arm, we are developing a strong cane which can be made use of in replacing the arm the winter following. The whole arm is cut off as closely to the renewal spur as possible.

Trellising

Grape vines, such as the Muscat, when properly trained the first three or four years, will not require any more stakes. With the Sultanina it is different. Owing to the peculiarity of the fruiting habit of this variety, as we have seen already, we need some kind of a support to dispose of the fruit canes. In older vineyards we find that each grape vine is given a six foot, usually redwood, stake to which the bearing canes are tied in a vertical maner. Usually the vines

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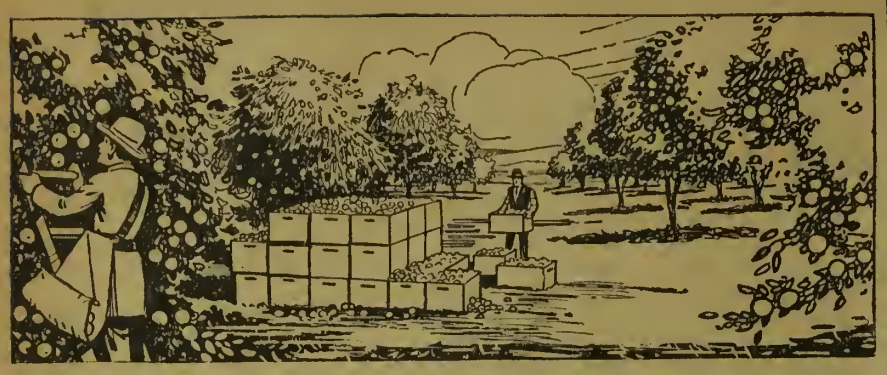

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are arranged on the square system, say, ten by ten feet. In this case the grower is able to cross cultivate, which seems to be the only advantage. This system of training can not be recommended because only the top buds of each cane will make new growth and bear grapes. They are so interlaced when harvested that a large number of berries will fall on the ground, especially when the harvesting is done by indifferent grape pickers. In addition, all the good wood which should be used for next year's bearing canes has to be thrown away as it is on the top of the grape stake. Due to the fact that the center of the grape vine has been more or less shaded the few wood spurs which may have been left have made very little or no growth and the pruner is very much up against it in finding enough good canes for the production of a full crop of grapes for the next year. The best way of disposing of the cane is on a trellis. The vines should have been planted in avenues, that is to say, 6 by 12 feet, 7 by 14 feet, etc., the distances depending upon soil conditions. If possible, the avenues should run from east to west. This will facilitate the making of raisins in the vineyard. In a large number of plantings, a six foot stake is used for every grapevine and the stake is driven as closely to the vine as conditions will permit. This interferes very much with pruning. On each end of the row there should be a strong post. Seven foot split fence posts which are 4 by 4 inches on the small end have given good results. If the vines are six feet apart in the row, one 2 by 2 inch six foot split grape stake, at intervals of 24 feet, will be plenty, provided No. 11 galvanized iron wire is used. Very often growers will take No. 14 wire or even No. 16, but nothing is gained by doing so. The grape stake in the row should be half way between the vines. Two wires should be used, the lower for the bearing canes which are tied in a more or less horizontal fashion, and the upper is there principally for the attachment and support of the young shoots, to protect them from being broken off by the wind. The tying of the bearing canes into a horizontal position increases fruitfulness. The center of the vine is open, the young shoots in the center of the vine have plenty of air and sun, and the pruner will have no trouble in finding the required number and length of bearing canes for next year.

Time of Pruning

Grape vines can be pruned after the leaves have fallen off in the fall, till about two or three weeks before the buds start to swell. Experiments as to the best time of pruning were carried out at the university farm several years ago, and it was found that the grape vines pruned during the months of February and March gave the best results. Unfortunately, from a practical point of view it is not possible to prune all the grape vines in California at this time of the year. In large vineyards pruning has to start earlier in order to get the work done before the buds start to swell. In a location which is much subject to spring frosts a system of double pruning has been made use of. During winter the grape vines are pruned, all canes which cannot be used for spurs are cut off, and if the grape vines are Muscats, the canes are left 10 to 12 inches long. The upper buds on the canes thus left start to grow first, and in case the frost should destroy these, the lower buds which remained dormant can be used. If there should be no frost, and when the danger of late spring frost is passed, it is necessary to go over the vineyard again and prune the spurs down to the proper number of buds.

Pruning Implements

In vineyards where the grape vines are reduced to a low stump, the long handled pruning shear for practical reasons may be the proper tool to use. But where the grape vine has been trained up to about 20 inches above the surface of the ground I very much doubt whether it is the proper shear to use, especially when it is a question of pruning trellised vines. One can always tell by entering the vineyard where long handled shears are used.

In vineyards which are 15 or 20 years old it often happens that one has to remove portions of the vine which are two or more inches in diameter. There is no pruning shear on the market which will permit the pruner to do that satisfactorily. The proper way is to use a short sharp pruning saw, which should be pointed and will permit him to cut very close without doing injury to the remaining portions of the plant. If the vines have been trained in the proper way, all the pruning can be done with a small shear, which should always be sharp, and a short saw.

DEHYDRATING PLANT INSTALLED

A demonstration of the working of a thoroughly modern dehydrating plant was made at Van Nuys, Los Angeles County, a few days ago and called for favorable comment from experts of the department of agriculture and others. Amongst those who were present were: D. F. Nichols, of the U. S. D. A.; Prof. A. W. Christie, of the dehydrating department of the University of California; D. B. Mackie, state entomologist; E. C. Clemens Horst, of San Francisco, a pioneer in the dehyrating industry in California; Franklin Nutting, of Fresno, an official of the American Seedless Raisin Co.; F. E. Barrett, a large grape grower of Healdsburg; Mr. Sullivan, of the San Joaquin Valley, largely interested in the fruit industry, and many others.

This plant is the fifth of its kind to be installed in Southern California and is in the plant of the Beales-Kimball Co. The manufacturer's agents conducted operations, and cold storage grapes were made into raisins and sweet potatoes into flour before the eyes of the observers. The potatoes were thoroughly washed, the skin removed, sliced, or rather cut into small pieces, and placed on wire trays. They first went to the blancher filled with live steam. The blanching process required five minutes. From the blancher the trays were placed in the dehydrator where the excess water was removed but in such a way that the original quality of the product was preserved. After about five hours in the dehydrator the sweet potatoes were ground into a fine flour. This is of value in the baking of pastries and is in high demand. This flour is so rich in sugar that little or no sweetening is required. The plant has a capacity of from eight to ten tons every 24 hours and the first work will be with about 150 tons of sweet potatoes. Carrots, onions and other products will follow.

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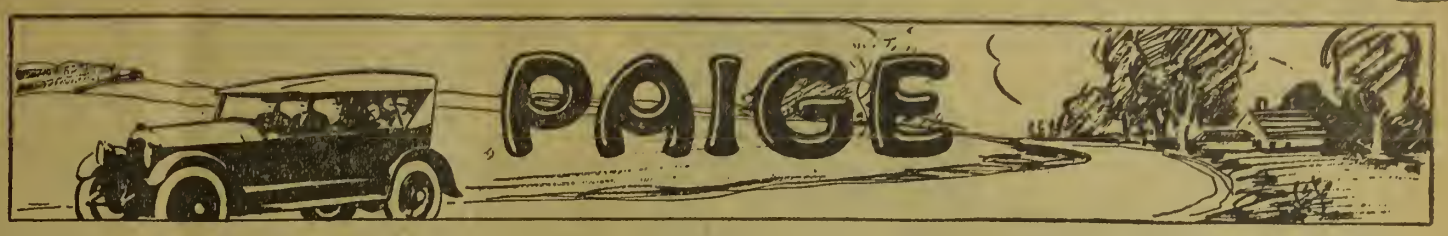

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There is, of course, a very definite reason for such universal endorsement of our new car. You will find it in the single word, *Performance*, as expressed through a strictly modern power plant and chassis.

The "Glenbrook" is not a racing car though it is easily capable of sixty miles per hour. What is vastly more important, it is an utterly dependable car—one of the most thoroughly *satisfactory* motor vehicles that has ever been developed for the road.

By "Satisfactory," we mean that it possesses all the power and speed that a sane man could possibly desire. We mean that it offers the true luxuries of exquisite design, ample room, soft upholstering and velvety spring suspension—all these without the burden of excessive upkeep.

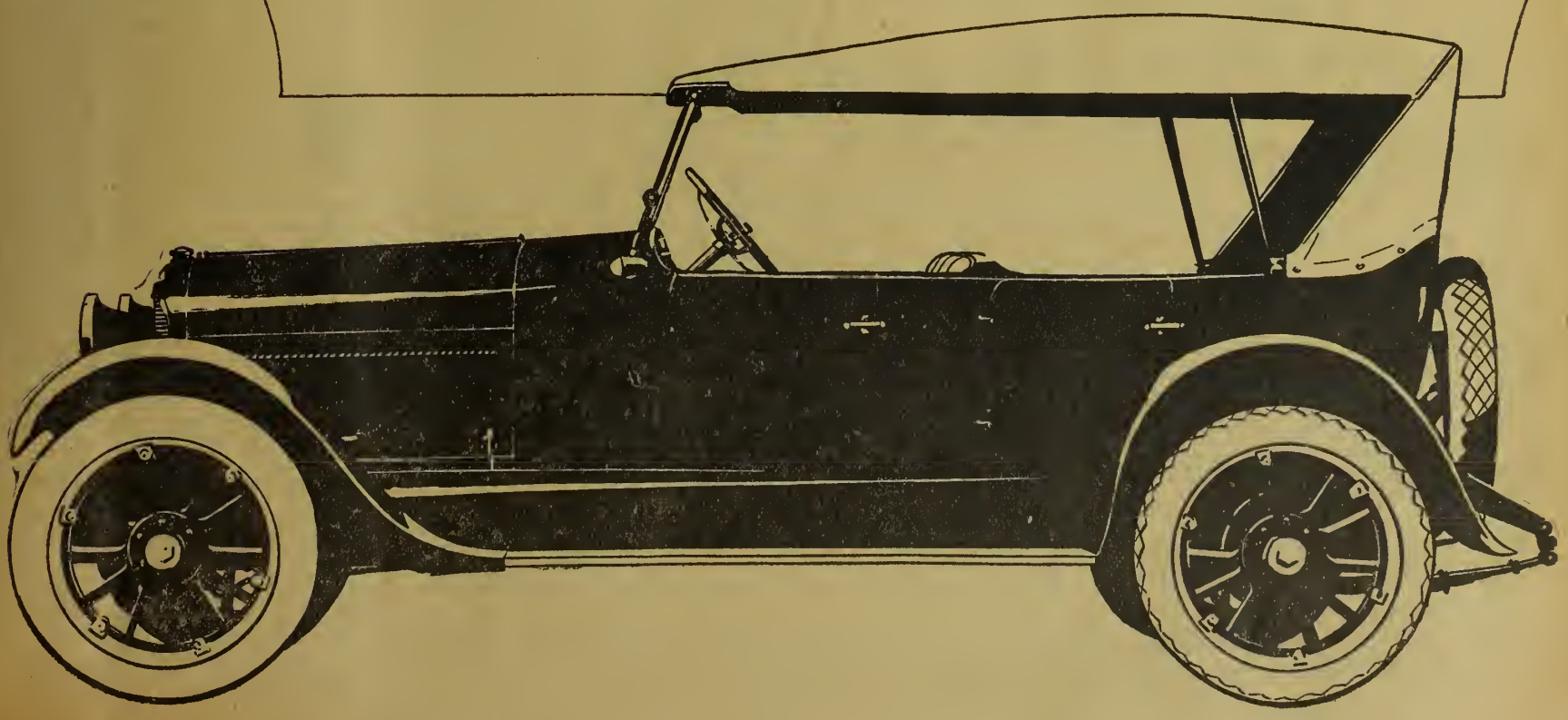
It is, in a phrase, the Ideal five-passenger motor car—an incomparable investment in six-cylinder transportation. The logical recognition of this fact has resulted in a permanent demand that is World Wide.

We predict that you are going to hear the "Glenbrook" referred to as the greatest dollar-for-dollar value on the American market. It possesses such obvious advantages over the usual type of five-passenger car that this conclusion would seem to be inevitable.

However, you alone must be the judge of comparative values. We merely ask you to take one ride in the "Glenbrook" and form your own opinion. On this basis we are content to rest our case because we know that our three years of experimental work and testing have, indeed, produced the finest of all light sixes.

PAIGE-DETROIT MOTOR CAR COMPANY, DETROIT, Michigan

Manufacturers of Paige Motor Cars and Motor Trucks



TEAGUE

QUALITY

CITRUS and TROPICAL

Stand supreme for Growth and Productiveness.

CITRUS TREES

We are running low on the Standard varieties for commercial planting but can still supply all the leading sorts for the home or family orchard.

AVOCADOS

We have some extra large specimens in field grown trees of **Fuerte, Sharpless, Linda and Rey.** We carry all the varieties recommended by the California Avocado Association.

FEIJOAS

Grafted trees of the two best varieties.

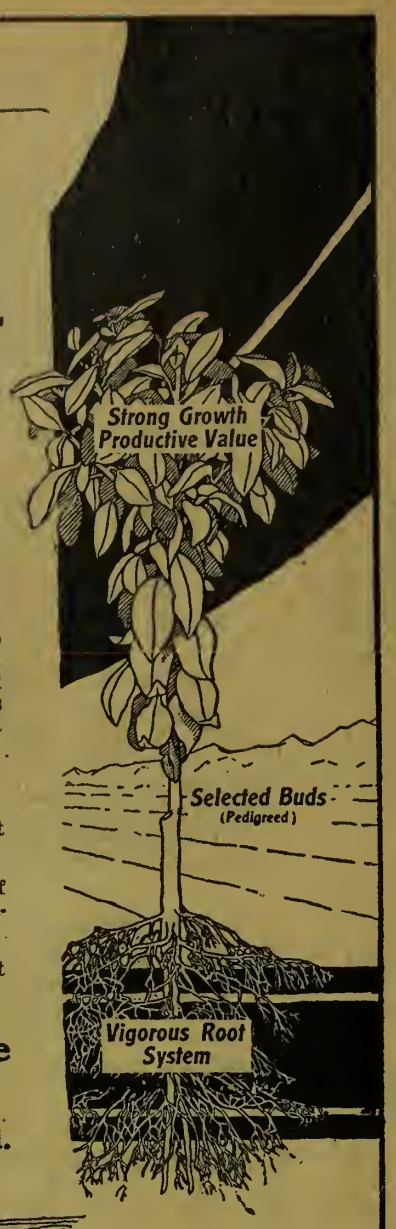
Also the best varieties of **Cherimoyas, Sapotes and Guavas.**

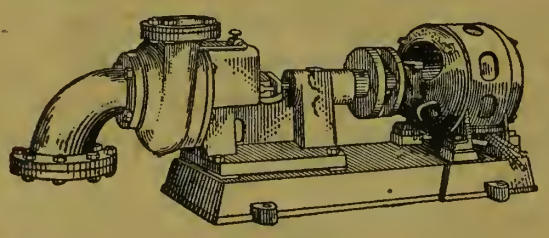
Our new illustrated Price List is free to those interested.

The R. M. Teague Citrus Nurseries

Box A San Dimas, Cal.

Founded in 1889





20 Years Experience

In this Direct Connected

Motor Driven Pump

It's a pumping outfit that's built to save you trouble and delays—to deliver a large head of water with minimum expense.

Skill and experience developed through 20 years have been applied in design and construction.

So the "Bean" Universal is today the leading pumping outfit of this type.

Distance to water below surface of ground.....
Probable distance to water when pumping.....
If water is to be raised above surface of ground, how high? (Length and size of pipe line).....
Volume of water desired (Gals. per min.).....
(Inches) .....
If you have pit, give width..... length.....
depth.....
H. P. of motor or engine if you have that equipment.....
Give total depth of well.....
Inside diameter of well.....
Is well straight and true?.....
Is electric power available?.....
Name .....
Address.....
Rural Route No.....
521 Box.....

Needed Features

You need all the "Bean" features in your pump to insure pumping satisfaction.

—A generous water seal that entirely surrounds the shaft where it enters the case, avoiding loss of priming. No need to cinch packing so tigbtly that it cuts the shaft.

—Automatic water balance greatly reducing friction.

—Oversize outboard pulley, eliminating vibration.

Both suction and discharge adjustable at any angle.

Other advantages, too numerous to mention here, make this the ideal pump.

"Bean" Universal

Direct Connected Motor Driven Pump

Get full information. Write us now for the "Pump Book" that tells all about this outfit. Don't buy any other until you read this book.

Bean Spray Pump Co.

521 San Julian St., San Jose, Calif.
Branches: Fresno—Los Angeles

DRIED FRUIT INSECTS

(Continued from Page 278.)

The Sawtoothed Grain Beetle

Of somewhat lesser importance than the dried fruit beetle, the sawtoothed grain beetle, Silvanus surinamensis Linn., is nevertheless exceedingly damaging at times. The larvae are minute whitish wormlike individuals about one-fourth of an inch long, while the adults are brown or blackish beetles one-fourth inch long, slender and with saw-like teeth along the sides of the prothorax or neck, which cannot be seen without the aid of a hand lens or magnifying glass. They work generally in dried fruit and are specially injurious to figs, not only destroying much of the insides but boring tiny holes throughout the packages.

Control Measures

Probably the most important single factor in the control of these dried insects is cleanliness, although where carefully followed it may be necessary to resort to other measures as well. With the exception of the dried fruit beetle, which may be brought in from the drying yards, the source of infestation where there is any is usually in the packing house, if at the point of origin, or in some of the storehouses after it is packed. A fundamental practice is to thoroughly clean up the packing houses prior to harvest time. Fruit which has been held over from previous seasons should be carefully inspected and, if found infested, should be thoroughly treated to kill all living insects. In which case also the entire house will require a cleaning and fumigation to kill wanderers which may be hiding in cracks and crevices all through the plant. This is the only way to rid of this source of infestation which is a constant menace to the new crop.

Fumigation

Fumigation for a general cleanup of a warehouse or for small lots of infested fruit may be employed with good results. In this method it is necessary to have a comparatively tight receptacle or room so that a considerable expense must be incurred to prepare the average packing house or warehouse so as to make sufficiently tight to get a proper concentration of gas to secure killing results. This may be built in a convenient place in the packing house and used for many purposes. It will insure quick and efficient work at a minimum cost of materials.

In the absence of such a room a tight heavy canvass may be thrown over piles of fruit in bins or boxes and treated successfully.

Carbon Bisulphide

This gas is a heavy vapor given off in evaporating the liquid of that name. For general purposes in either large or small spaces it should be used at the rate of 20 pounds per 1,000 cubic feet of air space. In handling this material it must be remembered that the gas is heavier than air and will settle to the bottom of a room or house. This is a great advantage in the cases of heavy dense masses like raisins and bins and boxes of fruit, for if placed in shallow containers upon the top it will gradually work its way through to the bottom. Where the liquid containers cannot be placed directly upon the fruit or where employed in a large house they may be placed on boxes, step ladders and other things to raise them as far above the floor as possible. The liquid is highly inflammable and the gas is explosive when mixed with air, so that great care should be taken in keeping lights away from the building when it is being used as a fumigant. Where fire insurance is involved it is advisable to take the matter of fumigating with this gas up with the fire underwriters to ascertain their rules governing its uses.

Hydrocyanic Acid Gas

In the past this gas has usually been obtained by a pot-generating method, which is still extensively used for such purposes as we are discussing. To treat 100 cubic feet of air space it will require the following:

Sodium cyanide (129-130 per cent), one ounce; sulphuric acid (commercial), one fluid ounce; water, two fluid ounces.

The method of handling is as follows: Secure earthenware pots or generators of from two to three gallons capacity, or smaller if needed. Place in proper positions, add the commercial sulphuric acid and then the water. After weighing out the cyanide place it in small thin paper bags, drop these in the generators and leave the room quickly, closing door. It will of course be necessary to determine the cubical contents of the space to be fumigated and to use the above formula for every 100 cubic feet. If more than 16 ounces of cyanide are required use two generators, as that amount is sufficient for one. The paper bags allow time for the operator to leave the room before the reaction becomes violent and add to the safety of operation. The rooms should be made tight, so that the operators will have nothing to do but get away when the cyanide is added. It is well to remember that the gas is very deadly and great care must be taken in using it. The rooms treated should remain closed for at least one hour, or two if possible. It is a common practice to administer the dosage at night and to leave all tight until morning. Then the doors and windows may be opened from the outside and under no circumstances must anyone be allowed to enter until the gas has been allowed to dissipate.

Hydrocyanic acid gas may also be obtained in liquid form and administered directly to the fumigation room or tent by means of a special apparatus for the purpose. Unless desired in large quantities this material is not to be recommended. It should only be handled by one who is thoroughly familiar with it and the apparatus, for it is even more dangerous to human life than that generated by the pot method.

Vacuum Fumigation

Considerable experimentation has been done in recent years by the federal and state authorities with a vacuum fumigator constructed of steel plate and used as a fumigating room from which the air has been drawn and vacuum conditions created. Into this the fumigants are drawn through the materials placed inside for treatment and splendid results have been obtained. The advantages of such an apparatus include thorough penetration of the gas into the densest materials, quickness of killing and operation and ease and safety in handling. Carbon bisulphide, hydrocyanic acid gas and dry steam may be used.

Heat

The use of heat in the treatment of insects in mills, packing houses, warehouses, etc., has come into general use in many parts of the country chiefly in connection with the manufacture of cereal food products. The places are equipped to enable the maintenance of a minimum temperature of from 140 to 180 degrees Fahrenheit for several hours, which is sufficient to kill the young and adults as well as many, or in most cases all, of the eggs. Repeated treatments insure complete eradication.

Clean fruit in sealed insect-proof packages will reach the ultimate consumer in a pure, wholesome condition.

EVAPORATION-DEHYDRATION

DRYING, dehydrating and evaporating California fruits under California conditions was given a most thorough discussion at the recent San Jose meeting. The meeting did not end, however, in perfect agreement as to best of methods under all conditions. California sun drying has been so effective and so thoroughly economical that methods reported by Northwestern fruit growers did not appeal very strongly because of the large expense involved in preparation. Practically all drying or evaporating is done in Washington and Oregon artificially. On this point Prof. Cruess remarked:

"It remains to be seen whether this method of artificial drying will replace the ordinary sun drying in the orchards of California, as has been the case in many of the Eastern states. Its use has, within the past two or three years, proceeded so rapidly that a very close study of the subject is warranted by California growers."

Prof. Cruess spoke of the various types of evaporators, including those which operate with natural draft, with forced draft and on the distillation principle. Stack and kiln systems

(Continued on Page 292.)

KEEPING THE "MOVE" IN YOUR MOTOR

(Continued from Page 281.)

and jolts. A small quantity of it will serve for a long time.

If a grease gun is not included in the tool kit of the car one should be purchased to handle the heavier lubricants without waste and soiling of clothes and hands. A gun provided with an extension nozzle of curved shape will prove handy in reaching the more inaccessible parts of the mechanism.

Regularity is the secret of success in keeping one's car at work continuously and finding it ready to go in all weather. Every reader of The Cultivator has some friend who seems to have "good luck" with his car and has a powerful, easy running and easy riding machine every day in the year. There is no such thing as luck in motoring. The fellow who is getting gratifying results has made systematic lubrication a part of his ritual. He gives his machine the same daily attention that his horse formerly demanded and counts lubrication as important for the car as regular feeding was for the animal.

If there is an oil feed or oil pressure gauge on your dash cultivate the habit of glancing at it occasionally, at least once in every mile or two. Never take the car out of the garage without testing the level of oil in the crank case to make sure that your supply is adequate. When going on long trips carry a gallon or half gallon can of oil under the seat for use in an emergency. Oil is cheaper than repairs or replacements.

Care of the electrical system and of the tires is important but falls in line secondary to lubrication. Usually the instruction book gives complete information concerning tires while the various battery makers include pamphlets describing their product and its proper use.

There is no excuse for letting tire pressure fall below the number of pounds specified. Air is cheaper than anything under the sun. It is one necessity that the profiteers have not managed to corner.

An article of this nature would not be complete without a word of caution regarding the menace of vibration. The slogan "Vibration is Life" should be changed to "Vibration is Death" with reference to the motor car. A new machine will inevitably loosen up and work apart at the points where there are bolts, nuts and screws. To "get out and get under" has become one of the traditional jokes of motoring, but the practice pays.

File a requisition on the women folks for a discarded remnant of carpet or something of the sort and spend a half hour each week in an undignified recumbent attitude under your gasoline chariot. Take two or three sizes of wrenches with you when you go underneath and a great deal of annoying crawling out to get the proper tool will be avoided.

When your car is tight and fit all over, properly greased and lubricated, the water and gas tanks full and the tires at specified pressure you have the world before you and leave grief and exasperation behind.

MARKETING IN TEHAMA

The Tehama County farm bureau has started a market department in operation. This department began work on January 17 and made the first cooperative shipment of hogs on January 21.

This shipment consisting of 87 head was sold to the Western Meat Company. The price for the entire lot was $13.45 per hundred at shipping point. Fifty-seven head of this carload graded out as topper hogs and brought prices of $13.85 at shipping point. These prices ran from 50 to 75 cents higher per hundred than any local buyer had been offering, and in fact until the farm bureau came into the field the local buyers here were not offering within $1.50 per hundred of the prices obtained.

This department is also handling mill feeds and seeds on a strictly cash basis. It is planned to make hog shipments out of the county every two weeks and when possible every week.

One interesting feature of this market department is the Market Bulletin occasionally sent out.

The Choice of Men Who Know

AJAX TIRES, in farm service, have always performed with that same complete satisfaction which marks their use on city streets.

The man whose automobile must take roads as they come, can count on Ajax Tires.

Ajax Racing Triumphs

Ajax Road King, with its burly tread braced and reinforced by Ajax Shoulders of Strength, stands first in favor with those daring speed kings who race on dirt tracks. At state and county fairs in 1919 Ajax Tires fairly swept the field. They outstripped competition. They stood up under gruelling tests—and won.

These Ajax achievements are full of meaning to the farmer—for, after all, dirt tracks are merely country roads fenced in.

Your best dealer can supply you with Ajax Tires—Ajax Road King, and Ajax Cord with the Cleated Tread, Ajax Inner Tubes and Ajax H. Q. (High Quality) Tire Accessories.

AJAX RUBBER COMPANY, INC., NEW YORK CITY

Factories: Trenton, N. J. Branches in Leading Cities

AJAX TIRES

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914

Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Advertising rates furnished on application.

The Sacramento office is Room 210 Ochsner Building. All mail pertaining to livestock should be addressed to our Sacramento office.

The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

Member ASSOCIATED FARM PAPERS

Eastern Offices:
Tom D. Costello, Steger Building, Chicago, Ill.
S. E. Leith, Fifth Avenue Building, New York.
C. A. Cour, Globe Bldg., St. Louis, Mo.

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Saturday Feb. 21, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

ORDER SACKS EARLY

Grain growers and others having use for jute sacks during the coming season should heed the warning of Warden J. A. Johnston in effect that orders should be placed at once to make certain of securing quantities desired and the present especially low price. Orders prior to April 1 for 10,000 or under may be filled at the price of 15 cents. Order blanks may be secured by writing the warden.

ROBINS

The other day the robins came—not one or two with their chirp to remind one of barefoot days when they spent the whole summer with us, but hundreds, literally thousands, of them all over the lawn and in the trees. At one time there were 18 robins in or around one little bird-bath less than three feet in diameter. They all had on their red vests and gave such a concert that even the mocking birds were discouraged. Apparently they were on their way to their summer resorts in the north and their stay was all too short, for in a few hours they were gone and we are now waiting for the next reminder of the old swimming hole days.

Give the birds a bath. A double handful of cement and a small bucket of sand coating over the dirt around a hydrant and basined so as to hold water an inch or an inch and a half deep suits robins to a T.

FEDERAL ROAD AID

Secretary Meredith of the U. S. D. A. is calling atention to one need of the West in the matter of good roads and to the handicap from which the West suffers because of millions of acres of land being held in federal reserves. This throws a vastly greater proportionate cost for road construction on the privately owned land. The secretary said:

"I think we must recognize the fact that the existence of these large areas of government lands places these states in a somewhat different situation from the remainder of the country, and that it would be only equitable for the federal government to increase its percentage of cooperation over the present basis. I am also heartily in favor of continuing the appropriations for the building of national forest roads. These forests constitute a great natural resource and their preservation and development is a national responsibility which ought to be met in full measure."

QUARANTINE ORDER 37

It is reported that the Garden Club of America is against Federal Quarantine No. 37. Federal Quarantine No. 37 is becoming famous because of its value in preventing entrance of various and diversified insect and fungus pests. Incidentally it has also prevented the entrance of some most useful and beautiful floral novelties which have been raised in sections from which the department of agriculture feels it entirely unsafe to admit plants. Supposedly the members of the Garden Club are largely of the wealthy class and unfortunately the class which resents any step which prevents immediate enjoyment. But certainly, such an organization should consider the welfare of the plant industry of the nation rather than their own immediate pleasure. A former Californian, now in Chicago, John P. Bramhall, has written our state department of agriculture suggesting a counter-campaign of education which shall show clearly the great advantages gained by the quarantine compared with the trifling inconvenience. If these sympathizers of the Garden Clubs are made to understand that their favorites of the garden are threatened with far greater dangers from insect and fungus pests from abroad than from Quarantine No. 37, they may change their minds.

California is responsible more than any other state for making possible this quarantine regulation, and this state will support that measure to its utmost.

LONG QUESTIONS

There are some long questions before the new secretary of agriculture. Discussing the matter, a letter sent out by the National Board of Farm Organizations extends greetings to the new secretary and calls attention to the difficult and serious problems of the present day. The food problems have been handled far from satisfactorily to the farmers. Consumers prices have been exorbitant, and very often prices to producers have been insufficient to cover cost. Still worse, in order to divert attention middlemen have set up the cry: "The farmers are to blame." According to recent investigation this is causing not only discouragement but determination to slow up on production. This is the last thing that the farmer should do for the world needs food, and it is to be hoped that before another marketing season some definite measures will be adopted which will enable the producer to secure justice. Regarding the new secretary's job the Board says:

"The agricultural outlook of the nation at present is not necessarily dark, but there are fundamental questions evident to everyone who seriously considers the matter, upon which the future prosperity of the farmers of America depends. With these facts in mind it is certain that at no time since the creation of the department of agriculture was it so essential that a man thoroughly informed as to the needs of the farmer should be entrusted with the administration of its affairs. It is fully realized that the new secretary is handicapped by the fact that he enters upon his duties late in the history of the administration and at a time when many of his acts will be judged from the political standpoint. The time left for the creation of a new administrative policy is short, but Mr. Meredith can still justify the confidence placed in him by the president in this appointment and do much in a constructi e way for the benefit of agriculture, at present uncertain and hesitating."

LIVE FARM BUREAU

The Glenn County farm bureau is one of the live and up-to-date farm organizations of California; up-to-date, because it is giving efficient service. One feature of thi service is the issuing of a weekly market bulletin. This is issued from headquarters at Willows. There is a branch office and warehouse at Orland.

The bureau does but little with direct buying and selling; it simply acts as a clearing house and through public auction and otherwise gives opportunity to dispose of farm livestock, all kinds of crops, and even the old phonograph, cultivator, harrow, dash churn or other unused implement or article. The aim of the market department is to unite the farmers in an organized effort to bargain collectively in selling their products and in buying whatever they need, at reasonable prices.

SPINELESS CACTUS

In the livestock department of this issue Prof. Thornber of the University of Arizona makes short reference to spineless cactus as a livestock feed. It closes with "My recommendation is that you will grow more forage and better forage on cultivated land if you will grow alfalfa or sudan grass, and that for mesa soils you will grow a great deal more forage by using Rhodes grass."

Which induces us to look back in the files of the Cultivator of some six and eight years ago. Spineless cactus planting was then in good form, but the Cultivator investigated, secured from Professor Jaffa analyses which showed its low feeding value, and at the same time wrote to Prof. Thornber, who confirmed in our issue of February 19, 1914, our fear that the friends of cactus as a cattle feed were rather too optimistic. In the same issue one writer said: "It is not a complete feed on account of its high content of water and low percentage of protein."

Many continued the planting, and where this was done with proper understanding of its real place it has possibly proved profitable.

One of the greatest needs of the Pacific Coast is good pasturage or forage plants, but unfortunately cactus does not answer our requirements, at least not in a large way.

If you cannot use this adv., please clip and hand to friend or neighbor.

WANTED

A Harmonious Euphonious, Utilitarian Name

For a California Mesa Overlooking the Ocean and a

Brand New Harbor

Now Being Dredged on the Line of the Four-Million Dollar

NEW COAST HIGHWAY

Now Building to Connect all Beach Resorts from Santa Barbara to San Diego

The Newport Heights Cooperative Association, Fairview Farms Association and Newport Mesa Association together offer

A PRIZE of $25.00

for the most appropriate name suggested as a substitute for Harper, the present postoffice name of the apple and lemon growing communities "in sight of the harbor, in sound of the surf" on the Newport tableland in Orange County, Southern California.

The following data may guide contestants in selecting a prize-winning name—

Community center 1½ miles from ocean; 2 miles from Newport Bay and Beach where over three-quarters of a million dollars are being invested by city and county for harbor development, industrial district, etc., and where following new enterprises are locating—Fish cannery, fish preservative plant, wholesale fish market, fishermen's supply house, fish fertilizer factory, ice and cold storage plant, glass factory, etc.; 3 miles from Balboa Beach, with its surf and still water bathing and inland water playground for canoeing, rowing, sailing, yachting and motor boat racing; 4 miles from the Palisades and caves, coves and filagree rocks of Corona del Mar, opposite the Balboa sandspit; 5 miles from Huntington Beach, a comfortable home and garden community with fine schools, well-paved streets brodered with acacia and Monterey pine, long cement pier, open air plunge and home of the annual Orange County Fair; 9 miles from Santa Ana, county seat and center of one of the richest and most intensively cultivated orange, lemon and walnut growing sections in the state; 20 miles from Long Beach; 40 miles from Los Angeles; an hour's ride or so to the streams and camping grounds of the canyon fairylands along the southwest slopes of the Santa Ana mountains. West of the Newport tableland mistily loom the graceful outlines of Catalina Island, on the north the Sierra Madres form the sky line, and to the northwest the Palos Verdes hills at San Pedro and the Santa Monica mountains are visible. The large and highly flavored apples grown on the Newport Mesa or tableland have received first awards at leading Southern California fairs and land shows the past two years, and both apple and lemon growers in this section are increasing their acreage. The finest peaches, pears, plums, persimmons and other fruits are grown, while vegetable gardens and egg farms play an important role.

CONTESTANTS should be sure to date letters and write address plainly. Mail suggested name to Mrs. F. B. Spencer, Harper, Orange Co., Calif.

For illustrated folders more fully describing this section address: For Newport Mesa, W. S. Williamson, Harper, Orange Co., Calif. For Newport Heights, Ed. Logsdon, Harper, Orange Co., Calif. For Fairview Farms, Bryan and Bradford, 856 S. Hill St., Los Angeles, Calif. For Balboa Beach, W. L. Jordan, Sec.-Treas. Balboa Beach Chamber of Commerce. For map of Newport Bay and industrial sites, W. W. Wilson, Sec. Newport Beach Chamber of Commerce. For Huntington Beach, E. E. French, President Huntington Beach Chamber of Commerce. For Orange County in General, J. C. Metzgar, Sec. Santa Ana Chamber of Commer .

The Tenth National Orange Show

By James De Camp

COMPARED to Old Baldy, Catalina and a few other of our original natives the orange is a mere newcomer in California, the first of his ilk having stepped off the "tourist special" a bare hundred and fifty years ago.

The orange added an interesting variation to the "veni, vidi, vici" process of the Hon. J. Caesar. It came, it saw, and it grew, conquering thereby. That Mr. Orange, Mrs. Orange, the Orange kids, their aunts, uncles, grandparents and relatives-in-law have become thoroughly at home in the balmy reaches of California and have settled there to stay is amply attested by the Tenth National Orange Show, which defied all superstition by opening at San Bernardino on Friday, the thirteenth of February.

In point of quality and quantity of exhibits and cleverness of decorative schemes the 1920 Orange Show is said to stand unsurpassed. It is a matter of pride with the Gate City of San Bernardino that each exhibition shall surpass that of the preceding year. That this ambition has been more than realized is attested by the scores of thousands of visitors who have crowded through the entrance gates, many making a pilgrimage of several hundred miles to do homage at the court of Pomona, goddess of fruits.

Experts who have inspected the various exhibits with a critical eye state that the quality of this year's product leaves nothing to be desired. Externally the commercial pack is firm, uniform and beautiful to look upon. The manner in which the offerings of the various communities, chambers of commerce and other organizations were planned and arranged accentuated the symmetrical beauty and radiant color of the fruit, which suffused the large main tent with a restful golden glow.

One feature of the show which was always surrounded by an interested throng was the miniature packing plant operated by the Fontana district. Here all the processes of cleaning, sorting, grading, wrapping and packing were to be seen at a glance, even to the box mill which slaps an entire box together in two winks and a half.

Other novelties of unusual merit were supplied by the Mutual Orange Distributors, the Associated Chambers of Commerce of the San Gabriel Valley, Highland Chamber of Commerce, Imperial County, Orange County, Fresno, Colton and the Pacific Electric.

The entire Orange Show and the mighty citrus industry of which it is symbolical stands a monument to the power of cooperation. It is safe to say that no other line of endeavor has been so thoroughly organized on a cooperative basis as the citrus industry in California. Instead of jumping at each other's throats in competition, as is too often the case in many lines of business, the California citrus growers have put their heads and resources together to advertise, pack and market their fruit collectively with the minimum of overhead expense.

Their united efforts, while reflecting to their own benefit, have performed a service of inestimable value to the Golden State. It is said that one organization alone has expended two and a half million dollars in advertising California citrus products throughout the world, developing such a tremendous volume of business that the cost of this exploitation amounts to but one-fifth of a cent per dozen. The state is no longer famous for its climate but is spoken of in each corner store and at every family table as the native heath of the orange.

Worthy of special notice at the Orange Show were the several extensive and tantalizing exhibits of by-products from citrus fruits. The science of creating delectable jams, jellies, marmalades, candies and oils as well as vinegars, acids and even toothpaste and washing powder from culls and peelings has been one of the latest commercial developments of the industry. Progress along these lines is utilizing many thousands of tons of fruit which, while unsuitable for shipment, was perfect in every other particular but must be sacrificed or dumped for lack of a market.

The following organizations were responsible for the 17 feature entries of the Tenth National Orange Show and for pack fruit displays of distinction: Mutual Orange Distributors, Redlands; Redlands Chamber of Commerce of Commerce; Elephant Orchards, Redlands; James Mills Orchards, Hamilton City; Etiwanda Board of Trade, Corona; Riverside; Highland, Upland, Whittier, Ontario, Azusa-Covina-Glendora Fruit Exchange, Hemet Orange Growers Association, Fresno, Orange County, American Fruit Growers Association, Associated Chambers of Commerce of the San Gabriel Valley, Pasadena Chamber of Commerce, Pasadena Board of Trade, Fontana Company, Rialto, Colton, California Fruit Growers Exchange, Hemet Orange Growers Association and the Imperial Valley.

Since 1902

Pomona DUPLEX-PLUNGER Pumps

One Pump Will Do Your Work

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

Send for Catalog 103

Pomona "Made Right" Irrigation Gates and Valves

PRICES RIGHT-QUALITY RIGHT
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POMONA MFG. CO.
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Place Your Order NOW for Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or steamer, January, 1920.

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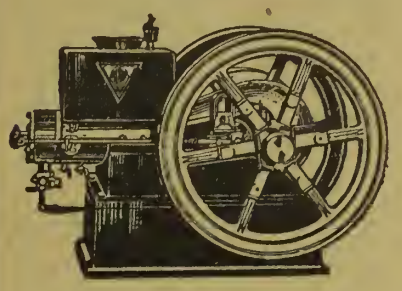
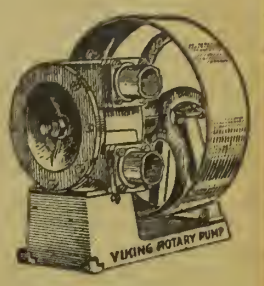
NEED WATER?

Alpha Engines afford an abundance of reliable power — Viking Pumps handle up to 1050 gallons ery per minute.





Alpha Engines

Viking Pumps

THE MOST EFFICIENT combination of pumping equipment for the rapid delivery of water for irrigation

REASONS WHY

ALPHA ENGINES are equipped to operate on Gasoline, Kerosene, or other low grade fuels. Their design insures full power on the least fuel consumption. Their superior construction is a guarantee of uninterrupted service, low upkeep cost and freedom from breakdowns. No worry or bother with an Alpha Engine. Equipped with a genuine magneto—rotary type.

Make-and-break ignition (best for all fuels on engines of this type). Starts on magneto without cranking.

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VIKING PUMPS being of the rotary type, have twice the efficiency of the ordinary irrigation pump and maintain their efficiency under varying heads due to their powerful suction, positive delivery and slow speed. No loss of power through churning in casing. Result: Requires a smaller engine—consumes less power and fuel than other pumps of equal capacity. The Viking is Self-priming—pumps air as well as water—durable and easy to install.

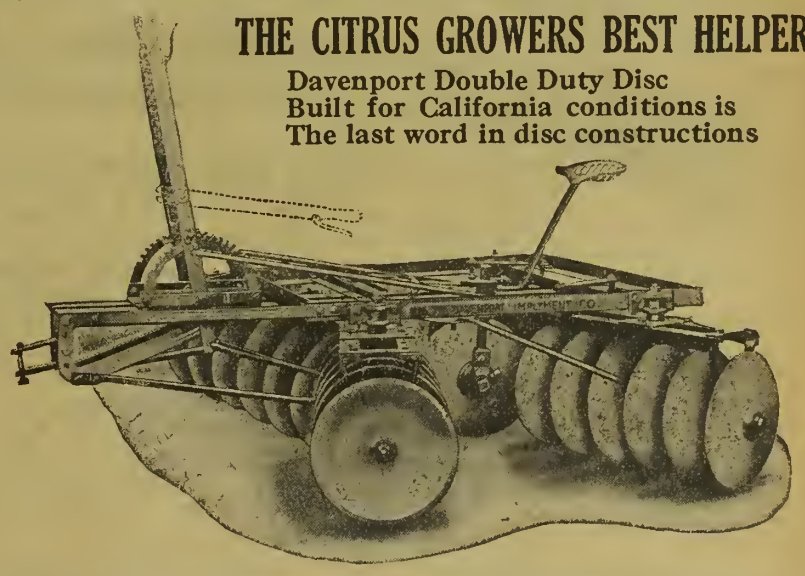
Sizes 10 to 1050 gals. per min.

ENGINE & PUMP CATALOGS UPON REQUEST

De Laval Dairy Supply Co.
San Francisco

THE CITRUS GROWERS BEST HELPER

Davenport Double Duty Disc
Built for California conditions is
The last word in disc constructions



Be sure to see the Davenport Double Duty Disc. It is built to deliver service under all conditions for every pound of weight and pull applied with NOTHING TO GET OUT OF ORDER. After setting the drop levers the STAY SET held RIGIDLY and POSITIVELY IN PLACE. No automatic features to break, slip or get out of order. The drop lever feature allows the levers to be laid down low and the seat is detachable, permitting work under low hanging tree limbs. There is no disc made better adapted to work in citrus or other orchards. No implement you can use will conserve moisture that's in the ground like a Davenport Disc. Years of constructive effort and painstaking observations have enabled us to construct the DAVENPORT DOUBLE DUTY DISC so efficiently that it will do more work with less power and in less time than anything can buy for the same money. Made in 6, 8 and 10 ft. sizes. Other sizes made to order. A post card will bring an illustrated circular and price lists on any implement you may want.

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Headquarters for IRRIGATION Supplies
Pumps, Engines, Sprayers, Hoists Etc.
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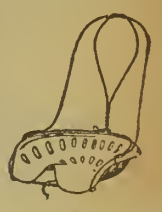
TOBACCO

"Old Homespun" chewing or emoking. Grown and sold by Kentucky Farmers. Not doped, just plain OLD NATURAL LEAF. Trial offer, 2 lbs., postpaid $1.20. Kentucky Tobacco Assn., Dept. 2, Hawesville, Kentucky.

Preserve Your Strength by Attaching a NATIONAL BACK REST

To the seat of your tractor or farm machinery. It saves your back and you ride in comfort. The National Back Rest fits on nearly any seat no matter what style or shape, it can be quickly and easily attached without the use of tools. No screws or bolts. Will not slip off. Three dollars delivered. Some agency territory still open. Satisfaction guaranteed or money refunded.



CARL G. JORN
Jorn Bldg., 57 Plaza Square, Orange, California

DRIED FRUIT INSECTS

(Continued from Page 288.)

were also explained. The chief objection to the kiln system, the speaker claimed, is the method of turning the fruit over with a fork or scoop shovel. This necessitates a man walking over the fruit with resultant breakage and messing it up in an undesirable way. It was stated that a stack evaporator at Watsonville is still in use, but that this particular device has been discarded in Oregon in favor of the tunnel system. Many types are now manufactured and each claims particular advantages, but in choosing an evaporator there are other considerations in addition to the machine itself which must be studied, as, for instance, climate and atmospheric conditions. An evaporator of a certain type might do efficient work here in California where the air is usually dry during the summer, while the same system might not be adapted to Oregon, Washington or other states where rain occurs during the drying season.

Prof. Cruess warned his hearers against too rapid evaporation of fruit which takes the moisture from the surface more rapidly than from the center of the fruit, because this impairs not only the flavor but the sugar content. All fruit should be subjected to the highest temperature near the end of the process.

From Prof. Arthur W. Christie's address we quote: "For the past five years the zymology, a fruit products laboratory of the agricultural department of the University of California, has been under the direction of Professor W. V. Cruess, and investigation has been carried on as to various methods for producing dried fruits and vegetables. The experiments for a long time were on a small scale such as might be used by the housewife or small farmer. Later tests were made on a larger scale and to reach proper determinations a commercial evaporator was erected at Davis last summer. National prohibition was the immediate cause for hastening construction on this evaporator. The exportation of dried wine grapes seemed at that time likely to afford a profitable disposition of the wine grape crop. An air blast tunnel evaporator was chosen as the most promising type because that design had been proved practical by experience. This tunnel is 33 feet in length, seven feet in height and six and one-half feet in width. It is equipped with two five foot fans of the windmill type. A seven and one-half horse power electric motor furnishes the power. Theoretically the air flow is 25,000 cubic feet per minute but this volume is rarely ever maintained. The trays used are three by three feet in size with blocks at corners so that, when packed, there will be ample ventilation. The tunnel has a capacity of eight cars of 42 trays each, and an average tray load is 35 pounds.

Deductions on Experiments

"During the last grape season, grapes heretofore used for wine making were subjected to many experiments, and using these treatments as a basis, we arrived at certain deductions useful for guidance. These conclusions are substantially as follows:

"Do evaporators give a greater yield than sun drying? This query has been asked many time but I must say that even with careful experimentation we are not yet able to give a definite answer. There are apparently variations with reference to locality and weather conditions and we will have to have another season for further tests before making a proper reply.

"Are evaporated fruits superior in quality? Judging by what we have learned I think we can safely say that evaporated prunes are superior in flavor. The question of quality is largely decided by the public and not by enthusiastic producers.

"Does sulphuring affect yield? Experiments covering quite a wide range show that mild sulphuring has resulted in quite a considerable increase in yield.

"Should grapes be dipped? The dipping of grapes often gives an increased yield weight, but it is almost always small. In dipping grapes, a correct strength of lye and a carefully determined immersed exposure are important factors.

"Should exhaust air be recirculated? Tests have shown that the use of recirculated air has caused a decided decrease in fuel consumption, without increase in the time of drying.

"Can direct heat be used? We have demonstrated by tests that a direct heating system, when properly installed, caused a maximum fuel efficiency without injury to the fruit.

"Is a suction on blower fan best? If one fan is used, the suction fan is best, but on large evaporations with long tunnels both forms should be used.

"What temperature can be use safely? The evaporator can be used up to 150 degree, but I would suggest the process be commenced at a low temperature, say to 30 to 50 degrees at exhaust end, then gradually increase as required. Raisin grapes are evaporated at 150 degrees, while red wine grapes will stand as high as 190 degrees.

"What type of tray is preferable? Our experiments show that small trays, three by three feet with slat bottom are preferable."

Many questions were propounded Professor Christie and the discussions were exceptionally interesting as well as instructive.

Regarding methods used in Oregon and Washington, Prof. Warren P. Tufts gave the following:

Tunnel Drying Fundamentals

"Throughout the fruit growing sections of Oregon and Washington various designs of evaporators are in use, but the tunnel design is most commonly used. The fundamentals of this tunnel system are:

"The fruit to be dried should be started on a comparatively low temperature.

"The finishing temperature may be relatively high without in any way detracting from the quality of the product.

"It should be understood that all designs of evaporators are not equally desirable. Some have faults either in maintenance of temperature or possibly inequality in air supply. Generally speaking, however, all air intakes should be lower than the source of heat, and at least two intakes, one on each side of the furnace room, are essential to secure best results. The variation in length of tunnel may be anywhere from 16 to 50 feet.

"A six tunnel evaporator with tunnels 25 feet long will have sufficient capacity to care for the yield of a 40-acre orchard. Here in California with its dry climate that size tunnel plant would handle the crop of considerably larger acreage.

"It is said the approximate cost of drying prunes in Oregon varies from three-quarters to two and one-half cents per pound dry, the average cost being about one and one-half cents per dry pound. The length of time required for evaporation in Oregon tunnel evaporators varies from 24 to 36 hours and the temperatures vary from 90 to 130 degrees at the beginning to 160 and even 185 degrees at the finish."

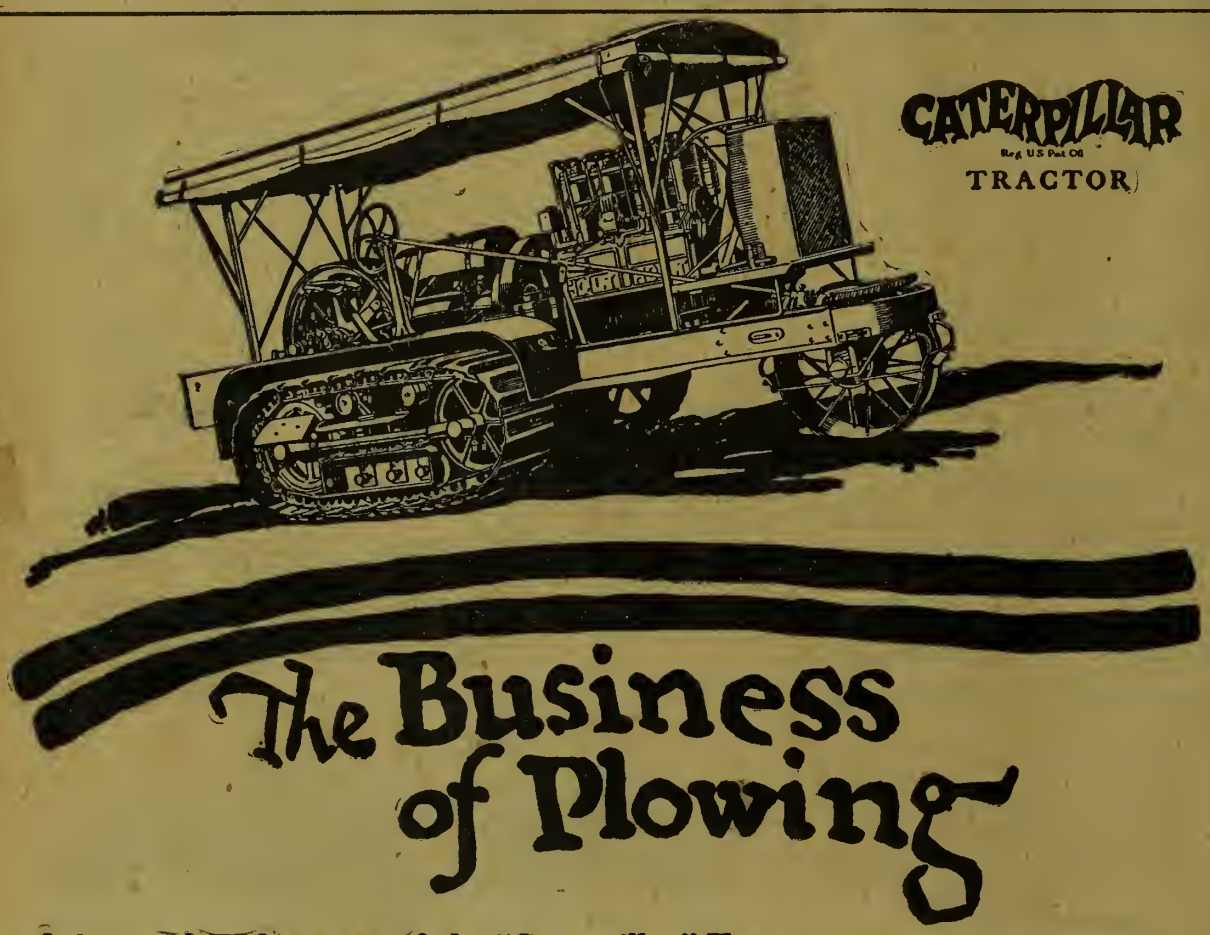
Commercial Dehydration

The activities of the United States department of agriculture with reference to dehydration were concisely explained by Paul F. Nichols, inspector in commercial dehydration in this state. In part he said:

"Sun drying and artificial drying of fruits has been carried on with a good measure of success for many years. The recent war created an unusually active and increased demand for enormous quantities, and this in turn directed attention to the necessity for dehydrated products. Congress appropriated $150,000 for the special study and betterment in this particular line of industry.

"The basic principle of dehydration is reduction of moisture to such a point that bacteria, yeasts and moulds, the chief agencies of spoilage, are unable to grow and destroy or impair the food value of the product. Of all the samples we have examined none have been absolutely sterile and only a few showed moulds and bacteria in small degree. Cooking of dehydrated products will always destroy the harmful nature of the undesirable elements."

The question as to whether fruit shall be called dehydrated, evaporated or dried was referred to a committee on nomenclature. This committee is constituted of Professor Arthur W. Christie of Berkeley, chairman; Paul F. Nicholls, Atascadero; E. M. Sheldon of San Francisco; Howard C. Rowley of San Francisco and Seward C. Simmonds of San Francisco.



The Business of Plowing

It is not alone because of the "Caterpillar" Tractor's tremendous power that it stands supreme in the farm power field, but because its power is available at lowest cost per working hour.

It is true that ability to plow deeper and to finish up a big acreage in quick time makes the "Caterpillar" Tractor a profitable investment in many cases *regardless of cost*. Yet, the fact that it plows *CHEAPER* is the advantage that gives it *universal* supremacy, in every kind and condition of work.

Because plowing is the biggest power task of the farm, it is essential to profitable farming that it be done at lowest cost. The "Caterpillar" Tractor's ability to do this, as well as to effect economies in every other power requirement of the farm, makes it the logical business investment.

MY ADVICE IS THE "75"

I have been farmiog seveo huodred acres for the last twelve years. Four years ago, I made up my miod that I had to have a tractor. I hought one—but I made a mistake. The one I bought I felt sure was big enough. It was supposed to pull a harvester easily, and it did get away with it for awhile. I used it for two years and theo I KNEW that I wanted nothing less thao the 75 horsepower "Caterpillar" Tractor. I sold the tractor I had and hougbt a "75," and under oo cooaideration would I go back to one with less power. With it I can finish up quicker and can get my plowing dooe wben the ground is right. I can pull any harvester or any sub-soiler, and I have just the right speed and power to do good work. Take it from me, if you want a tractor that's easy to take care of, that will stand up and that really has the power, get oothing but the Holt "75."

(Signed) J. M. YOUNG.
Peters, California.

THE HOLT MANUFACTURING COMPANY
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There's Only One CATERPILLAR
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(425)

MARKETING FARM PRODUCTS

The February number of the Market Reporter of the U. S. D. A. gives an extended review of methods of marketing of farm products and especially of encouraging better marketing through publicity.

The use of publicity in marketing agricultural products is not new, but it has not been developed to a degree comparable with its use in connection with manufactured products. It is perhaps natural that manufacturers and merchants should have blazed the way and that individual growers should have been slow to organize for publicity efforts. National publicity, which embraces all forms of advertising, can be carried on only by large organizations and not by individuals.

It has been found that one essential of modern day marketing is standardization.

The need of standards for farm products did not appear until the process of marketing grew more complex and increased transportation facilities led to the development of more distant markets. Today through organizations of producers and through national and state legislation standards for farm products are being evolved and there is an increasing use of publicity for marketing these standardized farm products. The citrus growers of California and Florida, the apple producers of the Northwest, nut growers, and, to a more limited extent, potato growers, cranberry growers, grape growers and others, are organized and are selling standard products.

Although wide publicity for agricultural products will necessarily await the more complete development of standards for such products, there are other forms of publicity which tend to prevent the disastrous market conditions which arise from faulty distribution or over supplies of a product in some sections of the country. In 1918 a publicity campaign, which included the cooperation of the war time organizations and the newspapers, made possible the marketing of an enormous surplus of potatoes and prevented a waste of food; in a similar way the peach crop in 1915 and the dried bean crop in 1919 were distributed. Publicity has also been used successfully in some cities to overcome temporary gluts, and has been beneficial to the public as well as to the grower and the dealer. Recently local campaigns have been carried on in large cities to stimulate the use of milk and dairy products and to bring about a better understanding between milk producers and consumers.

AMERICAN POMOLOGICAL SOCIETY

The report of proceedings of the 35th biennial meeting of the American Pomological Society held in Boston in October of 1917 is now being mailed to members by Secretary E. R. Lake. It is a 260 page book giving complete proceedings and many illustrations of great horticultural value. Among the members of the association who had died during the preceding two years and who were given high tribute, four or one-third of the whole number, were from the Pacific Coast. They were Nathan W. Blanchard, Parker Earle, Frank W. Power, A. F. Stubenrauch.

CONCERNING THE CITROPHILUS MEALYBUG

County Horticultural Commissioner Ryan of Los Angeles County recently dispatched the following warning notice to all packing houses and inspectors in his jurisdiction.

"Danger of introducing the Citrophilus mealybug must be reduced to a minimum. To this end the transportation of fruit, picking boxes or picking crews into clean districts from orchards where this pest is known to occur should be avoided. District horticultural inspectors are instructed to insist upon rigid observance of the law.

"The present known area of infestation in San Bernardino County, as approximately defined by the federal and state departments of agriculture, lies in the Upland section from Tenth Street north to the mountains and from San Antonio Avenue to the eastern limits of Cucamonga. The only known orchard infestations in Los Angeles County are in certain portions of Altadena, Pasadena and South Pasadena.

"All fruit transported from within or near the present known areas of infestation must be regarded with suspicion and you are advised that district horticultural inspectors acting under Sec. 2322b of the Political Code will require the destruction or immediate return to point of shipment of any such fruit or orchard appliances found to be infested with Citrophilus mealybugs, or which there is reasonable cause to presume is so infested."

APPLE MEN MEET

On the afternoon of February 3, prominent apple men, brokers, growers and shippers, met with G. H. Hecke, state director of agriculture, at the St. Francis Hotel to discuss the operation of the Standard Apple Act and to ascertain what proposed changes in the enforcement of the act would be advantageous to all interested in the industry.

P. H. Murphy of Watsonville, led the discussion and J. Gardner and Geo. P. Weldon addressed the meeting. A general discussion resulted in the adoption of a motion authorizing the director of agriculture to appoint a committee representing all branches of the industry from the different apple districts in the state to consider the various problems arising and to make recommendation for their solution. The committee will meet at Watsonville at an early date, to be named by the director.

TREE WASH AGAINST RABBITS

The following formula is suggested by D. A. Gilchrist, U. S. biological survey, as an effective tree wash for protection against rabbits:

"Dissolve one ounce strychnine sulphate in three quarts of boiling water and add one-half pint of laundry starch, previously dissolved in one pint of cold water. Boil this mixture until it becomes a clear paste. Add one ounce of glycerine and stir thoroughly. When sufficiently cool, apply to trunks of trees with a paint brush. Rabbits that gnaw the bark will be killed before the tree is injured."

It is probable that one-half pint of molasses may be substituted for one ounce of glycerine.

BULLETIN, REPORT OF TION

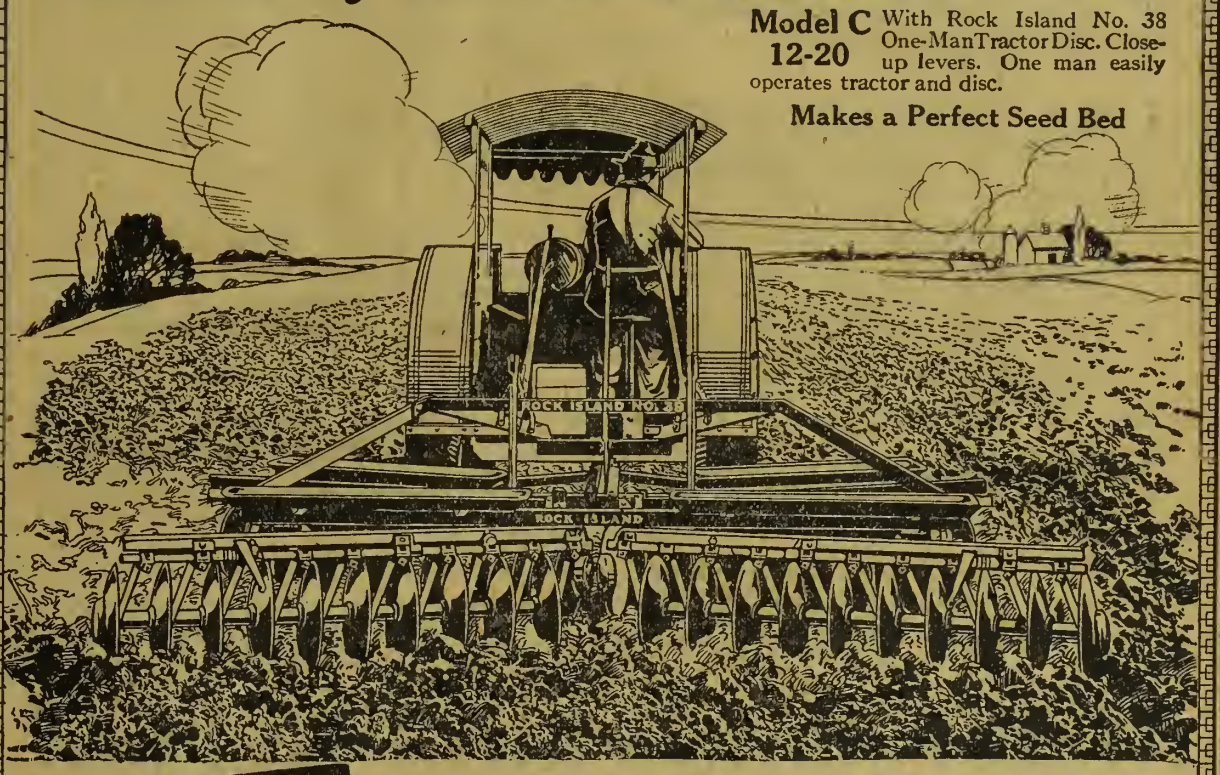
The November-December is Monthly Bulletin of the depa agriculture contains partial proceedings of the 52nd C held last November in Butt Being the last number of Vol is also contains very complete the entire volume. Many of dresses at the convention are g full. We believe this is abou quickest service yet given in printing proceedings of a state convention.

APPLY NITROGEN

This is the time of the year when an application of quick acting fertilizers proves of value. Nitrate of soda, sulphate of ammonia, dried blood, tankage and other forms containing nitrogen give almost instantaneous results. The applications may be light but repeated occasionally between now and June and the supply of moisture maintained this method of work aids in preventing the June drop which has been so serious during recent years.

Heider

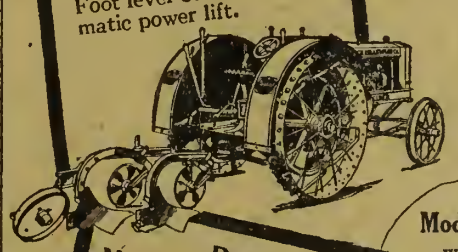
Backed by 12 Years Actual Service



Model C 12-20 With Rock Island No. 38 One-Man Tractor Disc. Close-up levers. One man easily operates tractor and disc.

Makes a Perfect Seed Bed

Model D 9-16 with No. 9 Rock Island CTX two-bottom Power Lift Plow directly attached. Foot lever control. Automatic power lift.



What other tractor gives you the *guarantee* of service that the Heider gives you—12 years use in every kind of work on farms all over America. Heider success is due to its performance—year after year—in every soil—on every power job. Let the Heider owners tell you. You don't have to take a "demonstration" as your assurance.

No Gears to Strip

Heider Friction Drive is the simplest and most dependable drive known. Does away with clutch, transmission gears and bevel gears. **15% to 20% fewer parts.** Write for Catalog of Heider Tractors and Rock Island Tractor Tools.

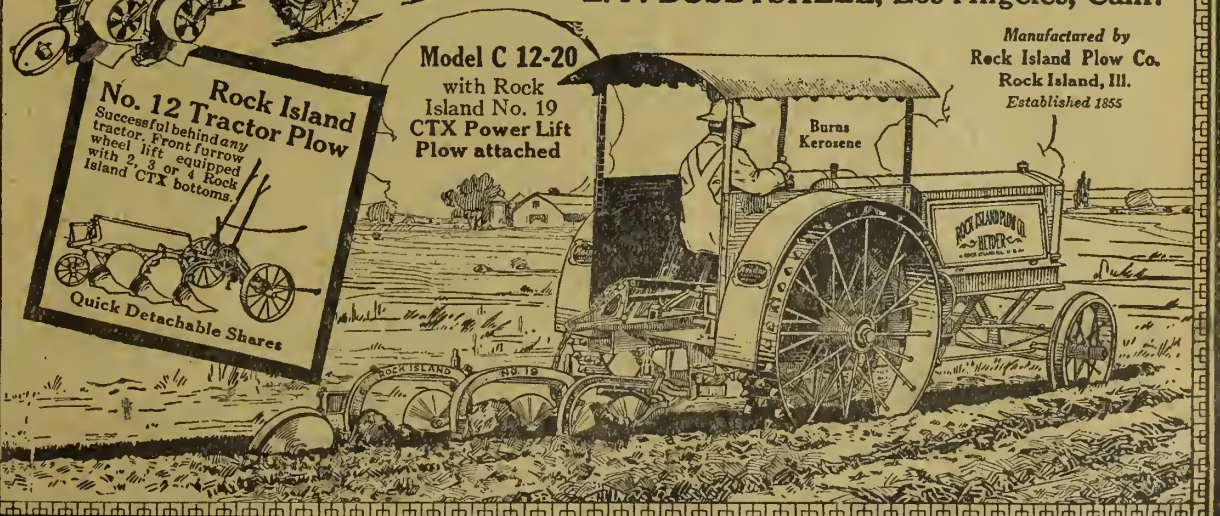
E. P. BOSBYSHELL, Los Angeles, Calif.

Rock Island No. 12 Tractor Plow

Successful behind *any* tractor. Front furrow wheel lift equipped with 2, 3 or 4 Rock Island CTX bottoms.

Quick Detachable Shares

Model C 12-20 with Rock Island No. 19 CTX Power Lift Plow attached



Manufactured by
Rock Island Plow Co.
Rock Island, Ill.
Established 1855

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Catalog No. 260

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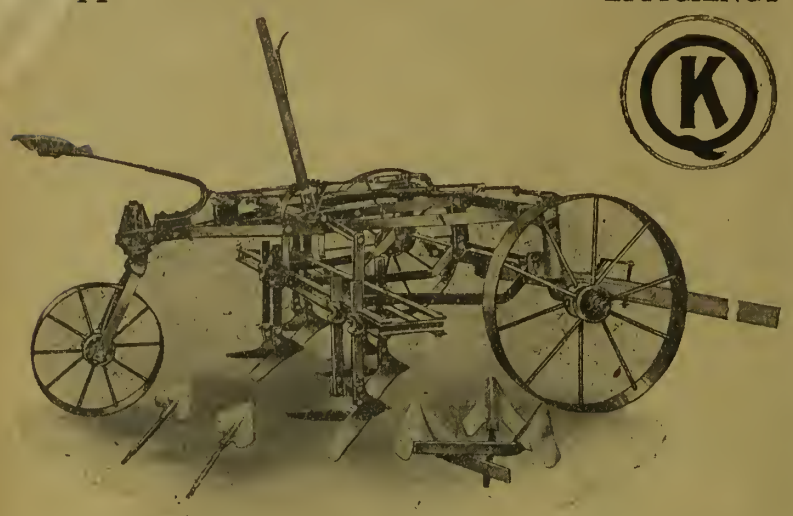

Make Your Plans Early For The Coming Beet Season

The consensus of opinion as expressed by the dealers and manufacturers on the Pacific Coast is, that you should anticipate your needs at least six months in advance, owing to the shortage of steel products.

Placing your orders early for what you may need, will save vexatious delay.

The frame of this Cultivator is made of one continuous piece of high carbon steel with a truss connecting it to the main castings, supporting the two steering wheels. This construction makes a cultivator that is almost impossible to break down in the center and in consequence the wheels are always in line and under easy control.

The lower frame or tooth bar is from the same quality of steel with a strong arm at each end which connects with the lifting rod allowing no chance for the frame to dip or run deeper at the ends. The seat is set back far enough to give an unobstructed view of the rows. The foot control of the front wheels is adjustable with a turnbuckle for taking up wear and is very easy on the operator. A lock is provided for the rear wheel that holds it rigidly in line except on the turns. An important item for the beet grower is that the sweeps, hoe steels, chisel points and all repair parts are carried in stock. Yo do not have to wait for them to be sent from the Eastern manufacturer.

The Killefer Manufacturing Co.

2209-21 Santa Fe Ave. Los Angeles, Cal.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Tomatoes Not Aquatic

Please tell me if tomatoes will yield well on subirrigated soil. A hole dug six inches deep will have water in it. —G. B., Escondido.

If water stays at this level all the summer no agricultural crop could be grown. Sugar beets would come as near to cropping well as anything, but this shallowness of soil is a serious bar to a good yield of any except aquatics or bog plants.

Eucalyptus for Nevada

In reading your article in January 31 issue on resistant windbreak, I see you recommend the eucalyptus. I have often wondered if they would do well in Nevada, Las Vegas County. It blows there a good deal. What about the Eucalyptus viminalis, the kind you speak of? The winds of course are hard and warm in summer, and hard and cold in winter, but there is plenty of water. If you can tell me where I can get some young trees to set out I will be grateful.—A Reader.

Eucalyptus viminalis will withstand a temperature of 15 degrees for short time when established. In the California desert sections this tree has passed through a temperature of 15 degrees above zero without being injured. Any of the nurserymen advertising in the Cultivator should be able to supply you with young trees. It is doubtful if any eucalypt, however, will endure the Nevada cold of winter. The Arizona cypress will doubtless thrive. Both catalapa and osage orange will make good summer windbreaks but will be bare in winter.

"Black Leaf 40"

Can you give me the formula for "Black Leaf 40"? About how much liquid would ten pounds of tobacco leaves make? — Subscriber, Terra Bella.

We presume our inquirer simply wishes formula for making tobacco extract by steeping leaves or refuse tobacco. There would be no occasion for reducing to 40 per cent nicotine and then diluting again. "Black Leaf 40" is simply a trade name used by a large concern which has standardized its product and protected it by adopting the trade name "Black Leaf 40" for a tobacco extract containing 40 per cent nicotine. Ten pounds of tobacco leaves would make about 40 gallons of solution as used on aphis, etc. Steep ten pounds tobacco leaves in ten gallons water. Dilute to 30 or 40 gallons.

Ginger

Can you tell me where I can buy ginger to plant?—Subscriber, Encanto.

We know of none in the state at present, though someone doubtless has it, for many attempts have been made to grow it, but with poor success. From time to time the writer has been shown or been given plants that were claimed to be true ginger, but none of them proved to be the right one. Some of these were aromatic in all parts, the roots particularly having a strong odor of ginger. But these were sturdy, robust plants with leaves from one to four inches wide. The ginger of commerce is a slender reed-like plant with grass-like leaves never an inch wide and grows but two feet high.

We know of three attempts to grow ginger in the south end of the state, but all were failures. One attempt was at San Bernardino, the roots coming from Japan and being planted in a lath house. In spite of being kept in an atmosphere as humid as possible the plants still suffered, apparently, from a desiccative air. The late L. J. Stengel, for 50 years a commercial grower of plants, experimented with ginger at his nursery in East Los Angeles, but the plants appeared unable to properly develop, stunted, finally dwindled and the top would die down as new but weaker ones came up, the vigor growing less all the while. The third attempt was at Sawtelle, between Los Angeles and the sea and was not successful. Based upon the behavior of the plants here, coupled with the fact that they thrive in the damper climate of southern Florida, we must conclude that ginger will not thrive in California unless a very cool and damp situation in partial shade may be provided and such conditions maintained at all times.

Black Currants

Do you know of a variety of black currant that will fruit in the vicinity of Redlands and if so where can I buy them?—Subscriber, Redlands.

No black currant is known to thrive in Southern California. Eight years ago the writer planted some in as cool a spot as could be found in an open garden. Morning and evening sunshine, with shade from large distant trees through the four hottest hours of the day did not provide proper conditions and the crops amounted to nothing. The only California catalog we find listing black currants has this entry: "Lee's Prolific. One of the newer English varieties." That tells the tale; we have not the cool damp English atmosphere in which to grow them.

Value of Water

I have spring water which analyzed shows, parts per million, chlorine 65, bicarbonate 153, sulphate 329, nitrate 2, calcium 117, magnesium 35, sodium 58. Is it fit for drinking purposes?—Subscriber, Hemet.

This question was referred to Dr. R. R. Snowden and he answers:

"Regarding the water analysis from Hemet, I have only the mineral impurities to form an opinion on. So far as these are concerned the water is very good for drinking purposes and could be made better by boiling and thereby precipitating the lime. As a matter of fact the fitness of water for drinking purposes is rather to be determined by the organic impurities present and certain derivatives of such materials. These factors must be found by suitable determinations in the laboratory."

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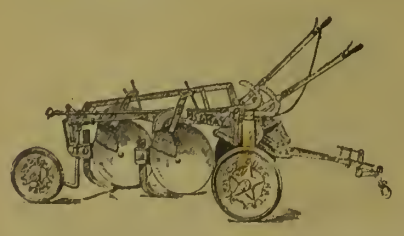

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Clearing Moss or Lichens From Trees

What will remove green or gray fungus from orange trees?—Subscriber, Azusa.

The most common remedy is the use of lye made from wood ashes or coating the trunk of the tree with six per cent solution of blue vitrol and two per cent solution sulphuric acid. Another remedy is to spray with the regular Bordeaux mixture or wash with one per cent solution of corrosive sublimate.

Spraying Apples

We have some apple trees about seven years old, very healthy in appearance, but have very few apples on although they bloom very heavily. Want to take proper care of them so would like to know if, as some people tell us, we must spray five times every year. Also what should we spray with?—Subscriber, Anaheim.

The matter of spraying with all crops depends upon the pest to be reached. Regarding spraying for codling moth or the "worms" in the apples they are sprayed with the arsenate solution just as the trees are finishing blooming, using care to get the spray on the blossom end of each fruit. Another spraying is given some two or three weeks later and some orchardists find it necessary to continue this four or five times during early summer. Some other growers, however, have found fairly good results with only two sprayings. This depends upon your section and as to whether the moth is breeding the year through. Your county horticultural commissioner can give you best advice in this matter. Other pests of apples are aphis, green, leaf-curling and wooly, various kinds of scale, slugs, etc., so it would be impossible to give very definite suggestions without knowing more of the particular pests infesting this orchard. Method of mixing the arsenate for the codling moth is given in the Cultivator special pest fighting number of August 9, 1919.

Sick Avocado

I have an avocado tree three years old in my back yard and about three or four times a year the little branches and leaves will shoot out green and healthy looking then they will parch as if a frost had struck them, and I notice that the bark on some of the branches is parching as though they had been burned. This occurs on top of the limbs. It has plenty of water. What is the cause and what can I do with it?—A Subscriber.

Some named varieties and many seedlings sunburn badly, and this may be the cause of your trouble. If so, white washing the trunk and main branches will help much, even the leaves, for the white will repel the heat instead of absorbing it, thus lowering the temperature about the whole tree. Such conditions as you state, however, generally are the result of trouble below. Be sure your tree is not getting too much water or that the soil is lacking in drainage.

Subsoiling for Potatoes

I am a reader of the California Cultivator and like it very much. Will you please answer the following question: In preparing ground for Irish potatoes would it be wise to subsoil it? Soil medium sandy.—Subscriber, Chino.

Drainage is the first consideration in choosing soil for potatoes, therefore no mistake can be made in subsoiling, no other annual crop needing so deep and friable a soil. While superb drainage is necessary the potato absorbs much water in growing and in sandy soil humus is desirable to conserve soil moisture.

Plaster for Fertilizer

Please inform me if plaster taken from a plastered house is good as fertilizer on soil part clay and granite sand. Soil has not been cropped.—Subscriber, Elsinore.

That depends entirely on what the plaster is composed of. If it is modern day Portland cement plaster or of the plaster of Paris type of wall it would be worse than useless. If, however, it is of the old time lime and sand it will be of value especially on the heavier soil. This type of plaster breaks up readily and would probably pulverize and become part of the soil.

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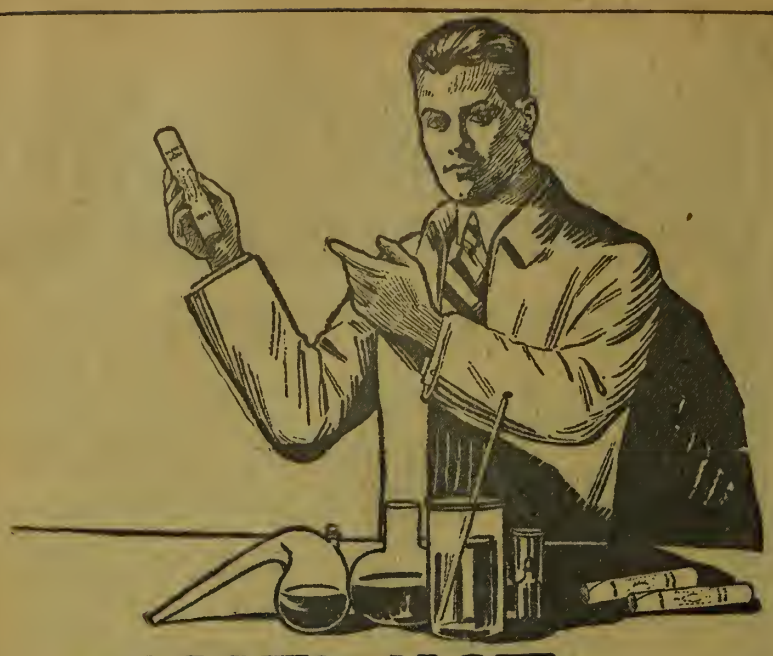

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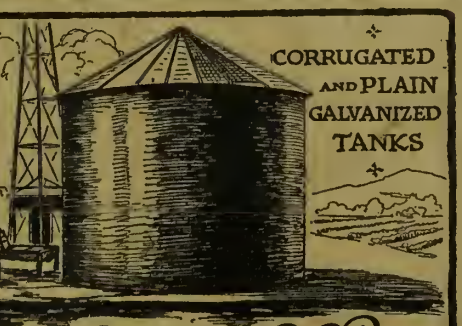

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Cooperative Truck Routes

THE department of agriculture has been investigating certain cooperative truck associations and considers the movement of enough importance that it has issued Farmers' Bulletin 1032 on the suhject. Methods of organizing, financing and operating are given at some length, and the 24 pages of the hulletin are summarized as follows:

A study of the Farmers Cooperative Company of Harford County prompts the following general recommendations to communities who may contemplate the formation of a similar association.

1. Farmers motor truck associations can he operated successfully in sections which produce in sufficient quantity to warrant daily operation of trucks and which are not more than 30 or 40 miles distant from consuming centers. The quantity of produce for shipment should be more or less constant throughout the year. In the case of the Harford County association, milk and cream form the bulk of the load to Baltimore.

2. Before undertaking the establishment of a farmers trucking association a survey should be made to determine the adequacy of present transportation facilities, the reasonableness of r tes charged, the approximate daily tonnage which will be available for movement in each direction, the character of roads over which the trucks must be operated, the general sentiment of the community toward such an association, the number of persons who would immediately join the association, the amount of stock for which each person should subscribe, and the amount of cash that would be available for purchasing equipment.

3. Care should be taken to make the provisions of the charter or articles of incorporation broad and liberal, so that the association may extend its activities in such directions as may seem desirable at any time without seeking an amendment to its charter.

4. The capitalization of the association should be large enough to permit issuing enough stock to pay for the trucks in cash, to obtain a sufficient amount of cash on hand as working capital, and still have a sufficient amount of stock unissued to provide for future sound extension of the business. Unless this is done it will be necessary for members of the association to advance money or put up their personal notes so as to secure sufficient funds to begin operations.

5. To provide funds for replacing worn out equipment, provision should be made for a depreciation fund at the very beginning of the association's activity. A surplus or reserve fund to meet emergencies and to provide for expansion is also highly essential. Insurance on both the trucks and goods in transit should be carried. In accordance with sound accounting these charges should be considered in fixing rates.

6. Only men who have demonstrated business ability in handling their private affairs and who exercise a good influence among the members of the community should be selected for directors. For the secretaryship a man should be selected who has energy, tact and business ability and who has shown a keen interest in advancing the association.

7. Trucks should be selected only after a thorough and unbiased consideration of different. makes. Records of performance and of cost of operation and maintenance of each make, furnished by actual operators of trucks rather than by agents of truck manufacturers, should be carefully considered, together with the present and prospective needs of the association.

8. In the selection of operators merit should be the sole consideration. Fair wages and fair treatment will go a long way toward making the operators contented and satisfied to continue in the association's employ.

9. Rates should be based on a careful analysis of complete, adequate and accurate information regarding costs.

10. If one terminus of the route is in a large city, during the early days of the association it will be found more economical to rent limited space rather than to attempt to operate a receiving station. After the association has become well estahlished, it should then consider the operation of a central receiving station large enough to accommodate its own needs and those of several other operators. Such a station would prove more efcient and economical than the operation of individual stations.

11. Accounting methods should be simple but sufficiently comprehensive to show the exact financial status of the association at all times.

12. To make the association a real success, each member must feel that the association is his association. In determining matters of policy the interests of the members as a whole rather than as individuals must be considered. Service must be the watchword.

Investigating Federal Farm Loans

The Commonwealth Cluh of California, a power in the advancement of civic and state interests, is making investigation as to federal farm loans, or, rather, various proposed systems of financing the farmers of the state, with especial reference to long time loans with amortization features. To the end that it may have more definite information for its Section on Rural Credits, it is sending out a blank requesting information from farm operators. It is asking as to whether the one reporting is owner or tenant; number of acres cultivated; rate of interest on mortgage and commercial loans, and period for which loans are usually made; is a longer time than has usually been granted desirable; is it best to pay loan gradually or in a lump sum; are farm loans usually made hy banks or private loaners; what proportion of farmers is carried by storekeepers and commission men; what is the usual expense necessary in order to secure or renew loan; would you yourself horrow and extend farming operations under better loan conditions; do you think an association could he formed where members pledge their properties as in Europe, etc. These and many other questions are accompanied by a circular from which we quote:

"The Commonwealth Club is engaged in an investigation of the conditions under which farmers of California obtain credit either upon mortgage loans or upon short time loans, with or without security.

"The object of the study is to ascertain, if possible, whether the farmers of the state can be henefited by any change in our methods, and especially whether the methods of making rural loans, and especially small loans, which are in use on the continent of Europe, or any modification of them, are practicable under California conditions.

"For the information of those not familiar with European methods of rural loans, the following may be stated:

"Methods vary considerably, but the following is typical: Mortgage loans often, and perhaps usually, made for what we should consider small amounts by village cooperative banks whose capital and deposits are mostly supplied hy the members. None but members can borrow. All the property of all the members is pledged for the payment of all loans and there is little or no exemption of property from execution as with us. No member can be admitted except by vote of the membership. The average holding of members of these associations is less than 20 acres and probably less than 15 acres.

"These mortgage loans usually run from 20 to 50 years, or even more, with the privilege of payment wholly or in part at any time or upon any interest date. From one-half of one per cent to two per cent of the loan is added to the interest and paid each year. A payment on the principal of something over one per cent a year will extinguish the loan in about 33 years. This process is called 'amortization'

—a word which means 'to kill off.'

"These mortgage notes are pledged by the cooperative bank to a larger bank for more money with which to make more loans, and that bank, on a still larger bank to which it sells them, deposits them with a trustee and against them issues its own long time bonds, which are marketed on the exchanges and through banks like government, railroad and other securities. They are largely held by the thrifty in all parts of Europe. In this way a lower rate of interest can be obtained than by any other method.

"Another means by which money is saved to the original borrower is the nominal expense of conducting the original cooperative banks. The village doctor or schoolmaster often conducts the 'bank' in his own house, attending there once or twice a week to take in and pay out money, a service for which he receives a trifling compensation. The loans are made by a committee.

"Short time loans—often made to tenants—on such security as can be given or upon no security except known competence and character. These loans are made only for specific purposes named in the application and can be used only for those purposes. They are for small sums and are usually payable at harvest time. The 'bank' is safe, for all members are responsible for payment of all loans.

"The question is whether we can do anything of this kind in California, or whether any modification of this plan can be devised to suit our conditions, and in particular can a world wide market be made for mortgage bonds issued upon the pledge of long time amortized loans made on farms, especially small farms.

Which Plan Do You Prefer?

"There are at present being considered two distinct rural credit systems, as follows:

"The plan of establishing a new system of rural cooperative banks, which in turn are to establish a system of central banks and these in turn are to establish a rural national bank with headquarters in Washington, D. C. These banks are to market land mortgage bonds that are to be issued against the mortgages taken on the lands of farmers. It is estimated that by this system long term mortgages repayable in annual installments can be provided at an interest to the borrower of about six per cent per annum.

"A system of credit associations (known as the Weinstock plan), formed of neighborhood farmers who would issue long term land mortgage bonds against mortgages on their land, but who would find a ready market for them through such existing local bank as might be chosen by the United States postal savings department as a depository for proposed term postal deposits which are to be used by such existing local bank for the purchase of such land mortgage bonds, repayable in small annual installments. It is estimated that by this second plan the interest chargeable to the farmer would be about four per cent per annum."

COTTON PRODUCTION AND DISTRIBUTION

The crop of 1918 was the fourth successive small crop produced both in this country and throughout the world. The world's total for these four crops, not including linters in the United States was 70,883,000 equivalent 500-pound net weight bales, which compares with 87,355,000 bales for the preceding four years. Notwithstanding this reduced production the carry-over at the end of the season in this country was the largest ever recorded. Two factors were mainly responsible for this condition—the actual quantity consumed in Europe was very much below normal, although there had never been such a scarcity of cotton goods since the period immediately following the Civil War, and the transportation facilities for exporting cotton had not yet become normal. Another factor entering into the situation was the inability on the part of Europe to purchase cotton freely because of unstable conditions in some of the countries and because of the extraordinarily high rates of exchange.

During the 12 month period ending July, 1919, 5,765,936 bales of cotton and 457,901 bales of linters, a total of 6,223,837 bales, was consumed. This was the smallest amount reported for any year since 1915, and compared with the total of 7,685,329 bales in 1918, a reduction of nearly a million and a half bales, about 700,000 of which are accounted for by the reduced consumption of linters, due to the cessation of hostilities in Europe. Of the cotton consumed during the year, 51,183 bales were Sea Island, 126,087 Egyptian, 33,803 Chinese, 9,128 Peruvian and 7,098 other foreign.

The estimated production of cotton seed from the crop of 1918 was 5,360,000 tons. Of this quantity, 4,478,508 tons were used in the manufacture of cottonseed products. The production of crude products during the season was as follows: Oil, 176,711,000 gallons, valued at $227,316,000; cake and meal, 2,170,000 tons, valued at $116,119,000 hulls, 1,137,000 tons, valued at $17,917,000, and linters valued at $22,228,000—a total value of $383,580,000. This is a remarkable illustration of the utilization of what was formerly considered a waste and in many instances a nuisance. During the 12 month period there were 23,827,978 gallons of cottonseed oil and 155,813 tons of cake and meal exported. These quantities compare with exports of 42,448,870 gallons of oil and 739,533 tons of cake and meal for the season of 1914-15.

Does moisture on the windshield bother you? Try this: One ounce of water, two ounces of glycerine, one dram of salt. Apply the solution to the glass with a piece of gauze. Use downward strokes.

FARMING OUTRUNS DICTIONARY

A great many terms in common use in agricultural discussions have never found a place in the dictionaries. So widely used and important a term as "vitamin" has not yet found its way into the principal unabridged dictionaries. For the public, therefore, there exists no approved spelling, no approved pronunciation, and no approved definition of the name of a thing that is vital to all living things. There are scores of terms, indispensable in agricultural writing or speaking, that have not been recognized by the lexicographers, and there are quite as many new usages of established words. "Blood line," a term commonly used in discussions of breeding, is not in the dictionaries. Nobody knows whether it is one word, two words, or a hyphenated word. "Overrun," a term widely used to express the thing that is practically the determining factor of profits in creamery establishments, is unknown in the dictionaries. "Standardbred," "trap nest," and any number of other commonly used terms, understood well enough by agriculturists, remain undefined for the accurate information of the general public.

The United States department of agriculture, through the joint efforts of the bureau of animal industry and the division of publications, has begun a movement to standardize the use of such terms, and about 30 of them are on the griddle now. Three points of view are taken—that of the field man who knows the common usage of the layman, that of the scientist who has the view point of the specialist, and the point of view that looks merely to the use of good English. Each word is submitted to the various classes of persons interested, together with the proposed usage and the authority or lack of authority for it. From the suggestions received in reply, the finally approved usage will be determined.

The first agricultural term to be acted upon in the manner described was "corn belt." That was considered more appropriate than corn-belt or cornbelt.

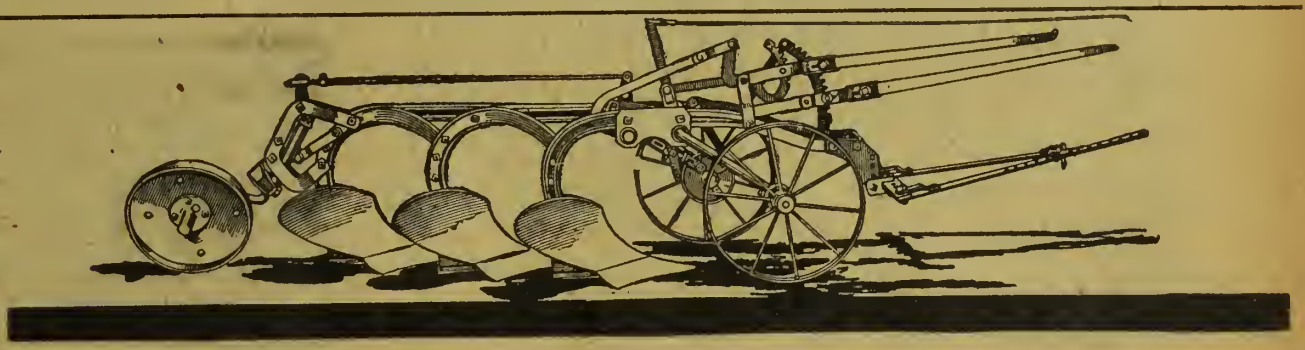
Forestry officials have determined that unseasoned or green posts, ties and poles in contact with the soil will last practically as long as seasoned wood.

In the case of railroad ties on the Northern Pacific Railway, Douglas fir ties which were seasoned lasted only 1.3 per cent longer than unseasoned ones.

It is said that the moisture content is the chief factor in determining the rate of decay. Granting the truth of this statement, it can be readily understood that a seasoned stick will very soon take up soil moisture until the stick contains as much moisture as the unseasoned stick, after which decay will proceed at the same rate in both.

All of the above applies only to wood which has not been treated with preservatives.

Oxnard, Ventura County, is organizing community centers.



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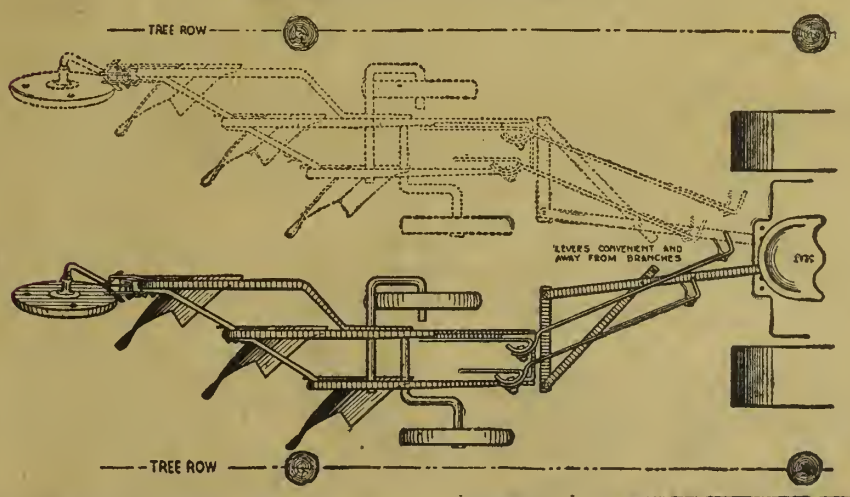

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Hereford Points and Pointers

By R. R. Miller of the American Hereford Breeders Association

HEREFORD Points and Pointers was started in the last issue of the Cultivator and owing to the length of the article was necessarily continued. It appeals to the Cultivator as having particular value at this time in giving information regarding this great breed.

The points made in that issue had to do with the success which has been attained by the breed both at shows and fairs and on the range. Resistance to tuberculosis, their great size when fully developed, unerring prepotency, early maturity, hardiness, combined with quick sale on every market, were fundamentals underlying the founding of pure bred Herefords.

Continuing, Mr. Miller's article:

Many have hesitated to engage in the pure bred cattle business because of lack of knowledge of the habits, the feeding, the judging and value of the cattle. These are the most important points to be mastered and it is not advisable for one to start in the business on a large scale unless an experienced man is engaged to manage the herd.

Probably the most satisfactory way for the inexperienced is to purchase a few bred cows and heifers and "grow up with them." Invaluable knowledge is gained in this manner and as the essentials of the business are mastered greater expansion can be made and more capital invested.

Most of our prominent Hereford breeders of the present day started in a small way with a few cows and grew into the business with the natural increase.

The American Hereford Cattle Breeders Association will at any time gladly assist or advise any one contemplating purchasing pure bred Herefords.

Most farmers and stock raisers who have had considerable experience with cattle or other stock can successfully begin the pure bred business on a much more extensive scale. The principles of the cattle business are more or less the same whether grade or pure bred and the progressive man or woman can quickly adapt himself or herself to the new conditions

Probably the greatest difficulty that confronts the beginner is the matter of breeding and pedigree. With the form of pedigree used by the Hereford breeders, there is nothing complicated about it and after careful study of the tabulated pedigrees and the stock paper reports of the shows and sales, the most prominent lines of breeding can be easily determined.

The question of whether to buy a bull and select a herd of females to suit him, or to select the females and later find a bull that will be "nick" well, has been a matter of considerable argument, but the most common practice has been to select the females first.

The first consideration in the selection of the females is the type, conformation and size.

In coloring the Hereford should be a medium red. Too dark a red is objectionable, as well as too pale a red. They should have a clear white head without any red about the eyes or cheeks. The top of the crest should be white and this may extend back to the top of the shoulders, but should not be carried farther back than the shoulders. The breast and throat should be white, although it is not objectionable if the white breast is broken by a collar of red. The legs may be white up to the knees, but a majority of the breeders do not care for such white above the knees. More or less white along the underlines is admissible, but it should not be carried t o high upon the flanks. The switch of the tail should always be white. White spots or markings other than these on the body are objectionable. The head should be broad and short, tapering neatly from the eyes to the nose and present a distinctly feminine appearance. The muzzle should be white, with a wide open nostril. The horns should be flat, of medium size, tapering neatly from the head to the point, curving outward, forward and downward. The eyes should be good size, clear and bright. Ears of medium size and well carried. The throat should be clean and free from meatiness or rolls. The neck should be attached neatly to the head and gradually swell to meet the shoulders. The shoulders should be neatly laid in, not open on top, nor should the shoulder blades project above the backbone. The shoulder points should be smooth and all over these parts should be found a good thick covering of flesh. The chest should be wide and deep, giving an abundance of room for the vital organs. The ribs should spring well from the backbone, giving a roundness and fullness to the body, as well as giving a broad appearance to the back. The crops should be wide and well filled, the back strong, straight and evenly covered, the loin wide and deep, the hips should be wide apart, but not rough, the rump smooth and carried to the tail head on a level with the back and free from any tendency to patchiness. The quarters should be full, wide and deep, the twist should be full and carried well down the hock. The underlines should be straight and even, legs should be short, straight and well placed and present a good sized bone. The tail should be well set and taper neatly downward and have a heavy bush at the end.

California Perfect Lady

A cross-bred heifer, bred, raised and shown by the University at the International. The Hereford bull always stamps the white face on his offspring. Most of the cattle of the ranges of the West carry the Hereford mark.

The matter of pedigree and bloodlines is a topic much discussed among breeders. In the first place, never buy a pure bred for pedigree alone. Insist first upon an individual which measures up to the above standard and then look to the pedigree. The cow herd should be of the same type and conformation as individuals and then when that requirement has been satisfied, endeavor as nearly as possible to obtain females of the same general bloodlines. If this plan is followed a uniform herd is obtained and uniformity is unquestionably of great value in the pure bred business. A cow herd established on such lines will produce calves of a more or less uniform type and will, therefore, command a higher price when sold because of that fact.

All of the prominent breeders of the various breeds of livestock have attained their success through their

breeding toward a definite type and continually endeavoring to perfect it.

The next consideration is in regard to the age of the cows or heifers purchased. Naturally the most desirable plan would be to purchase the tried and true producers, but breeders and improvers continually cull out their poorer cows and will not consider selling their good producers at any reasonable price. Practically the only way to secure that kind is to purchase whole herds outright or obtain them at dispersion sales.

For the beginner, it is hardly advisable to purchase cows over five or six years old. Bred heifers, young cows with calves at foot and rebred probably yield greater returns on the capital invested. Such a plan allows one an opportunity to study the type of calves produced and thus help in the selection of a herd bull to mate with the females.

The selection of a herd bull is one of the most important, if not the most important matter considered in the founding of a herd. Each cow influences only her own calf while the bull is represented in every calf of a small herd, both in the first generation and in succeeding generations through his daughters in the herd.

The bull should be as nearly as possible of the same type as the females and the general characteristics the same, except that the neck is thicker and arched and he should show strong masculine character in his head and general makeup.

Select a type as an ideal to begin with and insist upon your bull possessing that type. Greater variation can be permitted in the selection of females than in the case of a herd bull. The bull should be strongest in those parts where the females are weakest, so that their calves will not show the weaknesses of either.

The bull, like the female, must first of all be a real herd bull as an individual and at the same time care must be taken to obtain a good pedigree. If he is a good individual and has ancestry which have repeatedly produced good cattle, then the bull may be expected to sire the same good kind.

A good individual without a good pedigree may reproduce as good or better than himself, but one cannot depend upon him to do this and nothing can be foreseen until his calves are dropped. There is where the true value of a pedigree is found. One can reasonably expect a well bred bull to reproduce a type similar to himself and a bull of indiscriminate breeding to produce offspring of the same nature.

It has been found by experience that certain strains "nick" well with others and where such has been found to be the case, advantage may be taken of such knowledge and a successful outcome expected.

(Conclud d Next Week.)

60-DAY OFFER
Extraordinary On Tulare County Land

Irrigated Land Ready for Summer Crops in the Rich County of Tulare, at $125 to $150 per Acre and On Easy Terms

3000 acres in 40 and 80 acre tracts, with water shallow lift, electric pumping plants, reservoirs, small buildings and sheds for stock; all fenced; near State Highway, schools and church. Some plowed and ready for summer crops. Between Pixley, on S. P. R. R., and Spa, on the Santa Fe R. R.

Suitable for rice, cotton, barley, wheat, sugar beets, broomcorn, peaches, pears, prunes, apricots, olives, figs, raisin grapes, almonds, walnuts, persimmons, alfalfa, dairy or hogs. Ducks thrive on the reservoirs; good range for turkeys and chickens.

For 60 days price $125 to $150 per acre. No higher. Terms one-fifth cash, balance on or before five years at 6 per cent interest on deferred payments.

This is your opportunity to purchase choice Tulare County land under irrigation that will pay for itself from the beginning. If interested, this offer should be investigated immediately.

J. M. DAVIS

Pixley California

Live Stock News Notes

The Diamond Bar Ranch, Spadra, purchased the famous Duroc-Jersey sow, Queen of Pathfinders, grand champion at the last National Swine Show, in the Putnam sale for $10,600. By this purchase California acquires one of the most famous sows the breed has produced and the influence of this sow on the development of the breed in this state will be difficult to estimate. Queen of Pathfinders is a daughter of the breed's great sire, Pathfinder, and she is the dam of Pathmaster, claimed to be the longest and tallest pig of the breed. Besides the sow mentioned, Manager Gatton has selected over $50,000 worth of popularly bred Durocs.

J. E. Thorp of Lockeford, reports the death of his herd boar, Freddy You'll Do. This boar was prominent at the 1919 Duroc shows and his death is a distinct loss to the Thorp herd.

A number of young draft stallions will be sold at auction at the university farm during Livestock Week. M. Bassett of Hanford will consign a son of Ithos, champion Percheron for several years at the state fair. Henry Wheatley of Napa consigns one by Desford Banker and the university will also sell a two year old by the same sire.

Professor Gordon H. True, head of the animal husbandry division of the University of California, has been confined to his home by illness. It is expected that True will be able to take a leading part in the activities of Livestock Week.

Chas. M. Talmadge of Washington, well known to the livestock interests of the West as a breeder of Berkshires, attended the recent Berkshire sales.

Foothills Corporal, grand champion milking Shorthorn bull at the 1919 Pacific International, Portland, has been purchased by Thos. Harrison of Santa Rosa from W. B. Ayer of Portland, Oregon.

J. A. Bunting, proprietor of the Mission herd of Herefords, Mission San Jose, has just purchased the 700 acre ranch that he has had under lease for a number of years. Mr. Bunting expects to enlarge his herd as rapidly as possible. He is also establishing a flock of Hampshire sheep.

Shorthorn Steers

The Shorthorn steer carlots at the International, Chicago, sold for $25.69 per cwt., the highest average of any breed.

Thos. Johnson, Columbus, O., sold 100 Shorthorn steers last October at the farm for $19 per cwt. They weighed 1,592 lbs. making a gain of 400 lbs. in five months.

It pays to grow Shorthorn beef.

American Shorthorn Breeders Association

Chicago, Ill., 13 Dexter Park Ave.

Brighton Farm Herds

Registered Shorthorns

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Berkshires---Both Sexes

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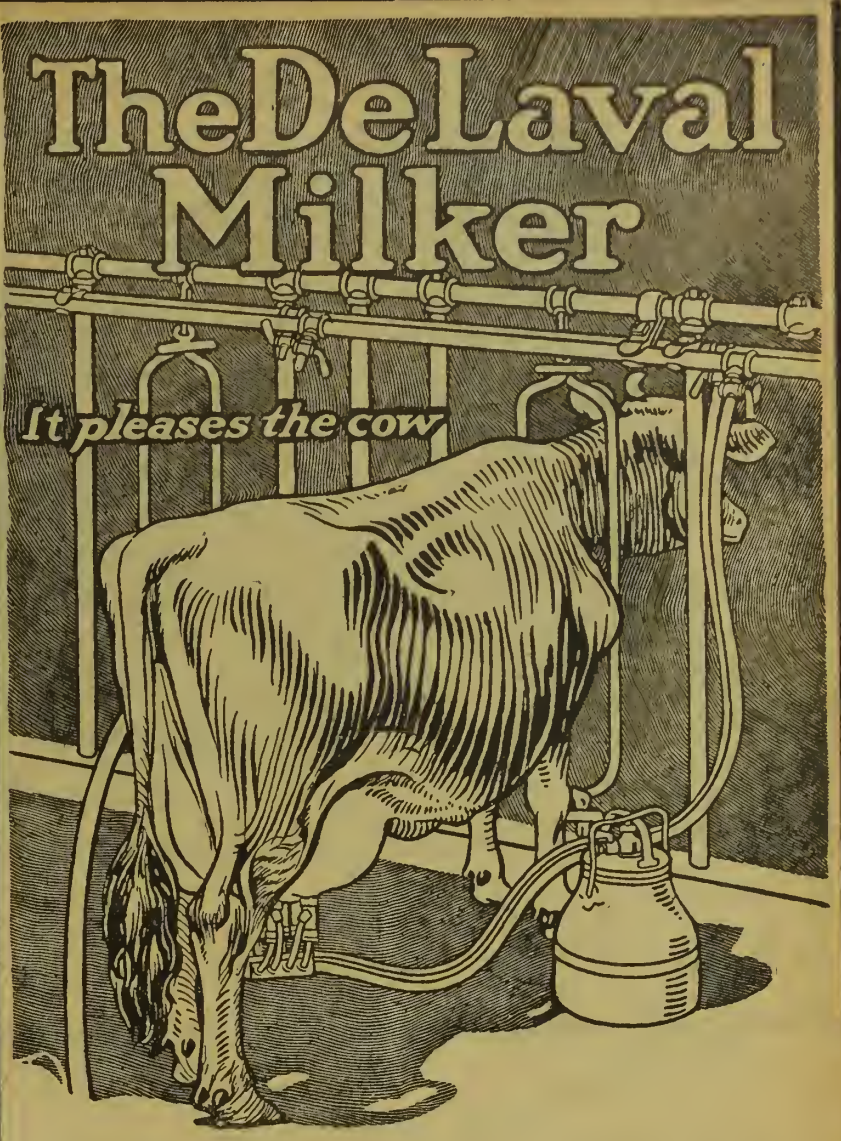

The Milker You Have Hoped For

The De Laval Company now offers to the world's dairymen a perfected and proved cow milker, worthy of the name "De Laval."

The thousands of users of De Laval Separators during the past forty years, and also their neighbors, will appreciate that this means a great deal more than a simple announcement.

The De Laval Milker comes to your aid with the Company's full knowledge that you will expect more of the De Laval than of any other milker. For three years it has been in daily use on several thousand cows of various breeds, under all of the varying conditions to which a milker can be subjected. The universal satisfaction it has given confirms the Company's conviction that it will add a new impetus to the dairy industry, and justifies your unqualified confidence in this latest De Laval production.

The De Laval Milker is distinctly different, possessing many new and exclusive features that are of inestimable value to the careful dairyman and owner of valuable cows. Its action is positive and uniform from day to day, and it is faster, more reliable and more sanitary than any other method of milking.

An additional insurance of lasting satisfaction to users of the De Laval Milker lies in the De Laval Company's well-known facilities and reputation for service.

It pleases the cow. It will, therefore, please you.

Write to nearest De Laval office for Milker Catalog, stating number of cows being milked

The De Laval Separator Co.

165 Broadway NEW YORK | 29 East Madison Street CHICAGO | 61 Beale Street SAN FRANCISCO

ADDED POWER ◇ SAME WEIGHT

The Cletrac Way Makes Farming Pay

The Cletrac's Day Is Here

The tide has turned. The *big* demand today is for the small tank-type tractor—for the Cletrac—that goes further than the simple job of plowing and takes the place of horses over plowed ground and seedbed, working faster and at lower cost.

It wanted only the marvelous success of the Cletrac in 1919 to make the bulk of farmers *everywhere* put their "OK" on the small tank-type. And now because the Cletrac *is* the "fashion"—because a greatly increased output, means a lower manufacturing cost—*we can offer a better Cletrac and still reduce the cost to you.*

With more power and improved construction, 1920 will prove to any farmer, anywhere, that Cletrac farming is *profitable* farming.

The Cletrac is the right size and type for almost any farm, the one tractor adapted to all conditions. It has proved its ability to stand up to its work. And now that the public has recognized its worth, it is out in front to stay.

The quick popularity of the Cletrac is not an accident. Engineers and army experts long ago saw the great advantages of the endless track as a device for turning motor power into drawbar pull. The farming public only waited to see the same principle built into a *serviceable* small tractor. The Cletrac proved to be that tractor. It made lifelong friends from the start.

One Cletrac on the small farm—a "fleet" of them on the big ranch—makes an ideal all-year power plant. The Cletrac is light, but powerful, with plenty of pull for heavy plowing and work in the hills. And it rides the low spots or plowed ground without miring, but still pulls a profitable load.

Turns short and works the corners clean. Compact and low-set, ideal for orchard work. Travels faster and does more thorough plowing. Burns "gas", kerosene or distillate. Does *more kinds of work, more days in the year,* at lower cost. You can't go wrong on it

The Cleveland Tractor Co.
19077 Euclid Avenue
Cleveland Ohio

Largest Producers of Tank-type Tractors in the World.

"Selecting Your Tractor" is a book you should have right away. The Cletrac dealer has one for you, or we will gladly send one free.

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Name
Post Office State
R.F.D No Size of farm Acres
CLEVELAND TRACTOR CO.
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☐ Send me your booklet "Selecting Your Tractor"

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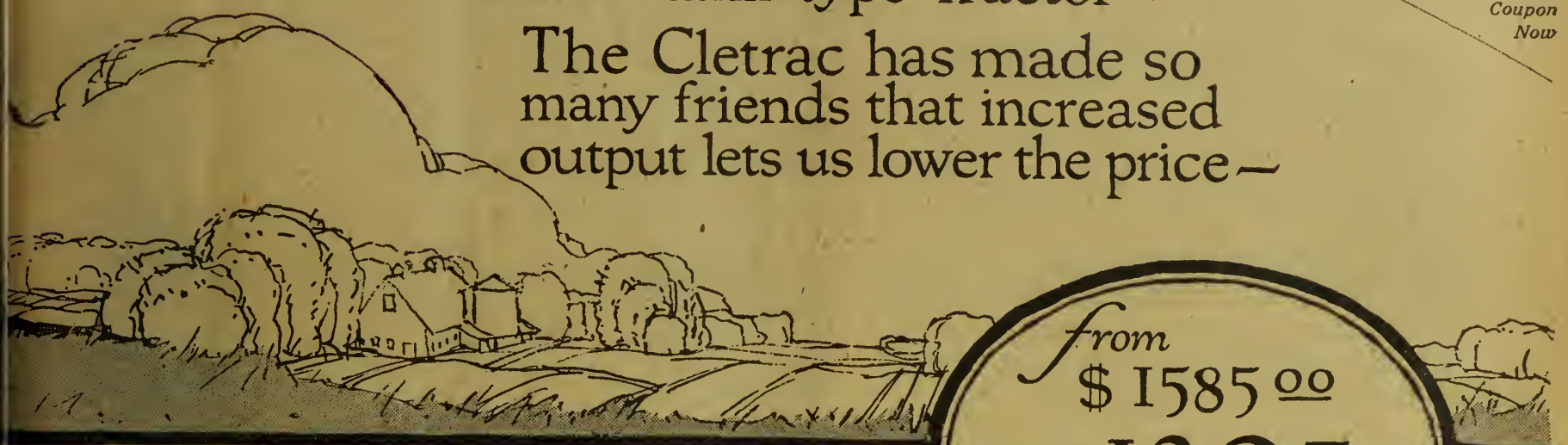
Mail this Coupon Now

The Tide has turned to the Small Tank-type Tractor—

The Cletrac has made so many friends that increased output lets us lower the price—



LOWER PRICE

from $1585.00 *to* $1395 *f.o.b. Cleveland*

In the improved Cletrac you get all the little refinements an honest builder makes with each year of brass-tack experience. And you get certain big features that make it a better performer than ever.

A bigger motor and the added strength to handle the increased power are furnished with no extra weight and no more friction, saving you *all* the power we've added.

The new 8-inch track—one-third wider—means a lighter tread and stronger grip on the ground—makes the Cletrac that much more sure-footed and adds to the life of the tractor itself.

The Cletrac steering device, an exclusive feature, insures positive power to *both* tracks *all* the time and gives full power on the turns, as well as straightaway.

Our new water clarifier takes out all the dust that would grind your pistons and overheat your motor—moistens the air and makes the engine run as smooth at noon as your auto on a dewy night.

Here is a tractor, always a vote-getter, now more powerful, now better built, and costing you less. No wonder the best tractor dealer in your community wants to handle it. A tractor that makes friends for itself makes satisfied customers for him.

Right through the year—hauling manure in the Winter—plowing, harrowing and seeding in the Spring—harvesting, threshing and silo-filling—road-building, ditching and grading—shelling corn and sawing wood—here's a tractor you can depend upon.

It's a tractor that has all-year service built into it, one that cuts farming costs by handling *all* jobs well, not just a few. And over 1200 distributors and dealers, with repair stocks near you, are backing it up to make every Cletrac owner a booster.

There's a good dealer close by who will gladly show you a Cletrac. Talk to him now. Get ready to start Cletrac farming this Spring. Line up with a majority and make power-farming really worth while.

More Kinds of Work More Days in the Year

Send in the coupon, or see the Cletrac dealer at once.
Don't wait until Spring work starts—get ready now.

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New York
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Chicago
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TANK-TYPE TRACTOR

The Guaranty Sale

The Annual Holstein Classic will be held at

Sacramento, on Wednesday, March 25, 1920

Twenty California breeders, three Washington breeders, and one Nevada breeder will send to this sale positively the greatest lot of registered Holstein females ever assembled in a western sale.

There are ten cows with records from 30 to over 35 pounds butter in 7 days, a very large number with records from 25 to 29 pounds, many of which have completed yearly records or are now on yearly test.

No Holstein sale catalog ever before issued in the west has shown such an imposing list of reference sires, the bulls to which the sale females are bred.

The Committee of Selection has secured what we believe to be the ten best bulls available for this sale, and the list will surely interest the man looking for a high class herd sire.

Detailed announcements of the offerings will appear each week up to sale time. Watch for the announcements, and write for a catalog now.

Management

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres., C. L. Hughes, Sales Manager, Sacramento, California

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare

Prince Walker Cornucopia

The Highest Record Son of Prince Gelsche Walker

His dam ALBA SADIE CORNUCOPIA CREETA has just completed official records of 36.26 pounds butter from 516.7 pounds milk in seven days. Her previous records were as follows:

At seven years—
Milk 338 days 13,849.40
Butter 866.23
At six years—
Butter seven days 24.13
Milk 532.40
At five years—
Butter seven days 23.85

She is a daughter of Sir Sadie Cornucopia, son of the first 30 pound cow, Sadie Vale Concordia.

Over 60 of our best females are bred to PRINCE WALKER CORNUCOPIA, and he will be given the fullest opportunity in this herd. Put one of his young sons at the head of your herd.

Santa Anita Rancho

Anoakia Breeding Farm

Santa Anita, California

Anita M. Baldwin, Owner W. H. Taylor, Supt.

Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

BURR FARM

Box 220, Route 2. East 26th and Downey Road, Los Angeles

If It's Worth While

having stock on the farm it's worth while having pure breds. Our business is breeding Holsteins and big type Poland Chinas. We will be pleased to furnish you foundation animals of proven quality. Write us.

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CLARK, HUNTER & CLARK,

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915 I Street MODESTO, CALIF.

REGISTERED HOG SALES A SPECIALTY

THE HEREFORD SALE NEXT WEEK

The fourth public sale of the Pacific Coast Hereford Cattle Breeders Association which will be held at the university farm, Davis, next Tuesday will consist of 58 head, including 26 females and 32 bulls. The offering has been selected from eight of the leading herds owned by members of the association.

J. H. Cazier and Sons of Wells, Nevada, are sending six cows, three of which will sell with bull calves at foot and four will sell carrying the service of Beau Blanchard 76th. Beau Blanchard 76th is a son of Beau Blanchard rated by all as one of the greatest sires in the Hereford breed. Messrs. Cazier purchased this bull last year at a cost of $10,000. Two of the cows are bred to Harris Standard 2d and Debonair 64th, the sires of the three calves that sell with their dam. The Cazier Herefords are regarded very highly by Western cattlemen and the fact that the blood of Beau Blanchard is available in their consignment will doubtless be an attraction of the sale.

The University of Nevada has entered four head, two bulls and two females. Madera Patricia is one of the most attractively bred cows in the sale, being sired by a son of Paragon 12th and out of a daughter of old Lord Earling. The two bulls are sons of the university herd bull, Beau Perfection 34th, a grand son of Perfection, the sire of Perfection Fairfax. The cows sell bred to Beau Perfection 34th.

The University of California sells a two year old daughter of Prince Lad 11th, the sire of so many of the famous steers developed by that institution.

W. D. Duke, formerly of Likely, but now located at Gazelle, is one of the heaviest contributors.

Duke sells 14 head, six females and eight bulls. The entire lot have been bred by Duke from the blood lines developed by Governor Sparks. All the cows sell with calves at foot sired by Panama 33d, a son of Cuba Panama, the bull that has made a splendid record in the Cook herd in Montana, and are bred to Mystic Debonair. The eight bulls are all sired by Panama 33d.

John A. Bunting, Mission San Jose, has but one entry, Mission Prince, first prize senior calf at the last state fair. He is a son of Hopeful Prince 2d, a bull bred and used by the university and sold in the sale a year ago to the university of Idaho.

The W. J. Bemmerly consignment consists of six two year old heifers and three bulls. Two of the heifers are daughters of Mr. Perfection and four are by New Era 2nd, a splendid breeding son of Debonair. All of the females carry the service of Bonnie Brae 96th, by Bonnie Brae 3d. Two bulls are by New Era 2d and the third is a son of Bonnie Brae 96th.

Veramont herd, owned by H. M. Barngrover, is represented by an especially well bred lot, consisting of two females and six bulls. The two females are full sisters sired by Patrician 5th, a grandson of Paragon 12th, and one is in calf to Don Woodford 4th, a grand son of Woodford. Two of the bulls are by Edgewood, sired by Mischief Mixer, the $7,300 son of Beau Mischief. Beau Mischief is the bull that was largely responsible for the record breaking sale of Mousel Brothers. One bull is by Prince Lad 11th, referred to above, two are sons of Patrician 5th, and one is by Sonoma.

No California herd has more Gudgell and Simpson breeding than will be found in the Rule herd and the 15 head entered by that herd are highly desirable. The three females will sell with calves at foot. Two are daughters of Simoon 5th, and one is a grand daughter of Beau Dandy and two are grand daughters of Beau Picture. In the Mousel sale daughters of Beau Dandy averaged $4,467 and daughters of Beau Picture averaged $2,262. Eight of the bulls are sons of Sonoma, two are out of dams by Bright Stanway, two out of Beau Picture dams; two out of Beau President dams, one out

The Consignment sale of the California Poland China Breeders Association advertised for Feb. 26, Stockmen's Week at Davis, Cal., has been postponed.

Moving pictures of the National Swine Show (1919) will be shown in the Auditorium at University Farm Wednesday evening, Feb. 25th. All Stockmen invited.

GUERNSEYS

$546 was the Average Price paid for all Guernseys sold at public auction in 1919. This figure indicates the buyers' high estimation of the value of the breed. Let us tell you WHY Guernseys lead in popular favor.

QUALITY ECONOMY QUANTITY

THE AMERICAN GUERNSEY CATTLE CLUB
Box C-44, Peterboro, N. H.

JERSEYS

3 BULLS	No. 1 born Mar. 1, 1919. Sire, Our Noble Mayflair Hero	3 BULLS
No. 2 born Oct 1, 1919. Sire Our Kathie's Eminent.	All from high record cows in Arden herd	No. 3 born Dec. 20, 1918. Sire same as No. 2

ARDEN DAIRY CERTIFIED, EL MONTE, CALIF.

Westrobac

Los Angeles, Calif. 618 So. Spring St.

San Francisco, Calif. 440-442 Sansome St.

The Duroc-Jersey Sale of the Season

Dr. Belknap of San Jose, Cal., will on

MARCH 10

beginning at 12.30 o'clock

sell one of the finest breeders herds on the Coast. Orions, Great Wonder I Am, Colonels, Pathfinders, etc. Some of them mammoth in size. Great boar pigs and the herd Orion boar, a crackerjack. A surprise is in wait for the Duroc fanciers. Catalog will be out in few days; send for your copy.

Auctioneer, Ord L. Leachman

Bruce S. Bennett, Field man for Cal. Cultivator
Ted Cameron, Field man for Pac. Rural Press
T. H. Moore, Field man for Rural World

of a Domino dam and one out of a Beau Dandy dam.

The sale is to be managed by C. L. Hughes of the California Breeders Sales and Pedigree Company and Col. Ben A. Rhoades of Los Angeles will be the auctioneer.

DUROCS SELL WELL AT TULARE

The sale of Duroc-Jerseys held in Tulare, February 12, by the Tulare County Breeders Association was the most successful of any yet held by that association.

Sixty-two animals sold for a total of $7,195 or an average of $116, the better animals selling for very satisfactory prices. The top of the sale was an open March gilt by Brookwater Regulator, dam Miss You'll Do, consigned by Joe N. Chinowth and purchased by R. E. Chinowth, Visalia, for $1,125. She showed remarkable development and is probably one of the best spring gilts in the state.

C. C. Ellis, Exeter, who is establishing a herd secured from the R. C. Sturgeon consignment a Critic B sow for $550 and two from the Conejo Ranch for $385 each.

Greenwood Farms, Live Oak, consigned two bred gilts to the sale bred to Johnson's Defender Jr, one going to Winsor Ranch, Bonita, for $150, the other to J. Kinkaid, Bakersfield, for $230. Geo. C. Aydlott, Hanford, secured two from the Conejo Ranch consignment at $200 each. Post Card Ranch, Corcoran, was the most liberal buyer, securing about one-half of the offering. Geo. W. Bell Tulare, was the auctioneer, and the 62 head were sold in less than three hours.

Following is a report of animals selling for $100 or more.

2, L. P. Philly, Tipton, $100.
9, Allen Thompson, Tulare, $300.
10, J. Kinkaid, Bakersfield, $155.
11, R. E. Clifford, Strathmore, $140.
17, Greenwood Farms, Live Oak, $100.
30, C. C. Ellis, Exeter, $100.
34, Winsor Ranch, Bonita, $110.
36, Winsor Ranch, $150.
37, J. Kinkaid, Bakersfield, $230.
40, Geo. C. Aydlott, Hanford, $200.
41, C. C. Ellis, $385.
42, C. C. Ellis, $385.
43, Geo. C. Aydlott, $200.
51, C. C. Ellis, $550.
53, Post Cart Ranch, Corcoran, $140.
54, R. E. Chinowth, Visalia, $110.
57, W. E. Hughes, Hanford, $285.
63, R. E. Chinowth, $1125.

The Kings County Poland China Breeders Association will hold their ninth semi-annual sale in Hanford, Saturday, February 28. These sales have been the means of making Kings County the leading Poland China county of the state as well as adding new breeders to the ranks. They have scattered Polands from one end of the state to the other and there is scarcely a herd in which you will not find animals that were sold in one of these sales.

Selections from the county's leading herds will be found in this sale, many of which will as in the past go to found new herds.

The Henderson Company of Sacramento, has sold Manteca Farm, commonly known as the Henderson Ranch, to G. Ellinwood Finnell and Russell Richardson of Sacramento. The ranch is near Elliott, San Joaquin County, and consists of 600 acres. The new owners plan to establish a large and select herd of Hereford cattle and to maintain a large herd of Duroc-Jersey swine. The ranch which has been conducted as a Holstein breeding establishment is well equipped for handling all classes of livestock.

Moving pictures of the National Swine Show, 1919, will be shown in the auditorium of the University Farm, Wednesday evening, February 25. Swine men are urging a very general attendance at this exhibit.

BEEMAN ONE HORSE TRACTOR —replaces the horse

We Have It On Display

THE Beeman One Horse Tractor, which you have seen advertised in the Country Gentleman, Farm and Fireside and other magazines. It solves power and labor troubles on large and small farms, does any farm work ordinarily done by one horse, mule or by hand. It will plow, harrow, seed, plant, cultivate, mow hay, mow lawns, haul loads.

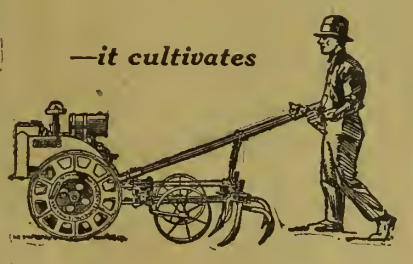
It is also a self-propelling 4-H.P. gas engine for belt work. Operates the churn, feed grinder, cream separator, pump jack, washing machine, etc

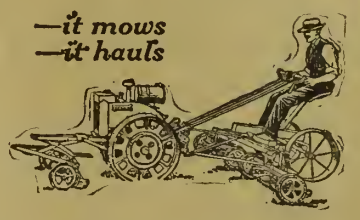
It's Dependable and Economical

It's always ready—any time of day or night—for any job anywhere you want it done. It steps right off and starts to work. It doesn't waste time resting or cooling off. It works all day on 2 gallons of gasoline and one quart of oil. You don't have to feed it or take care of it when it's not working.

It enables the farmer with a large tractor to completely motorize his farm—it does the work that he now does with horses or by hand.

To the truck gardener, fruit grower, flower raiser, suburbanite and others who cannot use a large tractor it brings the more efficient, reliable and economical motor power method—it means independence from hired outfits, drudgery and labor troubles. It is useful the year 'round on all kinds of farms. It is the original one-horse tractor—fully developed and proven by years of service on thousands of farms. Come and see for yourself how efficiently it works.





Model G, the Special California Type Beeman

Is Built Especially to Meet California Conditions

It has 20% more power and 50% greater traction than the previous model.

Motors Equipment & Tractor Co., 1310 South Grand Ave., LOS ANGELES, CALIF.

H. V. Carter Motor Co., 724 Van Ness Ave., SAN FRANCISCO, CALIF.

CUT THIS OUT AND SAVE

THE DIENER TOMATO

(*Blight Resisting*)

Awarded Gold Medal at the California Industries and Land Show, Oct. 5, 1919.

Nine Tomatoes in One Cluster--All Ripe. Weight, 7 Pounds

The largest and most desirable tomato ever created. Unexcelled for table use, for canning, for tomato sauce, and for dehydration.

30-40 tons of ripe fruit of remarkably uniform size, produced to the acre.

The Diener Tomato plant is also blight resisting. Thousands of acres of tomatoes have been ruined in the last few years by blight; but this tomato has been grown side by side with such varieties without being affected by blight.

The fruit has reached a size of three pounds, but the average is a one-pound fruit, unusually smooth. The flesh is more solid than of any other tomato known, making this variety so valuable for dehydrating purposes. This tomato is of a deep red color and very attractive to the eye.

The Diener Tomato is specially useful in many localities for the fact that, after being properly started, it is practically drought resisting.

The Diener Tomato is an excellent shipping variety, ripe fruit having been successfully shipped from here to New York.

Price of Diener Tomato Seed, 50c Package. Per Acre Package, $1.50

Diener's Gladioli are the best and finest in the world.

(AWARDED GRAND PRIZE AT P. I. E.)

They are equal in beauty to the orchid; every shade of color has been attained and prices are now within the reach of everybody.

DIENER'S RUFFLED MONSTER PETUNIAS

have created a sensation wherever grown or exhibited. As they are continually flowering all summer there is hardly anything giving flower-lovers more satisfaction. Seed comes in separate colors—red, pink, white, purple, flesh—pink, frilled, white frilled, variegated and mixed colors. Price, per package **50c**

OUR CATALOGUE showing natural colored plates of Gladiolus and Petunias will be sent upon receipt of 10c, which will be deducted if order follows.

RICHARD DIENER CO., Inc.

KENTFIELD, MARIN COUNTY, CALIFORNIA

CUT THIS OUT AND SAVE

McCune's Quality Herd

of BIG TYPE POLAND CHINAS

attained their prominence only by constructive breeding and careful selection as to type, size and quality. This should be the deciding factor in seeing that your next Poland China comes from this herd.

H. D. McCUNE, Lemoore, Calif.

BERMA RANCH

BIG TYPE POLAND CHINAS

You have size and quality in mind when you think of Berma Poland Chinas.

C. E. DACK R. H. Box 196 Fresno, Cal.

At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

Notes of the Cattlemen's Association

The fourth week of the membership drive shows no flagging of interest among the cattlemen. Meetings held three and four weeks ago are still producing results in the shape of signed applications for membership, renewals of dues and letters of inquiry.

There are two misapprehensions in the minds of some stockmen that the association is anxious to clear up.

First, the California Cattlemen's Association is not a price fixing organization and membership in the association does not give the association any legal control over the members cattle. The association does aim to help its members to market their stock to the best advantage by getting buyers to go to auction sales, by shipping cattle to outside markets during the glut season and by providing members with information on market, feed and railroad conditions. Members, however, are not bound in any way to follow the association's advice or be guided by its information.

Second, the California Cattlemen's Association has no official connection with the state cattle protection board though working in complete harmony and cooperation with it. Money paid to the state board for brand recordation or renewal does not go to the California Cattlemen's Association and a payment of that kind does not make anyone a member of the cattlemen's association. Some cattlemen have sent their brand payments to the association in the belief that this amounted to paying the association's dues. In every case this money has been forwarded to the state board.

* * *

California breeders of pure cattle strains are preparing to go into world markets with their products. Backed by the California Cattlemen's Association an intensive campaign will be launched to establish more pure bred herds through this state to meet the rapidly growing demand in Australia, South America, the Hawaiian Islands and the Orient.

"California at present scarcely can meet the demand in this state for good sires, and unless we have more herds at once we must stand aside and see pure bred cattle from the East go through our ports to the other countries bordering the Pacific," said C. N. Hawkins, president of the California Shorthorn Breeders Association, in an interview. "It is a pity that when Californians call upon us for sires we must often go East to get them. Here is a tremendous market at our doors. We have a state wonderfully endowed by nature for the raising of pure bred cattle. Almost every farmer could handle a small herd. With hundreds of small herds through the state California soon could capture the foreign trade and eventually might even supply the East with the best of blood strains.

"It is time that we seized this opportunity. Every farmer in California should be told, through a wide educational movement, how he can profit by establishing a herd.

"The Stockmen's Week at the university farm seems a good time to launch this movement. At that time the cattlemen of six counties affiliated with the California Cattlemen's Association will hold meetings at Davis and we hope then to get from those meetings an expression of opinion on the best means to go about spreading the gospel of pure breeding and capturing the tremendous markets that await us."

The six counties meetings referred to by Mr. Hawkins will be held on the same days as the Hereford and Shorthorn sales. Yolo, Sutter and Colusa County cattlemen will meet Tuesday, February 24, while Solano, Sacramento and Napa County cattlemen will meet Wednesday, February 25. The membership campaign of the California Cattlemen's Association will be given a strong impetus at that time as many of the members are planning to bring with them neighbors who have not yet joined the association. Cooperation between the cattlemen of adjoining counties will be discussed by men prominent in the cattle industry.

* * *

David J. Stollery, secretary of the California Cattlemen's Association, spoke before the Meat Packers Institute last Tuesday afternoon in San Francisco. Mr. Stollery laid stress upon the auction sales of prime cattle to be conducted by the association in cooperation with the county farm bureaus and suggested that if the packers desired to win the confidence of the stock producers they could go a long way in that direction by having their buyers at those sales. Mr. Stollery also suggested the formation of a local committee of packers to consult with the cattlemen on problems affecting both. A joint campaign to induce the public to "eat meat intelligently" also was touched upon by Mr. Stollery. The packers in the regional conference were not empowered to act upon these suggestions but it was indicated that steps would be taken toward favorable action.

* * *

The meeting scheduled for March 13 at Livermore has been postponed until May 1 as that time was best suited to the needs of the Alameda County cattlemen. A meeting at Hanford has been arranged for March 13 to replace the Livermore meeting in the association's schedule.

* * *

President Fred H. Bixby has been in Southern California making arrangements for the semi-annual convention of the association to be held at Los Angeles some time in April.

The stockmen south of the Tehachapi are on the job and when the convention opens there will be no lack of attendance or interest.

THE TULARE POLAND CHINA SALE

The second sale of the Tulare County Poland China Breeders Association was held in Tulare, February 6. The top of the sale was the bred gilt King's Quality by Kansas King and bred to The Californian. She was consigned by A. J. Elliott and was sold to R. J. Soulz, Tulare, for $400.

Fortune Maid by Story's A. Wonder from the consignment of Hugh C. Shinn went to V. Dubel for $365.

Stream Line Sallie and litter sister brought $320 each, H. D. McCune, Lemoore and Fred D. Ross, Hanford, being the purchasers. Among the visiting breeders were A. D. McCarty of McCarty and Starkweather, Modesto; Les McCracken, Ripon; Walter C. Ficklin, Fresno; A. J. Van Cleef and W. L. Choisser, Riverdale; H. D. McCune, Lemoore; W. L. Haag & Son, Wm. Bernstein, M. and A. L. Bassett, Fred D. Ross, Hanford, and Thos. Caesar Reedley. Geo. W. Bell, Tulare, was the auctioneer. The following sold for $100 or more:

1. V. Dubel, Three Rivers, $365.
2. M. and A. L. Bassett, Hanford, $240.
3. H. D. McCune, Lemoore, $320.
4. F. D. Ross, Hanford, $320.
5. Z. M. Dickey, Dinuba, $160.
6. R. F. Guerin, Tulare, $175.
7. B. S. Cole, Hanford, $145.
8. Thos. Caesar & Son, Reedley, $120.
9. R. S. Smith, Delano, $100.
10. C. Sunkel, Tulare, $190.
11. R. J. Soulz, Tulare, $400.
12. W. L. Haag and Son, Hanford, $120.
13. R. J. Soulz, $100.
14. R. S. Smith, $100.
15. B. S. Cole, $150.
16. R. J. Soulz, $100.
18. R. S. Smith, $100.
19. R. J. Soulz, $115.
26. Wm. Bernstein, Hanford, $100.
30. E. H. Futrell, Terra Bella, $100.
34. R. J. Soulz, $125.
46. W. Polly, Tulare, $150.
56. Wm. Bernstein, $100.

The country's biggest rancher—what he thinks about the packers

Robert J. Kleburg is manager of the "Million Acre Ranch" in Texas. He keeps about 40,000 breeding cattle. The following is from his remarks made recently before a committee:

"Their (the packers') business prospers most when they have an ample and regular supply of live stock from which to draw.

"It therefore follows, as a matter of course, that it is to the interests of the packers to foster, not to hamper, live stock production. In order to do this they must pay the producer of live stock a fair price for his products, so that he, the producer, may be enabled to stay in business.

"I therefore contend and believe that the producer of live stock who conducts his business properly has nothing whatever to fear from the packers. He needs the packers to prepare his product for the market and to distribute it.

"Without the aid of the packers the production of live stock could not exist as an industry.

"I can well remember when there was no real market for live stock in the part of the country in which I lived—southwest Texas.

"In those days we drove the steer to the butcher's pen. The butcher would slaughter him, throw away the head, horns, hoofs and other offal, and give the producer credit for so much meat at his shop. All of this waste is now saved and marketed. * * * *

"I believe that when a business is as big as the packers' business, that business has to be conducted properly and on business lines and on principles of fairness to the public.

"I do not believe they can afford in their own interests to conduct their business in such a way that it injures the great mass of people with whom they do business. * * * *

"Nor do I believe that the packer can control the law of supply and demand."

Swift & Company, U. S. A.

Founded 1868

A nation-wide organization owned by more than 30,000 shareholders

STOCKMEN'S WEEK

Stockmen's Week at University Farm, Davis, February 24-27.

At a meeting of the representatives of the California Cattlemen's Association, the California Swine Breeders Association and the various pure bred livestock associations on April 26, 1919, it was voted that plans be developed for a stockmens' week. These plans have developed into the following program:

Tuesday, February 24

9:30—Greetings, Dean Van Norman; opening address, Professor Gordon H. True. Development of Calf Clubs in California. Discussion. Range Classification, T. N. Lorenzen. Business meeting, Pacific Coast Hereford Cattle Breeders Association. Meeting Yolo, Sutter, Colusa Counties Association, C. C. A. Community Range Management, T. J. Jones. The Present Status of the Livestock Industry, Dean Hunt. Pacific Coast Hereford Cattle Breeders consignment sale. Draft colt consignment sale.

Wednesday, February 25

9:30—Address, F. H. Bixby, president California Cattlemen's Association. Ways and Means of Range Development, H. H. Simpson. Organization meeting, Aberdeen-Angus Association. Meeting Solano, Sacramento, Napa County Association, C. C. A. How Ranch Management is Reflected in Range Management, E. E. Clark. Supplemental Feeding of Range Cattle, Geo. H. Wilson. Address, David P. Barrows. California Shorthorn Breeders Association consignment sale.

Thursday, February 26

9:00—Annual business meeting, California Swine Breeders Association. Marketing, Roy Filcher. Starting in the Hog Business, J. Francis O'Connor. Buying and Selling Pure Breds. Feeding, Professor J. I. Thompson. Killing and Curing Pork on the Farm, C. E. Schmidt. Meeting California Poland China Breeders Association. California Poland China Breeders' consignment sale. Motion picture film, "Hearts and Jerseys." Address, by Guy H. Miller, American Jersey Cattle Club.

Friday, February 27

9:30—Value of Cow Testing Association to the Farmer and the Community, J. R. Gallagher. Address, How to Get the Most Out of Cow Testing Associations, Noel Negley. The Present Dairy Situation, S. H. Greene. What Cooperation Means to the Dairy Farmer, John S. Watson, Dixon. The Proposed California State Dairy Cow Competition, 1920-22, Professor F. W. Woll. Showing Representatives of Breeds in University Dairy Herd, C. V. Castle. The Bull at the Head of the Dairy Herd, Professor C. W. Rubel. Auction sale of pure bred Jersey, Guernsey, Holstein and Ayrshire bulls from cows with over 400 pounds of butterfat as year's record. Meeting of California State Jersey Breeders Association.

A GREAT THING IS CHARITY

The following, which appeared in a recent issue of the Berkshire World under the name of W. S. Guilford, is worth passing on to our readers who are interested in livestock:

"I don't profess to be much of a preacher, but there is one point where real religion and the hog business get pretty close together.

"That time is when I get a pig, or you get one, or Bill Jones gets a pig from some other breeder—a pig sired by the breeder's famous and well advertised boar—and the pig does not turn out right. Maybe the pig develops into the orneriest runt on the place.

"Now when this happens, am I, or are you, or is Bill Jones as charitable as a good breeder should be?

"Do I, or do you, or does Bill Jones do what we would like to have done with this pig if he came from our herd instead of the other fellow's?

"If it happened to us we would want the pig knocked in the head and put in a hole in the ground or sent back—and we would be glad to refund the purchase price—wouldn't we? I know we would.

"But how often does it happen that if the animal is a boar, for instance, he is castrated and run with the sows or a bunch of pigs, and every visitor to the place is told all about him?

"I'm not saying it isn't human nature to do this, for I know it is, but it really is a rotten thing to do, isn't it?

"I can recall far enough back to recall getting pigs that were 'bums' that I was not as careful to hide out in a back lot as I was one of our own sows that didn't happen to do well, and this confession is made so that I can relate a few on the other fellow.

"Sometimes the fault is as much with the purchaser as with the pig. I know of one case where a breeder bought a boar pig by a famous boar from a famous breeder. The pig was kept by himself in a small pen and lot, worried a good deal, and for a long time did not develop at all satisfactorily. The breeder who bought him was considerably interested in another family of hogs and for more than a year the breeder who sold the pig in question received a great deal of bad advertising, for the attention of everyone who came to the place was called to the bad points of the boar and he was especially charged with being a producer of poor pigs. I do not believe the breeder who had the pig realized how this talk sounded. He surely never thought of the 'do unto others' side of it. Lots of us don't—about this and many other things. It often happens that pigs go through a period the same as children—then come out all right.

"This was the case of the boar in question. He finally sired pigs that won in strong competition.

"I saw a stag in a prominent herd recently, a pig sired by a famous boar, but one that did not develop right, and if he had been in an out of the way place where he could not have been seen it would have been better for all concerned. And if the breeder who now has him had sent out a pig by one of his good boars and he had not developed right, and the man who had bought him had castrated him, the breeder would have appreciated it if the owner of the stag had put him in a back lot and forgotten to say anything about him to anyone.

"In discussing a boar one breeder

SEEKING A MARKET FOR DAIRY BY-PRODUCTS

EVERY dairyman will agree that if he could sell his skimmed milk for what it is worth as a human food, the profits on his dairy business would be substantially increased. But where is the market for skimmed milk as a human food?

Authorities say that the milk supply of the country is twenty-five percent below the domestic market requirements, if each man, woman and child of this country, to say nothing of foreign needs, is to receive the amount of dairy products necessary for proper nourishment. This, then, is the market—helping to make up the 25% shortage by diverting to human use a part of the large quantity of skimmed milk which is fed to stock. And here is one method by which this can be done:

Skimmed milk lacks only a fat content to make it desirable for cooking and baking. The lack of fat, too, makes it unpalatable. Hence, it is just plain common sense that, with the addition of a vegetable fat, skimmed milk can be made palatable and more desirable as a human food for culinary operations, releasing whole milk so used for other more needed purposes.

Hebe Brings Skimmed Milk to Market as Human Food

HEBE was created to reach this additional market—*to serve as an auxiliary to the daily milk supply for specific uses in the home.* Hebe is labeled with the utmost frankness as to its contents and uses. It is advertised as it is labeled—honestly and frankly—"A Compound of Evaporated Skimmed Milk and Vegetable Fat," for cooking and baking. By the scientific emulsifying of refined cocoanut fat with the skimmed milk, Hebe makes it possible to market skimmed milk as a human food, and thus opens to the dairyman another and more profitable outlet for his by-product, without interfering with the markets already established for dairy products. In the production of every 100 pounds of Hebe 210 pounds of skimmed milk are used, and 7.8 pounds of cocoanut fat. Thus a small amount of vegetable fat serves as the vehicle for bringing a large amount of skimmed milk to market as human food.

Benefit to the Entire Industry

HOW is this new market to benefit the dairyman who is not near enough to a Hebe condensery to sell his product there? The Hebe industry is young, and Hebe plants few in number, but every can sold is helping to develop this new market, and every bit of advertising put out by the Hebe Company is helping to educate the people to the greater use of dairy products. This influence cannot help but be of great benefit to the entire industry, for every additional outlet for marketing a product puts a new value on the product, and skimmed milk, prepared and marketed for a human food, is bound to increase in value, thereby benefitting every dairyman.

Every By-Product Should be Utilized

BUSINESS has proved that no industry is completely successful until every by-product has been utilized in the most profitable way. To feed the skimmed milk to stock is not the most profitable method of utilizing this by-product, because only a very small percentage of the food value of the skimmed milk is recovered in the meat of the animal. The larger part is used up by the animal simply in living.

The dairy industry will reach a fuller measure of efficiency and economy when the skimmed milk is disposed of in the most profitable way—as human food. Hebe points the way. It is an ally to the dairy industry, offering one method of utilizing skimmed milk as human food and increasing the use of dairy products in the home.

You will be interested in reading our booklet, "The Missing Third." Ask us to send you a copy. There is no charge for this. Address 2273 Consumers Bldg., Chicago. The Hebe Company, Chicago and Seattle.

Napier or Elephant Grass

Napier Grass cut every ten days from June until November, to feed the Chickens, Rabbits and Goats.

For Poultry, Rabbits and Goats
Napier Grass
excels all other grasses in quality and quantity

Tall Grass in Background—Napier

For Hay, Forage or Browsing,

NAPIER GRASS excels all other grasses in quantity and quality. Relished by all kinds of stock

PRICES DORMANT JOINTS:

Per doz.—$1.00, postpaid. 100—$4.00, postpaid.
1000—$30.00, postpaid

Complete Catalog Now Ready. Write

Aggeler and Musser Seed Co.

620 So. Spring St. Los Angeles, Cal.

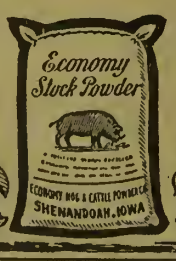
Economy Stock Powder

will keep your pigs in condition by acting on the liver, kidneys and blood. Will keep the stomach sweet, expel worms, aid digestion and prevent white scours and thumps.

Send for a free sample and our booklet "Economize Your Farm."

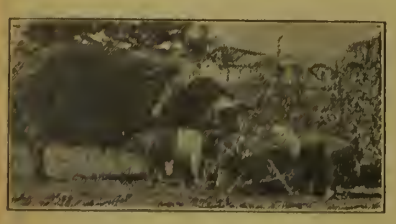
Economy Hog and Cattle Powder Co

1016 Hearst Building San Francisco



BRAEMAR RANCH

SANTA BARBARA CALIFORNIA



O.U.R. "Annabel" of Braemar (139626) by Blythedale Jim (2117).

Buff Orpingtons

We have a few high class Cocks and Cockerels, prize winning strain, left for sale; exceptional value. Please write us your wants.

Large winners of blue ribbons at State Fair and Los Angeles Livestock and Poultry Shows.

Hampshire Swine
(Registered)

Young boars and gilts from the finest blood strains in the country now for sale.

had received from another recently, the breeder who received the boar said, 'I made $25,000 when that boar died.'

"It happened that the retort courteous in this case was, 'Well, you made almost as much as I did when the boar I got from you died,' which shows that neither of these men had very much charity in his heart.

"And while human beings will be human beings as long as the world lasts, this charity business is worth thinking about occasionally anyway."

SHORTHORN BREEDERS SALE

With more than 60 head of royally bred Shorthorns entered, California breed enthusiasts are looking forward with interest to the fourth sale of Shorthorns to be held Wednesday, February 25, at the University Farm, Davis, by the California Shorthorn Breeders Association. A big attendance of farmers newly interested in Shorthorn breeding is expected and it is probable that many of the cattle from the sale will go into the establishment of new herds.

The sale will include consignments from the herds of the Pacheco Cattle Company, Henry M. Elberg, T. T. Miller, the University Farm, Charles A. Trosi, G. A. Murphy, Caledonia Farms, W. M. Carruthers, T. S. Glide, H. L. and E. H. Murphy, the Fair Oaks Ranch and the Blackhawk Ranch.

The Ormondale Company is offering at this sale six bulls and two females, all sired by Golden Goods Jr., sire of Little Sweetheart, grand champion cow at the Chicago International Livestock Show. All but two are out of straight Cruickshank cows. Supt. James McDonnell says that the heifer, Ormondale Viola, is good enough to make another Little Sweetheart. Ormondale Lassie 2nd, the other female offering, is royally bred and is now in calf to Ormondale Radium, son of the grand champion bull, Radium. The bulls are Volumnia's Goods, a splendid individual of which McDonnell says, "He's good enough to head a herd," Star of Ormondale 2nd, whose breeding shows two top crosses of Choice Goods and whose full sister sold at the last sale for $1,175; Maplewood Goods 2nd, Ormondale Archer, Ormondale Baron 2nd, an excellent individual and Ormondale Prince, out of a Ringleader cow tracing to imp. Rose of Sharon.

T. S. Glide, present owner of Little Sweetheart, is consigning one bull, Hillcrest Amaranth, sired by Count Amaranth, winner of first prize at the state fair and at the Los Angeles stock show for get of sire.

Charles A. Trosi, of Vinton, has entered four bulls, three of them sired by Vinton Sultan. These are Ruby's Roanie, by Clara's King out of Elmgrove Ruby; Master Gwendoline, by Master Goods, a son of Clara's King; Gwendoline's Last, by Clara's King out of Gwendoline of Meadowlawn; Starlight, by White Knight out of Roselawn 50th and Prince, by Crescent Dale out of Princess Nonpareil. The best Shorthorn strains in America run through the pedigree of the bull, Gwendoline's Last.

The Pacheco Cattle Company has entered four Truedale bulls, among them a fine two year old and Pacheco Cumberland, by Truesdale out of a Cumberland cow.

One of the strongest consignments of the sale will come from the Caledonia herd and will consist of about 25 bulls and females. A number will be of desirable Scotch families and all are Scotch topped. The bulls are sons and grandsons of Champion of Scotland and Pine Grove King. The females, seven of which sell with calves at foot, will represent a strong collection. Several will sell carrying the service of the noted Caledonia bulls.

SPRING AND SUMMER FASHION CATALOG

A notice of the Cultivator's spring and summer catalog appeared in the issue of February 14, but did not state that this would be sent only on receipt of ten cents in silver or stamps. This catalog shows 550 designs, with helps and directions to the dressmaker, fully illustrated to make easily understood. French seams, fell seams, faced hems, seam binding, couching, fagot stitch, cording, cutting bias folds, etc., are clearly explained and illustrated. It will be found worth far more than ten cents, for it is really a little hand book on sewing.

AUCTION OF
Dairy Bulls

In connection with the meeting of members of cow testing associations and dairymen in general at

University Farm, Davis, Cal.
Friday, February 27, 1920
at 2.30 P.M.

there will be a sale of registered Jersey, Guernsey and Holstein bulls, from some of the best California herds.

JERSEY BULLS have been consigned by Guy H. Miller, Modesto; J. E. Thorp, Lockeford; University Farm, Davis, and Dr. H. W. Hand, Orland.

GUERNSEY BULLS have been consigned by Elliott-Brant Rancho, Owensmouth, and Palo Alto Stock Farm, Palo Alto.

HOLSTEIN BULLS have been consigned by Fred W. Kiesel, Sacramento and other consignments are now under advisement.

It was the opinion of Prof. Gordon H. True, head of the Animal Husbandry Division, that only bulls out of dams with yearly records of 400 pounds butter fat or over should be accepted for this sale and this rule has been substantially complied with.

This is an excellent opportunity to buy a high class, well bred, registered bull of your favorite breed at your own price.

Management:

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, California.
Auctioneer, Col. Ben A. Rhoades, Los Angeles.

Registered Stallions
at Public
AUCTION

To give stallion buyers an opportunity to secure young California bred stallions at their own price a sale small in numbers but high in quality has been arranged for Stockmen's Week at University Farm, Davis. We believe the credit for the idea is due to Prof. Gordon H. True, head of the Animal Husbandry Division.

It is hoped that this sale will be the beginning of putting the registered draft horse business upon as sound a footing as the registered cattle business is in California, for there seems no logical reason why registered stallions should not be satisfactorily sold at public auction by reputable breeders, when it is taken into consideration that California studs contain high class registered mares and as good stallions as are found anywhere.

For this sale one Shire stallion is consigned by Henry Wheatley, Napa, SALVADOR DRAY BOY, a son of the great show and breeding stallion Desford Banker. University Farm, Davis, consigns the young Shire stallion SEARCHLIGHT, also a son of Desford Banker. M. Bassett, Hanford, consigns the young Percheron stallion HANFORD, whose sire is the International and State Fair winner Ithos, and out of the good mare Kamiche. The sale will be held at

University Farm, Davis, Cal.
Tuesday, Feb. 24, at 4.30 P.M.

Immediately following the sale of registered Hereford cattle.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento
Auctioneer, Col. Ben A. Rhoades, Los Angeles.

32 Registered Hereford Bulls
26 Registered Hereford Females
AT PUBLIC AUCTION
Pacific Coast Hereford Breeders
Fourth Public Sale

University Farm, Davis, Cal.

Tuesday, February 24, 1920
at 1 P.M.

The first crop of calves from a pure bred registered HEREFORD bull of correct breeding and type will show increased value in uniformity alone to return the investment in the average range herd, to say nothing of the better fleshing qualities, earlier maturity, and more economical gains that will be their inherited characteristics.

The contributing breeders to this sale will make an offering of bulls fully qualified for range herd improvement, and including a number that may well be rated as registered herd headers.

Fourteen of the twenty-six females in the sale sell with calves at foot by leading western sires, and practically all of the females are in calf to some of the best HEREFORD bulls in present service.

Thus the needs of the breeder, the rangeman, and the buyer of foundation breeding animals have been provided for in this offering with a class of cattle that promise to be safe, sound, profitable investments in the hands of new owners.

Contributors to Sale:

Jno. H. Cazier & Sons Co., Wells, Nev.
University of Nevada, Reno, Nev.
University Farm, Davis, Calif.
J. A. Bunting, Mission San Jose, Calif.
H. M. Barngrover, Santa Clara, Calif.
W. D. Duke, Gazelle, Calif.
Chas. Rule, Jenner, Calif.
W. J. Bemmerly, Woodland, Calif.

Sale under auspices of

Pacific Coast Hereford Cattle Breeders Association

J. I. Cazier, Pres., Wells, Nev. J. A. Bunting, Sec., Mission San Jose, Cal.
Auctioneer—Col. Ben. A. Rhoades, Los Angeles
Sale Manager—C. L. Hughes, Sacramento.

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200 Bred Duroc-Jersey

sows and gilts bred for spring litters. All carefully selected from Glenn County herds. They are the kind that will make a profit on any farm. All are priced at exceedingly low prices. Bargains for car lot buyers. Get busy and write or come and see us immediately as they won't last long at the price.

H. P. Slocum and Son
Willows, California

Breeders of Duroc-Jerseys. The Key Herd of the Pacific Coast.

Greenwood Farms

We are offering some unusual values just now in Duroc-Jerseys. They are sired by JOHNSON'S DEFENDER, JR.

a boar that commands the respect of every breeder in the state. All animals we sell for breeding purposes are carefully selected and have the true characteristic Duroc-Jersey type. Write for description of what you need.

H. C. WITHEROW, Mgr. Live Oak' Sutter Co., Cal.

The Proof of a Sire

is his ability to sire the kind the buyers want. In recent public sales, as well as direct orders, it was demonstrated beyond all doubt that

ORION'S KING GANO

is siring Duroc-Jerseys of such outstanding qualities—those qualities that are only found in Durocs of the highest type.

Donald H. Graham Lancaster, Cal.

The Greatest Duroc Boar of His Age!
Choice Wonder 3d

a winner at the 1919 Iowa State fair, sired by the great boar, Mahaska Wonder, and a litter mate to the first prize junior boar of Iowa, heads our herd. He is the largest, heaviest boned, best footed boar in the state and he is being mated to the sows that have made this herd famous for futurity winners. Get your order in early for his pigs. Prices are most moderate. Satisfaction guaranteed.

JUNE ACRES STOCK FARM V. F. Dolcini, Davis, Cal.

Trewhitt's Big Type Poland Chinas

are found in many of the leading herds on the Coast where size and quality predominate. Select your Poland Chinas where the big type ONLY are bred. When you secure a Trewhitt bred Poland China you get something better—not just ordinary.

W. D. Trewhitt Hanford, Cal.

California Cultivator
Costs $1 per Year

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SHORTHORN SALE
University Farm, Davis

Wednesday, February 25th, 1920
at 1 P.M.

Bulls for the Range Man
Bulls as Herd Headers
and a few choice Cows and Heifers

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"FEEDFINE" FEEDS

are scientifically compounded in proper proportions for dairy and all livestock feeding, of the following ingredients with the most economical results always in view.

YEAST — A concentrate high in PROTEIN and FAT content, sterilized and predigested.

CANE MOLASSES — The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.

ALFALFA MEAL — Gives body to the ration and supplies the mineral matter which is absolutely essential to all animals.

The greatest known combination for health, strength and productiveness.

YEAST, CANE MOLASSES and ALFALFA

Mason By-Products Co.
No. 2 Pine Street, SAN FRANCISCO Factory: Sausalito, Cal.

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50 — Registered Holsteins — 50
At Public Auction, March 18, 1920
Modesto, California

A. R. O. COWS—The offering contains a substantial number of cows and heifers with good A. R. O. records, popular breeding, and most of them in calf to the highly bred bulls in service in the leading Stanislaus County herds.

BULLS—An unusually well bred lot of bulls will appear in this offering, some ready for heavy service, and including some real herd headers for registered herds.

A detailed announcement of the offering will appear in next week's issue.

Consignors:

H. E. Cornwell, Modesto.
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Bridgeford Holstein Co., Patterson.
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Sale under auspices of

Stanislaus County Holstein Breeders Association

A. M. Bibens, Pres., Modesto. E. M. Morrow, Sec., Modesto.
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California Wonder

Kings County Jack Ranch

Breeders and dealers in American Jacks and Jennets

Jacks and Jennets for sale at all times. Come and see them.

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So Easy to Put Your Dairy On a Good-Health Basis

To be satisfied with anything less than top-notch health in your cows is a foolish waste of milk-income. Most cow sickness is preventable—or curable. With the aid of KOW-KURE, the great cow medicine, such troubles as Abortion, Retained Afterbirth, Barrenness, Scouring, Bunches and Milk Fever can be eliminated from your herd. KOW-KURE acts on the digestive and genital organs—where nearly all cow diseases originate, and aids nature in inducing normal, healthy action. No dairyman who has used KOW-KURE will be without it. Sold by nearly all druggists and feed dealers; 60c and $1.20 packages. Write for our big free book,

"THE HOME COW DOCTOR."

It is full of facts every dairyman ought to know, and tells just how to treat cow diseases of all kinds.

Dairy Association Co., Lyndonville, Vt.

KOW-KURE

18,458 Pounds Milk

in a year is the record of this fine Guernsey. Records are worth trying for; but health is an absolute essential. Raise the health standard of your cows, and the milk yield will surprise you.

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows.

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Grand Champion Boar at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair

SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

A. E. Harvey, Manager Redlands, Cal.

If you are interested in this very great breed you will find it worth your while to visit the

Ortega-Underhill-Rancho
O. U. R.
Registered Hampshires

Thos. T. Dinsmore, Manager Santa Barbara, Cal.

You will find there some of the best blood in the country and a truly great herd in course of construction.

The Poplars----Hampshire Headquarters

Our reserve grand champion sow Wavelet at the big Los Angeles show is the mother of 8 little Wavelets—a flourishing family. We won 1st on boar and 3 sows bred by exhibitor, also 3 other herd prizes. We were in the money on aged boar, twice on junior yearling boar, and once next the top on junior boar pig. All young stock the get of our great boar, The Harvester Again. Write us your wants.

C. J. Gilbert Lancaster, Cal.

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Many Cattle Dying From Loco

Upon his return from a trip of investigation of poisoning from loco on southern Arizona ranges Dr. R. H. Williams, animal husbandman of the college of agriculture, made the following report:

"Widely scattered over southern Arizona loco has been causing a large number of deaths among cattle. Santa Cruz and Cochise Counties are particularly infested. There are various varieties, but one can easily identify the weed for it is the only large green plant found on the desert. In a general way it resembles alfalfa. The plant grows in a small tuft from a large tap root. The leaves are found on opposite sides of the branches in pairs. Most of them grow from six to ten inches high. The leaves are covered with small hairs. The younger ones are narrow and pointed while the older ones are more rounded.

"The animals show very little signs of poison until they consume upwards of 800 pounds of loco. Apparently the best bred stock seem the most susceptible to the disease. Stock maintained in pastures or feed lots are soon attracted to the loco and begin eating it. After a few days, perhaps not more than two weeks, they will begin to froth at the mouth, have a peculiar grunting cough and be short of breath. Cows will frequently abort and gradually grow thin. They soon become weak and walk with a stiff unsteady stride. If driven very far they will fall in a peculiar manner. The hind quarters seem to be paralyzed for the poisoned animals drop down in the loins and the hind legs stiffen out behind them.

"The only way to avoid losses by loco poisoning is to keep the stock from infested areas. Cattlemen are in no position to face heavy losses of animals. It would be better to take the stock off the ranges where loco is prevalent and rent pastures for them or else feed them hay and cake. The stock should be watched closely and as soon as they show signs of the poison they must be gathered in and placed where there is no danger from loco. Stockmen cannot afford to pay ten per cent on money to buy cattle and lose them or the calf crop.

"Locoed animals do not respond well to treatment. Losses may be reduced by feeding stock well and often these animals can be sold at a profit. It is best to discard them because the poison seems to remain over in the animal from year to year, and when a beast eats about 800 pounds of the weed it will die. Thus, if a cow eats 500 pounds this year and 200 pounds next year, the third or fourth year it may be poisoned and perhaps die after consuming about 100 pounds. Cattle that have shown effects of loco poison are seldom good breeders and this is an additional reason for selling them as soon as fat.

"Stockmen must face the loco problem and take active measures to prevent losses. There is no doubt that quite a number of cattle have been poisoned in the southern part of the state. The upper San Carlos and San Pedro Valleys have been worse to date. Overgrazing has injured the natural stand of the grass and allowed loco to flourish. Where only a few loco plants are found on a range it would be a good idea to pull up or spade off the tap root about two inches below the surface. Seed will continue to grow however and the plants they grow should be cut off as soon as they are found. With a little expense one can control the growth of loco where it is not very thick. Fortunately only three of the locoes have been proved to be poisonous, and there are 50 or more species of them. It seems useless to spend one's time to eradicate the harmless locoes."

Potassium Iodide in Malnutrition of Pigs

The state department of agriculture reports that early last fall the owner of a herd of hogs in the foothill district of the Sacramento Valley reported a disease among his suckling pigs, which he described as follows:

When about three days old scalded areas appeared on the face of the pigs around the mouth and ears. These did not penetrate the skin nor resemble the lesions of necro-bacillosis. There was a distinctly noticeable enlargement in the regions of the thyroids. While retaining a good appetite they became emaciated, the skin developed a scurvy-like surface, was wrinkled all over the body and was hard to the touch. These symptoms progressed with increasing weakness, until the pigs finally lay on their sides unable to rise and died in the course of a couple of days more.

About 50 pigs, all belonging to six sows that had farrowed at about the same time, were affected, without an exception. The course of the disease appeared to be from two to six weeks. The mothers remained healthy, as did all other hogs of various ages on the place.

The condition suggested some form of malnutrition and called to mind the article by E. B. Hart and N. Steenbock of the Wisconsin Laboratory of Agricultural Chemistry on thyroid hyperplasia and the relation of iodine to the hairless pig malady, in the Journal of Biological Chemistry, February, 1919, and a succeeding article in the Journal of American Veterinary Medical Association by Howard Welsh of Bozeman, Montana, in which he stated that iodine is a specific cure for birth of hairless pigs and goitre in lambs and calves.

Accordingly it was advised that about two grams of potassium iodide be dissolved in water and mixed with mash and fed to the sows and litters daily.

The owner reported that 21 head were lost until the time of treatment, when almost immediate improvement was noticed and continued until the situation was entirely cleared up.

Cholera Not Only Disease Fatal to Hogs

For many years cholera has been the most serious disease of hogs in this country. In fact, many authorities felt that it was the only widespread epidemic among these animals of any considerable importance. According to Dr. I. E. Newsom, veterinary pathologist for the Colorado agricultural college, more careful diagnosis has shown that with the control of cholera other diseases are manifesting themselves and are shown to have considerable economic importance. The most prevalent diseases among hogs, not cholera, appears to be swine plague, whose symptoms and post mortem changes are very similar to the first named disease. However, the administration of hog cholera serum is of little value in the control of this malady. The disease is more apt to affect small pigs, where it may appear as a pneumonia. However, in some instances it does affect older animals. Vaccination against swine plague has proven fairly satisfactory, but is not on as firm a foundation as vaccination against cholera.

Deep curretting of ulcer of the mouth, with an addition of a strong antiseptic, has been found advisable. Careful differential diagnosis, therefore, is quite essential to any treatment of hogs suffering from disease, and it is quite important first to determine the nature of the malady before any treatment is instituted.

MAY SPREAD TUBERCULOSIS

Warning against the feeding of diseased cattle carcasses to hogs is sounded by the United States department of agriculture. A conference of state and federal officials, held early in October to deal with matters of tuberculosis eradication, brought to light numerous instances where hogs contracted tuberculosis after feeding on carcasses of tuberculous cattle. In

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Gombault's
Caustic Balsam

Has Imitators But No Competitors

A Safe, Speedy, Positive Remedy for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs and Lameness from Spavin, Ringbone and other bony tumors. Cures skin diseases or Parasites, Thrush, Diptheria. Removes Bunches from Horses or Cattle.

As a Human Liniment and Antiseptic for external use it is invaluable.

Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price $1.75 per bottle. Sold by druggists, or sent by parcel post, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

BICKMORE'S GALL CURE

Don't Take Chances!

Get the gall cure that's guaranteed! Your money back if Bickmore's fails. *Guaranteed to quickly cure while the horse works.* Cures wounds and sores on horses, cattle, pigs and poultry. Your dealer has it. Also ask for Bickmore's Horse Liniment.

For yourself, always keep handy Bickmore's XYZ Skin Ointment and Bickmore's XYZ Family Liniment. Ask your dealer for them.

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Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References. The leading breeders in the state. Write or wire for dates and terms.

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BREED SHIRE HORSES. They are in demand. Good Grade Shires are selling between $200 and $300. Shire Mares prove to be good workers and excellent mothers. They will work steady and at the same time raise profitable colts.

For booklet on Shires write

W. G. Lynch, Secretary, American Shire Horse Association, Tonica, Illinois.

BREEDING DATE BOOK--FREE

We have issued a covenient little book for the keeping of breeding dates of cattle, hoping to aid the breeder and cattle owner in maintaining accurate records. We will gladly mail you a copy free if you request it. A postal will do.

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California George Junior Republic
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Bred and raised under right conditions. Correct as to type and size.

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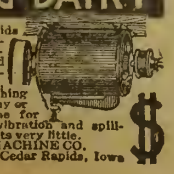
PAYS BIG DAIRY PROFITS

Cedar Rapids Speed Governor controls speed of all machinery like separator, churn, fanning mill, washing machine. Changes speed of any or all instantly while in motion. Fine for separators. Steady speed saves vibration and spilling. Insures closer skimming. Costs very little.



CEDAR RAPIDS FOUNDRY & MACHINE CO.
Dept. 142 Cedar Rapids, Iowa

one case nearly an entire drove of hogs shows lesions of tuberculosis, which at first the owner could not account for. Later he admitted to the veterinarian investigating the case that several months before he had fed to the hogs the carcass of a cow that "never did very well."

The bureau of animal industry urges livestock owners to have a careful autopsy made on animals dying on the farm or killed because of sickness, in order that the definite cause of trouble may be learned. Carcasses that show lesions of infectious diseases should not be fed. Instead, such carcasses should be cared for so that no part can be eaten by hogs. Thorough destruction of the carcass by burning, or by deep burial under a liberal application of quicklime, is the proper procedure in such cases. Attention is called also to the danger of feeding offal from slaughtered animals to swine, as such a practice is another source of infection.

MINERAL REQUIREMENTS OF SWINE

Studies made by the department of nutrition at the Ohio experiment station show that all grain rations for growing swine require mineral supplements. The breaking down of swine and the development of rickety symptoms, lameness and paralysis have been found to result from insufficient mineral nutriment.

Rations containing sufficient milk or tankage or leguminous roughage, however, do not require mineral supplements. When swine are fed on cereal rations there is urgent need for the element calcium and possible need for phosphorus in addition. These may be efficiently supplied by a half and half mixture of precipitated calcium carbonate and precipitated bone flour. Other less efficient carbonates and phosphates are available.

Mixing the mineral nutrients with the ration and allowing free access to mineral supplements as well, will tend to increase the development of the skeleton with swine intended for breeding purposes. When swine are self fed there is a tendency to put on more flesh than skeleton to correspond, unless mineral supplements are fed mixed with the grain.

TEN RULES FOR LIVESTOCK MEN

Here are ten good rules for livestock breeders vouched for by the animal husbandry men at the New York state college of agriculture at Ithaca:

Be honest.

Choose a breed and stick to it.

Breed with the correct type in mind.

Study pedigrees for inherited characteristics, relative merit and value.

Keep your herd or flock free from disease.

Develop the young animals and maintain the breeding animals through wise feeding and management.

Boost better livestock in your community.

Advertise judiciously.

Exhibit at the county, state and other livestock shows.

Remember that a satisfied purchaser is your best advertisement. So be prompt in registering and transferring animals and make good all guarantees.

EXERCISE AND FOOD FOR BROOD SOW

The brood sow needs a variety in her food and exercise. In experiments conducted at the North Dakota agricultural college, under the direction of Prof. Shepperd, it was found that sows will readily eat alfalfa hay, and that when this is fed with a mixture of about half barley and half shorts at the rate of two and one-half pounds daily for a 200 pound sow, splendid results have been secured. Equal parts of barley, oats and bran or shorts also makes a very good feed. Exercise is also very important. It was found that the best way to give the grain feed was to sweep the floor clean and scatter the grain feed on it. This results in the sows spending hours on their feet getting their feed. Observations indicate that sows fed a variety of foods and given plenty of exercise, are not likely to produce hairless pigs.

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PROVEN HAIRY PERUVIAN ALFALFA SEED

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JERSEYS

IT'S not how much milk you get, but how much it costs you to get the milk that counts. Jerseys feed for their well-rounded udder—not beef and bone.

Jersey Milk is of the richest quality with a butter fat average of 5.37%. Jersey milk, Jersey butter and Jersey cheese sell for more on the markets.

Jerseys are adaptable to any climate. They are an asset to their owners, for they mature earlier for milking and are still producing long after other cows have gone dry. Let us tell you more about Jerseys. Write for our free literature.

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Venadera Herd
Register of Merit Jerseys

Senior herd sire Altama Interest sire of 12 cows in Register of Merit. Junior herd sire Jap's Perfection Owl, a line bred Spermfield Owl bull.

Guy H. Miller, Modesto, Cal.

Young Jersey Bulls
For Sale

One at the head of your herd will pay big dividends on his cost. Write to

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Modesto Cal.

All My Records
Are made under ordinary dairy conditions
The Farmer's Cow is
The Jersey
YOUNG BULLS FOR SALE
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Jersey Bull
FOR SALE
A fine straight one, bred right, priced right.
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Member Orland Jersey Cattle Club

Hauser's Digester Tankage
Gives Greatest Value for Least Money
It Makes Them Fat
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POULTRY

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We are offering to the California public, the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in, and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

We Are Specialists in production of high grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strain of America's choicest Leghorns fill our pens, and my personal attention is given to all details, assured each customer of highest grade stock. All baby chicks guaranteed and only healthy baby chicks shipped; if not satisfactory on arrival your money returned. Catalogue free. F. C. Rhode, Vineburg Hatchery & Poultry Yard,s Vineburg, California.

We Are Now Booking Orders for Eggs. Eggs from our Mammoth Bronze Turkeys, $1, $2, $3 from show stock and 50c utility stock. Eggs from Toulouse Geese, winners at seven shows, $1 each. White Muscovy Duck Eggs, 35c. White Wyandotte Eggs, $3 and $5 a setting. Young unmated pairs, White King Pigeons $2, old mated pairs $3. Pearl Guineas $4 a pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY (Electric), Box 122, Artesia, California.

For Sale—Baby Chicks from my thoroughbred carefully selected flock of S. C. White Leghorns. Orders accepted now for spring delivery, at $15.00 for 100 chicks, $140.00 per 1,000. Every order receives my personal and most careful attention. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Thoroughbred Barred P. Rocks—Egg records 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 6599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

White Leghorns—Breeding Stock, Hatching Eggs. Bred to standard and to lay. At 1919 Oakland Show won 2nd and 4th cock, 4th hen, 4th and 5th pullet, 2nd pen. 178 birds competing. All curves, white plumage, vitality, high egg production. MAHAJO FARM, P. O. Box 597, Sacramento, California.

Golden Rule Poultry Farm — Specialty breeders in profitable quality in Barred Ply. Rocks and White Leghorns. Remember the best is none too good for your foundation stock. Guaranteed hatching eggs. PENN & STAMELEN, Porterville, California.

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Baby Chicks—Standard S. C. White Leghorns, heavy laying stock, bred to standard requirements. Order now. Hatch from my own stock exclusively. Standard Poultry Yards, Geo. Bruns, Prop. Box 85, R. F. D., Sonoma, California.

Just Rite Chicks from selected eggs. Barred Rocks, R. I. Reds, Black Minorcas, Brown-White Leghorns. Prices just rite, shipped just rite. We deliver free. Willow Glen Poultry Yard, 582 So. 9th Street, San Jose.

Newton Poultry Farm — White Leghorn Baby Chicks from our well known, carefully selected stock. Best strain. Big plant. Order now, any number, and get them when you want them. Los Gatos, California, Dept. 2.

"Watch Us Grow" Baby Chicks. Booking orders now for January and February deliveries. Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Ringlet Strain Barred Rocks. (Thompson foundation direct.) Cockerels, pullets, mated pens and eggs for sale. Identically same matings as our prize winners. Fine laying strain. C. W. Angier, 1011 S. Columbia Ave., Glendale, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

White Leghorn Baby Chicks and Hatching Eggs from trapnested, line bred high producers. Every male used from dams producing over 200 eggs. Waldeck Ranch, Burbank, California.

S. C. Buff Leghorn Hatching Eggs—This is your opportunity to secure a start in pure breds at reasonable prices. Price list free. Wrieden Poultry Rarm. Dept. C, Calistoga, California.

Purebred Chicks from selected bred-to-lay S. C. W. Leghorns, Barred Rocks, R. I. Reds. Order now for February-March delivery. Maxwell Hatchery, Madera, California.

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S. C. WHITE LEGHORNS

We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

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ELECTRIC HATCHERY
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Vigorous, Pure Blood Stock. Special attention to mail orders. Safe delivery GUARANTEED. Anconas, Barred Rocks, Rhode Island Reds, Minorcas, Brown, Buff, MacFarlane Strain White Leghorns. Hatching eggs. Write for prices. PEERLESS 66 EGG HATCHER Simple, Automatic, $8.75. Express paid. D. E. DOKE (Baby Chicks since 1908) 328 So Spring St., Los Angeles, Cal.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

Sly's Single Comb Rhode Island Reds prove their quality by winning at Los Angeles, 2 firsts, 4 seconds, 2 thirds, 2 fourths, 2 fifths, 2 shape specials, 2 color specials, 1 gold special, 3 silver cups. A top notch exhibition and utility strain. Send for Catalogue. A. G. Sly, 1642 E. Middleton Place, Los Angeles.

Day Old Baby Chicks—From mature hen eggs—February—White Leghorns $17.00 per 100; Black Minorcas, Barred Rocks, Rhode Island Reds $22.00 per 100—March $2.00 per 100 less. Terms. One-third cash with order. T. C. Hawley, 504 East Elm Street, Lodi, California.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Buff Orpingtons, Black Minorcas, Anconas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306. San Jose, California.

Baby Chicks—Hatched every week. Booking now for entire season. White and Brown Leghorns, R. I. Reds, Barred Rocks. All strong youngsters. Safe arrival guaranteed. Write for free circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

I Won More First and special prizes on S. C. R. I. Reds at the recent Oakland Show than all other exhibitors combined, 188 Reds competing. Hatching eggs from prize birds for sale. F. M. Lail, 6 Lupton Ave., San Jose, California.

For Sale—Thoroughbred White Wyandotte settings, $2.50 for 15 eggs, also, choice White Wyandotte cockerels from $5.00 to $8.00 each. Apply Gordon O. Tetley, 190 Edgewood Place, Riverside, California.

Booking Orders in limited numbers for hatching eggs of S. C. Rhode Island Reds, Buff Orpingtons, Pearl Guineas, White Muscovy Ducks, Toulouse Geese. E. A. McKinley, R. F. D., Ukiah, California.

Big, Strong, Vigorous Plymouth White Rock cockerels from excellent stock. March and April hatch. Price $5.00. Only a few left. Geo. E. Dierssen, Box 913, Sacramento, Cal.

Baby Chicks and Hatching Eggs from Standard S. C. White Leghorns. We sell only strong, hardy chicks from heavy laying parent stock. Tacker's Poultry Ranch and Hatchery, Escalon, California.

Conklin's Heavy-Laying Strain R. I. Reds, S. C. Light and Dark Brown Leghorns, Eggs reasonable. EVA V. CONKLIN, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

White Minorca Baby Chicks and Hatching Eggs—Dark Cornish and Silver Campine Eggs. Folder. Leech Poultry Yards, Baldwin Park, California.

For Sale—Guaranteed Day Old Pullets. S. C. White Leghorns. March delivery. One ranch here buys 20,000 a year. Eureka Hatchery, Petaluma, California.

Rhode Island Red hens and pullets to exchange for Black Minorcas same age. Mrs. G. E. Rasdall, Shawmut, Tuolumne Co., California.

R. I. Red Hatching Eggs from good laying stock of good color, $2.00 per setting. W. M. MARQUAM, Bishop, California.

Baby Chicks, thoroughbred White Leghorns. No weak ones charged for. Schelliville Hatchery, Schelliville, California.

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S. Reservoir, Pomona, California.

Thoroughbred high record strain S. C. White Leghorns. Quality chicks. Folder free. C. R. Shipway, Santa Cruz, California.

Baby Chicks, standard varieties, high quality, low price. Catalog now ready. Can fill large orders. Madera Hatchery, Madera, California.

For Sale—Five thoroughbred Single Comb Black Minorca Cockerels, March hatch. C. F. Schwab, Eighth St., San Fernando, California.

POULTRY

Barred Plymouth Rocks—"Nothing Better In Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Vodden, Los Gatos, California.

For Sale—Baby Chicks—Barred P. Rocks, Rhode Island Reds, Anconas, $20.00 per 100; White Leghorns, $17.50 per 100. All chicks are from fine thoroughbred heavy laying stock. Eggs for hatching from all above breeds, $1.75 per 15. Ringlet Barred Rock Eggs, 15, $5.00. McConnell's strain Black Minorcas, 15, $3.50. Send for sale list. W. H. Rails, Orange, Cal.

Santa Cruz Chicks—We specialize on very best White Leghorns, hatching many thousands each week; also Brown and Buff Leghorns, Anconas, Minorcas, Wyandottes, Orpingtons, Barred Rocks and Rhode Island Reds. Write for folder. B. W. Archibald, Soquel, Santa Cruz County, California.

For Sale: Red Eggs from S. F. Exposition prize winning stock and three year trap nested hens whose March pullets have laid from 101 to 126 eggs each this winter while eggs were high, $5.00 for 15 —other high class pens $2.50 for 15. Brown Leghorns, $2.50 for 15. Order now. C. Eichoitz, R. 1, Box 253, Pasadena.

Thoroughbred S. C. White Leghorn Chicks —In 100 and 1000 lots from our Hoganized and Trapnested Stock. Order now for spring delivery. Inventors and Distributors of "Forbros" Separator and Trapnest combined. Write for circular. Forster Brothers, 2918 Otis Street, Berkeley, California.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

White Leghorn Baby Chix. Heavy laying. Hoganized stock. May and June delivery. $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks hatched from our S. C. White Leghorn Utility Stock, bred for commercial laying. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

Columbian and White Wyandottes, Rhode Island Reds, White Leghorns. Best exhibition and utility stock and eggs for sale. Circular free. George Aumock, Palo Alto, California.

Purebred Buff Orpington Eggs — Heavy laying strain, choice stock, setting $2.50. Mrs. M. Lopez, Box 436, Manteca, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C, Ceres, California.

"Eastman's Bred-to-Lay" trap-nest Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

White Rock Eggs from heavy laying strain, $1.50 per setting, $8.00 per hundred. C. W. Sebastian, Wasco, California.

Pit Games, Cocks, Stags, Hens, Eggs. R. H. Crane, Route 3, Santa Rosa.

CATTLE

For Sale—8 head of registered Jerseys, all good producers. Prefer to sell in one lot. Also 6 heifer calves whose sire is from a dam that produced 600 lbs. of fat in one year. Also have 3 yearlings. D. F. Conant, Route B, Box 231, Modesto, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

For Sale—Registered Holsteins, milkers, calves and bull. D. C. Stanion, Kerman, Fresno County, California.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

TURKEYS

For Sale—Turkey Eggs, Mammoth Bronze and Wild Domestic, crosses; raise more poults, introduce wild blood into your flock. Get hardy, vigorous poults. With each order we send you formula for raising close to 90% of those you hatch and special feeding instructions. Will be worth many dollars to all turkey raisers to know the real way. Pamphlet tells you all. The WILD & DOMESTIC Turkey Home, R. D. Box 26 A, Hemet, California.

Giant Bronze Turkey Eggs for hatching from the famous Gold Nugget strain. Range raised, insuring strong poults. Phone city agent Lincoln 333. Mrs. A. H. Aiken, R. F. D. 13, box 315, Los Angeles.

Turkeys—Breeding Stock—Cockerels $25 each; two year old toms, $50 each. Eggs in season. Robinson Turkey Ranch, San Dimas, California. Covina Phone 902.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

DUROC-JERSEYS

Special Sale of pure bred Duroc-Jersey weanling pigs (registered). Sired by First Prize Boar of Grand Champion breeding. Marked down in price to advertise our stock. Also a few choice bred and open gilts at slight advance over pork prices. Green Canyon Ranch, Fallbrook, San Diego County, California.

Duroc-Jersey Swine for Sale — Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Bergiund, Dixon, California.

Priced Right — Sept. boar pig, Orion Cherry King stock. He will make you money. El Bendito Rancho, Lancaster, California.

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The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

Weanlings—Gilts open or bred to a son of Great Wonder I Am. Service boars. Derryfield Farm, Capital National Bank Building, Sacramento, California.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best In Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Wondergerst, California's leading Poland China sire—big himself, bred big and his pigs show the same qualities. His dam was Giantess Wonder, his sire Big Jones—both big, both winners—a combination of the greatest blood of the breed. Breed big type Polands. Start right by using this blood. Write for special offer. A liberal consignment made to the Tulare Poland China Associated Breeders' sale held Tulare, October 21st. OXBONE Herd Poland Chinas, Tipton, California.

Big Type Poland China Bred Sows and Gilts. Also a few open Gilts sired by A Price. Am booking orders for winter and spring boars. Address: W. S. Adams, Gridley, California.

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

BERKSHIRES

"ACHIEVER"

The Boar that puts more vitality, more bone and more pork-making qualities into his pigs, is sired by Onward 4th by "Epochal" out of a Grand Champion Sow. An opportunity to purchase Sows and gilts bred to this Boar will be offered at our coming sale, Feb. 14th.

Castleview Ranch, Santa Rosa, California.

ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

3 Long, Stretchy Boar Pigs farrowed in July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St. at Third, San Francisco. In charge of Natomas Land Sales.

BERKSHIRES

are bred on the Lark Meadow Ranch for big bone, strong backs and the right type to produce profit for the purchaser. Bred and open gilts from most popular strains for sale now.

GEO. A. STINGLE, El Monte, California

Grape Wild Farm Berkshires—Guernseys —spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. B. Humphrey, Prop., Escalon, California.

Solano Berkshires. Choice stock for sale, service boars of varying ages, bred gilts, unrelated pairs and trios. Reasonable prices. Write for information. R. C. Gruhlke, Dixon, Solano County, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

GEESE

McNeely's Mammoth Geese. Fine stock, ready to ship at the old price of $5.00 each for as many as you want. First come first served so order early. Chas. McNeely, Alpaugh, California.

DUCKS

Caldwell's White Muscovy Ducks, quackless, hardy, rapid growers. Eggs, Ducklings, Breeders. Free circular. Caldwell Farm, Box 274, Los Angeles.

FARM LANDS FOR SALE

FOR SALE:
A HOME AND RANCH COMBINED.
An extremely well laid out plot of land 220 ft. by 454 ft. with full width city streets on three sides and an alley 30 ft. wide on the fourth, only eight blocks from Santa Barbara Post Office and business center. The land is first class sandy loam and will grow anything. There are 146 full bearing fruit trees, including apples, pears, peaches, nectarines, plums, apricots, oranges, lemons, figs, walnuts, loquats, avocados and berries; a good assortment of the best varieties and planted in perfect order. The place is planned for a first class chicken ranch and is fully equipped for 10,000 to 12,000 head of fowls, including houses of the best construction and all modern, with cement floors, automatic drinking fountains, feed hoppers, brooders and houses, manure shed; feed house with alfalfa cutter motor driven, in fact everything in order for a first class farm. There is a well built house containing three bedrooms, living-room, diningroom, kitchen and bath, (oak floors) for a home, and a two story, eight room house for working men. Garage for two cars. The fruit from the place will more than pay expenses. This property must be seen to be appreciated. It is offered at the low figure of $12,000 to settle up an estate. Come and see it, or write for fuller particulars and terms to F. H. Lingham, 10 West Anapamu Street, Santa Barbara, California. (Exclusive Agent.)

Stock and Dairy Ranch—500 acres; will sell all or part; one mile from Valley Springs R. R., Calaveras County. Over two thousand cords of wood on the stump, oak and pine. Well fenced and cross fenced; water runs in pasture all year, springs and creek run through the place; 100 acres bottom plow land; Burr Clover, hay and pasture; pumping plant on creek; 4 acres alfalfa, large barn and corrals, garage, blacksmith shop, bunk house, sheds, etc. Pump at house and large storage tank; variety of fruit trees around house. Splendid large house, hot and cold water in kitchen and on back porch, bath. Price $30,000. Can give any terms at 6%. Would consider small City Property or business or small farm 10 to 20 acres in trade. For further particulars apply to owner on place. H. W. HANMAN, Valley Springs, California.

20 ACRES IN PRUNES

$8,000

About the value of the raw land

Three miles northeast of Biggs on the Oroville-Biggs road, 1 mile north of Rio Bonito station on Northern Electric. One half in bearing trees balance 4 years and under. Over 12 tons of dried fruit past season. Roomy dwelling house, barn, etc. Prime grader and dipper, about 1,000 trays and fruit boxes.
G. P. Dreher,
R. D. 2, Box 62, Biggs, Calif.
P. J. Dreher,
Long Beach, Calif.

$1000 DOWN SECURES
57-ACRE MIDWEST FARM
Only 2½ miles over good road to R. R. town, 4 miles city. Productive machine-worked fields, wire-fenced, spring-watered pasture; estimated 30 acres underlaid with valuable coal vein; fruit. Attractive cottage home with screened porch, good basement barn, corn crib, poultry, hog houses, etc. Owner to settle now makes low price $2800, easy terms. Details Catalog Bargains 23 States; copy free. STROUT FARM AGENCY, 831 A. G., New York Life Bldg., Kansas City, Mo.

For Sale—$11,000—Will sacrifice my ranch 15 acres, one and half miles from Porterville. Good pumping plant all under irrigation, good for fruit, grain or dairy. 5 acres in alfalfa, 5 acres in prunes. Two houses, four rooms each, good barn, separator and separator house, fine water, cows, chickens, hogs, horses and implements, all go with the place. For particulars address W. B. LYON, Porterville, California, Route 3 Box 44.

For Sale—Dairy Ranch 250 acres of land in best farming section of California, the Turlock District. 64 head cows and heifers. 100 acres of alfalfa, 4 miles from Turlock, good melon or sweet potato land. Ideal for subdividing. Price reasonable, write to or see C. J. Densmore, R. F. D. 1, Box 305, Turlock, California.

FOR SALE AND EXCHANGE
10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.
FOR SALE
Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

For Sale or Exchange—6 acres Washington navels, 4 miles east of Porterville. In frostless area. Never has been damaged by frost, 2½ acres 12 years old; 2½ acres 8 years old; 1 acre 4 years old. Ideal home place. Reason for selling, living outside of state. Write Chas. Wentworth, 1721 Faraon Street, St. Joseph, Mo.

For Sale—20 acres APPLE and PEAR Land; 5 acres planted to Bartlett Pears, 15 acres in grain. Located about 1½ miles from town in a proven pear and apple district. Price $4250.00. Mortgage of $1270.00 due Feb. 1, 1921. Jos. A. Haubrich, Tehachapi, California.

For Sale—A 100 acre ranch; 45 acres in alfalfa, rest in grain and pasture. Young orchard and fair buildings. Good place for dairy. Price $13,000. Communicate with or see owner. R. B. Box 119, Bakersfield, California. Paul Durisch.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

40 Acres good fruit and vegetable land, partly improved; plenty water and wood; near school. H. Koenig, Fort Braggs, California.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

FARM LANDS FOR SALE

An Ideal Dairy Ranch—The Redlands & Yucaipa Land Company is offering for a limited time a 1500 acre Dairy Ranch in the famous Yucaipa Valley—two miles from Redlands city limits—on the Ocean to Ocean paved highway. This ranch is equipped with buildings; no better soil in the state; has 500 acres suitable for alfalfa; 800 acres grazing land with live oak trees and living springs; also 100 inches water. One of the best dairying locations in the state. Price reasonable and terms easy. Address Dike & Logie, Sales Agents, Redlands, California.

MISCELLANEOUS

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Fords Double the Mileage with Picard Carburetors. Easy starting. More power. Free trial. Agents wanted. York Sales Co., Dept. CC 1518 East Jefferson, Detroit, Michigan.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale Cheap—Five 10,000 and nine 5,000 gallon redwood tanks. Apply OLD HERMITAGE VINEYARD, 1623 No. Main, Los Angeles.

SEEDS AND PLANTS

Cory Thornless Mammoth Blackberry. Do you know that the largest and best of all berries grows on vines smooth as a grape? After 9 years' propagation still retains its thornless features, unsurpassed size and flavor. More money can be made in less time from an acre of this variety than any other fruit; good market; top price for fruit and plants. Get plants from first field planted on Cory ranch. Doz. Plants $3.00; 50, $10.00. Mt. Pass Nursery, Jamestown, California.

De Young's Mammoth Early Hybred Golden Bantam Sweet Corn, short stalks, heavy foliage protects ear from birds, worms and smut, twelve to eighteen rows, two and three ears to stalk, eight to ten inches long. By mail oz. 25 cents, ¼ lb. 50 cents, ½ lb. 75 cents, 1 lb. $1.00, 3 lbs. $2.50. John A. DeYoung, R. F. D. 3, Yakima, Washington.

The Garden Beautiful in California by Ernest Braunton; a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant; also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

Tomato Seed — Save 100% on Hummer Glove, Stone, San Jose. Postpaid $3.00 pound. Send money order. 20 cents ounce, stamps accepted. Order today, supply limited. Dana Walden, Wholesale Terminal Bldg., Dept. 25, Los Angeles, California.

Grow Your Rabbit Feed—Giant Kale, 25c package; 50c ounce; Chicory, 25c package; 75c ounce; Mammoth Carrots, 25c ounce; Roselle—Australian Jelly Plant, 25c package. Directions to make. Mrs. C. A. Richey, R. 7, Box 854, Los Angeles.

For Sale: Tomato Seed—Spark's Earliana, New Stone (improved), Livingston's Favorite; $4.00 per pound each. Postpaid any quantity. All these varieties are the very best select stock. Patton Seed Co., South Pasadena, California.

Strawberry Plants—Americus everbearing. Strong, healthy plants. Do well in California. $2.50 per 100, $5.00 per 250. Postpaid. Catalogue free. F. I. Moffet, Ellensburg, Washington.

Seeds—Alfalfa Seed 40c f. o. b. San Francisco. All varieties Vegetable and Flower Seed. Write for special prices. Bay Counties Seed Co., San Francisco, California.

Grow Your Own Melons. Secure a package of seed, 25 cents. The world's finest musk melon "Casad's Special," Roland C. Casad, Covina, California.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc. Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

For Sale — Giant Himalaya Blackberry Tip plants from bearing vines. Immediate delivery. Sylvan Grove Farm, R. D. 1, Box 147, Santa Cruz, California.

Rhubarb Roots—1 year old roots, $3.00 per hundred; 50c per dozen. Two year old roots $1.00 per dozen. Currier Bulb Company, Santa Cruz, California.

Cory Thornless Mammoth Blackberry—Write for price list on plants. Wm. Mortenson, Rt. A, Box 209, Lodi, California.

Write amount and kinds of seed wanted. Four kinds of alfalfa, 25c and up; free samples. Box 501, Fowler, California.

Rhodes Grass for alkali soils. Write: Imperial Valley Nursery and Seed House, El Centro, California.

Stock Beet Seed—Any variety. Write for prices. Aurora Seed Mill, grower, Stockton, California.

Dahlia Novelties—Superb collection. Write for catalog. Dietzel's Dahlia Garden, Oakland, California.

Burbank Thornless Blackberry Plants—6 for $1.00; 15 for $2.00. postpaid. Wm. Glas, Madera, California.

For Sale—California Wonder Corn—For seed doubles yield. Send for circular. James McKee, Riverside, California.

GOVERNMENT LAND

100,000,000 Acres Vacant Government Land described in The New Homeseeker Book. Read official warnings. Free pamphlet. Address The Homeseeker, Dept. M, Los Angeles, California.

FERTILIZERS

The Gypsum You Need — Best agricultural lime, complete fertilizers. H. B. Matthews, 1010 N. Madison, Pasadena.

TREES

Washington Navel, Valencia, Marsh Grapefruit, Eureka and Lisbon Lemon trees. Sour stocks. One year old buds. We used "Supply Company" buds only. Nurseries Riverside, Puente. Frank A. Tetley & Son, 405 Eighth Street, Riverside.

Beauty, also Maynard Plums, on Myrobolan roots; Royal Apricots, extra large size. Transcendent and Hysiop Crabapples, Apple and Peach trees. Bartlett Pears on Japan root. LOS NIETOS VALLEY NURSERY, DOWNEY, CAL.

100,000 Florida Sour Orange Seed Bed Trees; 100,000 Sweet Orange Seed Bed Trees. Valencias, Grapefruit, Kadota Figs, Olives, Umbrella trees. Southland Nurseries, 1941 East Colorado Street, Pasadena, Phone Colorado 6352.

Walnut Scions for Sale—Parisienne, the largest and most uniform of French nuts, heavy bearer Payne, heaviest bearer of all walnuts. Tribble Bros., Lodi, California.

Nursery Stock. Apples, pears, peaches, cherries, prunes, plums, berries, etc. OURS IS MAIL ORDER SYSTEM. IT SAVES YOU MONEY. Write us now for Planters' list. 20 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale—Several hundred each Wickson, Climax, Kelsey, Tragedy, Formosa and other varieties of plums. Sugar and French prunes. Burke's Nursery, Lodi, California.

For Sale — Seed Bed Stock, sour and sweet. Budded Valencias, navels, lemons. Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena, California.

For Sale—Scions, Eureka and Placentia Perfection from choice grafted orchards. The WALNUT NURSERY, W. A. Litten, Prop., Whittier, California. Phone Home 6294.

Avocado Trees—Mathers' Avocado Nursery. Home of Field Grown Trees. P. O. Box 585, Pasadena. Nursery Phone Colorado 6044.

For Sale—About 500 2 year old rooted Tokay cuttings at 5c each. Address: Old Hermitage Vineyard, 1623 North Main, Los Angeles.

For Sale—3,000 select orange trees. Also 3,000 lemon trees; first class trees; 20,000 seedbed stock. A. R. Rideout, Whittier.

For Sale — Valencia Late and Eureka Lemon Trees, one and two year buds; choice stock. W. V. SKILLMAN, R. F. D. Box 387, San Fernando, California.

You Want to Plant Good olive, persimmon and citrus trees; thornless blackberries, figs, rhubarb, etc. Bishop's Nurseries, Highland.

Walnuts—Send in your orders now for grafted and budded walnuts. 1921 delivery. J. G. Grundel's Walnut Nursery, Oakdale, California.

For Sale—1000 Santa Rosa. 1000 Wickson Plum, 250 Burbank Plum, all 4x6, 45 cents. Wire if you want. W. N. Burton Nursery, Porterville, California.

For Sale—Walnut Grafting Wood; Payne 10 cents. Eureka 8 cents foot. A. C. Kuhn, Route B, Box 351, San Jose.

Place Your Orders Now for all kinds of Citrus Stocks. Butler's Morningside Nursery, Lamanda Park, California.

Citrus Seed Bed Stock — Budded citrus trees. L. A. Tuttle, R. 2, Box 404, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—4 Year Old Manzanillo and Mission olive trees. E. E. Barnes, Highland, California.

10,000 Registered Eureka Lemons. L. A. Tuttle, R. 2, Box 404, Pasadena.

LIVE STOCK

For Sale—500 Milk Goats, all bred to pure registered Saanan bucks from imported stock. The female kids will be eligible to registry and will be worth twice what we ask for the mothers, viz., $20 to $50. The milk goat is the best answer to high prices for milk and scarcity of feed. The idea is spreading everywhere. We have 625 goats to exchange for land. WM. RITCHIE, ARLINGTON, CALIFORNIA.

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Third sale at the Ranch—all breeds—April 17, 1920. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

Just Arrived—3 carloads heavy blocky built Shire horses and mares, 4 to 7 years old, weighing 1,100 to 1,600 lbs. All sized city used horses and mares. New and used chain and leather harness. All kinds, single, double. Mill and lumber wagons and buggies. G. Lindauer, 122 Clara St., off 4th St. near Harrison, San Francisco.

For Sale—400 Angora does; good shearers and in good shape. Kidding in Feb. and Mar. If sold soon buyer gets kid crop, spring clip; 7 registered bucks and a good Collie herder. Priced for quick sale. Box 111, R. D. No. 1, Ventura, California.

Carruthers Farms—Live Oak, California. Shorthorn cattle and Berkshire swine of quality and select breeding.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

For Sale—Good Jack 6 years old. R. S. Seydel, Lincoln, California.

RABBITS

The Only Exclusive Rabbit and cavy magazine published in California. One year for 25 one cent stamps. Pacific Rabbit and Cavy Breeders, Eagle Rock, California, Dept. CC. "Tell them your troubles."

Ten Months thoroughbred Belgian Bucks. $3.00. Brown Bulb Ranch, Santa Cruz, California.

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beeching, 1578 W. 46th Street, Los Angeles.

MACHINERY

USED RANCH MATERIAL
WE SELL FOR LESS, SEE US. SAVE HALF. WHY PAY MORE?
SURFACE IRRIGATING PIPE
We're closing out ranch tools, will specialize in tanks, windmills, pumps, cylinders, irrigating pipe.
SPECIAL BARGAINS
Single Flying Dutchman plow, $35; plows, $5 to $12; 2 gang disc, $57.50; 3-4 gang disc plows, $85 to $140; 4 gang Stockton, $28; new corn planter, $45; new 2 hole corn sheller, $45; bone grinder, $8; double disc harrow, $48; mowers, $48; potato planter, $65; walking potato digger, subsoilers, hillside plow, 10 in., $12; 4 row beet planter, $30; 2 row bean cultivator, $35; cable, plow discs.
WINDMILLS
8, 10, 12 FT. SIZES
USED REDWOOD TANKS, ALL SIZES
NEW, USED GALV. TANKS, ALL SIZES
New 1000 gal., $42.75. 2000 gal., $56.75.
PUMPS
Plunger, Centrifugal pumps. Fine No. 3 AMES double acting, deep well plunger pump, cost $1000 for $350; 4-in. horiz. centrifugal pump, $69.00; 6-in. $125 Duplex boost pump, $80; new double geared windmill and power pumps, $28.50; diaphram pump, $28; double acting Rotary, $35; 2-in. horizontal centrifugal, $27; 2½ in. blower, $9; 4-in. blower, $12.50; Pomona single acting pump, $87.50; 8-in. new double acting draw valve cylinder, $150. Have you anything in our line for sale? Material guaranteed as represented or money back. Demmitt Co., office upstairs, 120 N. Main, Los Angeles.

For Sale—12-20 Yuba Tractor, Killifer 8-foot chisel, 2-gang John Deere plow, 8-foot Cyclone harrow, good as new. Right price. R. B. ESALEY, Compton, California. Phone 41.

Bean Threshing Machine, "American"—26x26, 8 H. P. International Gas Engine mounted on heavy truck with iron wheels, belts all complete, outfit nearly new; worked about 50 hrs. Price $750.00. Will take a team of two mules and harness in part payment, or will trade same for land. A. Bayliss, Anaheim, California.

For Sale: Sandusky Tractor and P. & O. 3 Disc Plow. Used for one season. Have quit farming and will sell these implements at right discount. Inquire, Alberhill Coal and Clay Company, 604 Pacific Electric Bldg., Los Angeles.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—Sharples Suction Feed Cream Separator No. 7; can be operated either by hand or power. good condition, can be bought for less than half its value. J. G. France, Fontana, California.

For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

Agency Discontinued—New floor sample S.25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros. Co., Carpinteria, California.

Samson Tractor in good condition for sale or trade. Apply to Mel. Harding, East Telegraph Road. Phone 9132, Santa Paula, California.

Holt "18" Caterpillar in A1 condition, cheap. Pehrson Bros., Turlock, California.

If You Want to sell or exchange your property write me. John J. Black, 116th St., Chippewa Falls, Wisconsin.

WANTED

Field Man Wanted for weekly farm publication having large California circulation, to travel throughout state, gathering livestock field notes and reporting interesting livestock events; also securing advertisements of livestock, poultry, etc. Must be competent writer on livestock and kindred subjects. To the right party we can offer permanent position. Salary and traveling expenses paid. In answering, state age, previous employment, references and salary expected. F. & T. Sect., California Cultivator, Los Angeles.

Wanted—By San Francisco firm, competent salesman to sell a well known brand of semi-solid buttermilk through California, with headquarters at San Francisco. State salary expected and experience with this class of merchandise. Answer Box "D," California Cultivator, 112 Market Street, San Francisco, California.

Wanted—Men with rigs preferred, all or part time, taking orders among farmers for an old reliable California Company. Good pay and several weeks' work. ADDRESS: J. H. Yetter, 115 North Broadway, Los Angeles (upstairs).

N. M. GRAHN
Manager Duroc-Jerseys at Ireland Ranch for 4½ years, with experience in selection, general management and show ring, is open for new location. Address Owensmouth, California.

Men With Spare Time, ranchers especially, can find excellent renumerative proposition, salary guarantee, working for an old reliable California Company. Turn your spare time into cash. Write J. H. Yetter, 115 North Broadway, Los Angeles.

Man With Years of Experience desires position on ranch as cook; steady; best references. Oscar George, Bellflower.

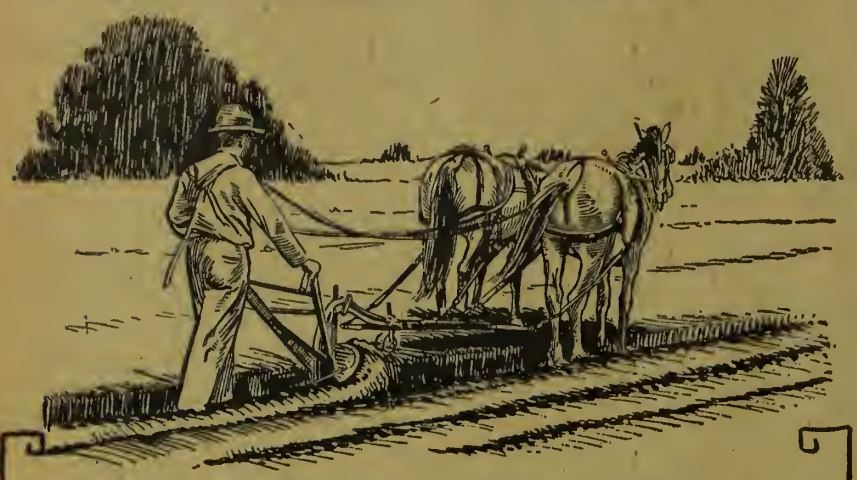
Wanted—To buy cattle, 75 or 100 steers preferred; will take good stock cattle. Address P. Herlick, Helendale, California.

FOR LEASE

Dairy Ranch For Lease—50 acres alfalfa, 50 acres barley land, 100 inches water. Complete equipment, 63 head feed carriers, litter carriers, electric motors, milking machines, boilers, brine circulators. J. E. Mayberry, Los Nietos.

Orange County's sealer of weights and measures has discovered as high as ten pounds of soil in a sack of potatoes.

A MONEY SAVING GUARANTEE--



MOLINE CHILLED PLOWS

The Moline Plow Company is the only manufacturer of Chilled Plows that guarantees Chilled Plow Moldboards against breakage in actual field use, while at the same time guaranteeing them to properly fit and to have a deep chilled wearing face as hard as the hardest of chilled moldboards.

The Moline Line of Implements
Plows (steel and chilled)
Harrows
Planters
Cultivators
Grain Drills
Lime Sowers
Mowers
Hay Rakes
Hay Loaders
Hay Stackers
Grain Binders
Corn Binders
Pitless Scales
Spreaders
Wagons
Moline-Universal Tractors
Stephens Salient Six Automobiles

A guarantee means nothing if it does not give the advantages which it sets forth. Moline Chilled Plows give the users the best possible value when they buy and afterwards save the expense of repairs due to breakage. The hard surfaces on Moline Chilled Plows resist the wear of gritty soils and the gray iron backs do not break.

The Moline Line offers a chilled plow for every plowing requirement and every plow is light in draft, easily handled and does excellent work.

See your Moline Dealer about getting a Moline Plow now or write us for full information.

Moline Plow Co., Moline, Illinois

Nearest Branches at Los Angeles and Stockton

SINCE 1865 "MOLINE" ON A FARM IMPLEMENT HAS BEEN A MARK OF QUALITY

KROGH PUMP AND MACHINERY COMPANY

206 No. Los Angeles St. Los Angeles, Cal.
147-159 Beale St. San Francisco, Cal.

Krogh Pumps Are Absolutely Water Balanced
No End Thrust Possible No Set Collars Used

The No Trouble Pump

Krogh Direct Motor Driven Pump

Fitted With Ring Oiling Bearings

Renewable Babbitted Bushings

Ring Oiling Gland

We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

LAYNE & BOWLER PUMPS

Keep Your Water Supply Ample at All Times

Insure your crop by installing a Layne & Bowler, the pitless pump. Ask for Folder No. 30.

Layne & Bowler Corporation
900 Santa Fe Ave. Los Angeles

At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Abandoning Homestead

Does the filing of the declaration of joint homestead by husband and wife have any effect upon the sale of property in case both desire to make such sale?—Subscriber, Chula Vista.

A homestead can be abandoned by a declaration of abandonment or a grant executed and acknowledged by husband and wife, so that either a grant deed of the property signed by both husband and wife, or a declaration of abandonment will clear the property of the homestead. Such deed, would of course be in the same form as if no homestead was upon the property.

Wife's Property Rights

My husband owned ten acres of land before marriage. In case of his death would I have my share in the property or would it go to his children by a former marriage? Since our marriage we have purchased 15 acres. The ten acres mentioned above was mortgaged to purchase the 15 and I was required to sign the mortgage. Does my signature on the mortgage give me any rights in the ten acres owned by my husband? For the 15 acres we have a joint deed. In case of my husband's death to whom would this property go? To whom does this property last mentioned go in case of my death?—Subscriber, Santa Ana.

The ten acres is the separate property of the husband, of which he may dispose by will without regard to any interest of the wife. If he should die without will, however, there being more than one child, the wife would succeed to an undivided one-third. As to the signature upon the mortgage, the actual signature was to the note for the borrowing of money, which money went into the purchase of the 15 acres, which is clearly community property. The fact of the wife's signature as to the mortgage upon the first mentioned property would have no effect. If the deed to the 15 acres is in fact a deed of joint tenancy with the right of survivorship, then upon the death of either husband or wife, the whole of the property would go to the survivor. It is not however, a joint deed if it is merely made in the names of the two parties. In such instances it conveys a tenancy in common so that each would have an undivided one-half interest, in which event and in default of any will, under an administration of the estate of the deceased party, it would descend to the heirs according to law. In case of community property, upon the death of the husband the wife would be entitled to one-half and to one-third of the remaining one-half, the children being entitled to the two-thirds of the other remaining half. In the case of the death of the wife without issue, as in this case, the husband would be entitled to one-half; the remaining half going to the next of kin of the wife.

Damages for Collision

A owns land on each side of the state highway, which he uses for pasture. By some means one of the animals which he pastures is on the highway after night. B drives along the highway in his auto and runs into the animal, causing a bad wreck. It is necessary to kill the animal, and the machine is wrecked badly. Who is liable and who can collect damages?—Subscriber, Tulare.

Subdivision Y of Section 20 of the motor vehicle act as amended in 1919 provides that no person owning or controlling the possession of any horse, cow, mule, ass, sheep, goat, hog, or other livestock shall voluntarily or negligently permit such animal to stray upon, or remain unaccompanied by a herder or other person in charge or control thereof upon a public highway, either side of which is adjoined by property which is separated from such highway by a fence, wall, hedge, sidewalk, curb, lawn or building, or shall permit the tether or any portion thereof to which said animal may be attached to lie across or upon any public highway, and no person shall feed, pasture or camp any such livestock upon any public highway between the hours of sunset and sunrise without keeping a sufficient number of herders on continual duty to keep open the road so as to admit at all times of the ready passage of vehicles, and also keeping red lanterns or lights burning to warn the public of the presence of such stock. It would therefore seem that if it may be proven that the party pasturing the animal negligently permitted the animal to stray upon the highway, that he is liable for the damages which the driver of the automobile suffered by reason of the collision.

RAISING RABBITS

A bit of rabbit meat is fine for the table now and then and, more, there is a tidy profit to the California boy or girl who will care for a few on the side, before and after school.

A writer in Successful Farming gives the following suggestions:

The raising of rabbits for profit has become widely spread in both Europe and this country, as the flesh is preferred by some people to chicken. Many varieties are grown for pleasure and for shows, but the fancier who wants to realize the biggest profit from his labor should choose the rabbit which can thrive with the least attention.

For the beginner, one buck and two does are sufficient. The hutches should be made light enough so that they may be moved about. Thus, when the ground becomes sour under a hutch, as it is bound to do, it may be moved to another spot, and the ground given a chance to dry out. By moving the hutches about a comfortable location may be secured for either summer or winter.

The buck's hutch may be as small as two feet by two and one-half feet, and two feet high, but it is better to give him a little more room. The average doe will bring from seven to ten rabbits in a litter, while an extra fine one will bring fifteen; so the hutch should be at least four feet square. A hutch containing about this amount of floor space, but made long and narrow gives more room for exercise.

The hutches must be placed on board floors or the rabbits will give continual trouble by burrowing out, and they do not seem to mind the hard floors. The sides should be made of one inch mesh wire netting, or even smaller, for larger mesh netting will allow the young rabbits to escape, and fall a prey to dogs and cats. A hutch facing the east, with one side covered with netting and the other three with boards is the most satisfactory for all kinds of weather. A waterproof cover should be provided, as it is very injurious to the health of rabbits to force them to live in damp hutches. The doe's hutch should have a darkened box for young rabbits a common apple box, with an opening large enough for the doe to pass through, does very well, when turned upside down. The hutch must be cleaned and filled with dry straw or other litter at least once a week, or sickness will result.

It does no harm to leave the young rabbits with the doe until she weans them of her own accord; but as some does will not wean them soon enough, they may be taken away when four weeks old, except in cold weather, when they should be left a little longer. Four litters a year is enough for the average doe. It is best to wait until the does are from six to eight

months old before mating, as they then have gotten their growth. When it is not possible to make small hutches for all the rabbits, a large pen made with netting on all four sides is very convenient for the young ones. Twelve inch boards may be buried nearly their whole depth in the ground, and, as this will keep the rabbits from burrowing out, no floor will be needed. The rabbits may run together until they are about three months of age, when those of different sex should be placed in different pens.

In summer when green feed is plentiful, the rabbits may be fed on this entirely, although they enjoy a little hay or other dry feed occasionally. They will eat almost anything in the plant line which is juicy. Nearly all scraps from the kitchen may be fed to them, and they are especially fond of cabbage and carrots. When green feed is not available, and the rabbits must be fed on hay, they should have a few vegetables such as beets, turnips and carrots. This gives a change and also a balanced ration. They must have plenty of water to drink at all times, and especially the does with young, as at this time they have an almost unquenchable thirst, and this must be satisfied. These does enjoy a little bread and milk, as do the little ones as soon as they will eat it. When the doe has an especially large litter, both she and the young ones should have this feed regularly. Rabbits may be fattened on almost any grain, but corn is probably the best.

By using a little judgment in feeding, and giving the rabbits clean, dry quarters, one may avoid nearly all sickness, and get a great deal of pleasure, as well as profit out of rabbit raising.

ENCOURAGING FEDERAL ROADS

A question of interest in highway legislation before the present session of congress is the Townsend bill, providing for a national highway commission, a national highway system, and national construction and maintenance of this system. This bill was introduced in the senate just before the holiday recess.

The important points covered by it are enumerated in a statement approved by Senator Townsend as follows:

"Authorizes the construction and maintenance of a national system of highways exclusively at the expense of the national government.

"Creates a federal highway commission to be named by the president with the advice and consent of the senate to take over all the highway functions now exercised by the department of agriculture and to construct and maintain a national highway system. This commission is to consist of five men selected with due regard for geographical representation.

"The national highways shall consist of two main highways in every state, comprising one per cent of the total highway mileage of each state as ascertained by the commission, where one per cent is not sufficient to cause these highways to connect with adjacent states, bordering countries, waterways, the commission is authorized to extend the mileage in that amount.

"The commission is directed to consult the state highway departments as to locations of those highways and is further authorized to have all the work undertaken by the state highway department, supervisory power remaining with the commission.

"In those states where national highways have been constructed to a point deemed adequate for present and future traffic needs by the commission, the commission is authorized to construct an equivalent mileage to that taken over, but maintenance in those cases will rest with the state.

"For the purpose of carrying out the act there is appropriated $50,000,000 which shall become immediately available; $75,000,000 for the fiscal year beginning July 1, 1920, and $100,000,000 for each of the three succeeding years, in all $425,000,000.

"After making such deductions as may be necessary for administration and maintenance, the commission is directed to allocate the remaining funds between the several states annually in the same ratio that the mileage in each state bears to the total mileage selected in all states."

SUBIRRIGATION WITH AND WITHOUT TILE

As generally understood one of the chief objections to subirrigation is the slowness of penetration of water through the lower soil from the underground channels provided. This is especially to be noticed in heavy soils. Another objection is that the water always rises and carries upward any alkali that is present in the lower soil.

The service that can be given by proper soil blasting in this connection can hardly be overestimated. When the water is carried in pipes the ground between the lines can be broken up, fined and eventually granulated through proper blasting so that capillary movement of the water will be very rapid. Saturation can be obtained in such broken ground in a fraction of the time required in ordinary compact subsoil.

The second objection mentioned brings up the fact that when the soil is open as blasing leaves it, no pipes are necessary for subirrigation. The water can be turned on in sufficient amounts to saturate the soil but not to cover the surface, and it will filter through wide blocks in a short time. When this is done, the movement of water is sideways and downward, and there is no bringing upward of alkali from lower levels.

If former irrigation has caused water compacting to the extent of interfering with its distribution, blasting will correct the trouble and at the same time insure both drainage and moisture storage. The length of time this loosening will remain effective depends entirely on the crops grown and the surface cultivation. Plenty of organic matter from roots and from cover crops turned under will keep the subsoil open for years and will insure a large and continual drawing on the virgin fertility of the soil that normally is insoluble.—J. J.

FARMERS NEEDED AT INDIAN SCHOOLS

The United States civil service commission announces that Indian schools in many states are in need of farmers to have charge, under the direction of the superintendents, of agricultural operations on farms connected with the schools, to give instruction in practical farming, and to do extension and instructional work in agriculture among adult Indians occupying their own farms on reservations.

Information and application blanks may be obtained from the secretary of the United States Civil Service Board at San Francisco, or from the United States Civil Service Commission, Washington, D. C.

GROUND WATERS OF SAN DIEGO

The United States geological survey has issued "Water Supply Paper 446, Geology and Ground Waters of Western San Diego County," by Arthur J. Ellis and Chas. H. Lee, in cooperation with the department of engineering of the state of California and of the city of San Diego. Those interested in San Diego irrigation will find this volume extremely valuable.

The superintendent of documents will furnish the book, which has a portfolio of maps of portions of the county, for $1.

The work of the farm bureaus in stimulating swine production by means of pig clubs and community auction markets has brought about considerable improvement in quality and prices, and doubtless is the principal reason for the great increase in number.

HUDSON SUPER SIX

Endurance Makes Hudson the Largest Selling Fine Car

More Than 80,000 Owners Value That Quality Most Because It Means Long Dependable Service, Free of Car Troubles

Hudson outsells all the world's fine cars, only because of qualities that count in every day service.

Chief of these is durability. All motorists so regard it.

And endurance is written everywhere in Hudson history.

Since Hudson made its unrivalled endurance records, it has led all other fine cars in sales every month and every year.

That proves how experienced motorists judge car worth.

How Hudson Gained Leadership

It was not speed that gave it sales leadership; though Hudson holds more stock car speed records than any car, and with cars embodying the Super-Six principle won more points in speedway racing than the fastest special racers ever built.

It was not power; though Hudson holds the fastest time ever made up Pike's Peak, in the classic of all hill climbs.

These Qualities Inspire Pride In Hudsons

They are valued of course by more than 80,000 Hudson owners. They contribute to the rounded supremacy of performance which distinguishes the Hudson everywhere. And it is natural to feel pride of ownership, and affection for a car that none can rival in fleetness, or in hill-climbing.

But few will ever care to use the full limit of Hudson speed. Few will meet hills to test its limits of power.

What does count every day of use is sure, dependable transportation. What does count after many months of service is the way Hudson retains its smooth, silent powers of superior performance, undiminished.

It means the assurance and reliance in your car that you feel in a watch that has served you for years, and never gave you cause for doubt. You are not disturbed by speculation regarding probable car troubles. Because with Hudson, car troubles are not thought of because of their remoteness.

And remember that the Super-Six principle which accounts for all Hudson's speed, endurance and performance records, is exclusive in the Hudson. No other maker can use it. For the Super-Six motor, which adds 72% to Hudson power, without added weight or size, was invented and patented by the Hudson.

Mark How Hudson Now Fulfills Its Prophecy

Every year has seen some improvement in the Hudson. The new models approach nearer the builders' ideal than they ever believed practicable. It is today a finer machine than those early models, which made performance records, no other car has equalled.

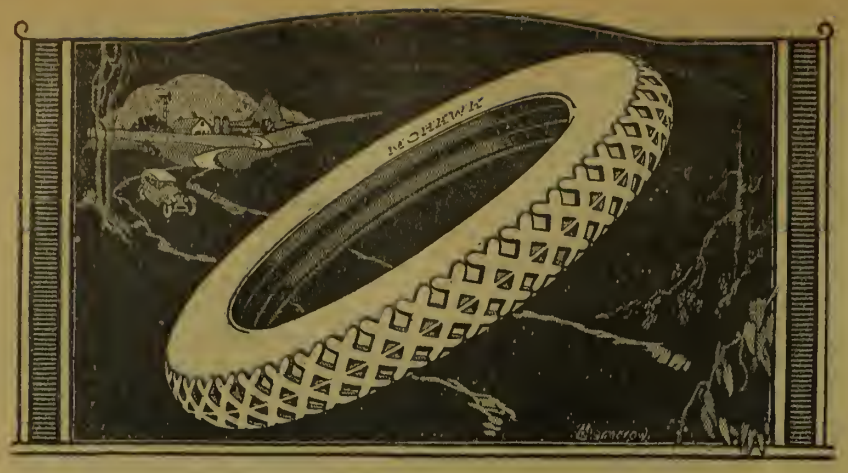
Hudson also leads in style. Its influence shapes motor design each year.

Demand for such advantages as Hudson's inevitably means that immediate delivery is not possible for all who want them. Many have waited months for the model of their choice.

Even should you not want your Hudson until next year, now is not too early to place your order.

Hudson Motor Car Company, Detroit, Mich.

(3014)



"Quality Always Satisfies Me"

That's the reason one farm-owner recently gave for his consistent year-in and year-out loyalty to Mohawk Quality Tires.

"If honest quality is the basis of the seeds, the shoes, the tractor, the automobile, the tire or anything else I buy—I know I'm going to be satisfied with my purchase," he stated. "That's why I knew Mohawks would satisfy and that's why they have—they are quality tires through and through."

In seven years the Mohawk policy of building a strictly quality tire has not deviated for a day, an hour, a minute.

In all this time not a single ounce of quality-reducing "fillers," such as rosin, glue, whiting, clay, etc., has ever found its way into a single Mohawk.

Purest rubber—strongest fabric—only these are used in Mohawks—and an extra ply of fabric goes into most sizes of the fabric tires.

In addition to pure materials—Mohawks are strictly hand-made by tire builders who are the choice of the industry.

That this consistent quality is best in the long run is evidenced today not only by the tremendous and steadily increasing number of Mohawk users—but by the fact, proved by records, that 85% of those who buy their first Mohawks continue to use Mohawks exclusively.

All standard sizes in both Cord and Fabric tires—ribbed or non-skid treads—and an extra ply, hand-made Ford size, also.

Good Dealers Everywhere Handle Them

MOHAWK RUBBER COMPANY, AKRON, OHIO

Branch: 1436 Van Ness Ave., San Francisco, Cal.

MOHAWK "Quality" TIRES HAND MADE

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ON YOUR

Cabbage?
Melons ?
Peas ?

Use the

AMERICAN BEAUTY DUST SPRAYER

"it Kills them"

The California Sprayer Co.

6001-11 Pasadena Ave.

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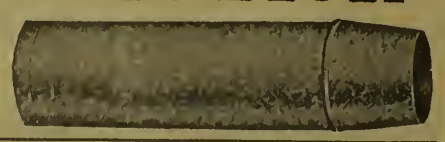
SURFACE IRRIGATION PIPE

Prompt Delivery

Write for Catalog and Prices



MANUFACTURED BY

Woolwine Metal Products Co.

Eighth St. & Santa Fe Ave., Los Angeles, Calif.

When Writing Advertisers, Mention the Cultivator.

Los Angeles Markets

Los Angeles, February 18, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 65 cents.

Dairy Exchange prices last week on extras:

Feb.	11	12	13	14	16	17
'20 ...	64	..	..	64	64	65

CHEESE

Brokers' prices:

California, lb., 29; price to retail merchants, 29@31.

EGGS

Fresh extras, Produce Exchange closing price, 41 dozen; case count Produce Exchange closing price 38 dozen; pullets, Produce Exchange closing price 39 dozen.

Dairy Exchange prices last week on extras:

Feb.	11	12	13	14	16	17
'20 ...	43	..	..	41	43	41

POULTRY

Price to producers: Hens, 35; heavy, 37; colored over 4 lbs., 38; broilers, 40-43; fryers, 40; roasters, 38; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; turkeys, live, 40; dr., 41; squabs, 45@47.

Belgian hares, 3 to 3½ lbs. live, 17.

LIVE STOCK

Los Angeles, Feb. 17 — Weighed and delivered off cars without food or water: Hogs (hard-grain fed), 125 to 150 lbs., 15.00; 150 to 175 lbs., 15.50; 175 to 225 lbs., 16.00.

Cattle (on foot, gross weight): Steers, good, 11.50@12.00; medium, 11.00@11.50; heifers, good, 9.50@10.00; fair, 9.00@9.50; bulls and stags, 6.00@6.50; calves, 125 to 150 lbs., 12.50; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock February 17, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Market stronger. New stock: Stockton, Burbank, special brands, 5.75@5.85; fancy, 5.40@5.50; choice, 5.00. Idahos: Russets, 5.25@5.50. Local stock, lug boxes, 1.75@1.80; local White Rose, 5.50@5.75.

Sweet potatoes: Market strong. Lugs, 1.25@1.50; cwt. mostly 4.25@4.50; best, 5.00.

Carlots: Demand and movement slow, market firm, supplies limited. Straight cars, too few sales to quote, mixed cars, 4.50 per cwt.

Onions. Demand and movement moderate, market weaker. Home grown and Stockton: White Globes, cwt., 6.50@6.75; Yellow and Browns, 5.50@6.25; lug, 1.75; lb., 6@7. Garlic, lb., 40.

VEGETABLES

These are the actual prices obtained February 17, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.65@1.75.

Beans, green, lb., best, 15@17; other 8@9.

Beets: Doz., 40@60; lb., 4@5; sk., 3.00@3.25; other 2.00@2.35.

Brussels Sprouts: Per lb., 10@13, poorer low as 7; best shipping stock 14@17.

Cabbage: Market strong. Per lb., 3@4; per cr., 2.00@2.50; best 3.00@3.50; red, lb., 4@6; sacks, mostly 3.00.

Carlots: Demand and movement moderate, market weaker, prices lower, supplies limited. Winningstadt and Cannonball, straight cars, few sales, $40.00@50.00; few straight cars of Winningstadt low as $37.50; mixed cars, wide range in price, 40.00@55.00; mostly 50.00.

Carrots: Doz., 30@40; lb., 1½@2; sk., best 1.50@1.75; other 1.00@1.25.

Cauliflower: Market stronger, supplies scarce. Local stock; per dozen, best 1.00@1.25; others 65@85; field crates, best 2.00@2.25; other 1.75@1.90.

Carlots: Demand good, little movement, market stronger, quality and condition variable. Half Early and Pearl, straight cars, very few sales, 1.25@1.40; mostly 1.30@1.35; mixed cars, 1.30@1.45.

Celery: Market strong. Local and Northern: per dozen bunches, 1.40@1.65; poorer low as 60; crates, 6.00@8.00; fancy shipping stock, 8.00@8.50.

Carlots: Demand and movement slow, market dull, no change in prices, supplies limited. Per dozen, straight cars, few sales, No. 1's, 90@1.00, mostly 1.00; No. 2's, 80@90; No. 3's, 70@80; mixed cars, No. 1's, 1.10; No. 2's, 1.00@1.05; No. 3's, 90@95. Few No. 1's in mixed cars, low as 1.00.

Cucumbers: Hothouse, 1.00@3.00 bx.

Eggplant: Florida and hothouse, 25 per lb., local, scarce, 14@17.

Peas, local, scarce, lb., best 10@11; others, 6@8.

Lettuce: Local Stock: market slightly stronger. Per dozen 25@30; crates, wide range in quality and condition, 85@1.10; poorer, low as 40.

Carlots: Demand slow, movement moderate, market weak, many rolled unsold. Los Angeles District: California crates Iceberg, straight cars, too few sales to quote; mixed cars mostly 1.25. Imperial Valley, straight cars, very few sales, 1.25@1.50, mostly 1.25.

Peppers: Supplies very light. Local stock: Bells, mostly 18@20; poorer, 15@17. Chilis, best, 18@20 per lb. Floridas: Bells, 25@35 per lb., Chilis, 35@40.

Parsley: Doz., 30@35.

Parsnips: Lugs, 80@1.25; sacks, 3.00@3.75; per dozen, 40@50.

Rhubarb: Local stock scarce, bx., 2.00@2.25.

Spinach: Doz., 20@35.

Squash: Hubbard, cwt., 4.50@5.00; lb., 4½@5½.

Tomatoes: Market weak. Mexicans: crates 2.00@2.25; lugs, repacked, 2.25@2.50; per lb., poor quality and condition, 3@6; some best high as 10.

FRUITS

These are the actual prices obtained February 17, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms. Cash on the walk.

Apples: 4-tier Bellefleurs, best 2.00@2.25; quality and condition ordinary 1.85@2.00; 3½@4½ tiers, 1.50@1.75; loose 3@5½ lb. Yellow Newton Pippins, 4 tiers, 2.00@2.50; 3½ tier, 2.35@2.50; per lb., 4½@6; Winesaps, 3.75@4.00; loose, 6@6½ per lb.; Delicious, 2.50@3.50; fancy large sizes, 3.50@4.00; 5@7 per lb.; Wh. Pearmain, best, 2.65@2.75; other, 2.25@2.50; lb., 5@6.

Bananas, 8@8½; Red, 9.

Cranberries: Barrels, 18.00; best shipping, 18@20 per lb.

Pears: Winter Nelis 6½@7 lb.; bx., 3.00@3.50.

Grapefruit: California and Arizona: per box, 3.00@4.00, mostly 3.25@3.50. Local, 2.00@3.75 per box.

Lemons: Market stronger. San Fernando Valley stock; fancy packed, 5.00@5.25; loose, 3.50@4.50; juice, 2.50. Local stock; packed, 2.50@3.00; loose, 1.50@2.00 box; 2@3 per lb.

Oranges: Navels, 4.00@5.25 box. Local stock: packed, 3.50@4.25; large sizes low as 2.00@3.00. Tangerines, lb., 6@8.

HONEY

Demand and movement good, market steady. Carloads f. o. b., usual terms, per lb.; white orange blossom, mostly 19; white sage 19@20; extra light amber sage 18½; light amber sage, supplies cleaned up; light amber alfalfa, 16½. Beeswax, local lots, 40@43.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.

No. 2, 26.

Diamond Brand Buds, 34.

Golden State Buds, 34.

1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6: Limas, 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

HAY

Rains all over the South prevented a further rise but vastly heavier rains are needed to effect any decline.

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	25.00@28.00
Barley	25.00@29.00
Alfalfa	25.00@30.00
Barley Straw	10.00@13.00

GRAIN AND FEEDS

Price bid local grain exchange, February 10.

Oats, Cal. Feed, 3.20.

Barley, 3.45.

Corn, Yellow, 3.07½.

Egyptian Corn, 3.47½.

Eastern Kafir, 2.60.

Wheat, mixed feed, 4.80@5.00.

Milo, 2.95; Eastern, 2.52@2.70.

Bran, Kansas, 48.00@50.00.

San Francisco Markets

San Francisco, February 17, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	64
Prime Firsts	63

CHEESE

Dairy Exchange quotations:

Jack, full cream	27@28
Cal. Flats	28½@30
Cal. Y. A.	36
Oregon Trip	32

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	47½
Prime firsts	45
Extras, pullets	41½
Undersized	38

POULTRY

Wholesale prices are:

Leghorn, 40@42; small, 40@41; large, 41@43; roosters, young, 38@40; old, 21@23; broilers, 40@43; fryers, 42@45; turkeys live, 42@43; dressed, 52@53.

Ducks, Indian Runner, 25@27; Pekin, 28@32; geese, 30@32; Squabs, 50@65.

Belgian hares, live, 18@20; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company are:

Cattle—Grass steers, No. 1, weighing 1000 to 1200 lbs., 12@12½; do 1200 to 1400 lbs., 11½@12; do, second quality, 9½@10½; thin, 8@9.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4½@5.

Calves—Light weight, 13½@14; medium, 11½@12; heavy, 9@10.

Hogs—Weighing 100 to 150 lbs., 14; 150 to 225 lbs., 15; 225 to 300 lbs., 14½; 300 to 400 lbs., 13½.

Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle—Good steers, 1000 to 1200 lbs., 12½@13; good heifers, 1000 lbs. and over, 9@10; good cows, 1000 lbs. and over, 8½@9; canner cows, 5@6; good bulls, 6@7.

Calves—Light, 13@14.

Hogs—Top packer, hard and well finished; 100 to 150 lbs. 14½; 150 to 225 lbs., 15½; 225 to 300 lbs., 14½; over 300 lbs., 13½; under 100 lbs, 13½.

Ewes—9@10.

Wethers—12@13.

Yearlings—13@13½.

Milk Lambs—14@15.

POTATOES

Wholesale selling price:
Per 100 lbs.: Rivers, fancy, 4.50@4.75; choice, 4.25@4.50; Idaho Gems, 4.50@5.00; Salinas, 5.25@5.50; sweet, 4½@5 per lb.

ONIONS

Wholesale selling price:
Onions, fancy brown, 4.75@5.00; choice, 4.50@4.75; yellow, 5.00@5.25; white, 5.50.
Garlic, China, 14@15; other, 25@30 lb.

VEGETABLES

Wholesale selling price:
Artichokes, No. 1, 1.10; No. 2, 75@85; No. 3, 50@60.
Asparagus, lb., 40@75.
Brussels Sprouts, lb., 8@9.
Carrots, per sack, 1.00@1.25.
Cauliflower, doz., 1.25@1.45.
Cabbage, doz., 40@50; lb., 2½@3.
Celery, doz. bunches, 45@50; cr., 5.00@7.00.
Eggplant, lb., 15@20.
Lettuce, cr., 1.50@2.00; Imp., 2.50@2.75.
Peppers, Bell. lb., 12½@15; Chili, lb., 10@15.
Peas, lb., 10@12.
Radish, 7@9 doz. bunches.
Tomatoes: Southern, 2.75@3.00.
Spinach, lb., 5@7.

CITRUS

Wholesale selling price:
Per box: Lemons, fancy, 5.00@5.50; choice, 4.00@4.25; standard, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00@2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; navel, 4.00@5.50; limes, 1.00@1.50 per crate; tangerines, 1.50@3.25 per crate.

DRIED FRUITS

Prunes:
Prune prices announcel by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½o; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On smallsized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:
Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:
Standard yellows, 14¾o; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾o; Muirs, 18¾c.
Slabs, yellows, 14½c.
For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:
Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:
White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.35; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:
Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

Raisins:
California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅝; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12⅛; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾. Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown, flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown, tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, 2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

GRAIN

Wheat: The prices are based upon federal grades and standards at the terminals in San Francisco Bay and Los Angeles, and are as follows, per bushel of 60 pounds:

Hard White—	Per Bushel	Per Cental
No. 1	$2.20	$3.66 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.09	3.48½

The above are minimum prices.
For sacked grain add 4½ cents per bushel of 60 pounds to above prices. Deductions of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.25@3.30; black, 3.00.
Corn: California yellow, 3.15@3.25 per cental; Egyptian white, 3.75@3.80; milo maize, 3.15@3.25.

Barley: Spot feed, per cental, 3.50@3.60; brewing, 3.65@3.75.

HAY

Under date of February 14, Scott-Magner & Miller says:
Receipts past week, 815 tons. Market here has been extremely quiet, all purchasers confining themselves to bare necessities; extreme high prices have been a bar to any general trading. The traders here base their calculations on the prospect that a continued dry spell will hold up and perhaps raise prices, while good copious rains and growing conditions in the country would undoubtedly weaken the market. The demand throughout the country has continued strong and the lack of feed for stock on the ranges and even in the best domestic pasture land has created a demand all over the state. This has diverted much of the usual tonnage that ordinarily comes to San Francisco at this time of the season. Fortunately the railroad situation is normal and very good transportation service has supplied all country requirements. Export has been very light during the past week, very little either going to private purchases or to the government. Alfalfa continues in strong demand, chiefly through the country sections, although the ordinary and moderate grades of hay are being bought to take its place wherever possible. Straw continues as formerly with practically no demand and prices nominal.
We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses are to be added according to conditions:

Fancy Wheat Hay light 5 wire bales	30.00@32.00
No. 1 Wheat or Wheat and Oat Hay	27.00@31.00
No. 2 Wheat or Wheat and Oat Hay	26.00@28.00
Choice Tame Oat Hay	26.00@29.00
Other Tame Oat Hay	26.00@29.00
Wild Oat Hay	25.00@28.00
Barley Hay	25.00@28.00
Alfalfa Hay	27.00@32.00
Stock Hay	22.00@25.00
No. 1 Barley Straw, per bale	.50@ .80

Citrus Markets

Los Angeles, February 18, 1920.
All oranges are higher and general market conditions better except for blizzard weather which is preventing general movement. It now appears that earlier estimates were materially too high, and it is now estimated that there are some 2,000 or 3,000 cars of Navels less to ship than last year this date. Fruit now running to large sizes.
F. o. b. quotations are around $5 and $6 on lemons but some spectacular sales are being made in the East especially in the auction between $10 and $12. Weather conditions for moving fruit during the last week have been very unsatisfactory.
Shipments
Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 6,859 cars; lemons, 1,559; total, 8,418. To same date last season: Oranges, 6,105; lemons, 2,020; total, 8,125. From Central California this season: Oranges, 3,441; lemons, 206; total, 3,647. To same date last season: Oranges, 2,222; lemons, 233; total, 2,455. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

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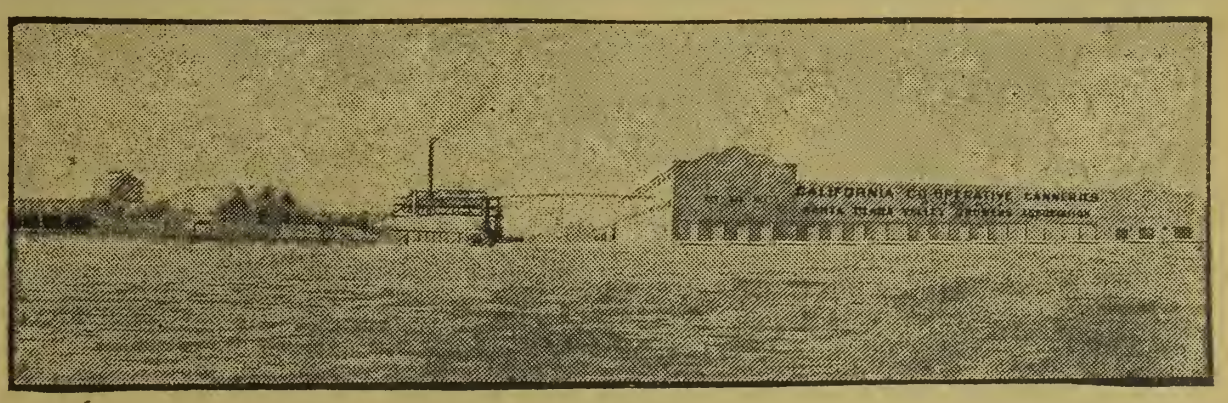

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18 acres of land, 2 cannery buildings, one for fruits, one for vegetables, 2 warehouses, steam and power plant, cafeteria, 30 cottages, dry yard. An absolutely complete plant owned by fruit growers, operated solely in the interests of growers who receive all the profits of the business above the interest charge of 8 per cent on the capital stock.

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is offered to fruit growers and other investors. Act quickly; the opportunity will not last much longer.

Plant No. 1—Vegetables, San Jose, Cal.
Plant No. 2—Fruits, San Jose, Cal.
Plant No. 3, Tulare, Cal.
Plant No. 4. Visalia, Cal.

State Beekeepers Meet

By Ernest Braunton

EMERSON said: "There are more than 5,000 beekeepers in this state and they should be more fully represented than this small delegation of 200. We must bestir ourselves to interest as many as possible in the benefits t be derived from membership in our organization." This was George Emerson, of the host city, speaking before the 31st annual convention of the State Beekeepers Association, at Exposition Park, Los Angeles, February 6-7, 1920.

But what they lacked in numbers they made up in enthusiasm and proved a most learned and facetious lot, talking glibly on such ordinary topics of conversation as the "supersedure impulse" of the hive. Cary W. Hartman put the audience in a merry mood in his brief response. He was introduced as the bee inspector of Alameda County. He said: "I want you to understand that I am president of the Alameda County Beekeepers Association; the inspectorship will be explained later. I am the second largest owner of bees in the county, having 100 colonies. The high man has 107. The others have all the way from the one they expect to catch up to 40 or 50. When we organized my son said the name was too cumbersome, that if we had such a long name it should be chosen with a view to using the initials for a short title, and suggested the Benevolent Order of Beekeepers Societies—B. O. O. B. S. The county supervisors created the position of inspector and a committee was appointed to find a young man full of pep and well versed in beekeeping. It reported back that no competent person could be found who would accept the place at the salary offered and that anyone who would work for such salary would be of little use. That's how I got the second job."

President Whiteside was asked what was the record for the amount of honey ever taken from one colony with one queen in one season. He stated he did not know. But he had taken 500 pounds from some of his. George Emerson said that in 1884 that part of Los Angeles County now Orange County had an association that kept records from every colony, and the total output averaged 700 pounds of extracted honey to a colony. Someone stated that a man in Arizona has a colony which last year yielded 935 pounds. The president then remarked that as the first one who told a story in that crowd stood no earthly show it was a good time to stop.

Serious discussion brought out the fact that if the colony was a strong one constant removal of filled combs and replacement with empties, coupled with a roomy hive, were important factors in honey production.

The Man From Ohio

M. E. Pritchard, chief queen breeder of A. I. Root Co., Medina, Ohio, then spoke on "Queen Rearing." He said the chiefest of favorable conditions in queen rearing was temperature and that 97 degrees should be steadily maintained day and night. Incubators had been used for experiment and it was found that a variance of one or two degrees from 97 worked harm by retardation or acceleration of development in the queens. He keeps strong colonies in warm hives with four inch packed walls. The season for queen rearing in Ohio lasts but 120 days. Feeding for queens must be heavy and continuous, not so much in volume as replenishment. For that reason he feeds the bees every 12 hours. This is necessary for after the bee's working day is over everything stops in the hive, absolutely nothing but sleep goes on. When a worker comes in laden he gets rid of his load as quickly as possible and in any way he can. It costs two and a half pounds of sugar to rear each queen. Every beekeeper should rear his own queens if he knows and practices the best methods, otherwise he should buy. After the beginner has bought two or three or more tested queens he should use them as long as he can in preference to their offspring. In answer to a question from one who had 100 colonies he said he would use the Dr. Miller method of cutting out the brood comb and putting in queen cells. When the young queens were about to hatch the old queens should be killed. Another question brought the statement that mother and one daughter might be in the hive together, but two or three daughters, never. All larvae are fed the same for 40 hours, after which the food of the worker larva is changed and the queens are fed differently. If temperature and food were kept to the highest standard all workers might be queens. From this it is evident that bees are more successful in restricting their royal family than are human beings.

Other Speakers

L. L. Andrews of Corona, in a summary of the university short course on beekeeping was the first speaker. A mixture of business and discussion followed, a new constitution being adopted by unanimous vote. In case of foul brood President Whiteside said he shook his bees down in a bee tight honey house, boiling all frames, etc., for three-fourths of an hour. An effort will be made to register all beekeepers with the supervisors of each county, with number of colonies owned by each and nearly all would keep out transient apiaries to protect the land owning apiarist. An agreement in some counties keeps the plants at least two miles apart. Eucalptus flowers often produce dysentery in bees when they are first available. While some counties have no bee inspector the state law declares "that upon petition of ten beekeepers the county supervisors shall appoint," no alternative being given, and that the salary of said inspector shall be $4 a day. It was ventured that a state inspector should be appointed so that county lines could be eliminated in rulings for the good of all, but bees should be kept from coming into the state in hives or in other ways than in one pound packages.

Five thousand colonies were brought into California last year just for the feeding season. One firm brought 4,000 colonies into Riverside County and placed them without regard to existing apiaries. This is manifestly unfair to land owning beekeepers and should be prohibited by law. Discussion brought out the accepted statement that in orange growing districts 40 pounds of orange honey to a colony is a good average seasonal yield.

A committee on permanent exhibit was appointed, consisting of C. A. Schrim, 201 North Avenue 18, Los Angeles, chairman; L. L. Andrews, Riverside County, and J. G. Gilstrap, Siskiyou County. The exhibit is to be installed in the state building, Los Angeles. An observation hive and pure honeys will be the chief features. Mr. Schirm says if volunteer exhibits are shipped to him he will pay charges and place same with exhibitors name thereon. Only pure honeys will be shown and samples are desired of such in orange, buckwheat, eucalyptus, and every sort of which the sender is certain as to its purity. The new officers elected were: President, J. E. Pleasants, Orange; vice president, M. H. Mendleson, Piru, Ventura County. A. B. Shaffner was reelected secretary-treasurer.

Escort Wagon—Items V-102, V-111.

FARMERS,
STOCKMEN,
Fruit Growers,
CONTRACTORS

Water Carts—Items V-105, V-107

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Item No. V-102. ESCORT WAGONS. 2,000.
Weight, 2140 lbs. Capacity 5000 lbs. Wheels, front 3 ft. 8 in. high, rear, 4 ft. 6 in. high; tires, 3 in. x ⅝ in. round edge, steel or iron; track, 5 ft. 1½ in. Body, size about 10 ft. x 40 in. x 27 in., painted olive drab, 3 coats. Stored at Jeffersonville, Ind. Farmers wagons, Freighting and Road Building. Minimum bid considered, 1 wagon. For inspection apply, Z. S. O., Jeffersonville, Ind.

Item No. V-111. ESCORT WAGONS, 107.
Same as above. Stored at Camp Sevier, S. C. For inspection apply, Z. S. O., Transportation Bldg., Atlanta, Ga.

Item No. V-103. MEDICAL CARTS, 1.
Weight 1144 lbs. Capacity 1500 lbs. Body, 7 ft. 8 in. long, 4 ft. 4 in. wide, 20 in. deep; wheels, Archibald or artillery type. 4 ft. 6 in. high; tires 3 in. x ⅝ in., oval edge, steel or iron. Track, 5 ft. 1½ in. Painted Olive Drab. 3 coats. Stored at Washington, D. C. Hauling of all kinds. Minimum bid considered, 1 cart. For inspection apply Z. S. O., 17th and F Sts., N. W., Washington, D. C.

Item No. V-104, MEDICAL CARTS, 2.
Same as above.

Item No. V-106. DRINKING CART, 1
Weight, 1255 lbs. Capacity, 1500 lbs. Tank, galvanized sheet steel, 150 gal. capacity. Pump, double acting hand lever, 5 in. cylinder, Gould patent force pump. Wheels, Arcbibald or artillery type, 4 ft. 6 in. high, tires 3 in x ⅝ in., oval edge. Track, 5 ft. 1½ in. Painted Olive Drab, 3 coats. Stored at Washington, D. C. Sprinkling and tree spraying. Minimum bid consider, 1 cart. For inspection apply, Z. S. O., 17th and F Sts., N. W., Washington, D. C.

Item No. V-107. DRINKING CARTS, 60
Same as above. Stored at Chicago, Ill. For inspection apply Z. S. O., 1819 W. 39th St., Chicago, Ill.

Item No. V-108. BUCKBOARDS, 99
Capacity, 4 or 6 persons and baggage, weight, 740 lbs. Body 8 ft. 3 in. long, 3 ft. wide. Wheels, front, 3 ft. 6 in. high, rear, 4 ft. high. Tires, 1¼ in. x ⅝ in. steel; track, 5 ft. Painted Olive Drab. Stored at Jeffersonville, Ind. Minimum bid considered, 1 wagon. For inspection apply, Z. S. O., Jeffersonville, Ind.

Item No. V-109. BUCKBOARDS, 143
Same as above. Stored at Atlanta, Ga. For inspection apply, Z, S. O., Transportation Bldg., Atlanta, Ga.

Item No. V-122. HAND CARTS, 270
Weight, about 173 lbs. Capacity, about 600 lbs. Wheels, "A" grade, 7 flange, 16 spoke. Tires, steel, sq. edge, 1½x3-16 in. Truck, 3 ft. 7 in. Body, 4 ft. 6 in. long, 2 ft. 9 in. wide, 13½ in. deep. Painted Olive Drab. Stored at Chicago, Ill. Minimum bid considered, 1 cart. For inspection apply, Z. S. O., 1819 W. 39th St., Chicago, Ill.

Item No. V-123, AMBULANCE WATER TANKS, 9
Length, 15⅛ in., dia., 10½ in., provided with faucets. Made of galvanized iron with all joints thoroughly soldered. Stored at Baltimore, Md. Minimum bid considered, 9 tanks. For inspection apply Z. S. O., Coca Cola Bldg., Baltimore, Maryland.

Axles and Wheels, (front and rear), Spokes, Rims and Singletrees for Escort Wagons, are also offered in large and small quantities. Full details from any of the Zone Supply Offices here listed.

CONDITIONS OF SALE

Goods are sold "as is," f. o. b. point of storage, wbere they may be inspected. Permits to inspect must be obtained from the office given under each item. BIDS MUST BE BASED ON THE BIDDING UNIT SHOWN FOR EACH ITEM. Specify the ITEM NUMBER OF EACH ITEM on which bids are made. NO SPECIAL FORM OF BID IS NECESSARY. Bids may be madè by letter or telegram. No deposit required. Upon receipt of notification by mail, successful bidders must deposit a certified check for 10 per cent. of the amount of the purcbase price. All materials purchased must be removed and paid for in full witbin 30 days of date of notification of award.

Address your bids to "Zone Supply Officer," at the nearest of the following offices: Army Supply Base, Boston, Mass.; 461 8th Ave., New York City; 21st St. and Oregon Ave., Philadelphia, Pa.; Coca Cola Bldg., Baltimore, Md.; Transportation Bldg., Atlanta, Ga.; Army Bldg., 15tb and Dodge Sts., Omaha, Neb.; Ft. Mason, San Francisco, Cal.; 17th and F Sts., N. W., Washington, D. C.; Newport News, Va.; Jeffersonville, Ind.; 1819 West 39th St., Chicago, Ill.; 2nd and Arsenal Sts., St. Louis, Mo.; Audubon Bldg., New Orleans, La.; San Antonio, Texas; New Cumberland, Pa.; Columbus, Ohio; or at the Surplus Property Division, Munitions Bldg., Washington, D. C. Further information may be obtained from any of the above offices.

Bids will be received at the nearest of the Zone Supply Offices UP TO 3:00 P. M. EASTERN TIME, MARCH 4, 1920.

The Government reserves the right to reject any or all bids or any part thereof.

The Quartermaster Corps is also advertising for sale, WIRE, IRON AND STEEL, FOODSTUFFS, CLOTHING, HARDWARE, HARNESS and TEXTILES in the Trade Publications covering the respective classes of materials.

Medical Carts—Item V-104

Surplus Property Division

Office of the
Quartermaster General,
Director of Purchase & Storage

Munitions Building
Washington, D.C.

Buckboards (2-seated) Item V-128, V-129

Orange County Beekeepers

By Ernest Braunton

THE beekeepers of Orange County met at the South Center Street schoolhouse, Orange, on February 9 to listen to a varied program and make a visit to an apiary to examine foul brood. The principal address was by Prof. G. A. Coleman of the state college of agriculture, on bee diseases and their control, the chief points of which are here recorded.

"There are three diseases of bees with which we of California have to contend, American foul brood, European foul brood, and sac brood, and each is due to a distinct bacteria. As the symptoms are not the same in these diseases it is usually easy to recognize them in the apiary, though not always in certain stages. Scientists can tell in the spore stage but the apiarist must judge by external symptoms. The American foul brood is due to Bacillus larvae, the European to B. pluton. The two are distinct in the time of attack, the American attacking when nearly full grown, the European in a young stage, often as early as the third day. There is a decided color difference too; the European is light gray to chocolate brown, while the American is dark brown to black. There may be confusion if both are present at same time but they are never in the same larva at the same time. A third bacillus, B. Alvei, is sometimes present but not until after death and this bacillus causes a very strong and offensive odor.

"The larva infected with American foul brood is very ropy. When drawn out it stretches like new rubber to six or eight inches; while the European stretches like spent or rotten rubber to but one and a half or two inches and then breaks. Another difference is the position of the affected larva in the cell. In the European it is down in the bottom or on one side, looks like melted butter in a gray cell. In the American the larva lies on the lower side of the cell as you hold the frame in position and it also has a scale covering. In American the tongue is also extended, but not in the European. The bees are unable to remove the scales in the American but can in the European. Another sympton is that the disease spreads much more rapidly in the European. Drones and queens are also affected, but this is rare in the American, only the worker being attacked. While the American foul brood has a strong smell the European is dependent for odor on the amount of Bacillus Alvei present. The pure bred Italian bees will clean up better than the blacks or any other kind.

The Sac Brood

"The sac brood cannot be seen by any microscope, but it is a virus that attacks the larva in its older stages. The first symptom is a bloating and the head turns black. One may take a pin and lift the entire larva out. If it is punctured a watery fluid comes out. The decayed larva lies in the bottom of the cell turned up at both ends like a canoe. In American foul brood there will be several punctures in the cap; in the sac brood but one.

Treatment

"If only one colony has American foul brood it would be best to burn it; if more are affected shaking should be practiced to save the honey, bees and wax. Be careful that robbing does not start for this is apt to be worse than no treatment. Work in the middle of the day, use newspaper to shake on and burn papers when bees have gone to hive. Do the work quickly and robbing will not take place. The European foul brood is a disease of weak colonies, not necessarily small colonies, but weak in brood and bringing in honey. The disease may appear in big colonies if these are also weakly. It is most prevalent in spring and early summer, but good beekeeping will eliminate it. No special treatment is needed; to have young vigorous Italian queens is the most favorable condition. All others are inferior; the golden bee is merely an attempt to get a handsome bee. Resistant stock amounts only to physical perfection. Have your bees in a queenless condition for ten days; this will give bees time to clean up, and they will soon overcome the disease. Heat kills the germs and in feeding honey see that it is first heated through. It will take at least one hour to heat a five gallon can. The American bacillus is the most resistant known. Thrown out in the sun for several years it still revived and it will recover life after at least 40 years' dormancy. Burn out all hives with a plumber's gasoline torch. Boil frames, if you save them, in a caustic soda solution and use heat of some kind on every part."

ALIEN OWNERSHIP IN JAPAN

By Louis B. Stanton

We recently gave a general statement as to ownership by aliens of lands in Japan. As there is so much interest on this point we give herewith Attorney Stanton's entire letter:

* * *

As to ownership by aliens of real property in Japan I could find no current work upon the laws of Japan treating with the subject, but have made inquiry of a Japanese in Los Angeles who has been president of the Japanese Association for a considerable time and closely associated with the alien land suits which have arisen in Southern California and who is also highly conversant with the laws both of Japan and this country. The information which he has furnished me I believe to be entirely reliable and therefore wish to answer your question as follows:

In respect to leases of real property within the Islands of Japan, the citizens or subjects of foreign nations are by the law of Japan placed upon an exact parity with the subjects of Japan themselves. A lease of agricultural lands can be made and held for a period not to exceed 25 years. For commercial, residential or business purposes a lease can be made of lands not to exceed 99 years.

As to the ownership of lands the condition is as follows: Up to the year 1913 it is true that no foreigner was in any wise permitted to obtain title in fee to any real property in Japan. In the year 1913 there was passed by the Japanese parliament a law which provides in effect that foreigners who are the subjects or citizens of nations which permit the ownership of land by Japanese may be permitted to acquire land in fee simple within the ancient territory of Japan, but subjects or citizens of a nation which does not permit the acquisition of real property by Japanese subjects will not be permitted to acquire land in fee in Japan. That these rights shall be determined by reciprocal treaties by the respective nations and that the law shall be held in abeyance until proclaimed by imperial edict. This law, while it stands in the statute books of Japan today, has never been put in force by imperial edict. I am informed that the reason why it has never been placed in effect is that in 1913 there arose in California the anti-alien agitation which has been increasing in extent ever since, not only in the United States, but in the British Dominions.

SOUTHERN CALIFORNIA FAIR

At a recent meeting of the directorate of the Southern California Fair Association at Riverside, J. E. Wherrell was elected president, W. W. Van Pelt had already been elected secretary and manager. Mr. Wherrell is president of the Riverside County farm bureau, a successful dairyman and breeder of pure bred Jersey cattle. It is expected that every county in Southern California will be represented in agricultural and livestock displays at Riverside this fall. The dates will be October 11 to 16, inclusive.

"The Old Roeding Home Place" situated along Fancher Creek near Fresno, planted by Geo. C. Roeding, and one of the show places of the San Joaquin Valley, has been sold to Eastern capitalists. There are 640 acres in the place, 160 being in Thompson Seedless, 40 in Emperors, 24 in Muscats, 225 in figs, 60 in olives and seven in Navel oranges.

"You Bet They're Heavy"

—"And when I cash in on these beauties it'll put some weight on the right side of my bank book, too. I used dynamite to blast the holes when I planted this orchard and I never saw trees grow faster, look healthier or bear better fruit. My orchard is paying me big dividends and I am willing to give more than half the credit to

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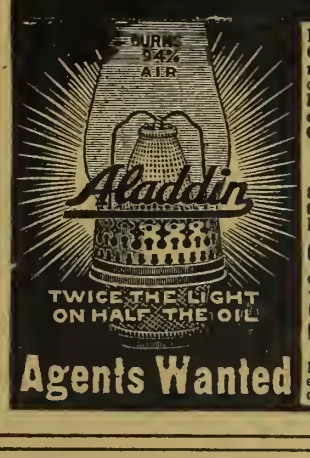

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Poultry in Our Orchards

By Frank P. Penn

POULTRY culture throughout the San Joaquin and other interior valleys, while at present underdeveloped, should appeal to many as very promising. This may be carried on in conjunction with general farming, and a reasonable number of fowls may profitably be kept by those living in our towns, but to the orchardist it stands out almost a means to ultimate success, a necessity.

While engaged in poultry raising in the Napa and Petaluma sections the hub of the poultry business in California, I had always been told that the heat in this interior valley was a great handicap during all the summer months and that egg production could not be kept to a profitable output during those months. I must go on record as finding it otherwise. A flock of some 600 mixed fowls, mostly Single Comb White Leghorns, during the summer of 1919 made us a net profit above the cost of all food of $170 per month during May, June and July. The grains, etc., were bought locally. Strange as it appeared to me the warmest days hadn't any noticeably depressing effect upon the egg record. Banish your fears along this line providing we study the food requirements of fowls during warm and cool weather. They are different, you know.

We have many important natural advantages to poultry culture. We would name first the abundance of green feed suitable for fowl consumption throughout the irrigated districts. In the citrus belt it is everywhere for the gathering. Upon the large egg farms carrying from 3,000 to 10,000 laying fowls in the Petaluma country the ground is plowed and seeded to either barley or wheat and then cut when from one to two feet high, an overhead expense not to be considered here. When one is feeding from 1,000 to 2,000 pounds of green food per day this will make you think Nature solves this problem for us. Again we are living in a grain producing section and can raise our own grain or buy direct from the grower. At the prevailing price of grains this means a saving of from $50 to $75 per 100 fowls per year. To the poultryman, outstanding above all, are the comparatively mild green winters, many days being like spring days. All of which working upon the fowl's nature produces the high priced winter egg in larger numbers and with less expense than can be procured in any other section we have seen.

Poultry farming, like all other branches of farming, demands a knowledge on the part of the operator as to climatic effects upon the details of the occupation. This knowledge can be gained only by experience. From watching broods of chicks hatched from February to April 15, 1919, all in 1,000 lots, we gleaned this much, that owing to the warm days and really cool nights of April and May creating an extreme range of temperature between midday and midnight chicks hatched after March 15 do not do so well as the February youngsters. This we consider our greatest lesson learned during 1919. Get the chickens hatched during January, February and not later than March 10 throughout this section, if raised artificially.

The keeping of 1,000 fowls for every ten acres of orchard is not a theory but a demonstrated success in many sections of the state. We are told by many of our most successful citrus men, locally and otherwise, that a large flock of chickens working in a grove will prevent or discourage thrips and many other parasites and insects which retard growth in the orchard. This much we have learned, that the constant working of the flock among the trees causes more or less of a dust mulch to form, preventing rapid evaporation after irrigation. It is well to so plan your building site that you can keep the fowls from the grove while irrigating. Poultry manure, being strong in ammonia is now pronounced by practical men who know as the best of all orchard fertilizers. One thousand fowls properly housed and fed will produce eight to 16 tons of high grade fertilizer per year. An average of ten tons at $20 per ton, delivered fresh to your groves whenever it is convenient for you to use it, is an item that cannot be ignored.

A flock of 1,000 hens started with the grove planting will provide profitable and living returns while waiting for the trees to come to bearing age and also will furnish the necessary fertilizer to produce a vigorous growth.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, February 2, 1920. Report for week ending January 30:

From November 1 to February 1 the hens in the contest at Storrs have laid more than 20,000 eggs. During the first three months each of the 1,000 hens has on the average laid one-third of an egg more than her expected yield. In the thirteenth week a pen of White Leghorns entered by B. S. Ells, Vineland, New Jersey, was in first place with a yield of 45 eggs.

In view of the nearness to the natural breeding and laying season, hens are expected to make rather rapid gains in the number of eggs they lay. On the other hand, not a few birds are perhaps out of condition on account of the severe, uninviting winter weather that has prevailed during the past two months. Such birds may not have any well defined disease but have perhaps contracted a little cold, they are not laying up to expectation and in some cases, at any rate they need a little toning up. For a condition of this sort use of sulphur has been suggested, allowing a tablespoon to ten hens twice a week in a wet mash mixed with milk. The sulphur can be given perhaps a little more conveniently in the dry mash, but should not be too long continued. If used in this way, one pound of sulphur to each 20 pounds of mash is sufficient.

The three best pens in each of the principal varieties are as follows:

Plymouth Rocks

Merritt M. Clark (Barred), 342; Jules F. Francais (Barred), 333; Oneck Farm (Barred), 326.

White Wyandottes

Langford Poultry Farm, 383; Merrythought Farm, 346; Herbert L. Warren, 326.

Rhode Island Reds

Pinecrest Orchards, 498; Charles H. Lane, 454; Jacob E. Jansen, 371.

White Leghorns

George Phillips, 430; Merrythought Farm, 407; Glenhope Farm, 404.

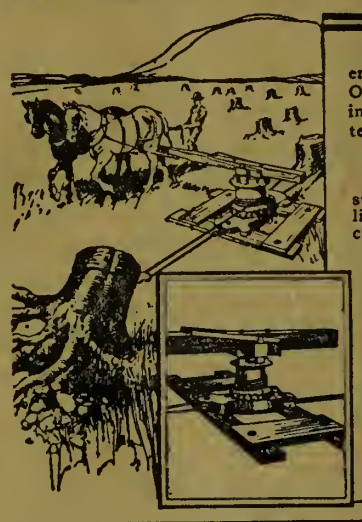
Miscellaneous

H. P. Cloyes (Buff Wyandottes), 405; A. L. Anderson (R. I. Whites), 404; A. E. Hampton (Black Leghorns), 253.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

The twelfth week of the contest at Santa Cruz, ending with the night of February 8, the hens as a whole came

BULL DOG a new and better STUMP PULLER



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I AM SO positive of the merit of Germozone that I feel I am doing anyone I can influence to use it, a most beneficial kindness. Frederick Winston Canfield, Prop. "Sunshine Farms" E. San Diego, Calif.

HAVE USED over 60 bottles of Germozone this year. Wish to thank you for the splendid remedies and preparations.—Benson Pheasant Farm, Silverton, Ore.

GERMOZONE killed the roup in 3 days.—Frank Galva, 120 Arnold St., Lackawanna, N. Y.

NOT A CASE of white diarrhoea in 3 years. I raise over 1,000 chickens a year. Good also for rabbits, birds, pet stock. —Ralph Wurst, Erie, Pa.

HAVE USED Germozone 17 years for chickens.—Mrs. T. A. Morley, Galien, Mich.

I USE GERMOZONE for chickens, stock and household. Cannot praise it too much.—Mrs. Wm. Hoeppel, Hugo, Okla.

GERMOZONE is simply grand for rabbits. — L. W. Browning, Boone, Iowa.

MY BIRD puppies don't know what distemper is. —Curley Smith, Kennett, Mo.

HAVE USED Germozone 12 years; the best for bowel trouble I ever found. Geo. F. Vickerman, Rockdale, N. Y.

Germozone is sold by dealers, in both tablet and liquid form. Tablets mailable, 25c, 75c and $1.50 sizes—from Omaha. Book on treatment of disease FREE.

The LEE POULTRY LIBRARY (5 books) is worth its weight in gold to any poultry raiser who will use it for frequent reference and advice. Readers say, "Takes a lot of mystery out of the chicken business." "More help than any other source," etc. These books FREE to anyone sending 6c stamps to cover mailing.

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Every entry won in the late shows: Los-Angeles P. B. Assn., and San Diego Exhibitors Club.
Our birds are fed no stimulants or patent mashes to increase egg production. They are fed to produce strong vigorous chicks.

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up to the 50 per cent production mark. Counting only the hens that are laying, the average percentage is 66 per hen. Mr. Walls has again captured the lead for the week with a score of 52 eggs, while his hen No. 16 once more forgot to observe the Sabbath. High records are as follows:

Leading pens to date: Walls, 494 eggs; Neef, 434; Rose, 421; Enterprise Poultry Ranch, Chino, 407.

Highest individuals to date: Walls, 74; Peck, 63; Walls, 62; Barker, 61; Gibson, 61; Webb, 60.

Highest pens for week: Walls, 52; Enterprise Poultry Ranch, 50; Bellow Bros., 48; Rose, 48; Peck, 45; Wilson, 45; Amsbaugh, 44; Webb, 40.

Poultry Queries

Conducted by J. A. Koethen

Poultryman's Association

What is the poultryman's association? What are the obligations and privileges of a member?—Subscriber, Paicines.

Do you mean the local association or what is known as the "Poultry Producers Company?" The poultry association, as it is commonly known in California, is an organization of the poultry men in a certain locality for marketing and mutual improvement of one sort and another. Here in Southern California, and I believe throughout the poultry producing sections of Central and Northern California, every community that produces much poultry has its local association, named for the community, as "Arlington Association," "Pomona Valley Association," etc. The Poultry Producers Company of Central California and Poultry Producers Company of Southern California are cooperative organizations including all the local, associations though only such members of local associations as sign up are actually members. The member signing up agrees to market all his eggs through the organization, which grades, candles and markets them. The eggs are collected two or three times a week by trucks which run from each locality to the central office, which in Southern California is in Los Angeles and in Central California in San Francisco. A poultryman must have a sufficient number of hens to enable him to market a case a week, I think. He must also agree to follow the rules of the organization in regard to shipping, etc. In the Southern California organization it costs two and one-half cents a dozen, or nearly that, for the Poultry Producers to handle the eggs under present conditions. To meet this expense the two and one-half cents is deducted from the weekly check, and whatever portion is not needed is afterward returned to the producer in the form of stock. A letter to your northern organization, Poultry Producers of Central California, Petaluma, would bring you full information.

Bronchitis

About a month ago a hen began to sneeze and the next day had a coughing or a wheezing sound in her throat and in a day or so another hen began the same way and tonight I think there are several more that will have the same thing in a day or so, and in each instance the hen quit laying. We used turpentine and lard, also coal-oil and lard to rub their heads and throats, but couldn't see that it did any good. Could you tell me what the trouble is and what the remedy might be?—Subscriber, Dinuba.

Your hens have bronchitis, due to dampness or crowding or drafts in the roosting house. A dose of olive oil twice a day, about a tablespoon at a time (more will do no harm) is better than turpentine or kerosene, but the best remedy is to get rid of the cause. Look over your house and see if there are cracks back of the roosts or if the hens are crowded in so closely at night that they are too warm and consequently chilled when they come out in the morning. If there is dampness in the house from any cause whatever, get rid of it. Sunshine should penetrate every corner at some time during the day. Moldy scratching litter or "heated" corn sometimes causes similar trouble. See that everything about your house is clean and dry and that one side is open to sun and air and the other three sides tightly closed, and you will not have many colds.

FEATHER EATING HENS

We find that hens kept in overcrowded quarters frequently form the habit of feather eating. Many pay little attention to this, since it is not a distinct loss like the egg eating habit, but it does ruin the appearance of the flock.

To break up this habit the worst offenders should be sold immediately upon finding them engaged in doing this. The balance of the flock should then be supplied with a variety of foods. Keep them busy and contented by making them exercise.

FIND THE REASON

Says the Indiana Farmers Guide:

"Too many people regard luck as a chief factor in the poultry business.

"They fail to consider that certain effects always follow certain causes, and that 'there's a reason for everything, good or bad.' Infertile eggs, dying chicks, sick hens, non-laying hens, lousy quarters, etc.—are these the result of bad luck? The direct opposite of all these, then—are they the result of good luck?"

We live and learn and profit by our experiences. Sometimes experience is rather costly, but we usually never forget the lessons we learn. We hate lice and mites but we must be careful about our method of exterminating them. A few weeks ago a poultryman was worried about his hens. They were lousy and he decided to use kerosene on them to destroy the lice. He put kerosene on his fowls with the result that he lost about half of his flock. This was a big loss to the man but he has learned his lesson.

Some women have used salty grease on chickens and young turkeys and have lost many of them. We who have had the experience know that lice can be killed by better methods than kerosene or salty grease. We cannot afford to thus experiment upon our flocks.

Chickens need to drink plenty of water and they will drink freely if they can get it.

HOW TO CONTROL THE BROAD BEAN WEEVIL

The broad bean weevil is found in the main broad bean section of California and its presence has seriously handicapped that industry. Use of uninfested or treated seed, destruction by grinding of all infested beans not used for seed, and late planting are the best methods of controlling the pest, according to specialists of the United States department of agriculture who have been studying its activities.

The beans from crops planted after March 1 are much less apt to be infested than those planted between November and March. In the drier and hotter localities where late planting is not possible, it is especially important to plant only seed which is uninfested or that which has been treated to kill the weevil.

Infested seed either should be treated with carbon disulphide or held over in tight receptacles until the second year when the weevils in it will be dead.

To treat the beans with carbon disulphide, from seven to ten pounds per one cubic foot, for at least 24 hours in a box, barrel, or room as air tight as it is possible to get, should be used. The smaller amount is effective in perfectly tight receptacles, but the larger amount should be used if the fumigating box or room is not tight. The liquid is placed in a shallow pan at the top of the box or is poured over the seed.

Prevent Chick Loss

Put the whole flock through the first few critical weeks sound and healthy.

Thousands of poultry raisers are using **Dr. LeGear's Poultry Prescription** to save their flocks from leg weakness, gapes, bowel troubles, etc., and to fit them for strong and sturdy growth and profitable laying.

Use Dr. LeGear's Poultry Prescription

to save your chicks, strengthen breeders and help fertility.

Try a Package at My Risk

Every package is sold on a money back guarantee. For twenty-seven years a practising graduate veterinarian poultry raiser using my own remedies, I stand ready to refund your money through my dealer on any Dr. LeGear Remedy that fails to give satisfaction. See your dealer today.

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128 pages. A most comprehensive treatise on the care and treatment of Stock and Poultry. Written by Dr. LeGear after 27 years experience as a practising graduate veterinary surgeon and poultry expert. Send 10c to us today,—we will mail it postpaid.

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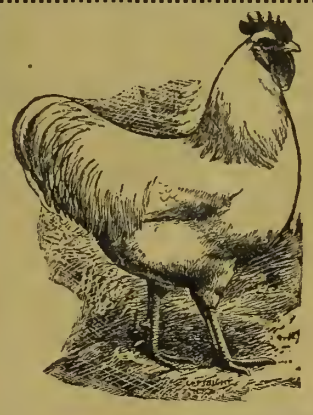


HIGH CLASS WHITE PLYMOUTH ROCKS

The result of ten years careful breeding. For utility and exhibition qualifications my stock is unexcelled. As layers they are the equal of any and in the show room they have demonstrated their merit. At the recent Southern California Fair my fowls were awarded four out of a possible six first premiums.

Fine vigorous males and females, $5.00 each. Exhibition birds, $10.00 each and up. Eggs from stock the equal of any in America, one setting, $5.00; two settings, $9.00; three settings, $12.00. Per hundred, $20.00.

MAMMOTH BRONZE TURKEYS

Vigorous birds bred for utility and exhibition purposes. Large; prolific layers; finely marked and richly bronzed. Fine toms at $15.00, $20.00 and $25.00 each. A few hens at $10, $12 and $15 each. Eggs from standard bred, utility matings, $5.00 for 12; $9.00 for 24; $25.00 per hundred.

Eggs from exhibition matings, $10.00 for 12; $15.00 for 24; $50.00 per hundred.

GEORGE I. LYTLE

Box 49 D. Perris, Cal.

The Reliable Blue Flame Wickless Oil Heated Hover

This Hover Represents Our 30-Inch 42-Inch and 52-Inch Sizes.

THE MODERN HOVER

This hover has the same chick capacity as the coal burning brooder. They are made in four sizes, 18 inch, 30 inch, 42 inch and 52 inch hover. A few of the special points on this oil heated hover are as follows:

- Burns Coal Oil
- Steady Blue Flame
- Comfortable and Easy to Operate
- Economy of Operation
- No Wick to Trim
- No Oil Fumes
- Visible Oil Feed
- Convenient and Safe
- No Coal, Smoke or Gas
- The Flow of Oil Is Regulated Automatically.
- Abundance of Heat

DEALERS—Some good territory open for live wires in California. Write today.

Western Distributors **QUEEN HATCHERY** 89 Pike Street Seattle, Wash.

When Writing Advertisers, Mention the Cultivator.

Safety in Handling Dynamite on Farm

By Guy G. Means

THE writer has been present at hundreds of blasting operations and blasting demonstrations on farms. In talking over the various good and bad features of blasting practice, our attention has been called to several points which should bo brought to the notice of all users of dynamite. At tbese demonstrations we always hear of any accident that may have happened in the community. There are always arguments for and against varlous practices.

Among people generally there seems to be an idea that the slightest shock or jar, such as dropping a stick of dynamite on the ground, will cause it to explode. This is not true. In fact it is practically impossible to explode ordinary 20 to 40 per cent ammonia dynamite without a cap. The writer saw one carload in a railroad wreck in which there were 280 boxes mashed up so they had to be repacked. No explosion occurred. However, this statement should not be taken as a license to mistreat the explosive. It is desired merely to emphasize the fact that dynamite if handled carefully is as safe to use as any commodity on the farm.

On the other hand, caps are much more sensitive and should be handled as carefully as possible and always kept away from any place where their accidental explosion might set off a quantity of dynamite.

The writer has time after time heard farmers say, "Why, dynamite won't explode from heat!" "You can burn it without its exploding." This is true in probably 95 per cent of cases, but in the other five it does explode from heat or fire. You never know when your case may be one of the five per cent. Therefore, never thaw dynamite in front of a fire, in the bake oven, or on a boiler. You say you know of hundreds of cases where it has been done safely. I know of dozens of cases where death and destruction have been the result.

Another bad method of thawing, commonly used, is to place the dynamite directly in hot water. This causes the nitro-glycerin in the dynamite to come out into the water. You lose strength on the dynamite and may have an accident from the nitroglycerin sticking to the pail.

There is no necessity or excuse for a farmer taking chances on any of the above methods. On the average farm there is a pile of horse manure in which tbe box may be buried over night, and when you desire to use tbe explosive in the morning it will be thoroughly and safely thawed. If this method is not practicable, a wash tub may be half filled with water (not too warm to place your hand in it) and the dynamite placed in a dry pail or pan which may be set in the water and covered with an old piece of carpet. Always remember that the rules in the box are based on a thorough investigation of all accidents, and it pays to observe "Safety First." I know a man who brought several boxes of dynamite bome, placed them in the kitchen by the stove with the caps. He went to put his horses in the barn. Before he got back, his house, his wife and seven children were gone. Dynamite resents the implication that it is "fool proof."

As to caps: The greatest number of accidents come from carelessly leaving them around the house or barn where children get hold of them. I have known of many accidents from tbis cause. Your hurry may cause your child the loss of an eye or a hand. Put the caps where the children cannot get them. The old hardened blaster often crimps the caps into the fuse with his teetb — yet, there is no better way to lose your head or a piece of your jaw. A knife or pinchers is equally dangerous. Use a crimper! It does not cost much and is absolutely safe.

Do not ever carry the caps in your pocket. I know a man who put a box in his overalls' pocket. He forgot them and shoved his hot pipe down on top of the box. He stayed in the hospital nearly a year. Always carry them in a box or basket in which there is some soft material.

Finally, in taking your explosives out to the field it is best to carry the caps and dynamite in separate boxes. Use a dynamite case or similar box fitted with a handle. On the outside of it nail a thick strip slotted to hold your knife and crimpers. Carry the caps in a separate box with a tight lid. Then don't smoke while blasting.

If you observe the above precautions you will avoid tbe only accidents of which I have heard in four years of daily contact witb dynamite on the farm.

WE DO NOT APPROVE

We do not approve tbe theory tbat white men and women and children should get out and dig in the gardens and fields of California as the Japs are doing. We have nothing against the Japs, or against any other race on earth, thank God, but we hope tbe day will never come when Christian white people will adopt Japanese methods of success.

Success is desirable; it is a tbing that should be striven for; but there is such a thing as paying too big a price for it.

We have heard folks along the roadside in California saying as tbey looked at a Japanese family at work in a truck garden: "What a wonderful people; if white people would work like that there would not be so many of them poor."

The scene that these complacent folks in the automobiles contemplated was typically Nipponese. At work, with backs bent tirelessly, were the father and the mother and a brood of several children, the youngest able to do little more than toddle. They had been up before the dawn and they would not cease until dark, or after. And soon after the middle of the night the man would be up again to drag his produce to the market. Their house was a makeshift thing of old boards and tin cans. It could be called a home only by the wildest flight of the imagination.

Now, the local banker would tell you that this family has funds deposited with him. It is a family with money.

Personally, we do not think that God intended to make people work like that even when He put toil on the human race as a punishment for the transgression of Eden. And, personally, we would take to the high road and be a tramp sooner than spend a lifetime in the way this poor, misguided heatben spends his life.

Maybe American white folks are a little lazy at times, and sometimes shiftless, but we still like them best—and their ways.—McGroarty in L. A. Times.

ANTELOPE VALLEY SQUIRRELS

Last year a gigantic squirrel drive was waged in the Antelope Valley, Los Angeles County, the first attempt, and 90 per cent were exterminated. These have increased during the past year so that about 25 per cent of tbe original number are thougbt to be possessed of the country. Tbe war is now on for 1920, or soon will be and it is hoped to practically exterminate all found.

The official drive will be March 31 April 3, and 15,000 pounds of poison have been ordered. The drive will be under the joint auspices of the Los Angeles County horticultural commission; the United States biological survey; the rodent control division of the state department of agriculture; the Los Angeles farm bureau; the Southern Pacific railroad, tbe water department of Los Angeles, the Kern County horticultural commission and the farmers of the valley. The acreage to be covered is more than 200,000 and has been divided into six districts, as follows: Del Sur, City Ranch, Elizabeth Lake, Fairmont, Neenach and Bailey's Lake. Meetings have been held in these centers and arrangements perfectod for securing tho necessary labor, material and equipment. Last year some of tho farmers were doubtful of the value of such drives, but results were so satisfactory in the first ono that all are enthusiastic over the 1920 prospect. — E. B.

Hauling a Capacity Load on Plowed Ground. International 2-ton Motor Truck owned by Mr. K. Taguchi, the well-known Cantaloupe King of Rocky Ford, Col.

Where the Going is Hardest

On the clay roads of the Mississippi Basin —

In the loose sandy soil of the California orchards and along Florida's sandy forest roads —

On the steep and rocky slopes of the mountains of Pennsylvania, West Virginia, Colorado, and Tennessee, where the up-hill hauling is severest —

In Montana, the Dakotas, and Minnesota, where the snows are deepest—

In plowed fields, on country roads and mountain trails — wherever road and weather conditions make hauling most difficult —

You Will See International Motor Trucks

The toughest hauling problems are being solved with International Motor Trucks. They are conquering the difficult jobs. They are proving beyond all question that Internationals are built to do the work and keep going. They are making good where others fail.

That is why you find Internationals most numerous where hauling conditions are most stubborn — they stand the strain of constant daily grind — they can be depended on to force their way right ahead — they are always ready for hard jobs — they give dependable service day after day at low cost.

Your farming will be easier, more pleasant and more profitable when you are the owner of an **International Motor Truck.** Sizes to choose from, ¾-ton to 3½-ton. Branch houses, distributors and dealers everywhere. Write us for a catalog and let us answer your questions.

International Harvester Company of America
(Incorporated)

Billings, Mont. Crawford, Neb. Denver, Colo. Helena, Mont.
Los Angeles, Cal. Portland, Ore. Salt Lake City, Utah
San Francisco, Cal. Spokane, Wash.

Household Department

FOOTHILL SHADOWS

By Margaret A. Condon

THE inspection of the little ranch was over. The real estate agent and his prospective purchaser entered their waiting car and drove off, while Henry Kirwood, his cheerful countenance slightly more serious than was its wont, went slowly up the walk.

Laddie followed at his heels, with tail drooping, and long collie nose touching his master, sensing dimly that all was not well with his world. Jack—sleek, shiny and well fed in his little corral—tossed his dark mane and whinnied his loneliness.

A woman stood on the veranda, where it looked out on the wonderful view of valley and mountain, hill and plain, and over all fell the softening shadows that wait on the late California afternoon.

She looked up questioningly as her husband approached.

"Well, Anna," he said, "I guess he'll buy it," and to the listener a pathetic note was apparent in the calm voice. "Likes the place very much. Said he'd bring his wife tomorrow to look around and they'll make a deposit. Wanted to know if I'd include Jack and Laddie in the sale. Guess we'll have to, Honey," as a cry of dismay broke from the woman. "Can't keep them in the city you know. But, dog-gone, it made me feel like shooing him off the ranch when he began mauling Jack around as if he already owned him. Laddie wouldn't make friends. Would you, boy?" and he stooped to pat the beautiful silky head, while faithful, questioning eyes looked their dumb appeal to know what it was all about—this sorrow that had come to his kindly master and mistress.

"Another thing, Anna," and the quiet voice held a suspicion of huskiness, "says he'll soon have that big sycamore down. Shades the house too much, he thinks."

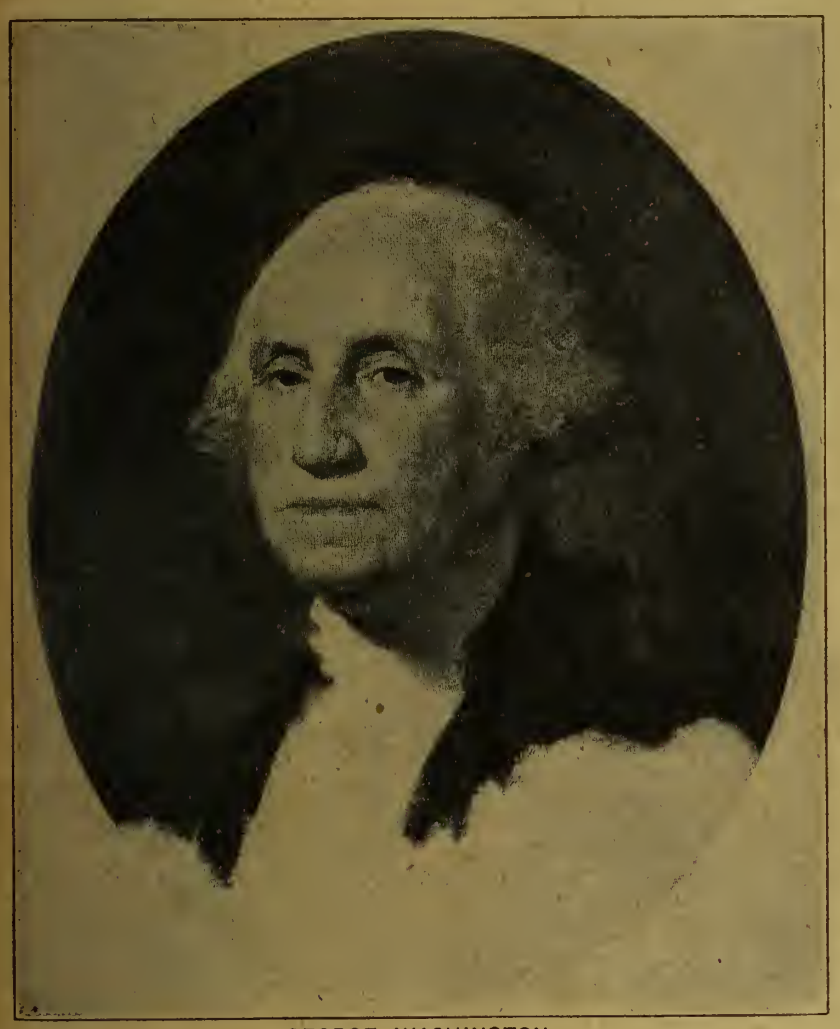
"Cut it down, Henry! Our beautiful tree, with Ruth's little house in the branches! Why, it would be a crime!"

Silence fell between them, for each was thinking of the daughter who had tired of the little foothill home and sought a position in the city. But Ruth loved her father and mother devotedly, and a few weeks of city life had convinced her that she wanted them with her, so the little ranch was to be sold. Not from stress of necessity, but to gratify the wish of the girl who did not realize what it was costing her parents to give up their home.

"Too bad, too bad," Henry Kirwood said, half to himself, "that Ruth couldn't have married Frank Grayson. He's a fine boy."

"And Ruth in fond of Frank," his wife said quickly. "How could she help it when he has been devoted to her all their lives? I never could understand why she said no. But, we mustn't blame Ruth, Henry. She's young, and wants to see life."

"Life!" the man echoed. "Can she see anything finer than that, Anna?" as he raised his hand and pointed. "Can she ever see anything more beautiful than God's handiwork in the Glendora Valley? Look at the miles and miles of orange groves. Sniff the breeze that brings us fragrance by night and day! Raise your eyes to the mountains with the afternoon shadows upon them! See that stream trickling down under the sycamores! Wouldn't any milloinaire in this dry California give a slice of his fortune to have that on his land? Life, indeed! This is what I call life; not an apartment in the city."



GEORGE WASHINGTON

Born February 22, 1732—Died December 14, 1799. Portrait by Stuart

The Day of Washington

By John Morrison

When the Day of Washington
Brings its message clear and true,
Stop and think a moment, son,
What its meaning is to you.

Hear, O hear, the ringing call,
Sounding o'er the years between,
Bidding you to banish all
That is false and base and mean;

Bidding you to seize and hold
What is highest, what is best,
What is needed most to mould
Life to meet its sternest test;

Bidding you be ready, son,
With your hands and with your heart,
When the Land of Washington
Calls on you to play your part.

What is she singing?

IT goes like this—"How dear to my heart are the scenes of my childhood, when fond recollection presents them to view" etc. It is one of the 26 popular old ballads in the 32 page song book, "Songs of Long Ago", which we will send free to anyone returning the coupon below. Send for your copy today.

Baldwin

A Name that Stands for Real Worth in
PIANOS AND PLAYER PIANOS

You cannot make a mistake in choosing a Baldwin-made Piano or Player-Piano, because in so doing you are following the example of the world's best musicians of yesterday and today—DePachmann, Bachaus, Sembrich, Henry, Pugno, Scharwenka, Eddie Brown, Tillie Koenen, LaForge, Richard—and hundreds of others. The Baldwin line includes the Baldwin, Ellington, Hamilton and Howard Pianos, and the Manualo, "the player-piano that is all but human". Our local representative will be glad to demonstrate and let you try any of these instruments.

Songs of Long Ago

Dept. B-1

The Baldwin Piano Company
Dept. B-1
Cincinnati Chicago St. Louis New York
San Francisco Indianapolis
Denver Louisville Dallas

Send me your free song book "Songs of Long Ago."

Name.....
Street or R. F. D.....
City and State.....
Would you like to have a piano or player-piano?.....

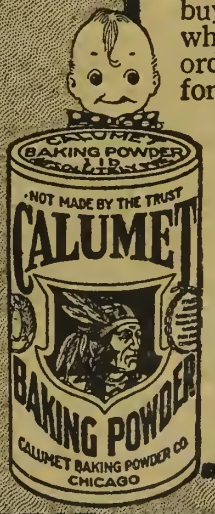
CALUMET

—gives better bakings that go further. It strikes straight at the root of extravagance—waste—and reduces living cost in a sane, sensible, way.

Calumet Baking Powder never fails to properly raise all bakings—produce the best results.

Makes Most Palatable and Sweetest of Foods

Calumet bakings *do* go further, because they are deliciously good, are never thrown away. *And* because they have greatest of keeping quality—stay moist, tender and oven-fresh for days.

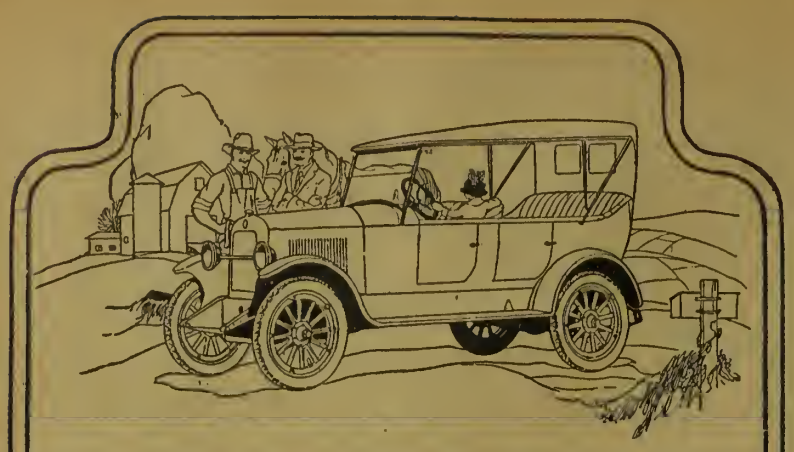


You save when you buy it—moderate in cost. You save when you use it—has more than the ordinary leavening strength—therefore you use less. You save materials it is used with—no failures.

Generations of good cooks have used Calumet—because it positively proves its superiority and economy. It comes to you from the largest, most sanitary Baking Powder Factory in the world—absolutely pure and as perfect in leavening power as the day it left the big Calumet Plant.

Contains only such ingredients as have been officially approved by United States Food Authorities. Sold by your grocer under a definite money-back guarantee, if it doesn't prove "best by test"—in your own kitchen, in *any* baking.

BEST BY TEST



BRISCOE

Briscoe cars are made in Touring car, Sedan, and Thredor Coupe models. And one of the three is just the car you've been wanting, at the price you want to pay.

"The leader of light-weight cars" is the kind of car that's long been wanted on the farm. It is a car that meets every farm purpose. It is roomy, clean-cut, dependable. It is comfortable to ride in and has every convenience. It is a car that will travel any road—that will climb the steepest hills and stand the strain of rough travel. And in power performance, it has made wonderful records for owners—records that mean low cost of operation and maintenance.

Let the nearest Briscoe dealer post you on all facts. Send for new, handsome Briscoe catalog which accurately and truly describes all Briscoe's features. You must have this book to intelligently choose your car. It's free. Write for it today. No obligation.

BRISCOE MOTOR CORPORATION
JACKSON, MICHIGAN (26)

The Leader of Light-Weight Cars

Stock Raising in WESTERN CANADA

is as profitable as grain growing. Successes as wonderful as those from growing wheat, oats, barley, and flax have been made in **raising Horses, Cattle, Sheep and Hogs.** Bright, sunny climate, nutritious grasses, good water, enormous fodder crops—these spell success to the farmer and stock raiser. And remember, you can **buy on easy terms**

Farm Land at $15 to $30 An Acre

—land equal to that which through many years has yielded from **20 to 45 bushels of wheat to the acre**—grazing land convenient to good grain farms at proportionately low prices. These lands have every rural convenience; good schools, churches, roads, telephones, etc., close to live towns and good markets.

If you want to get back to the farm, or to farm on a larger scale than is possible under your present conditions, **investigate what Western Canada has to offer you.**

For illustrated literature with maps and particulars regarding reduced railway rates, location of land, etc., apply to Department of Immigration, Ottawa, Canada, or

Gilbert Roche,
3-5 First St., Sheldon Block, San Francisco, Cal.
Canadian Government Agent.

WESTERN CANADA Farm Lands at Low Prices The Wheat Belt of America

PACIFIC NEW AND RE-NEWED PIPE SAVES MONEY

Renewed screw casing costs from one-half to two-thirds less than standard pipe. Large savings on standard pipe, fittings and valves; special fittings made to order. Pacific Pipe is thoroughly tested and guaranteed for 150 pounds working pressure; asphaltum dipped; serves every purpose. Let us save you money. Write

PACIFIC PIPE CO. 237 HOWARD STREET SAN FRANCISCO

When Writing Advertisers, Mention the Cultivator.

"Then let us keep it, Henry. How can we give it up, even for Ruth?" and she broke into passionate sobbing.

"There, there, Anna! You don't mean it. Of course our girl wants us with her. Perhaps we'll get used to city life after a while." But a wistfulness of tone belied the words in which he sought to comfort her.

A loud peal of the telephone sounded and Henry went inside to answer it. He returned in a few moments, bravely struggling to maintain his cheerfulness, and said:

"I suppose it will have to be, Anna. That phone message was from the agent. They want the place. He'll be out tomorrow afternoon to arrange for the escrow."

"You'd better write Ruth, Honey," he continued, as his wife remained silent. "I'll take the letter down to the postoffice and she'll get it first thing tomorrow morning. Tell her the ranch is to go—Jack, Laddie and all."

There was little sleep that night for Henry Kirwood or his wife, and in the cool early dawn they rose, ostensibly to make preparations, but moved about mechanically and accomplished nothing. The morning mists rolled off the mountains and a light breeze swept up the valley, surcharged with fragrance of orange and lemon bloom.

As the hours sped by, in a routine way Anna began preparations for the noonday meal.

Henry came in and said he had just seen Frank Grayson driving down toward the station. "Seemed to be in a hurry, Anna. Must have had a phone from someone asking him to meet the train."

Suddenly came the "honk, honk" of an automobile, followed by a wild and joyous barking from Laddie. "Honk, honk" again. Frank Grayson's car stopped at the gate. Ruth Kirwood sprang out and rushed up to the house.

"Oh, Dad! Mother! Mother!" she cried, "am I too late? Is the ranch sold?"

"No, Ruth," the father answered, "it isn't sold yet, but the buyer is coming this afternoon to close the deal."

"But you don't have to sell, Dad? You've signed no papers?"—keen anxiety in her tone.

"No, dear," her mother found voice to say. "We don't have to sell. Calm yourself, Ruth. Don't you want the ranch sold?"

"No! No! Oh, Mother! when I received your letter and you said you had a buyer, and that Jack and Laddie must go, and the big sycamore with my little house in the branches"—laughter and tears mingling as she wound her arms around the frail mother—"it just broke my heart. Laddie, dear Laddie, sell you and Jack? Never, never!" and down on the floor went Ruth, to hug Laddie.

"I hate the city," she continued. "I'm coming home. I want to live here—here with the mountains and the hills and the stream, and our big sycamore, and you, Mother, and Dad, and Jack and Laddie. I love you all," and Ruth became rather incoherent, with renewed caresses for Laddie, until her father asked her smilingly if she would like to have Jack brought in.

Then Ruth's eyes turned to the doorway where her tall lover stood, the lovelight shining in his fine eyes. Noting her glance, he spoke:

"But, Ruth," he said whimsically, "where do I come in?"

The girl stood up. A bright color flamed in her cheeks as she went over and placed her hand in his.

"Frank, dear," she said softly, "I made a mistake when I said I didn't love you. I'll marry you tomorrow if you want me."

HOME FURNISHING

By Mary R. Bird, Merced

MANY excellent ideas have been set forth in these columns recently on lessening the high cost of clothing. Another high cost that strikes near to the soul of the housewife (and of the "house-husband" as well) is the high cost of home furnishings.

In combating this particular high cost the three factors that Anna Lenington Heath of Pomona found essential in cutting the cost of clothing are the very weapons to be used if you would make of your home an ideal nest for you and your brood and keep within the range of your purse.

"I have found these three things helpful," says Anna Lenington Heath, namely, "thoughtfulness in buying, good workmanship in making and fair treatment in using."

The greatest of these factors as applied to furniture and accessories is "thoughtfulness in buying." That is your best instrument of combat; it has many points, each of which means an effective thrust into the vitals of the ogre, H. C. of L.

A Real Home
Beauty combined with comfort for each member of the family.

Buying furnishings for the home, even if it is only a few, is a procedure which brings great pleasure if one has really high ideals and the determination to work them out.

You know you need something. The dining room rug is wearing out, the couch in the living room is disreputable looking, your bedroom furniture has served its time and your whole house needs the freshening effect of new draperies here and there.

You want, in those new things you are going to buy, the articles that will seem to sink into their surroundings and give new life instead of showing up the old to a disadvantage. Also, you want the things that will suit the particular needs of your family. If the dining room is used regularly and the children occasionally drop food and spoil the floor covering, you of course want a rug which will stand such treatment and retain its cheerful demeanor. If father insists upon having his nightly frolic wtih the children on the living room couch, then you should not choose a frail affair upholstered in a light colored fabric. A more substantial article would look quite as artistic from the first and it would give the added satisfaction of being usable as well as good looking.

And there are size, color and finish to be considered, taking into account the position, the location as regards sunlight, and the furniture that the new additions are to be used with.

After you have a fairly well formed idea as to your needs it is well to take time to select those things which conform and have the lasting qualities of good style and workmanship. For therein lies the economy of good buying. As to the quality of workmanship you will have to rely to an extent upon the reputation of the firm from which you are purchasing.

Then, with fair treatment in using your purchases you will have dealt Mr. H. C. of L. his death blow and at the same time you will have made your home safe for comfort and happiness.

The Cultivator Patterns

BE SURE TO SEND SIZE

3150. Child's Dress. Cut in 4 sizes: 4, 6, 8, nd 10 years. An 8 year size will require ⅞ yards of 27 inch material. Price, 10 cents.

3134. Ladies' Dress. Cut in 6 sizes: 34, 6, 38, 40, 42 and 44 inches bust measure. It ill require 7¼ yards of 38 inch material for medium size. The width of skirt at lower dge is about 1⅞ yards. Price, 10 cents.

3152. Girl's Dress. Cut in 4 sizes: 6, 8, 10 nd 12 years. A 10 year size will require 3⅝ ards of 36 inch material. Price, 10 cents.

2984. House Dress. Cut in 7 sizes: 34, 36, 8, 40, 42, 44 and 46 inches bust measure. ize 38 requires 5⅝ yards of 36 inch material. rice, 10 cents.

3128. Boy's Suit. Cut in 4 sizes: 3, 4, 5 nd 6 years. For a 3 year size 3 yards of inch material will be required. Price, 10 nts.

3140-3143. Attractive Gown. Blouse 3140 t in 6 sizes: 34, 36, 38, 40, 42 and 44 inches ust measure. Skirt 3143 cut in 7 sizes: 24, 6, 28, 30, 32, 34 and 36 inches waist measure. medium size will require 6⅝ yards of 27 ch material with 2⅝ yards for the under louse. The width of the skirt at lower edge 1¾ yards. Two separate patterns, 10 cents r each pattern.

2932. Girl's Dress. Cut in 4 sizes: 6, 8, 0 and 12 years. Size 10 requires 3⅛ yards 38 inch material. Price, 10 cents.

3132. Misses' Dress. Cut in 3 sizes: 16, 18, nd 20 years. Size 18 will require 6 yards of inch material. Skirt measures about 1½ rd at its lower edge. Price, 10 cents.

RICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

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PATTERN DEPARTMENT
California Cultivator
Los Angeles.

BEATING THE H. C. OF L.

By Mrs. W. G. D., Arizona

BEATING the H. C. of L. is very important to all of us and becomes more so every time we shop. Here are some suggestions from a rural community which I hope some others may find as helpful as I.

When my gingham aprons begin to wear thin in front I take them off the band, cut them down the center, turn the outside edges to the center, sew them together, hem what are now the outside edges, and replace on band. This I find adds once again the life of an apron.

We make all our wash clothes by cutting squares from old underwear and hemming or overcasting the edges to prevent raveling.

For my coverall aprons for rough out-of-door work I use the backs of my husband's old overalls. Two or three pair will make an apron similar to a butcher's apron which will wear a long time.

This spring I made myself several smocks from old cotton dresses which were made in the very narrow style. These worn with a skirt made from a remnant of gingham make very serviceable house dresses.

When the soles of our rough work shoes first begin to wear my husband puts on a half-sole of green rawhide with the hair still on. This wears much longer and better than ordinary leather.

The care of our woolen winter clothes is a problem which is now confronting us. The moths must be kept out. After the garments have been aired and sunned they may be packed away in a tight trunk or chest with pieces of cotton saturated with oil of cedar placed among them. The oil of cedar does not have so disagreeable an odor as moth balls and leaves much more quickly when the garment is aired. Another method which I have found very good is, after the garment has been aired and one is absolutely sure there are no moths in it—make an envelope of newspapers by pasting them together, large enough for the garment and seal the garment in the envelope. When using this method one must be very sure every hole is sealed tightly or the moths will find it.

One can not always make over or take care of his old clothes. Some time he has to have new ones. I have found that I can make my husband's summer underwear similar to the B. V. D. union suit from flour or sugar sacks, which may be purchased by the dozen at the grocery or baker shop much more cheaply than we can buy muslin. I take the strong pieces of our heavy knit cotton underwear to make an elastic belt. This keeps the union suit from splitting in the back.

Another use for sugar and flour sacks is in making household "linen" such as sheets, pillow cases, table cloths and napkins. About six sugar sacks make a respectable sheet. One sugar sack or 100 pound flour sack will often make a pillow case. Four large sacks feather stitched together and hemmed with an inch hem make a very nice everyday table cloth.

We wear out the feet of stockings long before the legs are gone so we buy stocking feet for a very small sum. These make the legs do double duty.

Another feature in buying is in dress gingham. I always buy ten yards and get a reduction in price for so doing. My mother, who lives in a different locality, does the same and we exchange five of our ten yards. Thus we each have two house dresses for a little more than the cost of one.

From the new pieces left after cutting out garments I piece quilt tops. Flour sacks dyed the desired color make very good linings. Considering the present price of ready made quilts or the silkaleen for quilt covers I need not tell you my way is a saving.

I hope these suggestions may prove as helpful to some others as many of the hints in the Cultivator have been to me.

THIS WEEK'S PATTERNS

Lovelier than ever is this week's group of patterns. The charming little girl's dress 3150, with tiny French sleeves and square yoke with its bit of individual embroidery, is fitly companioned by the little boy's suit opposite. If the trousers and vest were made of plain blue combined with a white blouse with white or smocked pearl buttons, wouldn't it be a picture?

The graceful gown 3140-3143 would be exquisite in any of the large flowered voiles now being shown in the stores, with the very modish, short sleeved waist in white voile. This style is not only beautiful and distinctive, but exceedingly practical. The waist may be made separate and laundered frequently, and another thing—where one dislikes to wear dress shields the making of the waist and sleeve portion of white dispenses with that disagreeable necessity.

The close fitting sleeve set in the shoulder shows the new-old mode, and the side drapery on the skirt of 3134 is very popular. This dress seems particularly adapted to silk or light wool. In a white broadcloth with black velvet collar, cuffs and buttons it would be extremely striking. But look out for that low cut collar in the back. If you are not absolutely sure the back of your neck is beautiful, cut the collar a little lower in the front, with a high shawl collar effect in the back, and it will be infinitely more becoming. Another point: The drapes at the side of the skirt must be faced. If the dress is made of cream white broadcloth a lining of chiffon in the same shade would be found most satisfactory.

In gingham or percale with white vest and collar of pique or Indian Head or linen, or plain colored gingham, the school dress 3152 will be just right.

2932 is simply adorable—there's no other expression for it, even if those poor words have been so much overworked. A sweet clean little girl, with freshly shampooed hair with a big fluttery bow of her favorite color, who has just donned this darling dress—can you think of anything prettier?

Another of our beautiful house dresses, simple and practical, with an air of positive distinction.

A graceful misses' dress with draped waist and kimono sleeves is 3132. If make in silk the unique decoration around collar and down front of dress may be of tiny roses made of bias folds of soft silk. These are charming if made well. In jersey we would suggest a plain collar with pearl buttons to trim the side front.—R. P. D.

WASHINGTON'S BIRTHDAY RECIPES

Cherry Pie

Make a shell of good, rich paste and fill it with canned cherries, mixing a level tablespoon cornstarch with the juice. Dot the top with diamonds of pie crust and bake.

Mount Vernon Pound Cake

Beat together to a cream one scant pound butter and one pound powdered sugar. Separate a dozen eggs, whites and yolks, whisk the whites to a stiff froth and whip the yolks until lemon colored and thick. Add the yolks to the creamed butter and sugar. Stir thoroughly, fold in the whites and stir again. Sift a pound of flour and add lightly, little by little, stirring only enough to mix smoothly. Pour into pans lined with buttered paper and bake an hour and a quarter in a moderate oven. Take care not to stir or shake the pan until the cake is well set.

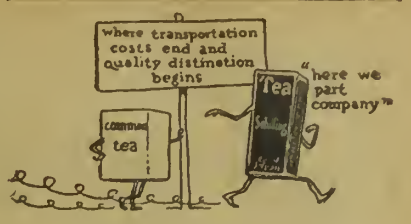
Coconut Hatchet Cookies

Two eggs, beaten light, one cup thick cream, one level teaspoon salt, three teaspoons baking powder, one cup sugar, one cup grated coconut, three cups sifted pastry flour, candied cherries. Sift together three times the flour, salt and baking powder. Add this mixture, the sugar, cream and coconut, to the eggs, and mix thoroughly. Roll out and from a pattern cut it into hatchet shaped cookies and bake to a light brown. When cold, ice with your favorite icing and stick two candied cherries on the blade of each hatchet before the icing is set.

Cherry Salad

Cut thin slices of large, sweet oranges, surround them with quarters of canned pears, and on the orange slices pile a little mound of large, sweet canned cherries, removing the pits and putting in their place shelled filberts or hazelnuts. Pour over all a dressing made by mixing the juices of orange, pear and cherry. If too sweet add a little lemon juice. Put a spoonful of whipped cream on top.

Camphor will remove those white spots on the furniture.



Take 15 or 20 cents from the price of tea and off goes half the quality. It costs as much to cure, pack, and transport common tea as fine tea, and that is the biggest part of the cost.

Schilling Tea is the fine practical economical tea of this country.

There are four flavors of Schilling Tea—Japan, Ceylon-India, Oolong, English Breakfast. All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

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Science reveals that cod-liver oil is a fruitful source of vitamins and that its use helps a child grow normally.

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made of the richest and purest *Norwegian* cod-liver oil, never fails in its mission to nourish and strengthen. *Let the children have a plenitude of Scott's.*

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REMEMBER THE
HORSE-SHOE TREAD

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PLANT NOW Growers making $1,000 and over per acre annually. Splendid results in six months. Also berries and small fruit, etc. Write for catalog and price list to the originator, J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Calif.

SICK ANIMALS

BOOK about Sick Horses, Cattle, Sheep, Dogs and Poultry, mailed free. Address Dr. Humphreys' Veterinary Medicines, 156 William St., New York.

My K Hand Stump Puller

Gives Your Hand 96,000 Pounds of Power

Big stumps! stumps and trees with deep tap roots! any stump that can be pulled with the best inch steel cable!—you *alone* can pull with my "K" Hand Power Stump Puller—*without digging and without the expense of teams and powder.* I guarantee it. I refer you to U. S. Gov. officials. I give highest banking references. If you have stump land, the cheapest way of clearing it is with the

HAND POWER

K Stump Puller

Frank Hance, a *one-armed* farmer of Bowie, Md., pulling a double silver maple 3 ft. 8 in. in diameter at the ground, with deep tap roots. This is an easy pull for the "K," as the cable can be hitched high and the leverage is consequently greater.

How the "K" Pulls Biggest Stumps

The "K" works on the leverage principle of the ordinary lifting jack, except that the power is applied on a cog-wheel instead of a standard. 100 lbs. push on the lever develops a 48-ton pull on the stump—all an inch steel cable will hold. One man operates it alone—no teams to pay for—no walking.

A Mechanical Wonder

Made of finest steel—guaranteed against breakage. Weighs only 171 lbs.—easily carried or hauled about on its own truck wheels. Has two speeds—60 feet per minute for hauling in cable or for small stumps—slow speed for heavy pulls. *Works equally well on hillsides and marshes where horses can not* work

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H. Sinclair of the Dept. of the Interior, a U. S. Gov. official, writes: "The stump puller is a wonder."

Ernest Thompson Seton, author and naturalist, declares the "K" "a great success."

Hundreds of owners write in, telling of pulling six- and seven-foot stumps, of pulling faster and pulling bigger stumps than by any other machine.

Special Offer We are making a special offer to get a "K" Stump Puller introduced in every neighborhood. Write us today for full information and for free book on Land Clearing and about our Wonderful Drag Saw.

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H. G. Hunzicker of Foster, Wash., pulling a 24-inch fir stump with deep tap roots out of hard ground, without using powder or cutting any roots.

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Send me full particulars on your special offer and your free booklet on Land Clearing.

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — February 28, 1920 — No. 9

An Institute With Permanency

MORE organization was the result of the citrus institute held last Friday and Saturday at San Bernardino. Or, rather, the institute which heretofore has been brought into being annually at the National Orange Show has now become a living, permanent thing. The name of the new organization is the same as has been carried by the former annual institute, The California Citrus Institute.

If the plans of its founders are fully carried out it will become far more than an organization to call together and conduct meetings which shall discuss horticultural topics. We believe the intention is to promote better practices in culture and, more, to encourage the scientific and technical side of fruit culture.

Since Dr. Webber has been in California he has urged the necessity of such an institution. In the Los Angeles State Fruit Growers convention the matter was brought up. Committees were appointed and later meetings of producers of the state called at San Francisco at the time of the Panama-Pacific Exposition. But the plans of the committee proved to be too ambitious and the organization failed of realization.

The range of the present organization covers only the science of horticulture and its board of nine directors is made up of representative and active horticulturists who will give impetus to the movement.

The governing board consists of nine men, three elected for three years, three for two years and one for one year. They are: For three years, Dr. I. G. McBeth, Whittier; Dr. J. I. Barrett, Riverside; A. D. Shamel, Riverside. For two years, W. H. Fleet, Sespe; V. V. LeRoy, Claremont; R. C. Allen, Bonita. For one year: R. E. Swing, San Bernardino; C. C. Chapman, Fullerton; J. H. Straight, Redlands.

The by-laws adopted call for semi-annual meetings, one winter meeting, presumably to be held in connection with the National Orange Show; the other, a summer meeting, time and place left to the directors.

Besides the perfecting of this permanent organization the two day institute brought out addresses and discussions which will have large influence on California horticulture. Perhaps the most striking single feature of the program was the general discussion— (Continued on Page 234.)

National Orange Show—A Really Truly Showing of California's Great Industry.

Overland

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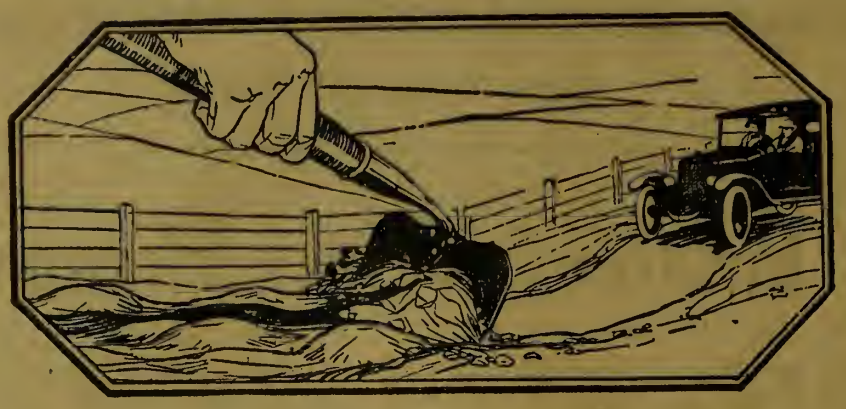

With Wonderful, New *Triplex* Springs Roads Seem Cleared Of Bumps

THERE is only one way to fully appreciate the greater comfort introduced by the new Overland 4—

And that is by riding in this car with its 130-inch *Springbase!*

Gone are the usual bouncing, swaying and jolting. Instead, due to the three-point suspension *Triplex* Springs, there is a *smooth gliding* sensation.

The passengers are not only free from ordinary road-blows, but the car itself is shielded, prolonging its life and reducing upkeep.

The light weight of this new Overland 4 means economy of fuel and tires.

And it is fine looking, and luxuriously cushioned; it is fully equipped from Auto-Lite Starting and Lighting to Electric Horn. Let the Overland dealer show you why Overland 4 makes possible, for the first time, heavy-car comfort and road steadiness with light-car economy and convenience.

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California Cultivator

Vol. LIV, No. 9. Los Angeles, February 28, 1920 One Dollar Yearly

Concerning the Loquat

By Robert W. Hodgson

AMONG the promising, but as yet little appreciated, fruits which can be grown to perfection in California, few possess so many attractive features as the much neglected loquat. With few exceptions the trees now growing in this state are seedlings given little or no care and bearing rather small and inferior fruits. At the present time, it is conservatively estimated that there are less than 50 acres of bearing trees of good varieties planted in commercial orchards in the entire state. When one considers that excellent varieties are now available as a result of 20 years of work both in the way of selection of seedlings in this state and in the importation of varieties from all over the world, and that the loquat comes into the market at a time when it is practically bare of fresh fruits, and consequently brings uniformly high prices, the neglect of this attractive fruit is difficult to understand.

A good loquat orchard at six or seven years from planting should average five tons of salable fruit to the acre. The average price received during the past five years has ranged in the neighborhood of seven cents per pound, although early varieties frequently bring as high as 30 cents. This average figure would indicate a gross return of some $700 per acre for relatively young trees. Older trees should, of course, produce more. That these figures are conservative is testified to by the owners of the 50 or 60 acres of commercial orchards now in bearing. The fruit ships well, if handled properly, shipments having been made successfully during the past two or three seasons to such markets as Detroit, Philadelphia, Pittsburgh and New Orleans. With a fruit coming in as early as February and bridging the gap between fall apples and storage pears and cherries and apricots in the spring, it would seem that the only hindrance to a rapid extension in planting should be lack of market demand, which certainly ought to be rather easily overcome by a little judicious advertising. In short, it would seem that California fruit growers are "overlooking a good bet" in not giving the loquat more attention.

A Bunch of Luscious Loquats

Probably the chief reason why the loquat has been neglected in the past lies in the fact that on account of its Asiatic origin and comparatively recent introduction into this country it is as yet but little known to the American consumer. The loquat undoubtedly originated in Eastern China, where it is still found growing wild in vast forests and much esteemed. The first written description of the fruit occurs in Kaempfer's "Amoenitates Exoticoe" published in 1712, referring to its being found in Japan. Although the exact date of its introduction into California is not known the tree was reported in 1879 as being rather common in gardens in Sacramento. For many years, however, it was grown more as an ornamental than as a fruit tree. It belongs to the rose family and is a close relative of the apple, pear, quince, hawthorne and medlar.

General Requirements

The loquat is a semi-tropical. It can be grown as an ornamental, in colder regions, but fruiting is prevented since the tree comes into bloom during the fall and winter months just at the time when freezing temperatures may be expected. The blossoms and young fruits are quite easily injured by frosts so that for fruit production its culture is limited to approximately the same districts as the lemon and orange.

Loquat trees are resistant to both heat and drouth, but cannot be expected to bear satisfactory crops of good fruit unless supplied with a sufficiency of water. Excessively hot dry winds are also very detrimental at the time of ripening of the fruit as at this period it is rather easily sunburned.

The tree is not at all particular as to soil requirements, doing equally well on many types ranging from porous sands to more or less tenacious clays. Hardpan close to the surface is not a serious hindrance to its success, providing sufficient water is available to ripen up the fruits and bring them to good size.

A natural tendency to overbearing, resulting in small and inferior fruits, makes it necessary either to thin out the clusters, or crowd the trees into hedge rows in order to bring individual fruits to suitable size and quality.

Propagation

Although the tree comes readily from seed there is no more excuse for planting seedling loquats than for planting seedling peaches or apples. Trees budded to the best varieties alone should be planted. The two common stocks used are the loqnat

(Continued on Page 365.)

Go For the Gopher

By Ernest Braunton

THE Los Angeles County horticultural commission is conducting such a vigorous campaign against ground squirrels that the more thickly settled parts of the county will soon be cleared of them. No such campaign against gophers is contemplated, for a heavy force would be needed to handle it and the work is slower and more difficult than in squirrel control. Therefore an educational and advisory campaign is being waged so the farmer may do his own work in the cheapest and most effective way. To this end the United States biological survey has given the services, for two weeks, of F. E. Garlough, one of the bureau's experts, for a series of demonstrations and illustrated lectures. At Downey, on January 2, Mr. Garlough spoke to an audience of 110 about as follows:

"The gopher problem is far more difficult of solution than that of the squirrel, for he lives an underground life and we cannot therefore know what is going on or what the results of our work for some time. The United States government undertakes some extermination in forests and large meadows and I will tell you what we have found to be the best methods.

Life History

"There is but one litter of gophers born each year, and this may range from December to July, so do not be deceived into thinking you find two litters because you see the young at different periods. The litters contain from two to ten in California. The gopher is active at all seasons for he does not hibernate and is most energetic during the wet season. We used to think he was not migratory and moved underground only, but we now know he moves considerable distances during the night.

"A street contractor tarred a piece of roadway in San Joaquin County and the first morning thereafter found 100 gophers stuck in the tar in a 200 yard stretch. Mr. Neville states that in Monterey County, after a poison campaign, 250 dead gophers were found on the surface, showing they do come out during the night. They will move from one-fourth mile to a full mile. Usually they will cross roadways in the night but frequently they tunnel beneath. At Riverside we found a tunnel from a grain field, under a street, and up to an orange tree in the adjacent orchard.

"One gopher may have from ten to 40 mounds and in season his family will be with him. His first operation results in a station of semi-circular form from which radiate tunnels which may extend from 50 feet to 600 feet. He has two series of tunnels, one for feeding, which is but six or eight inches beneath the surface, and a lower storage and nesting tunnel that varies from two to five feet beneath the surface, with many lateral pockets, one a nest and the others storehouses, his food storage ranging from one to four quarts, for he stores ten times what he needs or uses. The passage from the upper to the lower tunnel is often kept plugged so he cannot be overcome by gas or drowned, though many meet death by these means. In the upper tunnel gas may have to travel 200 to 300 feet in loose soil and before it can reach that distance is nearly all dissipated.

Methods of Control

"Considerable trapping is done and is quite effective. There are many good traps on the market, both box and wire, of which the smaller wire traps are best for the ground is least disturbed in their use. We have found in the trapping of all wild animals that the less you disturb their haunts and arouse their suspicions the more successful you are. In order to clear an orchard or field it is necessary to clear surrounding orchards and fields, therefore the problem is one affecting communities. For that reason local branches of the farm bureaus, the centers, should take up the work. Last year the national loss through gophers was estimated at $30,000,000. Kansas estimated its loss at $5,000,000, principally in alfalfa. In California in 1919 the loss was not less than $10,000,000. Hawks, owls and snakes, foxes, coy-

(Continued on Page 365.)

Agricultural News Notes of the Pacific Coast

Northern California

Humboldt County is manufacturing a Swiss cheese of high quality.

Six dredgers are at work widening the canals of the Glenn-Colusa irrigation district.

Glenn County rice growers are asking establishment at Willows of a rice experiment station.

Agricultural students at the University of California have organized an animal husbandry club.

Palo Cedro, Shasta County, has arranged to hold a county farm bureau fair during the coming season.

Some Butte County fruit growers are installing pipe lines in order to carry water with less seepage loss.

One firm of exporters at San Francisco has purchased nearly $4,000,000 worth of rice for export, largely to the Dutch East Indies.

Northern California Rabbit Breeders Association plans the biggest showing of rabbits at the state fair, ever made in the state.

Several extensions of the boundaries of irrigation districts in the Sacramento Valley have been deferred owing to the present water shortage.

An enthusiastic bunch of Berkshire breeders gathered at the Western Berkshire Congress held at Davis Tuesday and Wednesday of this week.

Mendocino and Sonoma Counties have been holding fall clip in expectation of getting 50 cents per pound. Best offer at the present time is 35 cents.

Butte County rice growers have found that the mosquito pest has been largely brought under control by a natural enemy of the larva, a small beetle.

Glenn County rice growers claim rice millers are discriminating and giving unfair prices, and the growers are taking the matter up with Louisiana mills.

Sonoma County's gopher week resulted in distribution of several hundred cans of gopher poison and the estimated loss of many thousands of lives—gophers.

The state water commission has recommended that Williams, Colusa County, present petition for formation of an irrigation district that will comprise about 10,000 acres.

The Pacific Rice Growers Association is securing options on warehouse sites in Colusa and Princeton. The association hopes to construct and operate a string of cooperative warehouses.

Curtis P. Clausen, formerly of the pest control of the state horticultural commission, more recently with troops in France, has been commissioned to go to Japan for the purpose of parasite collection.

The Sutter County Peach Growers Association and farm bureau are uniting in an effort to have horticulturists and viticulturists included in preferred lists of power users. This in view of restrictions placed upon power users because of low water.

Paradise claims a recent farm center meeting at that point was the largest ever held by any center in the Butte County bureau. Points discussed were farmers telephone and the growing of berries and small fruits which has become a great industry in that section.

Central California

Long staple cotton gin has been installed at Kearney Park, Fresno.

Fresno County reports increase of over 4,000 automobiles during the last 12 months.

Sacramento Valley irrigators are asking for prior rights in use of hydro-electric power.

Independent packers are already bidding 15 cents per pound for the 1920 raisin crop.

Merced County is planting more walnuts this year than the entire acreage now out.

At the recent election of the Associated Raisin Co., the former board of directors was re-elected.

Recent showers have been sufficient to prevent many cattlemen from shipping their stock out of the state.

The city of Los Angeles has filed on 14,000 acre-feet per annum of the water of Rock Creek, Inyo County.

A 2,000 acre tract is to be planted to walnuts, peaches, apples and other fruits near Salinas, Monterey County.

Watsonville, Santa Cruz County hopes to have a branch of the Virden Packing Co., now located at Sacrameto.

Recent rains have been sufficient, and vineyard plowing and other work is in full swing in all the San Joaquin Valley.

Lumber mills of the Sierra Nevada will begin season earlier than usual because of the extreme shortage of lumber.

The farm center at Aromas, Monterey County, is asking assistance from the state university in its fight on oak root fungus.

Stanislaus County farm bureau is conducting a drive for new members and is determined to roll up a membership of at least 1,500.

Kerman held a community auction sale at the high school grounds last Saturday. Nearly everything from a pumping plant down was offered.

The Peach Growers Inc., have not named prices for next season's dried fruit, but it is rumored that independents are offering as high as 25 cents.

Chlorine gas is now being used in squirrel destruction by Horticultural Commissioner Roullard of Fresno County. It gives close to 100 per cent kill.

A dehydrating plant, formerly planned for Salinas, Monterey County, will not be constructed because of inability to secure supplies and equipment.

The Farmers Union meeting at Ceres, Stanislaus County, recently discussed the matter of the Union purchasing one of the Stanislaus County banks.

Fresno County chamber of commerce has delegate at Washington working for enlargement of Sequoia national park and changing its name to Roosevelt.

West Side farmers are anticipating so much profit from the coming rains that they are offering to donate to a "rainmaker" $1,500 per inch for all rains which come.

The Fresno chamber of commerce has been arranging for sale of some 200,000 pounds of Turkish tobacco grown in the San Joaquin Valley and now thinks a sale has been negotiated with French purchasers.

Southern California

The Imperial County Good Roads Association has been organized.

Riverside deciduous fruit producers are appealing for a cooperative cannery.

Riverside County is proposing to aid in road construction in the Coachella Valley.

Orange County apricot orchards are soon to be placarded "Sunsweet Standard Orchard."

Imperial Valley wheat planting this year will not be more than one-third that of last year.

Fallbrook, San Diego County, is planting largely to blackberries and other small fruits.

Orange County farm bureau has refused membership in its organization to Japanese farmers.

The National Orange Show at San Bernardino drew out largest attendance ever yet secured.

The second annual Antelope Valley, Los Angeles County, squirrel drive will be held March 31-April 3.

The Automobile Club of Southern California is erecting sign posts in many sections heretofore unposted.

California fruit shippers are to be benefited by the addition of 4,000 new cars to the service of the Pacific Fruit Express.

Eucalyptus trees are giving heavy bloom and beekeepers are finding bees busy and in most sections no feeding will be necessary.

Two large rubber companies are endeavoring to secure contracts with Imperial Valley growers to produce Long Staple Pima cotton.

Riverside has been having strike amongst Mexican orange pickers. They have been getting $3 per day and are now demanding $3.50.

Farm bureau directors of Imperial Valley urge more effective enforcement of laws and the stopping of crime which is rampant.

Mexican fruit pickers at Corona made demand for $3.60 per day instead of the $3 being paid. Request was refused and a strike is on.

The board of directors of the California Lima Bean Growers Association is discussing methods for next year's work. No prices have yet been named.

Commissioner Kellogg of Santa Barbara County finds excellent results from use of double strength dust spray recommended for walnut aphis on pea aphis.

Rodent control meetings in northern Los Angeles County will be held at Elizabeth Lake, March 7; Fairmont, 7; Bailey's Lake, 8; Neenach, 9; City Ranch, 10; Del Sur, 10.

The Citrus Belt Milch Goat Association recently held meeting at El Monte, Los Angeles County, and discussed matter of extending the usefulness of the "little dairy cow."

The McPherson, Orange County, Citrus Association shipped during last year 175,000 boxes compared with 70,000 the preceding year. Packing house costs were 51 cents per box.

Commissioner Ryan of Los Angeles County reports puzzling results from fumigation in foothills sections of eastern Los Angeles County. Many orchards require two fumigations to control the black scale.

The Coast and General

Northwest Shorthorn Breeders Sale at Spokane, March 3 and 4.

A berry cannery is being erected in the Chilkat Valley, Alaska.

Northern Arizona counties have named April 2 as arbor day.

Alaska reports the midlest winter since records have been kept.

American Farm Bureau Federation meets at Ames, Iowa, March 3.

Arizona farm bureaus are working to secure livestock disease laws.

Western New Mexico reports spring grass growing finely in lower levels.

Colorado reports cattle on nearly all of its ranges are requiring feeding because of heavy snows.

One contractor recently took the job of cutting 10,000 cords of wood in the Hood River section.

It is said that California leads all states in ownership of motor cars, having one car to 5.6 persons.

A fire destroyed warehouse at Davenport, Washington, recently, burning 35,000 bushels of wheat.

A cold storage plant is being constructed with capacity of 2,000,000 pounds of fish at Chatham, Alaska.

The Goodyear Rubber people are promising cotton growers of Yuma establishment of a gin for long staple cotton.

The Arizona Egyptian Cotton Growers Association recently marketed a carload of 75 bales of long staple cotton at 97½ cents per pound.

The Grande Valley irrigation project in Colorado reports the past few weeks the coldest season since records have been kept in that section.

A farming district near Astoria, Oregon, will install a gravity water system which will supply about 75 large ranches with irrigation water.

For the first time since 1917 the water flowed over the spillways of the Roosevelt Dam on February 17. The reservoir now contains 1,369,340 acre feet.

The seed division of the state department of agriculture of Washington has tested for germination 500,000 pounds Washington grown vegetable seed.

The Umatilla irrigation project in Oregon has this season broken temperature and all kinds of weather records. The lowest temperature reported is 37 below zero.

Insects have attached themselves to the sides of Tieton Canal, near Yakima, Washington, in such numbers that they have greatly lessened the carrying capacity of the canal.

The Arizona experiment station is authority for the statement that concrete lined canals on Tucson farms have effected a saving of $40,000 in water at a cost of $18,800 for lining the canals.

While reindeer have been a great factor in the development of Alaska it has been found they will not exist south of the line where reindeer moss refuses to grow. They require this moss as a part of their winter ration.

Preliminary estimates of the acreage of cotton in the California-Arizona district indicate that there will be 500,000 acres planted in the two states, or approximately double the acreage of 1919. At present prices, at an average yield, this crop should be worth $100,000,000.

A Pomona Orchard Poultry Farm

By Jean A. Koethen

WE HAVE been told that the secret of making money with poultry lies not in the hens but in the man behind the hens. If this is true—and who can doubt it—the success of the Ross poultry farm at Pomona is easily accounted for. When Cornele G. Ross came from Vermont to Pomona ten years ago he came with 30 years' experience as office man for a large manufacturing concern behind him. Close application had undermined his health, and outdoor work in a milder climate held out the only promise of continued usefulness. Purchasing two and a half acres of land, which has since been increased to five, he and Mrs. Ross turned to poultry work for health and living. From a small apricot orchard with practically no buildings but a comfortable dwelling house to a fully equipped 2500 hen plant, with houses of the most up-to-date pattern, stocked with bred-to-lay White Leghorns is transformation enough, it would seem, to have taxed the resourcefulness of a man of vigorous strength. Mr. Ross owes his success largely to the fact that he makes his head save his heels.

Economical Feed Hopper
The top looks as if it were solid board, but it is two boards slanted in at right angles to each other.

The first venture was made with colony houses 5 by 6 holding 25 hens each and containing no place for scratching in rainy weather. Caring for even a few hundred hens in such houses was too big a job, even if the hens had been comfortable. Something more compact was absolutely essential.

Mr. Ross believes heartily in combining orchard and poultry, but he does not believe in running hens in the orchard. His experience with those first colony houses showed him that it was possible to injure the trees by the continual application of manure and the no-yard house appealed to him as the best solution of the problem. It leaves more room for trees and at the same time makes it possible to house a larger number of birds on the same acreage. If the birds are kept in small flocks it is also possible to pick out the sick hen as soon as she shows the first symptoms of illness. This line of reasoning leads inevitably to the Charles Weeks house and Mr. Ross' houses, while they are all slightly different in certain particulars, follow this type.

The Charles Weeks House

I might say in passing that Pomona is the one place in Southern California where the Charles Weeks type of house flourishes. Mr. and Mrs. Ross drove me past a dozen or more places where this style of house is used. The houses are not all exactly alike. They differ slightly in arrangements for ventilation, feeding and nests, but in general the type is followed. Whether Mr. Ross set the fashion or followed it, I do not know, but the fact remains that at least 20 out of the 70 commercial poultrymen in Pomona use this house.

A long house, eight feet deep and as long as the builder cares to make it, and divided into sections eight feet square, each housing 20 hens, is the type of house known as the Weeks house, and the six houses on the Ross ranch are all of this type. The first models had the nest boxes high up in front, according to the original model, but those built later have them lower down. Earlier models have the nests in groups of four, but in his latest house Mr. Ross uses groups of three because he has noticed that hens always incline to lay in groups of three nests. These groups of three are built so that the group in one section adjoins the group in the adjoining section. This is in order that all six nests may be emptied at one setting down of the egg pail.

The frames of all the houses are of 1 by 3 and 2 by 2 timber, 7 feet high in front and 5 feet at the rear, the shed roof projecting three feet in what is known as the "umbrella roof," to afford protection from the southerly rain storms which sometimes sweep this section. Most of the houses have dirt floors with a layer of sand on the dirt and a layer of straw on the sand. The sand is brought from a neighboring wash twice a year at an expense of $6 for every 16 pens. The latest house, which is not quite finished, has a cement floor. Mr. Ross is not sure that he prefers cement to dirt, but thought it only right to give it a trial. Hens cannot dust on cement, and a thicker layer of sand may be needed.

Economical Devices

After considerable experimenting Mr. Ross has evolved a mash hopper which does not waste the mash. It is a box 36 inches long, but instead of wire or slatted top it has two thin strips of lumber set at an angle above the middle of the hopper. The birds put their heads under these strips, which keep them from getting their feet into the feed. One of these hoppers is set in the partition between each two pens.

Week's House In Apricot Orchard
Notice the nest boxes arranged in pairs and the long trough in front where the birds get all their green and part of their grain.

Another clever device is the arrangement of the covers of the nest boxes

(Continued on Page 366.)

Use of Cover Crops in Citrus Orchards

By I. G. McBeth before Citrus Institute at San Bernardino

THE successful production of citrus fruits in Southern California depends in a large measure upon supplying the deficiency in organic matter and nitrogen, which is characteristic of most citrus soils. Many citrus lands are notably deficient in organic matter, and generally speaking where the supply of organic matter is low there is a corresponding lack of available nitrogen. Thus in the management of such soils the problems of maintaining the organic and nitrogen supply are closely related.

In working out a system of soil management which will maintain a satisfactory supply of organic matter in the soil the grower should clearly understand that the term "humus" is not synonymous with "organic matter." Humus includes only that part of organic matter which has passed the more active stage of decomposition, and he should also clearly understand that it is the decay of organic matter and not the mere presence of it that gives life to the soil. It is the opinion of the speaker that one ton of fresh active organic matter such as plant roots, crop residues, green manure, or animal manure, incorporated with the soil, may be of more value for a year or two than ten tons of old organic matter which has passed the active stage of decomposition and has reached the stage commonly known as humus.

The rapidly increasing citrus acreage combined with the scarcity and high cost of organic matter available for fertilization purposes, makes the problem of maintaining the organic content of citrus lands one of considerable magnitude, which renders it desirable to give thought to the methods available for applying organic matter to the soil in practical agriculture. The methods applicable to citrus lands are two:

By the application of animal manure or crop residues.

By cover crops grown in the orchard and incorporated with the soil upon which it is grown.

Under present conditions, the high cost of animal manures combined with the extremely variable character of the product makes its use by the average citrus grower a somewhat questionable practice. The speaker has analyzed cars of so-called manure which contained as little as seven per cent of organic matter. It is needless to state that the nitrogen content of this material was also extremely low. Many growers are applying manure of very poor quality at a cost of several dollars per ton. Practically all of these growers assume that they are applying a liberal amount of organic matter and nitrogen to their groves; but from our experience during the last four years we are inclined to believe that a careful analysis of the product applied would in many instances show that the organic matter and nitrogen actually applied is far below the needs of the soil and also that the grower is paying an exorbitant price for the plant food and organic matter received.

We have found the organic content of animal manure to vary from seven to 60 per cent. The average organic content of manure sold to citrus growers is probably no more than 20 per cent. Bean straw and other plant substances are approximately 80 per cent organic matter. Therefore one ton of bean straw or other plant residues of similar character would contain as much organic matter as four tons of ordinary manure.

The nitrogen content of manure is also quite varied. We have found the nitrogen content of manure to vary from .15 to 2.5 per cent. The average of a large number of cars analyzed during the last three years is about .45 of one per cent.

The extremely variable character of manure should be given serious consideration by the grower who is depending upon a moderate application of this material to maintain the productiveness of his land. It is obvious that the use of a material so variable in organic and nitrogen content must give a very spotty condition which will in all probability result in a portion or possibly all of the ground being under-fertilized by the application of a material having little or no fertilizing value. For the good of the industry as a whole, I hope the time will come when manure will be sold on a standardized basis, but even though manure were sold on a standard basis and the grower protected against the purhase of worthless material, the supply of locally produced animal manure is only sufficient to fertilize a very small percentage of citrus lands, and even when bean straw and other crop residues are included, enormous quantities of organic material must be shipped in from outlying sections in order that the organic content of citrus lands may be maintained. High freight rates on organic fertilizer can mean nothing less than extremely expensive fertilization.

(Continued on Page 336.)

A GOOD INVESTMENT

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The Conservation of Manure

From Address by A. D. Shamel at Citrus Institute, San Bernardino

THE increasing use of organic fertilizers for improving citrus orchard soil conditions in Southern California is a most important factor for consideration. These organic fertilizers include manures, cover crops grown in the orchards, alfalfa hay, bean straw, and other organic materials. The manures commonly used for fertilizing the orchard soils at this time include those secured from horses, cattle, sheep, poultry, and to a more limited extent bat and bird guanos.

Ten years ago when the writer first came to California for the purpose of working in citrus orchards very little manure of any kind was used in the citrus orchards with which he was familiar. At that time and for several subsequent years the manure used in the orchards with which he came in contact was largely secured from neighboring dairies, livery stables or ranch barns. For the most part the manure secured from the dairies and livery stables was given to the citrus growers in order to get it hauled away from their premises. The only expense incurred was for hauling and distributing in the orchards.

The demonstration of the value of manures in improving citrus orchard soil conditions in many districts led to the use of other organic fertilizers, namely, bean straw and damaged alfalfa hay. These materials at the time they first came into use for fertilizing purposes were very cheap as compared with their present value. I remember that several lots of bean straw were purchased in the field for from $3 to $5 per ton and damaged alfalfa hay for from $4 to $6 per ton.

The supplies of bat and bird guano were at this time secured largely from Arizona, the west coast of Mexico and the islands adjacent to lower California. This material was comparatively more expensive than the manure, bean straw or alfalfa hay and consequently was used only to a limited extent at that time. During the past five years and more, particularly during the past two years, these conditions have markedly changed. Large concerns handling manure have sprung up who employ men to search out every possible source of manure on ranches or livestock ranges in California, Arizona, Utah and Nevada and secure manures for the citrus orchards. The price of bean straw and alfalfa hay has gone to a point where it is practicaliy prohibitive for orchard soil improvement purposes. The bean growers have learned to keep the bean straw for the fertilization of their own fields instead of burning it or selling it to other districts. In some cases citrus orchardists are growing or are preparing to grow alfalfa primarily for use in improving their soil conditions.

It is apparent that the total cost of manure used in citrus orchards in Southern California during each of the years 1918 and 1919 was approximateiy $1,750,000. There are no figures available, so far as I am aware, which show the amount and value of bean straw, alfalfa hay or other organic materials used for fertilizing citrus orchard soils. There is no doubt, however, but that the value of these materials used in the years 1918 and 1919 amounts to at least $500,000.

Sources of Manure

I have been unable to find any data on the quantity or value of manure secured from poultry farms although I am aware that this source of organic fertilizer is of considerable importance.

* * *

Values as given in tabie on chart exhibited by Mr. Shamel are:

Tons of manure produced by the average animal in one year: Horses, mules and colts, 5.2 tons; value of nitrogen at 15 cents per pound, $9.20; total value, including other elements, $14.77. Amounts and vaiues manures of other animais: Dairy cattle, 8.5 tons, nitrogen $12.36, total $18.78; sheep and goats, .39 tons, nitrogen $1.60, total $2.27; swine, .61 tons, nitrogen $1.38, total $2.13. Mr. Shamel's tabie then gave the total values of aii manures produced by California livestock as $42,896,871.

The vaiuations are: 15 cents per pound for nitrogen; 3½ cents per pound for phosphoric acid and six cents per pound for potash. These figures are too low for present conditions but have been used in order to avoid suggestion of exaggerated valuations. Probabie present actual vaiues doubie those shown.

The 42 million vaiuation is arrived at by taking number of animais in state as reported in 1910 census.

* * *

There is a great loss in the valuable constituents of manures. One of the most interesting and reliable reports showing data of this character was issued by the Cornell experiment station. This of course refers to Eastern conditions, but I believe that it well illustrates the great losses wbich frequently occur. The horse and cow manures referred to were exposed to the weather during April to September, during which period there was considerable rainfall. When the manure was taken up for distribution the horse manure was found to have lost 57 per cent and the cow manure 49 per cent in gross weight. The ioss of nitrogen in the horse manure was 60 per cent; phosphorus, 47; potassium, 76; total percentage of value, 65. Loss of nitrogen in the cow manure was 41 per cent; phosphorus, 19; potassium, 8; total percentage of value, 32. These losses were partly due to leaching but were largely the result of decomposition. One class of bacteria breaks up the humus and forms carbonic acid gas and ammonia which pass off readily into the air unless the decomposition is carefuliy managed. Another class of bacteria acts upon the soluble nitrogen compounds and nitrogen gas is set free. Manure is most valuabie when it is fresh. However, it is frequently impossible or impractical to secure and use the fresh manure and therefore intelligent measures should be taken to conserve its valuable constituents during storage.

The methods of storing most favorable for conserving its piant food include tight stabie or feeding floors with absorbent litter or cisterns for the liquid portions, manure pits and compost heaps. It has been estimated that the manure from a thousand pound steer for six months is worth over $2 more when made on a concrete floor than when collected on a clay floor. A growing number of cattle feeding and horse feeding establishments are installing concrete stable floors and feed lot floors. This arrangement of the feeding floors should be extended to all dairies or other animal feeding piaces. In addition, cement troughs should lead from these floors to cisterns where the liquid manure can be collected. Of course it goes without saying that in the stables and feed lots absorbent litters are of great value.

Manure Pits

A slight beginning has been made in California by livestock owners in the installation of suitable manure pits in which manure can be collected and held untii it can be distributed. These pits usually are dug out of the ground near the feed yards and are frequentiy arranged with cement walls and floors. Some of them are so arranged that wagons can be driven directly into the pits and ioaded or unloaded with a minimum of cost. All such pits should be provided with cisterns into which the liquid seepage can be drained. When the manure is taken out this liquid portion can be pumped out and distributed in the orchards. So far as possible these pits shouid be screened or otherwise protected in order to prevent fly breeding. There are enough of the different styies of pits now in use so that anyone who desires to do so may get reiiabie information as to methods of construction and the handiing directiy from those who have had experience.

Compost Heaps

So far the compost heap is used only to a very limited extent. Ordinariiy it inciudes layers of manure and layers of peat. These are sometimes turned over after several months in

(Continued on Page 332.)

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Scaly Bark Demonstrations

By Ernest Braunton

THE Los Angeles County farm bureau, in common with other county bureaus in citrus growing districts, is at this time of the year holding orchard meetings to demonstrate the best procedure in the treatment of scaly bark on the orange. This is a disease not confined to any district or districts, but somewhat prevalent wherever heavy soil is found and to a lesser extent is due to other causes.

Farm Adviser Hodgson, speaking at Monrovia recently, called attention to the differences between the gum disease, or gummosis and scaly bark. "We know more about the gum disease and its presence is more easily detected, for the tree attacked exudes large quantities of gum and the disase acts to kill the bark. The brown rot gummosis is very bad on lemons in some districts and worst on heavy soils, but some stocks are more susceptible than others, the sour stock of the orange being most resistant. The most common point of attack is at the union if it be at surface of soil. For that reason it is better to bud high, six or eight inches above the ground. If trees are budded low keep the soil away from the union. If the attack is bad trees may be killed rather quickly. The soil should be pulled away, the dead bark cut away and the trunk and upper roots painted with Bordeaux paste.

Scaly Bark

"This trouble is caused by an unknown agency. It is thought to be bacterial, but we are not sure. It does not kill the bark, at least not until in the last stages. It is not easy to detect and often is unsuspected until trees show signs of malnutrition.

"It attacks orange and pomelo, but is not so bad in the latter and the Valencia is slightly more susceptible than the Navel. The first stage shows but droplets of gum and the area affected is no larger than one's hand. At this stage we can cure all cases, but as the disease progresses steadily, we should get at it as early as possible. But the progress is usually very slow and a close annual inspection should be made of every orchard to determine its freedom or infection.

"The second stage is considered as that where the affected area ranges larger than one's hand and the effects are plainly visible on the exterior of the tree. In this stage we can control two-thirds of the cases or so prolong the life of the tree that several good crops will result. For any organism so attacked makes a supreme effort to reproduce itself, and the orange is no exception to the rule, even though it be a seedless orange. But prolonging the life of the tree, even though it later succumbs, will well repay the effort. In the third stage, where the tree is manifestly decadent, it is of little use to do anything, as it is past help. A few trees go quickly, in three years; others last for ten years.

Treatment

"The treatment is nothing more or less than good tree surgery, as with diseases caused by fungi. Cut out all diseased tissue, keeping all tools disinfected that are used on affected parts. Then paint all diseased parts with Bordeaux paste. This is the cheapest and most durable material and should be renewed once a year. In the second stage we do not cut away the bark as in the first stage as the bark is not killed and we do not wish to destroy so large an area. So we merely scrape the bark down to the "quick" and give it what we call the Fawcett treatment. I use a five per cent carbolic acid solution and find it best. Trees so treated years ago by Dr. Fawcett have been restored to their former vigor. Carbolineum and creolinium are also used but are less effective as the carbolic acid content is variable, but creolinium is better than in former years. There are also various mixtures on the market, prepared by paint and oil companies, some of which are very good. Then treat with a Bordeaux paste. In some sections scaly bark is increasing in virulence, attacking the youngest trees and killing them quickly. Old lemons shed their bark in a suspicious manner and while there is no danger it is best to clean off the roughness and spray with Bordeaux, for other diseases or insects may be encouraged or harbored."

Mr. Hodgson and Assistant Adviser Blanchard then treated an affected tree to show how the work should be done and what tools have proved most effective and convenient. The assemblage was then invited to another part of the orchard to view a lemon tree badly affected with Armillaria meliea, the oak root fungus, and hear a short talk on same. The audience was one more than ordinarily interested and inquiry developed that all were members of the farm bureau.

ORANGE TREE INSPECTION

There is a fine feeling of cooperation manifest between quarantine officials and the nurserymen in nearly all parts of California. An instance has just come to our attention. Tulare County has a restriction which forbids citrous trees entering unless defoliated. Recently growers in Los Angeles and San Bernardino Counties had five carloads to ship into Tulare County. Defoliation is expensive and there is no question but it impairs the vigor of the tree. So sure were these growers that their stock was absolutely clean that they asked Horticultural Commissioner Collins of Tulare County to come down at their expense, examine the trees, and they would abide by any decision or ruling he would make. So he sent F. R. Brann, his chief deputy. Mr. Brann spent two days examining the stock, found it clean, but had the bases of the trunks scrubbed down into the soil, the trees then dipped, and passed them for shipment. He stated the stock was not only clean but as fine as any he had ever seen. In his county the gray scale is the only one that seriously affects the trees; black scale will not thrive there and the red scale has never been allowed to enter.—E. B.

THE CONSERVATION OF MANURE

(Continued from Page 330.)

order to thoroughly mix the manure and the peat. It is also sometimes necessary, particularly in our dry seasons, to water these heaps. The composted manure is exceedingly valuable for potted plants, green houses or other similar purposes but it is extremely doubtful whether or not it is as profitable for use in citrus orchard soils as is the fresh manure or that from manure pits.

Of course the value of the manure from the different classes of animals depends upon several factors, including the feed which is given to the animals, the age of the animals and the care with which it is handled from the feed lot to the orchard.

* * *

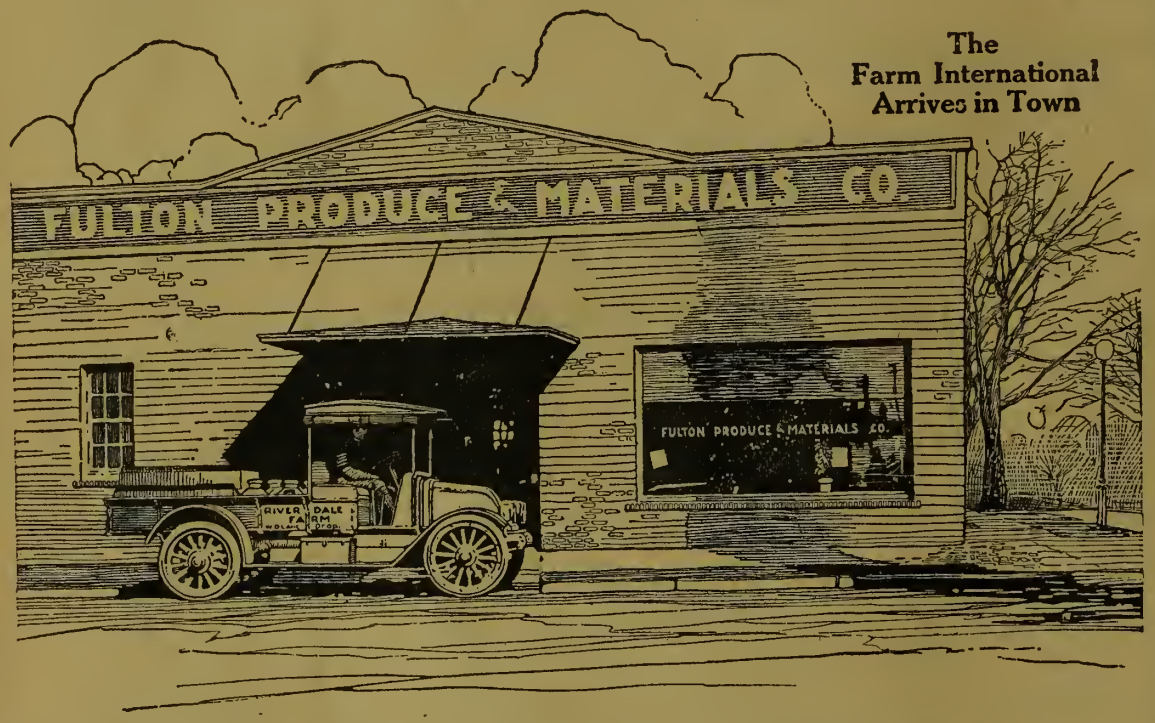
Methods of application, with especial reference to the furrow-manure method, will be given in a later issue.

TO PAINT NEATLY

Many do a good deal of their own painting, interior and exterior. An amateur painter cannot avoid getting some paint on the hardware, such as locks, hinges, handles, pulls, etc. This gives the finished job a botched appearance and partly spoils the effect of the new coat of paint.

Here is a little trick of the painter's trade that will serve the amateur painter well. Before beginning to paint the woodwork apply a coating of vaseline to the hardware; let the paint dry thoroughly; then wipe the vaseline off the metal parts and the paint will come off with it. This insures a neat, clean job of which the painter may be proud.

The required number of signatures to petitions in the Fresno irrigation district for the Pine Flat project has been obtained and filed with the board of supervisors. The petition contains 750 names, representing an acreage with an assessed valuation of $4,326,990.



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Farmers are installing Lalley Light ***now*** in greatly increased numbers.

They realize more than ever that ***right now*** they have plenty of time to install this essential equipment.

They realize that they can have Lalley benefits and comforts ***immediately*** and be ready for the greater benefits that Lalley Light will give them when the rush of farm work comes.

They realize that Lalley Light, with its ten-year owner experience, is so valuable an investment that they cannot afford to be without it one day longer.

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Right now is the best time for you to begin enjoying Lalley electricity. Not only do you need this equipment ***now,*** but if you delay, you may have to pay an increased price for it.

Do not delay. Go to see your Lalley Light dealer ***now*** and place your order for a Lalley Light Plant to be installed immediately.

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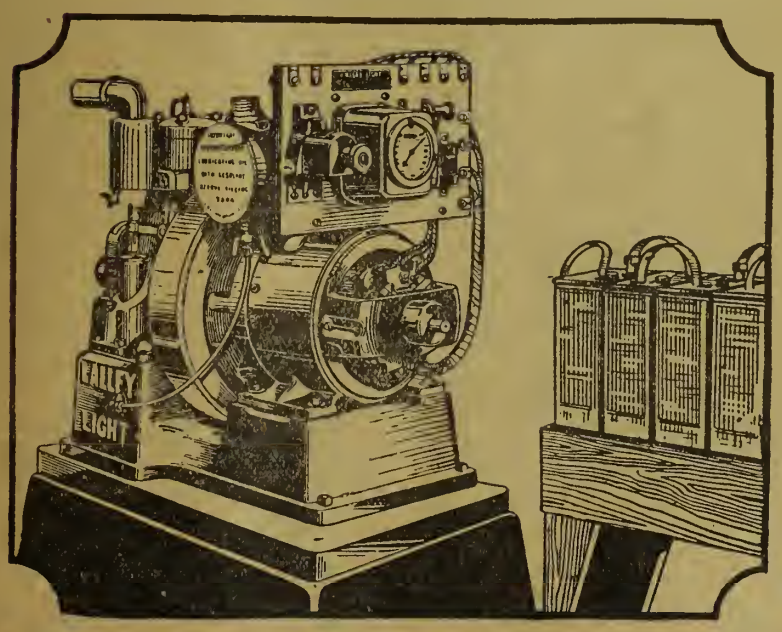
F. C. Morris, Manager

Lalley Light is a complete unit—engine and generator—with 16-cell storage battery. It supplies ample electricity for lights, water pump, washing machine, sweeper, cream separator, fanning mill, iron, etc.



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C. N. CEDERBLOM & CO.

Dealers in General Merchandise and Automobiles

Auto Supplies

Waukon, Wash

December 1st, 1919.

The Feldman Farm Electric Co.,
426 - 2nd. Ave.,
Spokane,
Washington.

Dear Sirs:

In answer to your enquiry about my Lalley Light plant, I wish to say that it is running to my entire satisfaction. In fact, I had no idea when I bought my Lalley plant three years ago that any piece of machinery could run as much as I have run my plant and stand up.

I use my plant to light my store and garage and for charging automobile batteries. Day after day I start my plant at 8 O'clock in the morning and do not shut it off until 10 O'clock at night. It is safe to say that I have run my plant on an average of eight hours a day since I bought it about three years ago.

I see about 400 watts of current continuously for lights and have been doing this for three years.

The Tillard battery that came with the plant is in first class shape now. There is very little sediment on the bottom showing that they are lasting fine.

The Lalley should last a farmer who gives it reasonable attention a great many years. My plant has certainly been a surprise to me.

Sincerely yours,

C. N. Cederblom

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THE ELECTRIC LIGHT AND POWER FOR EVERY FARM

Agri GYPSUM

For greater crops of oranges, alfalfa, potatoes, beans, garden truck, deciduous fruits, cotton, beets, cover crops, and barley apply AGRI GYPSUM to your land.

It supplies sulphur, an element contained in most farm crops to an extent almost as great as phosphorus which aside from nitrogen has been considered the main limiting factor to crop production.

Gypsum contains two of ten essential elements for plant nutrition,—calcium and sulphur.

It is not new, it was introduced in Europe in 1768. Benjamin Franklin was the first to advocate its use in America and soil experts everywhere advocate its use in the production of the above named crops and many more.

Potatoes respond quickly and vigorously when AGRI GYPSUM is applied.

If you have land that is saturated with Black Alkali, proper application of AGRI GYPSUM will change the elements of this substance so that valuable crops may be produced thereon. Authoritative proofs of successful experiments by official agencies will be furnished establishing this important fact.

This year when fertilizers are scarce and high we invite you to investigate carefully the importance and economy of using AGRI GYPSUM.

If your dealer cannot supply you write.

United States Gypsum Company
(Sole Manf'urers of AGRI GYPSUM)
902 Citizens National Bank Bldg.
5th and Spring Streets
Los Angeles, California

Notice to California Prune and Apricot Grower Members

Following is an exact copy of the form of notice going forward by registered mail to all growers under contract with the Association, exercising the Association's option on the prune, apricot and apricot pit crop of the season of 1920 and 1921, in accordance with the terms of standard fruit agreement entered into by all members:

John Doe,

San Jose, Calif.

Dear Sir: The California Prune and Apricot Growers, Inc., herewith exercises the option heretofore granted by you under the terms of the Prune Crop Agreement, made by and between you and the California Prune and Apricot Growers, Inc., on the ..... day of ..... 19 ..... to purchase the crop of 1920 and 1921 produced on the lands described in said Prune Crop Agreement at the terms and under the conditions of said Prune Crop Agreement, and the California Prune and Apricot Growers, Inc., hereby notifies you that said Prune Crop Agreement, and all the terms thereof, will be in full force and effect by virtue of the exercise of this option during the years 1920 and 1921.

CALIFORNIA PRUNE AND APRICOT GROWERS, INC.,
By H. C. Dunlap, Secretary.

Dated February 2, 1920.

Westrobac
Los Angeles, Calif.
618 So. Spring St.
440-442 Sansome St.
San Francisco, Calif.

INSTITUTE WITH PERMANENCY

(Continued from Cover Page)

of stocks. Bud selection has been drilled into our minds until it has become an established principle that like begets like in bud-wood as well as in seeds, and now the character of the sotck on which the bud shall be placed is declared to have a large influence on the resulting tree.

This discussion was started by the address of Dr. Webber, which was along lines followed by the doctor in Bulletin 317 of the College of Agriculture Experiment Station, "Selection of Stocks in Citrus Propagation."

One peculiarity of the institute was the absence of resolutions. Producers in conventions assembled have hard work getting by without resoluting several times. This convention was sans resolution committee. However a motion commending Dr. Herbert J. Webber for the services he has rendered to California horticulture and wishing him greatest success in any future work was passed by every member of the convention standing.

The Program

J. E. Rich, vice president of the Orange Show, welcomed the delegates in place of President R. E. Swing, detained by official duties. To this address no response was made, Dr. Webber stating that the attendance sufficiently showed the appreciation. The first number on the program was a paper read by T. R. Woodbridge, Upland, on Cooperative Grove Organizations. This was largely a review of the first year's business transactions of the Liberty Groves Operating Corporation, Upland; the chief points of which, as in the case of all papers read, will appear in this or future issues of the Cultivator.

The next was a broadly analytic paper by J. D. Culbertson, assistant manager of the Limoneira Company, Santa Barbara, entitled Housing of Ranch Labor, but going far beyond the title in an enlightening review of present ranch labor conditions. This was followed by a paper by Prof. R. S. Vaile of the citrus experiment station, Riverside, on Trend of Development in the Citrus Industry. Prof. Vaile presented charts to show the increased cost of production this year as against former years. In the season of 1913-14 lemons cost 90 cents a box to produce up to the point of picking. In '18-'19 the cost had risen to $1.30, this in spite of improved methods of handling, improved farm machinery, etc. For the same seasons the cost of a box of oranges increased from 50 cents to 85 cents. During the same seasons the field operations per acre had advanced from $197 to $300 for lemons and from $136 to $175 for oranges. The net returns per acre were $58 in '13-'14 and $150 in 1918 for lemons (the highest return was in '17-'18, of $258 an acre). In oranges the returns ranged from $58 to $150. In the season of '14-'15 the net loss per acre on lemons was $63.

More mixed farming was advocated, especially the raising of livestock to supplement the lessening supply of farm manures. These products should doubtless be handled on a cooperative marketing base as is the case with citrous fruits. In production of oranges for the state for the season of '16-'17 the number of boxes of Navels was 13,270,000; Valencias, 5,020,000; in '18-'19, Navels were 7,677,000 and Valencias 6,780,000.

While influenza makes a strong call for lemons, since prohibition of intoxicants the demand is very strong for more orange drinks, so the orange end looks a little the more encouraging. The outlook for 1920 demand for nursery stock shows lemons, Navels and Valencias about equal.

The State's Experts

W. H. Fleet, manager of the Rancho Sespe, near Sespe, Ventura County, gave a talk on Are We Using the University and the Experiment Station As We Should? He said that in an audience of 60 ranchers in his section but four were receiving the university bulletins. At considerable trouble he obtained a noted speaker on the one subject of most importance to the people of the district. One hundred and thirty post cards were sent out ten days before the meeting and again two days before, yet the attendance was but 35. All connected with university work are anxious to help you, but do not wish to thrust themselves upon you; send for them. Get together so you can call experts on dates agreed to by the community so the greatest number possible may be reached upon each visit. Ranchers asked about visits to the experiment station said they had no time, yet they took many hunting, fishing and pleasure trips. When sick they send for the doctor, often at a heavy cost, yet when orchards are sick they fail to avail themselves of the services of expert specialists, without cost. All should work to obtain more money from the state for the support of these necessary stations and experiments.

In the afternoon Dr. H. J. Webber, director California agricultural experiment station, Berkeley, gave a talk on The Selection of Stocks, but stated the talk was just what may be found in his latest bulletin, heretofore mentioned.

Following Dr. Webber came a talk by C. S. Milliken of the California Fruit Growers Exchange, on Bud Selection and Nursery Methods. He recently wanted a George IV peach for trial but could not find one that the nurseryman knew for certain, personally, was true to name, and was pleased that the nurserymen in deciduous fruit tree operations were combining to secure by cooperation what they long had wished to furnish their patrons—assurance of trees being true to name. One 15 acre young orchard bought for a "pet" grove by a wealthy retired business man proved not to be Washington Navels and will now be budded over. One 50 acre lemon grove cited has 15 acres near the middle that has never borne, though the trees are evidently Eurekas. Now it is the practice of all good nurserymen to get buds only from trees of known or certified crop production. Unselected stock should not be allowed to be offered for sale as it injures the industry. Such cheap stock is bought by promoters who plant orchards for sale only, and the practice shuld be stopped. Public opinion will finally force all dealers to handle only the best stock obtainable.

Planting the Orchard

F. H. Nusbickel, Glendora, read a paper on Planting Citrus Trees, followed by W. M. Mertz, of Alta Loma, on the closely allied subject of Handling a Young Orchard, of which more will appear later. Mr. Mertz urged double cover cropping for districts where humus was much needed and where plenty of water is available for summer use. Cow peas planted in the middle of May is a good summer cover crop. Such crops in rows take less water and their cultivation is beneficial to young orchards for the first and second year.

The Fertilizer Situation was treated in a brief talk, bristling with statistics, by A. E. Barnes of the Fruit Growers Supply Company. Before the war we obtained potash in large quantities, though scientists stated little was needed, and later experiments and practice have proved they were correct. Phosphorus we get from acidulated bones and phosphate rock. Bones from Calcutta, the greatest source of supply, now cost $62 a ton and raw bone is quoted in San Francisco at $75 a ton. Bone meal is necessary for sugar refining and the orchardist has these interests to compete with when seeking a supply. Labor shortage has seriously interfered with the mining of phosphate rock and the government took all available sulphuric acid during the war. Its production was increased 2,000,000 tons in war time but much is needed for refining of oil and this interest competes with the farmer. Nitrogen was needed for explosives during the war and for five years European lands received none. Now they need it and we must grant it. France and Belgium have placed orders in Chile for 500,000 tons. Before the war Germany was Chile's best customer. Now she buys none. Just what her source of supply is we do not know, but she will doubtless purchase no more abroad. A new process for refining nitrate of soda is now in use in Chile which will reduce the cost by one-third over the old method. The United States built an ammunition plant on the Atlantic Coast at a cost of $70,000,000. It covers 38 square miles. It will now, through an enabling act recently passed, convert ammunition into fertilizers. The farmers of the world are, however, bidding for supplies against some of the world's biggest industries and there will be no surplus during 1920 or spring of 1921. During the summer of 1921, Mr Barnes thinks, a surplus of nitrogen should be available.

The next paper, by A. D. Shamel of Riverside, appears in part in this issue, and he was followed by Joy G. Jameson of Corona, on What We May Do to Increase the Future Supply of Organic Matter, and Dr. I. G. McBeth of Whittier on Use of Cover Crops in Citrus Orchards. The Important Fungus Diseases of Citrus, by Dr. Barrett, acting director of the Riverside citrus experiment station, has appeared in recent issues of the Cultivator. This was followed by a paper from Prof. H. S. Smith, state department of agriculture, Sacramento, on The Use of Parasites in the Control of Mealybug and Other Citrus Pests, and then a brief talk on Fumigation Methods in Control of Citrus Pests by Prof. H. J. Quayle of the citrus experiment station, Riverside.

The latter said the last three years had recorded a marked advance in fumigation through the use of liquid gas instead of the now nearly obsolete pot method. The purity of liquid gas has now been standardized so it is comparatively safe to use as 95 to 96 degrees of purity brings excellent results, while a purity of 98 or 99 gave too volatile a product. He said the red scale at Corona, (due no doubt to superior climate) was the hardest to kill of any yet found. The intimate study of control of this one pest by the new methods began in 1915 and a new series again opened in April, 1919, and will be continued and final results given to the public.

Five seasons' observation prove red scale to be most resistant on heavy leaved Lisbon lemons. One curious fact was brought out, that of a certain number of live scales placed under a treeless tent, ten per cent more were killed than in a like number placed under the same tent when containing a tree. The red scale is more resistant on fruit than twigs. The navel orange is no problem for the fruit is picked soon after fumigation season, but with Valencias, lemons and pomelos the fruits may become reinfested before harvest, for the scale hatches at all seasons and April and May are the best months for fumigation, and a practical cleanup may then be accomplished. Fumigation in the Corona district was very effective in 1919 for the work was done at the right time, when there were fewest numbers in the most resistant stage, which is in adults and at time of second molt. In general daylight fumigation it was found light and temperatures were the factors controlling injury to trees. In many sections December, January and February are the most satisfactory months, for when temperatures are above 70 degrees in September, October and November, injuries resulted, while 89 proved safe in winter. The injuries are most marked by the dropping of leaves on the south side of tree. But the same dosage is more effective by daylight than by night. We should reduce dosage rather than time of exposure as dosage is the most costly. There is danger of injury to the blossoms of Valencia, very little to navels, and no danger to lemon blossoms.

The Hot Air

Dr. H. S. Reed of the citrus experiment station read the last paper on the program, prefacing his remarks by saying that Dr. Webber, evidently with studied intent, had reserved the hot air for the last, but if it was characterized by velocity, it would at least be brief. His subject was: Observation on the Damage Caused by the Local Windstorm of November 20-23, 1919.

He said the velocity of this wind was from 50 to 60 miles an hour and it came over the mountains from the Mohave Desert. The most marked matter of temperatures was the high minimum, the nights being hot and dry. The main direction was north and then northeast and the velocity in sections damaged was from 25 to 40 miles an hour. The great factor in injury was no doubt the low relative humidity. Orchards in light soils suffered less than those in heavy soils as water movement is more responsive in the light soils. Windbreaks were effective in protection only to trees close by and those enclosing ten acre blocks were not sufficient to protect whole blocks of that extent.

YUMA VALLEY SEED
NATIONALLY KNOWN AND SOWN

DEPENDABLE AS
THE SUN THAT GROWS THEM

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"THE PUREST AND THE BEST"

Hairy Peruvian Alfalfa

The Wonder Crop of the Great Southwest

Produced on Pedigreed and Certified Fields

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Hairy Peruvian alfalfa has been highly developed in the Yuma Valley during the past four or five years, and in its present high state of perfection the increased yield per acre per season over ordinary alfalfas is

From One to Two Tons

Thirty-Five Years in the Yuma Valley

WE HAVE EXPERT SEEDSMEN WHO KEEP IN CLOSE TOUCH (BY CLOSE AND CAREFUL INSPECTION) WITH THE FIELDS — NOT ONLY AT SEEDING TIME, BUT TWELVE MONTHS IN THE YEAR.

We Know From Whence Our Seed Comes

and can give a customer the name of the grower, and the identical field on which his seed was grown.

"GREEN GOLD"

Each and Every Bag Labeled and Sealed by State and and County Agricultural Agent

We Recommend
Hairy Peruvian Alfalfa

"As the One Best Bet"

It costs a few dollars more at planting time

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They are multiplied a hundredfold at harvest_time

Smooth Peruvian Alfalfa

a Heavy and Reliable Producer

Next to "Hairy"
It's the very best

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THERE IS NO OTHER PLACE IN THE WHOLE UNITED STATES WHERE THIS WONDERFUL SEED IS GROWN TO SUCH A DEGREE OF PERFECTION AS IN THE YUMA VALLEY, WHERE "SUNSHINE IS PERPETUAL," THE SOIL RICH WITH THE GIFTS OF NATURE, AND EVERYTHING COMBINES TO GIVE YOU

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Why Run the Risk of Errors or Substitutions?

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RUSSELL
THE OLD RELIABLE LINE

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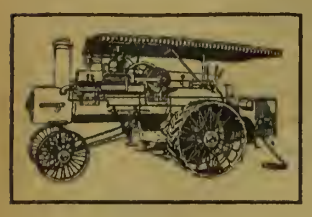

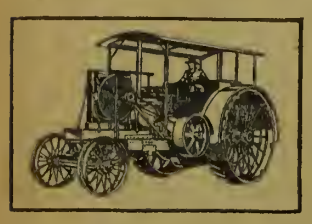

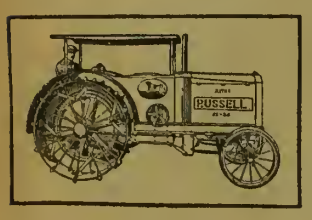

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Firstly to build with only true and tried features, and complete all our own experimenting before letting our machines get on the market.

Secondly to use only the best of materials and standardized units; to put in hand-made quality of workmanship; and to build for hard, long service, not *how many* machines but *how good*.

As a result, Russell stands for Reliability in kerosene tractors, just as it has always stood for Reliability in engines and threshers all over the world.

With crops bringing record prices and farm labor scarce, you cannot afford to risk breakdowns and delays that go with new and unproven machines. *Avoid experiments*, keep farm work going right ahead; buy a proven, sturdy old reliable Russell and make your farm pay bigger than ever this year.

Complete Line of Tractors and Threshers

There is a Russell tractor and a Russell thresher for every size farm. Kerosene tractors are in four sizes: 12-24, 15-30 and 20-35, and the Giant 30-60. Steam traction engines are made in five sizes. Threshers in six sizes, from 20x34 for individual farm use, to the big 36x60—all alike in general design and exclusive features.

Fully described in big new Russell Catalag—send for it.

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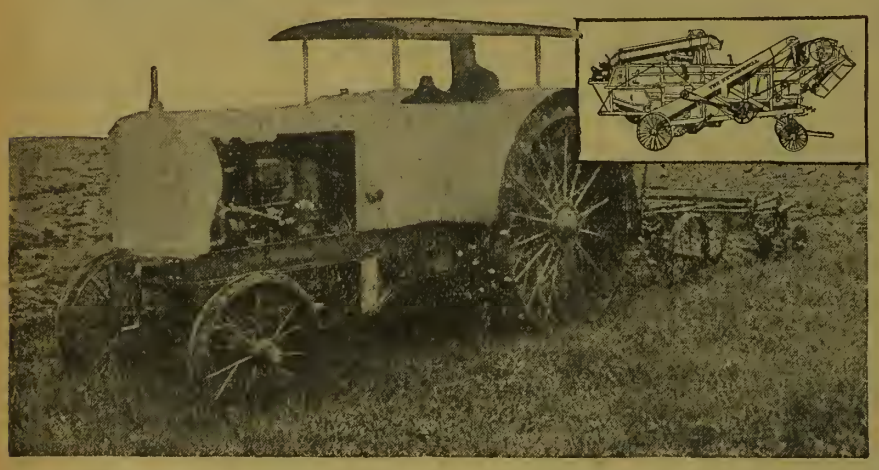

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You should have our catalogue. Our descriptions of varieties are more complete and comprehensive than in any other book. This book tells you what you ought to know in order to select trees intelligently. Sent free on request.

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When Writing Advertisers, Mention the Cultivator.

USE OF COVER CROPS IN CITRUS ORCHARDS

(Continued from Page 329.)

and if there were no other method of supplying organic material to citrus lands, the fertilization problem of the citrus grower would indeed be a most difficult one.

Fortunately one of the most satisfactory methods of maintaining the organic and nitrogen content of citrus lands is by means of green manures, or cover crops grown in the orchards. Cover crops should be grown extensively during the winter season and in some sections it is believed that two crops per year can be grown to advantage. In new plantings, situated under conditions which make it possible to grow two green manure crops per year, the organic and nitrogen requirements of the land can undoubtedly be taken care of without additional fertilization during the first ten years.

In growing green manuring crops, we are of the opinion that legumes should be used exclusively. From the standpoint of tonnage, rye and barley may be expected to give good yields in time for the spring plowing; but they are not nitrogen gathering crops and are apparently much inferior to legumes for maintaining the productiveness of the land. We have a number of legumes which make a fairly satisfactory growth when used as cover crops in Southern California. Of these, melilotus indica appears to be the most promising of the winter varieties. For summer growth, perhaps the whippoorwill cow pea is best. Purple vetch possesses distinct advantages over melilotus in that it is a much larger seed and makes a much quicker growth, is less likely to be smothered by weeds and is more certain to give a heavy tonnage in time for early spring plowing. But there is as yet no seed available in commercial quantities. The main disadvantage of the whippoorwill cow pea seems to be that the planting must be delayed until spring is well advanced and the ground thoroughly warmed up before the young plants will thrive. A crop which could be planted earlier and which would make sufficient growth to cover the ground before the hot summer weather comes on would have a distinct advantage over the cow pea, and it is believed that if such a plant could be secured the summer cover crop would be grown with much greater success and far more extensively than in the past.

Many failures to secure satisfactory results with green manuring crops are due to too little care in preparing the seed bed or in protecting the crop when young. The carelessness exhibited in growing a cover crop is probably due to a general lack of knowledge of the real value of such crops which results in the owner attempting to get by as cheaply as possible.

In citrus groves in which cover crops are growing it is generally considered good policy to plow early. Ordinarily the spring plowing should be done during February or March. A good yield of winter grown legumes cannot ordinarily be expected in less than five months. Thus it is important that the seed should be sown in sufficient time to permit the development of the crop before the plowing season. Melilotus sown on lands upon which rapidly growing weeds develop must be protected from the smothering effect of weed growth. This can be accomplished at little cost by running over the land with a mower when the weeds have attained considerable height.

The amount of seed to sow will of course vary with conditions. The cost of the seed is not a very large item and it has been our experience that it is better to sow too much rather than too little. In young orchards where practically all the land is sown it has been our practice to sow 30 pounds of melilotus and 40 pounds of cow peas. In old orchards where about one-half the land is available for cover crop, only about 15 pounds of melilotus seed has been used.

The preparation of a good seed bed, especially for the small seeded cover crop species, such as melilotus, is very necessary in order that good germination may be secured. On all except very heavy soils, a good method with melilotus is to broadcast one-half the seed on the dry soil before furrowing, then harrow lightly, furrow out and broadcast the other half of the seed over the furrowed land. On very heavy soils, especially under climatic conditions causing slow drying of the surface soil after irrigation, good results may be secured by broadcasting all the seed after furrowing.

The most successful method with cow peas and other plants having relatively large seed, is to first secure a uniform irrigation of the land so that all the soil is thoroughly moistened, then follow as soon as possible with harrow and cultivator in order to establish a good seed bed. As soon as the seed bed is complete, the seed should be drilled to the proper depth. The rows should be from 28 to 30 inches apart. On soils which need not be irrigated for three or four weeks after planting, the furrowing should be delayed until required for the following irrigation.

The question of irrigation for the young crop is very important. After the seed is sown and the seed germinated, the success of the crop depends largely upon the moisture conditions of the land. Therefore after seeding, sufficient water should be available to keep both trees and cover crop growing normally. Since the rains cannot ordinarily be depended upon to supply the necessary moisture until December and often much later, careful attention must frequently be given to the irrigation of the land for some months after the seed is sown. Perhaps more failures to secure a successful cover crop are due to poor soil moisture conditions than to any other cause.

In order to get as much tonnage as possible, it has been the practice of some growers to allow the crop to approach maturity by delaying the spring plowing. While it is desirable to grow all the organic matter possible in our groves, the practice of delaying the plowing operations in order to secure greater tonnage is, in the opinion of the speaker, very poor practice and should be discouraged. The turning down of the succulent green plants within easy reach of the feeding roots of the tree in the early spring not only furnishes a quickly available supply of plant food but makes it possible to put the land into proper physical condition before the beginning of the irrigation season. Delayed plowing, especially on cover cropped lands, is likely to be disastrous to the following crop of fruit and should not therefore be practiced unless the larger yield of green manure is of paramount importance.

As stated above, the carelessness with which the cover crop problem is handled by many growers is probably due in large measure, at least, to a lack of appreciation of their real value. From the standpoint of nitrogen fixation alone, the citrus grower can well afford to spend considerable effort and money to secure a satisfactory crop.

Many experiments are reported which show the remarkable effect of green manuring crops, if leguminous varieties, in rendering productive barren and worn out lands. Very large areas of barren sandy heath land in East Prussia have been reclaimed by a system of growing lupine and plowing in the green crop. It is reported that a barren soil planted to lupines in 1865 was found in 1880, or after 15 years of lupine growth, to contain 2,600 pounds of nitrogen in the surface eight inches, as compared with 800 pounds in an adjoining field in which no legumes grew. The gain in nitrogen amounted to considerably more than 100 pounds per year. Experiments reported by the Rathausten station, in which a worn out soil was abandoned to wild vegetation for 25 years, show an annual accumulation in nitrogen of more than 100 pounds per acre.

Young orchards on the Leffingwell Rancho cropped to melilotus indica as a winter crop and whippoorwill cow peas during the summer, showed an increase in nitric nitrogen of more than 100 pounds per acre after two crops of melilotus and one crop of cow peas bad been added to the land.

From experiments conducted at the citrus experiment station, Mertz reports that legumes alone gave as good or better results than non-leguminous green manuring crop plus an annual application of 540 pounds per acre of nitrate of soda.

Many other experiments might be cited to show the value of leguminous crops in adding nitrogen to the soil.

The quantity of organic matter which may be added by a cover crop

depends uopn tho tonnage produced and the stage of maturity of the crop when plowed down. If turned down when still quito green, the water content may be as high as 80 per cent. A small percentago of the solid matter is made up of the mineral elements taken up by the plant, which leaves somewhat less than 20 per cent of the total weight produced as organic matter. As stated above, the organic content of the ordinary run of animal manures sold to citrus growers is frequently no more than 20 per cent, which would seem to indicate that the organic matter added to the land by turning down a green manuring crop of 20 tons would be equivalent to the application of 20 tons of manure.

Assuming that a cover crop of ten tons can be grown with reasonable certainty and that the nitrogen saved from the leaching action of heavy rains or gathered from the air amounts to 50 pounds, which many experiments on record would indicate is quite possible for a crop of this tonnage, at the present price of nitrogen in quickly available substances, in which class green manures should be placed, the value of the nitrogen alone would amount to approximately $25 per acre. When we add to this the value of the organic matter, which in the opinion of the speaker would have a value of at least $10, we have a total value for the crop amounting to $35 per acre. During favorable seasons, if properly handled, the crop should yield a much higher tonnage with a corresponding increase in value.

SULPHUR FOR FERTILIZER

Owing to more general interest in the use of sulphur for fertilizing we recently asked Dr. Snowden as to what is the best form in which to apply sulphur. Dr. Snowden writes:

"I have found finely ground gypsum all round the best form of sulphur for agricultural purposes, but local conditions will of course modify this opinion. For instance, where there is plenty of calcium carbonate in the soil or it can be added cheaply, and the land is a long way from the gypsum supply, the element sulphur would probably prove of advantage to use but is slower in its action because it must become oxidized to the sulphate before it can be used. This too must be done perhaps at the expense of the oxidative efficiency of the soil which would tend to diminish fertility since oxidative power of a soil is sometimes its index of fertility, in other words its limiting factor. For a soil deficient in sulphur I would always advise from 1,000 pounds to a ton of gypsum per acre, though of course, less might do. I have known an application of a ton of gypsum per acre on oranges to be followed by the production of a 65 per cent crop while the adjoining groves produced but a 15 per cent crop."

A BELIEVER IN THE FARM BUREAU

By J. P. Samuelson, State Land Settlement, Butte County

Just a line to give my opinion on the farm bureau. I believe the farm bureau the best medium for bringing the farmers of this country together in a big political and social organization. I think if any industry needs organization it is the farmers, for they have the greatest investment in their business, employ the greatest number of laborers, and constitute almost half the population. If organized they can control the food needed for both capital and labor, and if necessary could put on the most terrible strike the country has ever seen. But this should not be the plan; all that is asked for is fair play from the public. If organized, the farmer will then be invited to attend every industrial conference because he will be recognized as having strength.

Shipments of food from foreign countries, such as beans from Japan and China, could be stopped as long as our own crops lie in warehouses and cannot be sold. Profiteering can better be controlled—for example, the selling of bacon at 60 cents per pound when the farmer receives only ten cents per pound for hogs.

The laboring man with not a cent invested can go to Washington, D. C., and put his demands in the hands of the President. The farmers, owners of half the country, can go nowhere to demand adjustment. The reason is, they are not organized.

For that reason let us organize and help the government to run the good old U. S. A. and do our part. We can, and should, use the farm bureau for this work.

SULPHATE OF AMMONIA

Crops in California are often stimulated, or rather given greatly increased production, by application of small quantity of quick acting fertilizers. Those which show quickest return are usually rich in nitrogen in some form. One of these nitrogen suppliers which is quite generally used is sulphate of ammonia, a waste product secured in the manufacture of coke. Sulphate of ammonia yields its nitrogen very quickly, but in order to do this the ammonia must be changed by the action of the soil. This change comes at a soil temperature of 41 degrees and increases in rapidity as the soil gets warmer. Some growers have felt that there was danger because of acidity which might be created in the soil by the use of this substance, but unless there is natural acidity it is hardly possible. In any case the application of finely pulverized limestone or of lime will entirely correct this condition. One hundred pounds of sulphate of ammonia often contains as much as 21 pounds of nitrogen. In addition to the nitrogen value there is an opinion quite general that the content of sulphur is also of value to the crops. For citrus fruits an application of from 300 to 500 pounds per acre of full bearing trees is recommended. This should be applied in several installments.

MAKES MONEY WITH CANNING OUTFIT

Two boilers fitted with trays, two tubs, two wire baskets, two paring knives, a small dipper, a measuring cup, a kettle, and a can sealer comprised the equipment that a young Washington school teacher used to can enough peaches to clear $600 in two weeks last fall.

In the Yakima Valley, Washington, there is a high percentage of waste peaches in the orchards that supply the commercial canneries. It is impossiblo for them to use tree ripened Elberta and Slappa peaches because they will not stand up well under the high pressure used in processing. A young school teacher and her aunt, living in the vicinity of these orchards, decided, with the advice of the home demonstration agent of that county, to utilize these tree ripened peaches. With a stove made of bricks and the above equipment they were able in two weeks to make a profit of $600. They found little sugar was necessary with the tree ripened peaches. They also made 600 quarts of peach and pear conserve and 215 quarts of grape and apple jelly. Special recipes were worked out for the pear butter.

FUMIGATION

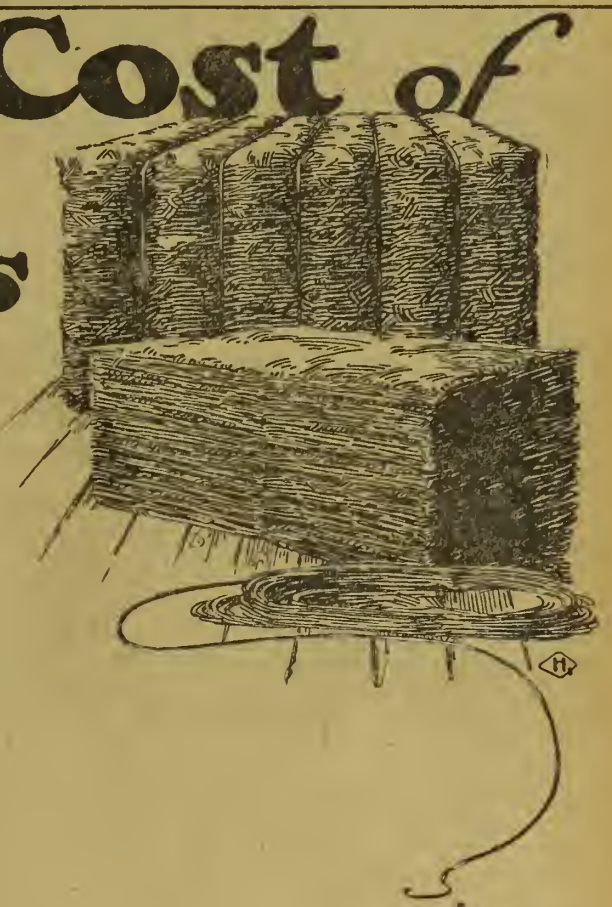
Commissioner Ryan of Los Angeles County reports that 57 per cent of Los Angeles County's commercial citrus acreage has been fumigated during the past season. There are about 47,000 acres of bearing orange and lemon trees in the county.

On February 1 a total of 26,035 acres had been fumigated. Reports from the 18 citrus inspectors' districts show close to 1,000 acres that will be fumigated before the close of the season. Thirty-two crews were still in the field at that time. Liquid H. C. N. was used on all but 200 or 300 acres.

Reports from district inspectors indicate the general results to have been more satisfactory than ever before. Certain orchards in the North Whittier Heights section still produce an off-hatch of scale that interferes with regular fumigation, but this condition seems to improve as the trees grow older.

The moment you depend upon someone else your strength weakens.

Save the Cost of Grain Sacks



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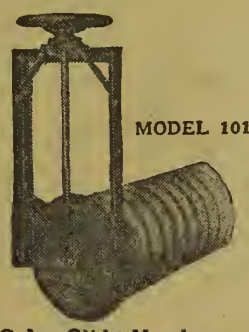

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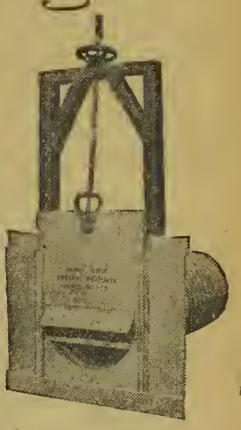
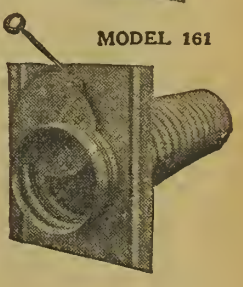


MODEL 161



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A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
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Saturday Feb. 28, 1920

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We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The boycott didn't work. The labor union declared against the Orange Show and doubtless caused some loss. The program came off according to schedule, and this includes the glorious rain which was visted upon it during the last three days. We say, according to schedule, for we believe that only once or twice in the last ten years has the National Orange Show been pulled off without the biggest storm of the season occurring during that week. It was a glorious storm; it was a fine show. One little corner of the main tent is shown on the cover this week.

PAINTING BY SPRAYING

It has long been the custom to whitewash, especially the inside of poultry houses, barns, big warehouses and sometimes factories, by applying the wash or paint by the use of spraying machines. This has meant a very great saving in labor and far greater efficiency in the application than was possible by the use of a brush.

The labor union has protested. Now comes the announcement that "The State Conference of Journeymen Painters" is to be held in Bakersfield March 13 and 14 and the daily press chronicles "the conference is expected to go on record in favor of legislation prohibiting the use of spraying machines or so-called 'paint guns.'"

Anything to make everything cost more seems to be the determination of labor—some labor.

GEORGE E. MERRILL

Sonoma County's farm adviser, George E. Merrill, died at Santa Rosa February 8. Mr. Merrill formerly lived in San Jose, was a graduate of Stanford, acted under A. J. Cook as chief deputy horticultural commissioner, and was secretary and executive officer of the organization committee of the California Prune and Apricot Association. More recently he has been farm adviser of Sonoma County. He is survived by a wife and two children. Mr. Merrill will be missed in horticultural circles of the state for he has been a factor in its advancement.

NO DROUTH IN IMPERIAL

We suppose Imperial Valley has about as dry a situation as there is in the United States. By "dryness" in this connection we are referring purely to lack of rainfall. But notwithstanding the drouth which usually prevails in the clouds above the valley, the clouds above the Rocky Mountains, some hundreds of miles distant along the headwaters of the Colorado River, give up their wealth and the river channel conveys it to the rich lands below sea level. Engineers have made investigation and predict a larger flow than usual in the Colorado River the coming summer, so irrigators who depend upon the Colorado are planning to produce to the limit.

THE WEATHER

Another liberal precipitation has been given the southern end of the state. The storm was general over the state but seemed to be much lighter in the north. San Bernardino reports the heaviest rainfall, with 2.83 inches; San Fernando, 2.59; Pasadena, 2.67; Redlands, 2.02; Santa Ana, 2.01. Other sections running from 1.50 to 1.75 are Los Angeles, Whittier, Riverside, Long Beach, Van Nuys, Hermosa, Manhattan, San Diego. Santa Barbara got a little over an inch and a quarter while Santa Maria received nearly two and a half inches. At Eureka something over an inch and a half was precipitated, but at San Francisco the rainfall was quite light. Stockton, Sacramento and nearby sections were given heaviest rain since early December. The table on market page shows exact amounts, but this covers only the period of seven days ending last Saturday night. In Arizona the storm reached the downpour stage. The Roosevelt dam has been filled and a terrific flood is endangering lowlands along the river.

PROHIBITING OLEOMARGARINE

There has never been any suggestion that the manufacturing of oleomargarine should be prohibited. It would be of no value if such suggestion were made, for if the manufacturer wishes to make oleomargarine or any other product which is not unhealthful or injurious when properly used there is no method of preventing him. The dairymen naturally do prefer, they even demand, that such manufactured stuff shall not be sold as a counterfeit of dairy butter. The whole contention has been over imitation. Sell oleomargine for what it is worth and for what it really is and producer and consumer should be content. However, a Pasadena subscriber writes:

"What have you to say about the narrow selfishness of farmers, as a class, who would, if they could, deprive the masses of consumers of a cheap, wholesome food, for their own benefit, by prohibiting the manufacture of oleomargarine altogether? I have met those who would and I believe that as a class generally they would do it."

It has been quite definitely shown that there is a food value in milk, butter and, in fact, all products of milk, which cannot by any possible twist of the chemist's ability be reproduced by mixing the purest of proteins and the purest of vegetable fats into any substance no matter how closely it may imitate pure butter, and so long as this difference in real quality does exist, there is abundant reason why the large manufacturers should be prevented from disposing of a manufactured substance for something which it is not.

MILKING MACHINES

Farm power is a slogan to conjure with these days. Labor is expensive; worse, it is often unreasonable and very exacting as to conditions under which it operates, so we are looking in every direction to secure all possible relief. The dairyman has been rather slow to use power in the milking operation, but the last few months have shown greatly increased use of power in this particular. We do not believe as many milking machines have been installed in a similar period as have been within the past six months. State Dairy Inspector Mason reports:

"During the past year 110 milking machines of different makes were installed on dairy ranches in the Eel River Valley of Humboldt County. Out of 360 dairies in this valley 110 are now using milking machines, or approximately 32 per cent. One-half of these machines are in use in the vicinity of Ferndale. Indications are that many more will be installed during the coming year." He adds: "The use of mechanical milking devices is no longer in the experimental stage. They are rapidly proving themselves a solution of the help problem for the dairy farm. Undoubtedly most of the complaints registered against these machines in the past have been due to improper care and handling of the outfit."

WOMEN DRIVERS

A member of the Los Angeles police force has made a discovery. He has investigated and finds that 20 per cent of the auto drivers are women while 30 per cent of the accidents to pedestrians are caused by women drivers. He grants they do not intend to, but merely lose their heads. In proof of this he cites an incident where a little child was knocked down by a slowly moving machine. It fell between the wheels as the machine was stopped, then the woman driver lost her head, reversed, backing the forward wheel over the child and causing its death. Which simply proves that the woman did what thousands of men have done, and lost her head at the wrong moment. The policeman recommends that all women be prevented by law from driving.

It appeals to us that the greater cause of this awful harvest of death —one pedestrian loses his life every ten days in the city of Los Angeles—is carelessness. In fact, practically all train wrecks, steamboat collisions and similar accidents may be laid to this same cause.

Often there are arrests, less often there are prosecutions, and almost invariably the one causing the accident goes free. Juries seldom find it in their hearts to convict a man or a woman unintentionally causing a death. Such conviction cannot save the life that has been snuffed out and of course the punishment already meted to the driver has been great. Even the drunks go comparatively free and the speed fiends are smiled at with mild indulgence—"nobody to blame."

It's time we looked at the menace of careless or inefficient or law breaking drivers. It isn't a matter of class or sex; it's a matter of instilling into the minds of all drivers the realization of the fact that common sense and thoughtfulness must be in control of the wheel of the automobile and that the driver who has little experience or has a make-up consisting largely of nerves shall refrain from driving in crowded streets or other complicated situations.

LEMON PICKERS

Modern day employers maintain that to secure best results from labor recognition of merit and efficiency and reward for real accomplishment shall be given, that is, reward in the form of preferred position or wages graduated according to time of service. Other things being equal, the laborer, whether on farm or in shop, who has served faithfully a term of years is of vastly greater value than the raw hand being given his elementary instruction in the work in hand.

Touching upon this principle a Los Angeles County subscriber writes:

"Why do lemon pickers have to work for less wages than almost anyone else? It is not every one who can make a good lemon picker. It takes experience and a trained eye. The producer and packer will probably say: 'Let supply and demand regulate the price. We can get men for 40 cents per hour so why pay more?' The workingman's answer would be to organize and demand more wages. Men who have been picking for this association for years and are adept receive no more than a beginner and our foreman told me they had men picking who were worth $5 per day to the association. I am no agitator but believe in justice and fair dealing to all.—By one who is picking."

If our subscriber has a correct understanding of the situation it appeals to us that a certain foreman or manager is due to lose his job. Orange growers, as a rule, are quick to see the advantage in following correct business methods and to discourage Bolshevism, and a foreman who permits tried and trained workers to draw no greater wage than that paid to the novice brought on the job from day to day will not secure most efficient service from his pickers. On the other hand, we grant that the short-sighted policy of such an employer may possibly be justified in his mind by the action of some labor unions. We believe that labor unions, as a rule, have taken the ground that six or eight hours service with time and a half and double time for overtime are the principal factors in labor employment without regard for efficiency. In fact, there have been well authenticated cases where it has been demanded of efficient help that it guage its production by the amount accomplished by the least efficient in the gang.

From the fair tone of this letter and the intelligence with which it is written we are sure this writer does not belong to that class, and it appears that he has just cause for complaint. No industrial employer has greater need for efficient help than the farmer and fruit grower. Hence every encouragement should be given to efficiency and integrity.

The Pecan at Home

By Ernest Braunton

THIS article is written largely to call attention to the fact that overflow lands along water courses, now unused, may be planted to profitable pecan orchards. We quote from a bulletin issued by the Texas agricultural college: "A great many of our native trees are on overflow land that is now considered worthless. It has been demonstrated that overflows seldom do any damage to pecan trees and, in fact, more often are a positive benefit. Land that is flooded during high water and is considered worthless for crops can be made valuable by working over the native trees, or, in case there are none, by planting out budded or grafted trees."

The writer knows of thousands of acres of such lands throughout California, from the San Joaquin and Sacramento Rivers on the north to the Los Angeles River on the south, lands now covered with willows or lesser growths of no value. Texas is the natural home of the pecan and contains more native trees than all other states combined. There are many trees growing along the rivers that will measure from four to six feet in diameter and are from 100 to 150 feet high. The trees are not, however, indigenous to all parts of the state, there being few in the eastern, extreme northern or western parts, but the trees thrive wherever planted. In the far western part, toward El Paso, where the climate is drier than any part of California, where fogs never occur and water is scarce and alkaline, certain varieties are recommended, and these are the ones best for California as the climate of the great central part of Texas, where native pecans grow best, is damp.

We quote from the Texas bulletin as follows:

"The holes for the young trees should be large and deep enough for it not to be necessary to remove more than the broken and bruised parts of the roots. Rich, mellow soil should be placed around the roots and plenty of water used. If it continues dry for a week after planting, the trees should receive another watering and a layer of dry soil be placed in the hole after the water has disappeared. The trees should be planted a little deeper than they stood in the nursery row. At least one-third of the top of the young trees should be removed, although this is not of as much importance as with peaches, plums, etc. Much better results will be gotten by planting during December, although the trees can be planted as late as the last days of February.

"A great many people report poor results from transplanting pecan trees. There are several reasons for this. The root system of the pecan differs radically from that of most of our other fruit trees. It is very large and long in comparison to the top and is soft and spongy, with very few lateral roots until after the third year. When cut or bruised it does not heal as readily as most trees nor does it form new roots with the same ease. Therefore, when the trees are transplanted every effort should be made to protect the roots as much as possible, and special pains be taken to prevent their drying out.

"Another trouble is, that many growers do not give their trees the proper care and attention after planting.

"The pecan grove should be cultivated and cared for, especially during the first ten or 12 years of its existence, just as well, if not better, than any other orchard. If the young trees are injured by the cultivator or by stock during the first few years, it will take a very long time for them to recover from the harm done.

"It probably takes longer for the pecan to reach full maturity than any other fruit tree. This means that there will be a number of years before the trees will begin to occupy all the space allowed them. It is, therefore, good economy to plant some crop between the rows, especially as it will ensure better working of the trees and, also, more than pay the rent on the ground until the trees begin to produce paying crops."

Varieties recommended for Texas are San Saba, Halbert, Texas Prolific, Hollis, Kincaid, San Marcos, Stuart, Frotscher, Van Deman, Russell.

Preventive Found for Apple Scald

Most people have learned that if they sleep in an unventilated room they poison themselves with the gases exhaled in their own breath. But it probably has not occurred to many people that apples asleep or semi-dormant—in cold storage—do exactly the same thing. It had not occurred to anybody, in fact, until very recently, when some specialists in the United States bureau of plant industry worked it out. It is not always possible to leave the windows open in the sleeping room of the apples, but the specialists have found a way of getting around this difficulty in experimental quantities by the absorption in certain fats and oils of the poison that is breathed out by the apples.

The disease which may be thus caused in apples is known as apple scald and manifests itself by turning the skin of the apple brown. While the scientists have discovered that the disease is due to a gas or gases breathed out by the apples, they have not been able to identify the gas or gases. But they have discovered that if the apples are placed in wrappers impregnated with certain fats and oils the poison is absorbed and the disease either prevented or reduced to a negligible quantity. In barrel experiments in which only part of the fruit was wrapped the scald was greatly reduced on apples adjacent to the wrapped ones. Ordinary commercial apple wrappers caused little decrease in scald and paraffin wrappers were but little better.

Several other points of importance were determined as a result of the experiments. Mature fruit scalds less than immature, but fruit just changing from green to yellow has scalded worse than either green or yellow fruit. Well colored red fruit surfaces have been practically immune. Heavy irrigation of apple trees increases the susceptibility to scald in the apples produced. Apples in ventilated barrels developed less than a third as much scald as those in commercial barrels if both were held in a storage room that received occasional ventilation. If the storage room was not ventilated, or if it was only poorly ventilated, the ventilated barrels caused very little decrease in scald. Apples near the aisle or near a door scalded far less than those in the bottom of the stack. Boxed apples exposed to a continuous air current of 88 miles an hour were practically free from scald while similar apples that did not receive the constant fanning became badly scalded. Stirring the storage air was found to be more important than renewing it. Scald was greatly increased on fruit delayed in storage unless well ventilated during the delay.

It has been feared by some truck farmers that the garden club movement might result in lessening the demand for truck crops, but since they have been in actual operation we have heard of no serious surplus. The United States school garden army, in which more than 2,500,000 children in the United States, Hawaii, Porto Rico, Alaska and the Philippine Islands, are now enrolled, has reduced the cost of living in hundreds of thousands of homes.

If head lettuce is shaded slightly in hot weather, it is not quite so likely to go to seed. Head lettuce does best in cool, moist weather.

Thin out dahlia shoots to two or three to the plant if large flowers are wanted.

Keep the lawn green and strong by putting on some sort of fertilizer occasionally.

DEHYDRATING GRAPES

The Sun-Maid Herald makes the following reference to methods of dehydrating grapes:

Dehydrating of cull and second crop grapes, as well as table grapes which have been slightly damaged, promises to become an important adjunct to the natural curing of raisins in the San Joaquin Valley.

Successful work on a commercial basis has been done this year in the plant of the Fresno Dehydrated Products Company, wbich was completed some time ago in Parlier. The primary purpose of the plant was to insure certain growers against loss from rain during the curing period, but present success of the plants apparently indicates that its scope can be widened to the extent where the dehydrating process may, to an extent at least, supplant the sun curing heretofore almost exclusively followed.

In the Parlier plant heat units have been so arranged in huge ovens equipped with fans that the fruit is "sweated" and the moisture developed carried away by the fans. Considerable experience and careful regulation of the heat is necessary, as too great a temperature results in cooking and consequent destruction of flavor, while a product which is not sufficiently dried will not keep for any length of time.

Records which have been thus far kept indicate that the total expense of dehydrating a ton of grapes is about $3. The time required is from 18 to 24 hours, depending upon the variety and physical characteristics of the grapes treated.

This season the experiment was conducted largely on partially dried second crop Muscats and cull Emperors and Tokays. The product is of such a grade that it commands a ready sale and is being marketed through the regular sale channels.

Paul F. Nichols of the United States department of agriculture has been at the plant since work was started and is collecting data which will be used as the basis for a detailed report. Mr. Nichols has made no statements as to his conclusions, but is known to regard the experiment very highly.

Dehydration as a means of preserving fruits and vegetables had been a principle in use for years, but it is only of a recent date that its practical, commercial application has become possible. The problem has been to so dry the fruit or vegetable that it will be restored to its original color and flavor with the mere addition of water. To accomplish this it has been necessary to work out a system whereby the food product to be treated would dry from the inside and such regulation of moisture and heat be maintained that the surface would remain moist by capillarity. In the Parlier plant it is believed this problem has been worked out. Experiments on fruits other than grapes probably will be tried out next season.

Cheap vegetable and flower seeds are often expensive at any price. It pays to buy good seeds from reliable firms of established reputation. Seeds are a small part of the cost of raising a crop. The best are none too good.

Send for seed catalogues and choose the seeds and plants to be used this year. It will be a good plan to order seeds and bulbs early for there is pretty sure to be a shortage of good stock again this year.

Save all the old shoestrings and narrow braids for tying up plants and vines. They are much better than twine.

We really have not the right to complain about "conditions" unless we are doing all we can to better them.

Do not be so cautious or so "busy" that you cannot help to make the neighborhood a better, pleasanter place to live.

When ingratitude comes to us it is usually a lesson that we may not shoulder other people's problems.

Hardie Sprayers Better Than Ever

HARDIE stands for spraying efficiency — fast and thorough work, HARDIE SPRAYERS have always been fundamentally right—built to give long and economical service.

But experience is a great teacher, as we come in close contact with orchard conditions from year to year, we find that we can make HARDIE SPRAYERS even better. It has enabled us to foresee the exacting requirements of the up-to-date orchards—the heavy demands put upon sprayers and to have a HARDIE ready to meet them.

So this year we give you a better engine with less fuel consumption—cutting down the cost of operation.

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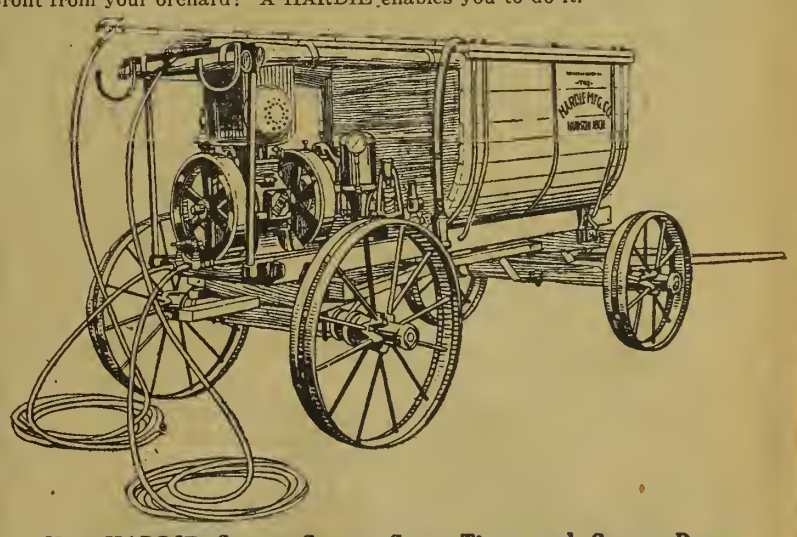

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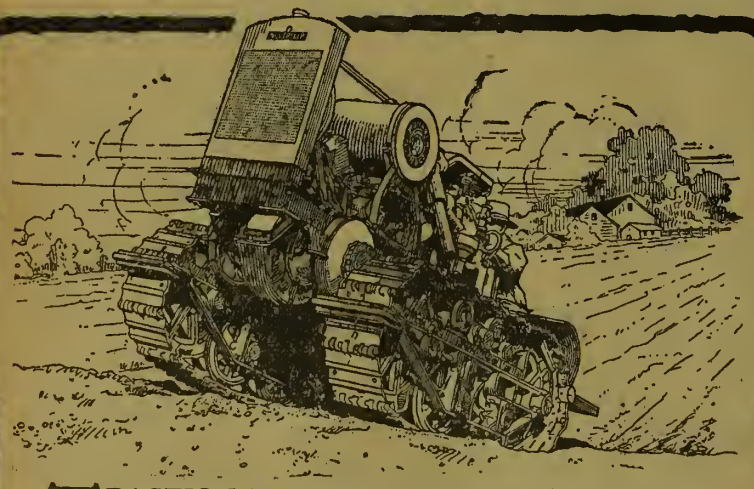

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NEVERSLIP Monarch Tractors

When Writing Advertisers, Mention the Cultivator.

Central California Celery Season

By E. W. Stillwell, Assistant Truck Crop Specialist for the Pacific Coast.

REVIEW of 1919-20 season to February 1. It is now possible to obtain a fair estimate of the success or failure of the 1919-20 celery deal in Central California. In the Antioch and Walnut Grove districts, which comprise 90 per cent of the acreage in this part of the state, 70 per cent of the acreage has been harvested and about 80 per cent of the crop shipped. The other districts are practically cleaned up.

Early in the season growing conditions in these two districts were especially favorable and it was confidently predicted that yields would be heavier than the preceding season and would average not less than 120 crates per acre. It was also thought the season would be earlier than usual and that the shipments for Thanksgiving and Christmas trade would be correspondingly heavy. To state the situation briefly, it was estimated that there would be shipped from Central California about 2,000 carloads of celery, an increase of about 83 per cent over the 1918-19 season, as compared with a 65 per cent increase in acreage. It was also believed the crop would be shipped early, although perhaps not as early as in 1918-19. The latter part of November a heavy storm accompanied by high winds and low temperature damaged the crop slightly and reduced shipments. Prior to this the first car had moved from Walnut Grove October 24 and Antioch started shipping about November 1. The movement for the Thanksgiving trade was heavy. Yields up to that time ran from 180-200 crates to the acre and sizes 80 per cent No. 1's (7's and larger).

No temperature records are available for Walnut Grove but the weather bureau reported a minimum of 31 degrees at Antioch on November 24 and 30 degrees at Sacramento on November 28. The crop had just recovered from this setback and shipments were increasing when the coldest snap of the year, or at least the one which lasted longest, came. On December 13 Sacramento reported a minimum of 27 degrees and Antioch 32. The cold spell at Sacramento started December 12 with a minimum of 32 and minimums of 28, 32, 33 and 33, December 14, 15, 16 and 17 respectively were recorded. Conditions at Antioch were similar. Frosts were reported on ten days in December at Sacramento.

Coupled with these low temperatures was extremely dry weather. Up to February 1 this has been the dryest season in the delta since 1850-51 with the exception of the 1917-18 season. This condition made the damage more severe than it otherwise would have been. Tops were frosted severely and in some places the outer stalks also were frozen. The immediate effect was to cut down shipments and to check growth. It caused discoloration of the tops and consequent decrease in market value. The net loss is estimated at this time to be 100 cars at Walnut Grove and 150 cars at Antioch.

Dry weather continued and January shipments were light, running to very small sizes, one car containing about 2,300 dozen being shipped.

The estimates of future shipments are based on the supposition that the rainfall and temperature from now on will be normal. Stock now in the fields is small in size and not over 18 inches long. The hearts are poorly developed, short and small. Shipments have temporarily stopped, shippers hoping rain and warm weather will cause further growth.

Based on estimated shipments, the average yield per acre of marketable stock will be 106 crates at Walnut Grove and 90 crates at Antioch.

The following brief comments are made on other sections:

Sacramento. Crop cleaned up. Considerable quantities moved out in l. c. l. lots and were consumed locally. Average yield probably around 125 crates per acre.

Stockton. Crop cleaned up. All shipments made prior to cold weather, therefore the yield was high, probably about 190 crates. Sizes ran large, 90 per cent No. 1's.

Vernalis. Planting was late and the land did not seem especially suited for celery. Not over 20 acres of the original plantings will be harvested. These 20 acres will produce only a fair quality crop. Sizes are small and bunches are short. The yield will be light and it is doubtful if more than five carloads will be shipped, probably late in February.

Watsonville. Original planting about 110 acres. At least 25 acres were destroyed by flood waters due to poor draining. Other fields were seriously damaged by water. The best fields averaged around 120 crates per acre. Sizes generally ran 50 per cent No. 1's.

Antioch was the heaviest shipper, sending out 892 carloads as against 654 the preceding season. Walnut Grove came next with 721 carloads as against 422 the year before. Other shipping points sent out this season: Sacramento, 40 cars; Watsonville, 31; Holt, 30; Knightsen, 19; Burlingame, 11; Stockton, ten; Vernalis, five; San Francisco, three; Watsonville Junction, 2; Kingdon, Colma, Palo Alto and San Mateo, one each. Total shipments, 1,758 cars from acreage planted of 3,400.

Careful Handling Prevents Spinach Losses

Losses in spinach shipments can be greatly reduced by careful handling in harvesting and packing and by effective refrigeration in transit, according to specialists in the bureau of markets. Reports show that some of the principal spinach shipping sections of the country are suffering considerable loss from decay and deterioration in transit caused by the development of slimy soft rot. This decay develops rapidly in transit when temperature conditions are favorable, say the bureau men. It starts at places where the leaves have been bruised or wounded and it very frequently follows attacks of blight or other field diseases. Other causes of deterioration in transit are yellowing and wilting of the leaves. Prompt handling and shipment at a low temperature largely reduce losses from these causes.

Crushed Ice Prevents Rot

That shipments of spinach arrive in better condition when crushed ice is used in each package than without the ice is shown by test shipments made from Austin, Texas, by the bureau of markets during the last two years. Where ice was used in these shipments practically no soft rot had developed when the spinach was removed from the car, while comparable shipments without ice had developed 8.9 per cent. Three days later the iced spinach had developed only 11.9 per cent of soft rot, while that shipped without ice had developed 26.8 per cent. These shipments were made in freight or express refrigerator cars, the bunkers of which were iced in the regular way.

How Crushed Ice Is Used

When barrels are used the investigators found that several layers of crushed ice scattered through the barrel are needed, a large layer being placed on top of the spinach next to the barrel head. Holes bored in the bottom of the barrel provide drainage. Shipments in baskets or crates carry best with a layer of crushed ice in the center of the container and another layer on top of the spinach just under the cover.

Test shipments made to determine the effect of washing spinach before shipment showed that washing has an unfavorable effect on its keeping qualities. On removal from the car at destination, unwashed spinach showed practically no soft rot, while washed spinach showed 5.5 per cent. Three days later the washed spinach developed 24.8 per cent, while the unwashed had developed only 5.7 per cent.

Nematodes

THE most serious question confronting California producers today is: 'To what extent will the nematode evil menace our crops.'" This is practically a correct statement of a remark made by W. V. Shear as he came into the Cultivator office a few days ago. We remarked that this microscopic pest was rather a small specimen to cause so serious a statement and so serious a look as appeared on Mr. Shear's face. He was quick to reply: "I am perfectly serious and the whole state will soon be very serious in discussing this problem. Thousands of acres are now infested and the pest is spreading with fearful rapidity."

To give graphic proof of the seriousness of the situatioon, Mr. Shear opened a package of perhaps a dozen dwarfed, diseased carrots. They were

A Menace to California Agriculture

Nematodes as they affect carrots. All producing sections of California are in danger of being affected by this pest. But few crops are immune to its attacks.

one mass of gnarled and knotted roots with practically no large root stalk or edible portion. Of course we countered with the remark that the world could get along with a material reduction in its supply of carrots, but were quickly informed that the infestation of carrots was one of the smallest of our problems, for the nematode respects few other crops. Barley, corn, walnuts and a few other of our trees may not be so susceptible to injury from this microscopic pest, but the number of less susceptible plants whose culture on infested areas would starve out the pest through rotation is extremely limited.

There is no known treatment for the soil, or rather no treatment within economic bounds, which will eradicate the pest, and where one has secured high priced land and the water right to make its productions of high value and finds himself restricted to the growing of corn, barley and possibly sorghums because he finds his soil infested with this pest, he is not particularly happy.

The work of the nematode upon roots is shown by a specimen discovered by Mr. Shear, photograph of which appears on this page. Mr. Shear is taking the specimens to headquarters of the state department of agriculture at Sacramento. Of course he is taking no news, for this pest has been discussed for many years, but he is taking proof of its magnitude and the increased menace. Probably the greatest distribution of this pest comes through seed potatoes, and county and state commissioners are taking greatest pains to prevent scattering of these diseased or infested potatoes.

As noted, the pest is not confined to our root crops but attacks almost all of our trees. The state agricultural experiment station some years ago held a discussion of nematodes on roots of citrus trees. This citrus nematode is a branch of the family which infests potatoes and carrots, and fortunately its spread can be controlled more readily. Description and life history of the pest are given in Essig's "Injurious and Beneficial Insects" as follows:

Life History

"The young eelworms feed upon the roots of various plants, causing galls or knots which may greatly impair growth. The female develops within the affected areas and begins egglaying, the eggs hatching in a very short time. The winter is passed in the original host, such as nursery stock, if it remains growing in the soil, but if the host is removed they feed upon various plants left in the fields. The young have the ability to encyst themselves so as to resist great extremes of weather and unfavorable conditions, so when once established in the soil it is very difficult to eradicate them.

Nature of Work

"These minute worms, working into the roots of plants, produce very characteristic galls or warts and cause what is commonly known as root knot.

Distribution

"As a producer of root knot this pest is very common throughout the state, but somewhat more abundant in the central and southern parts. As a potato pest it has been reported only from Alameda, Contra Costa, Inyo, Los Angeles, Monterey, Sacramento, San Joaquin, Santa Barbara and Tulare Counties."

This pest is widespread in its infestations. Bulletin No. 45 of the Hawaiian agricultural experiment station, which is just from the press, gives a list of potato diseases of the Hawaiian Islands. Amongst the worst of these troubles given is nematodes, gall worms, or eelworms. The bulletin refers to its devastation of potato fields and then gives list of susceptible crops as follows: Alfalfa, asparagus, beans, beets, cantaloupes, carrots, celery, clovers, cowpeas, cucumber, egg plant, field peas, figs, grapes, kale, lettuce, okra, onions, peaches, peppers, pumpkins, salsify, spinach, soy beans, strawberries, tobacco, tomatoes, watermelons. The immune, or rather the less susceptible, crops, are: Barley, corn, peanuts, pearl millet, rye, sorghum, timothy, wheat. Rye and sorghum are of particular value for growing on infested ground for the reason that they permit of clean culture, that is, the keeping down of weeds, nearly all of which, if allowed to grow, harbor the pest and prevent starving it out.—C. B. M.

A NATIVE BARBERRY

Parts of California are of such broken topography that certain species of plants are isolated, semingly unable to get out of a pocket surrounded with hills, for example, into the hollows or valleys about them. Such a plant is Berberis Nevinii, or Nevin's barberry. It was found many years ago by Rev. Joseph Nevin, formerly a missionary in China and a botanist of note. For years it was not named by Dr. Asa Gray, for but one station could be found for it, but it was finally conceded to be an extremely rare but distinct species. It is a well formed shrub six to nine feet high, of gray-green compound leaves, very attractive. About Christmas the yellow blossoms appear in large clusters, very thickly over the whole plant. It thrives anywhere in the garden.—E. B.

On St. Valentine's birthday, February 14, the Federal Motor Truck Company celebrated its tenth anniversary—only a decade—yet placing this company in this comparatively new industry among the pioneers in the exclusive manufacture of motor trucks.

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Make Bigger Profits!

THE most wonderful opportunity in the world for Business Farmers is in the "SELECTED" FARMS which can be bought for $15 to $40 an acre along the lines of the Canadian National Railways in Western Canada.

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These "SELECTED" Farms are carefully chosen from the cream of the richest wheat and cattle country in America, to meet your special needs, on the advice of experts representing 14,000 miles of railway, whose assistance, though free to home seekers, is of great practical value.

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Western Canada extends a helpful hand to home seekers. Friendly neighbors, with the same customs and language—splendid schools, churches and social life—every benefit that you formerly enjoyed and many advantages that you could not get from higher priced land elsewhere—warm, sunny, growing summers and dry, cold, healthy winters—await you in this wonderfully prosperous "LAST WEST."

Taxes Are Low

Western Canada taxes fall lightly on the farmer. A small tax on land, but buildings, improvements, animals, machinery and personal property are all tax exempt.

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Western Canada is famous for its big wheat yields. "SELECTED" FARMS along the lines of the Canadian National Railways average more than 20 bushels of wheat to the acre. Under specially favorable conditions a yield of 50 to 60 bushels per acre is not uncommon.

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Western Canada, the Cattle Man's Paradise! Beef and dairy cattle yield great profits. Stock thrive on the prairie grasses, which in many cases cure standing and make fine hay. Cattle and horses require only natural shelter most of the weather, and bring high prices without grain feeding.

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Terms on "SELECTED" Farms: About 10 per cent cash down, balance in equal payments over a term of years; interest *usually* 6 per cent.

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Special railway rates will be made for home seekers and their effects to encourage personal inspection of the Farms along the lines of the Canadian National Railways. Rates and full information will be sent free on request. *Write or mail coupon TODAY!*

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that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

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These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour. For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus, Olive Cuttings. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.

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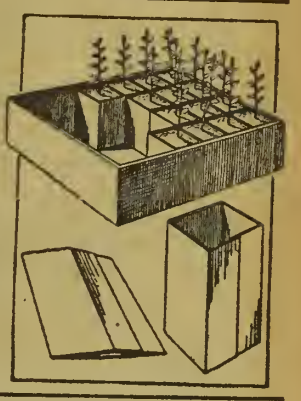

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Budded—No. 1 Softshell

Among my walnuts I have about five acres of Neffs Prolific trees, six years old and most of them in good shape. They bore well last season and it was not till then I learned that the association classed this variety as No. 1 instead of "Budded", although they were a fine large heavy nut. Is it probable that in the long run it will pay me to work them over to Placentia or Eureka?

The differential in price between Budded walnuts and No. 1 Softshell is so small that we do not think it would pay to make the proposed change. The Neffs Prolific walnut is more resistant to blight than the Placentia and usually produces more weight of walnuts to the tree than the Placentia, so that the money yield is fully as great as from the Placentia though the walnuts are always classed as Softshells.—J. B. N.

Starting Guava Trees

How are guava trees started and at what season? — Subscriber, Santa Paula.

Guavas are usually started from seeds but may be grown from cuttings if one has bottom heat, either hot-bed or hot-house. Only the strawberry guava has been grown from cuttings outdoors by the writer; the others are difficult to root except under glass. The red strawberry guava will root at this season of the year in light soil or sand in a warm garden spot. All species and varieties grow readily from seeds, but all are variable and no doubt named grafted sorts should be placed on the market.—E. B.

Income Tax

If a single man has income of over $1,000, but expenses so he does not have $1,000 clear, does he need to make report? Also in case this man is a discharged soldier, does this give any advantage, or rather does he have any additional exemption? — Subscriber, Escalon.

Yes, if the single person's gross income reaches $1,000 he must make his report. If it should be exactly $1,000, while his report must be filed, there is, of course, no tax to be paid. If the income is $1,001 he is taxed on the $1 to the amount of four cents. The fact that one has an honorable discharge from the army does not affect the income tax. Under California state law such soldier has exemption from state and county taxation to the extent of $1,000 assessed valuation.

Fungus Infesting Fly

I am sending pests which are infesting my potted plants. It is a small fly, flying thickly about. What are they and what will drive them away? —Subscriber, Crockett.

These were referred to Commissioner H. J. Ryan of Los Angeles County, who says:

"This group of insects is known to science as mycelophilidae. They infest decaying vegetation and fungi, including the common mushroom. They are but transient and nothing is usually done looking to their control or extermination. Their presence may be due to decaying matter in soil, and change of soil may help. Also a few drops of carbon bisulphide in soil would doubtless kill them but may also injure the plants. It is advised that nothing be done at present and doubtless flies will soon be gone."

Currants

Will you please tell me if the dried currants we buy put up in packages are real currants or a kind of grape? Where can one get a start of them?—Subscriber, Santa Paula.

These "currants" are a small grape tested by the University of California and by many grape growers in the Fresno section. They do well in California and without question will be a factor in our food production. The rooted vines may be had of nurserymen who are advertising in the Cultivator.

Head Gate

How large a head gate must I make for a ditch to hold 60 miner's inches of water? How deep and how wide must the ditch be dug to hold it? Is the water to be measured under pressure? —Subscriber, Millville.

We presume the gate is intended for use as a measuring weir. If this is correct, a cheap gate which is approximately correct can be made by placing a board across the ditch in such a manner that it will hold standing water above it to a depth of three or more inches. Then with two shorter boards fastened on the upper edge of this leave an opening 12¼ inches wide. Drive a stake into the ground three feet above the board in the bottom of the ditch so that the top of the stake will be at the top of the water when the water stands ready to run through the opening. Have the ditch below clear so that when the full head of water is running through the opening there will be a fall of at least six inches below the opening. When the running water stands at a depth of six inches on the stake there will be 60 inches passing through the gate. Smaller amounts may be measured by closing the gate until the water stands at a depth of six inches on the stake and multiplying the width of opening in inches by five; thus, when the opening is eight inches there will be approximately 40 inches going through the gate. If the water approaches the gate slowly and clears away from the gate rapidly, with enough depth of water above the gate, the measurement will be correct to within five per cent. With a fall of six inches to 100 feet, as above stated, there is danger of the ditch banks washing badly and cement pipe, or cement lined ditch will be much more satisfactory. Cement pipe ten inches inside diameter will be large enough to carry 60 inches of water under this fall but should have a box or a length of larger pipe at the head to give pressure. A cement lined ditch with the bottom ten inches wide and sides ten inches high laid with a slope of one-half to one, that is having the top of the sides 15 inches apart, will be ample in size.—J. B. N.

A PERFECT PRODUCT

Perfection is not secured on earth. However, to all intents and purposes there are some things that grow so nearly perfect that they become a thing of beauty and an inspiration to higher endeavor. A head of cabbage may not appeal as having very wide range in the matter of inspiration, but in these times of long prices, and often of indifferent products, stuff produced in our own gardens should be encouraged as a means of greater comfort. So peace gardens are becoming almost as popular these days as were the war gardens of two years ago. Some of these gardens are in the back yard of the town lotter; others in the secluded corner of a citrus orchard or a prune orchard or a vineyard of the San Joaquin Valley. Wherever they may be these garden plots should be extended. This notwithstanding the fact that perhaps a large percentage of failures attend these endeavors because they are a side line and do not get the care and attention which is expended on a regular business such as growing citrus, cherries, sheep or other products.

One of the backlotters is John N. Gardiner whose "farm" is in Eagle Rock Valley, Los Angeles County. He brought to this office a head of cauliflower, some seven or eight inches across top, as solid as it is possible for a head of cauliflower to be. It is one of the most perfect heads we ever saw, and the first question was: How did you do it? Mr. Gardiner started to tell us, and then we asked him to take his time and write it down.

It will not be cauliflower planting time for some weeks or even months to come, but when the proper time does arrive, or before, Mr. Gardiner will give information as to cauliflower growing in the small garden.

AVOCADO GROWERS MEET IN MAY

The Avocado Growers will meet in Los Angeles May 7 and 8 in annual session. A business meeting will be held in the afternoon of Friday, May 7 followed by the annual dinner in the evening. Saturday will be given to papers and discussion. Secretary Hardin writes that the association is in excellent condition financially and membership is rapidly increasing.

ESTABLISHED 44 YEARS
RALPHS
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2601 Pasadena Ave., Los Angeles, Cal.

Cling Peaches $137.00

That is what some growers received who delivered their fruit to this big company which they own themselves.

The average price for all grades Number 1's, Number 2's and culls, was $117.00.

These growers expect even better prices for the season of 1920. If you are interested and want more information, write to the

California Co-operative Canneries

General Offices:—San Jose, Cal.

Plant No. 1—Vegetables, San Jose, Cal.
Plant No. 2—Fruits, San Jose, Cal.
Plant No. 3, Tulare, Cal.
Plant No. 4. Visalia, Cal.

NURSERYMEN'S BUD SELECTION ASSOCIATION

The board of directors of the Nurserymen's Bud Selection Association of California met last week in San Francisco and got down to definite action by electing a manager, appropriating funds for investigational work, selecting a place for permanent headquarters, appointing committees, etc.

The manager selected is L. B. Scott, for many years with the United States department of agriculture, and stationed in California making investigations in bud selection and the breeding up of better types of fruit trees. His work was largely at the experiment station at Riverside. California horticulturists will be glad to learn of Mr. Scott's connection with California horticultural work in a way which will result in such large return to the state. Mr. Bergtholdt writes that he is highly gratified that so efficient an executive and a man so well qualified to superintend the work has been secured.

The liberal appropriation made for investigation work will enable Mr. Scott to begin almost immediately the work which the nurserymen are taking up. They will be aided in this by agents of the federal department of agriculture. San Jose has been selected as permanent working headquarters of the association. We are not informed yet as to how soon Mr. Scott will take charge of this work.

Committees were appointed to work with similar committees named at the fruit growers' convention and various fruit packing and canning concerns to the end that undesirable fruit varieties may be eliminated and those varieties which are adapted to California conditions and the demands of California canners and dryers shall be developed. This will give the nurserymen a great advantage for the committee's recommendations will not only be of value to the nurserymen in making selection and growing their stocks but to the orchardist in giving to him fairly definite assurance that he is planting what the trade is demanding. This action taken by the nurserymen is an important forward step in the march of California horticulture.

THE NEMATODE PEST

Harry S. Smith of the state insectary in a recent news letter gives the following facts as to the nematode pest:

The common root nematode or eelworm (Heterodera radicicola) presents at the present time probably the most serious pest control problem confronting the service. While it is not a new pest, having been found in the state at least as early as 1910, its spread has been such as to bring it rapidly to the forefront until, at least in Northern California, it is attracting more attention from pest control officials, both state and county, than any other problem. A large percentage of the potatoes now found in the markets show the evidence of this disease. The shortage of good seed potatoes, together with the high price, furnishes a strong temptation to plant inferior seed. These infested potatoes planted in clean districts inoculate the soil with the pest and thereafter the potatoes produced on this soil are sure to show the disease. This means a great loss both to the grower and the consumer, and once in the soil it is very difficult if not impossible to get the nematodes out. The same is true with nursery stock, the planting of trees with infested roots bringing about a condition in the orchard which is sure to mean a permanent loss to the grower.

Since there is no practical method of ridding the soil of these worms and since there are still many districts in the state which are apparently free from the pest, it is of utmost importance that neither nursery stock nor potatoes showing the effects of this disease be allowed to be planted in clean districts. While the nursery stock problem can be handled by the county horticultural officials through inspection and rejection, it is much more difficult in the case of potatoes, and a campaign of education regarding this disease is necessary for that reason, since even potato peelings thrown in the back yard are capable of inoculating the soil.

H. P. Stabler, horticultural commissioner of Sutter County, makes the suggestion which we thoroughly approve that we "start a vigorous campaign at once through the county horticultural commissioners, University of California, farm bureaus, horticultural and agricultural papers, newspapers generally, agricultural marketing associations, and last but not least the housewives of the state through their various clubs and organizations." This campaign should have as its object the acquainting of farmers and others with the danger of contaminating their soil by planting infested potatoes or throwing out infested potato peelings, and also to familiarize them with the problem as it affects nursery stock, in this way securing for the commissioner the complete backing of the grower in cases where he finds it necessary to reject material.

AID TO GRAPE MEN

Director Hecke of the state department of agriculture announces that an appropriation bill of the United States department of agriculture, now pending before congress, provides for the purchase of the experimental vineyards at Fresno and Napa. The committee has reported favorably upon the purchase of these two tracts and it is hoped that the justice of the appropriation will be finally recognized by all members and the desired relief thus secured. By this legislation the federal government opens the way to other utilization of over 180,000 acres now devoted to the production of wine grapes.

The situation was carefully investigated by the federal department and a report has been rendered that the purchase, equipment, and operation of the vineyards in question is essential to effective continuance of the work which should be done in assisting the many grape growers to readjust themselves to the changed conditions brought about by the existing economic conditions.

THE PRUNE AND APRICOT GROWERS

The 10,000 grower members of the California Prune and Apricot Growers, Inc., the state wide cooperative organization which claims to market 75 per cent of the dried prune and apricot acreage of the state, are receiving notice this week that the association will exercise its options on their crops for the years 1920 and 1921.

This means that the association, acting as the selling agency of the prune and apricot growers of California, will, at least for the next two years, market more than three-quarters of the dried prunes and apricots produced in the state.

In notifying its grower members that it will sell their crops during 1920 and 1921 the California Prune and Apricot Growers, Inc., gave out today what are practically final figures on its recent membership campaign during which it informed the growers that unless they gave the association proper support it would go out of existence.

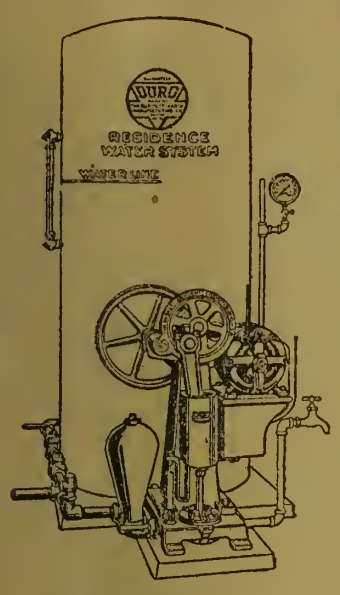
The organization department of the association announced that up to February 10 new acreage signed as a result of the campaign amounted to 32,913 acres of prunes and 12,892 acres of apricots. This is 64 per cent more prune acreage and 110 per cent more apricot acreage than was demanded as a minimum.

NATIONAL FLOWERS

Much has been said and written about our national flower, but none has ever been formally adopted. It may interest our readers to know what the national flowers of other countries are. Here is the list: Wales, leek; Spain, pomegranate; Scotland, thistle; Saxony, mignonette; Prussia, linden; Italy, lily; Ireland, shamrock; Germany, cornflower; France, fleur de lis; England, rose; Egypt, lotus.

"Making any progress towards getting acquainted with your new neighbors?" "Just a little. Their cat invited our cat over to a musicale last night."

Don't think your only debts are those measurable in dollars and cents. Your community also has a claim on you in the way of interest and a bit of time now and then.



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Pumps water from wells, where depth to water level ranges from 22 to 150 feet, and supplies it under pressure for all purposes about the house or grounds.

"Built like a battleship," economical and entirely automatic in operation.

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The result of ten years' selection. Produces six times as much as common corn. First prize winner at San Francisco Land Show. Quick and big returns from a small investment. All seed produced from corn bearing 5 to 12 ears per stalk. Grows 10 to 16 feet in height, producing enormous crops of very rich ensilage. Choice selected seed for sale at reasonable prices, shelled, on the ear and stalks with all the ears on them. Our illustrated booklet, giving full history and details of this wonderful money-maker, sent free on request.

E. C. FRAZEE
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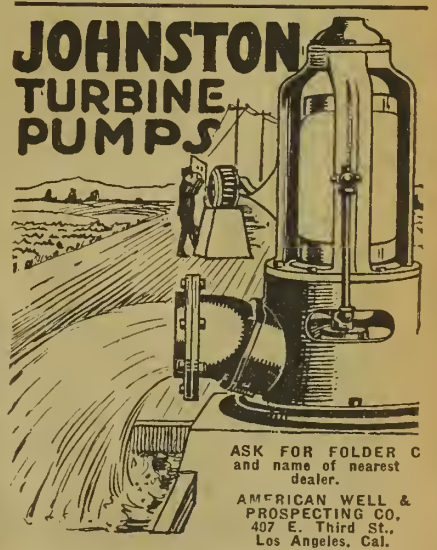

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ASK YOUR NEIGHBOR—HE PROBABLY CAN TELL YOU

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G. F. Cromer, Sec'y & Mgr.

"Help's Mighty Scarce"

"And it puts a crimp in your bank roll, too. Jim, there, has been scouring the country for a week trying to get hands to help him with his tree planting. *Some day he will wake up and do as I do.* I plant twice his acreage every year for I buy my help by the box. His hired men with bars and spades will do less work in a day than I will with the help of

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"I am telling all my friends around here to send to the Hercules Powder Co. for a copy of 'Progressive Cultivation.'

"I never knew until I read this book how much you could do on the ranch or in the orchard with Hercules Dynamite. It gives you directions (illustrated with photographs and diagrams) for planting trees, clearing the land of stumps and rocks, digging ditches, blasting subsoil, and cultivating your growing orchards by blasting between the rows and doing many other things with the help of explosives."

"Progressive Cultivation" will be sent free to any rancher or orchardist who will sign and mail the attached coupon.

Hercules Dynamite is for sale at leading dealers.

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Gentlemen: Please send me a copy of "Progressive Cultivation."

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The weight distribution of the OilPull is absolutely correct—an assurance of proper traction even under adverse conditions.
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Insect Pests and Plant Diseases

By Ernest Braunton

THE bureau of entomology, United States department of agriculture, has established a new branch at Alhambra, Los Angeles County, for the study of the bean weevil. The station is in charge of A. O. Larson and Perez Simmons, who have as a working area the states of Washington, Oregon, California, Arizona and New Mexico. They are now following up the life history of the weevil in California, observing local bean fields and growing some for more intimate observation. After this fundamental work is ended these two men will range over their broad field, studying the work of the weevil in all the chief bean growing centers.

Roy E. Campbell, scientific assistant, truck crop investigations, has studied "the broad bean weevil" and written a bulletin under that title, No. 807, but is now engaged in investigation of the green pea aphis and will continue on this line during the remainder of the pea season. He has covered all of Southern California, the Haywards section in Central California and the mammoth sweet pea fields of the Santa Clara Valley and elsewhere. At the end of the season he will prepare a report fully covering the activities of this pest, with full information regarding liquid and dust sprays, the formulas, seasons for spraying, number of times necessary, cost, and other points of value. When the days of peas are over, war will be launched on the bean aphids, on common, lima, horse beans and vetches.

D. G. Milbrath, assistant in vegetable pathology, is at present studying diseases of broccoli, cabbage and lettuce, both in laboratory and field, and every day may be found in the "cabbage patch" with phials of disease cultures inoculating the ill fated plants chosen for experiment. He is concerned largely in the commercial shipping end of the truck garden industry, studying diseases that develop in transit to market.

W. M. Davidson is on the trail of the walnut aphis, looking for and studying its natural enemies, though his field is in no wise confined to this one line of investigation, for he is working on broad lines, covering all insect pests, and his field is not limited. He is expected to tackle any such problems as may promise material aid to local growers. Just how many lines of work and how many laboratories Uncle Sam has in full swing at Alhambra we cannot state definitely, for still others are at work occasionally and range afield from their private living quarters, but the one next noted is the largest of three laboratories visited by the writer.

Fumigation

R. S. Woglum needs no introduction to readers of the Cultivator or to citrus growers of California and Arizona, for he has been at the head of fumigation investigatioon and demonstration for many years. His headquarters at 824 North Curtis St., Alhambra, are surrounded with orange trees, and tents are over some of them at all seasons. Just at present Mr. Woglum is experimenting with the application of liquid gas, especially daylight and sunlight fumigation, the dosage, influence of temperature, limitations of plant injury, etc., for the introduction of liquid gas has revolutionized fumigation practice. In pot or machine generation of gas the latter went at once to top of tree, at high temperature, so that sunlight caused burning. With liquid gas, already at low temperature and vaporized under the tent, thereby keeping temperature at the lowest, the gas is thin and cold at top of tree and sunlight cannot burn the foliage. He is also studying the relation of Bordeaux paste or spray mixture to fumigation. At present if fumigation is given orange or lemon trees after trunks have been painted with Bordeaux paste, even after the lapse of several months, all the leaves may be killed. Mr. Woglum has also solved the problem of exterminating those close partners and co-workers, the Argentine ant and the more serious citrus mealybug, Pseudococcus citrophilus. Several orchards near Upland, once badly infested, have been completely cleaned.

State Activities

The state department of agriculture has an insectary at Alhambra at work on biological control of the citrus mealybug. This work is in charge of H. M. Armitage, who has three species under observation but is more closely watching the parasitic work of Cryptolaemus Montrouzieri on these pests. He has lately established a branch at Upland and is also working about Venice and coastal points. Last year the main plant turned out 150,000 of these parasites, and this year the capacity of the plant has been doubled. While at this laboratory the writer met C. P. Clausen, formerly engaged in this work but lately appointed by the United States bureau of entomology to go to Japan to study the natural enemies of the June bugs or May beetles. He may be absent for three or four years.

The state has still another insectary at Alhambra where Harold Compere, son of the veteran bug hunter in foreign lands, George Compere, is working on parasites of the black scale only. The two insects he is rearing in large numbers are Scutellista cyanea and Apsycus Lounsberryi. This work is wholly experimental. The scutellista does not hatch in large numbers at the time most needed in some sections of the South, and it is expected to develop and ship colonies to such sections at seasons of greatest scale activity. It is also hoped to propagate the aphycus in large numbers so that the two parasites may, through quantitative production, control the black scale as has another parasite, the citrus mealybug, by shipping them to points most needed. If these demonstrations prove successful the propagation of these parasites on a large scale will doubtless be undertaken.

Real Cause of High Prices

Preamble and Resolutions Adopted by Napa Grange No. 307, P. of H., February 6, 1920.

The farmers of the country have arrived at that point where they will no longer be satisfied to work long hours and receive barely enough for their products to "keep even," while manufacturing concerns dominated by labor unions work short hours and receive cost of production and a good profit based on a short hour day. When there were special reasons urged by the government for increased production, the farmers demonstrated their willingness to do their full share toward securing that increased production by laboring long and dilligently and selling their goods at prices fixed by the government. At the samo timo they were doing this, other industries, factories and shipbuilding plants were selling their goods for prices based on an eight hour day with time and a half and double time for overtime and upon which no governmental limit had been placed. This schedule is now in full force and effect and the federation of labor has issued an ultimatum that the standard must not be lowered. We submit that there is no justice in this discrimination and insist that the time has come when agriculture should be classed as one of the big industries and recognized as such. We ask for no class legislation or special privilege, but we insist that the farmer should be paid for his products on the same basis that other industries are paid for theirs. If it is fair and just for other industries to receive cost of production plus a reasonable profit based on an oight hour day, then it is equally fair for tho farmer to receive pay for his product calculatod in the same way; and if not so paid, the result will be a gradual and steady exodus from the farms to the cities thereby lessening the production of food stuffs with a conse-

quent increase in price for the same. We realize full well that under the present extravagant and wasteful system of distribution the price of farm products calculated on this basis would necessarily be considerably higher than at the present time; but in the name of common justice we submit that there is no good reason why farmers should not be paid for their products on the same basis that other industries are paid for theirs; and we believe that the efforts of the so-called "consumers' leagues" represented by city women who know very little of the actual time, labor and expense involved in the production of food stuffs, could, with very much better grace, be directed toward the real cause for high prices, the elimination of so many middlemen rather than against the producers' associations which are only trying to secure fair prices for the farmers. Therefore,

Resolved, that we the members of Napa Grange, No. 307, P. of H., hereby pledge ourselves to strive by all honorable means to bring about the results sought in the above Preamble.

Resolved, that copies of this Preamble and Resolutions be sent to each Grange in the state and to the State Grange for endorsement and assistance and to our Grange representative in Washington, D. C.

POISON THE PESTS

With the present campaign on rodents of all kinds there is need of methods which will secure greatest results for least expenditure, especially where large fields are to be operated in. A farmer of the Middle West, coming to California, brought his shrewdness and his observing eye with him and has learned one method of gopher control which is somewhat different. He discovered it through his planting of sorghum grains. He planted a field of white Gyp, and at a time when conditions were right, but few of his seed ever showed a sprout. He made investigations and found sections in the road where 10 to 20 feet were sometimes entirely bare.

His observing eye soon developed the fact that this method of planting made it particularly easy for gophers to follow the rows and clean up his seed. Hence, appeal to the same method to catch Mr. Gopher. His method of planting the seed had been to arrange behind the one chisel-tooth shovel of his cultivator a piece of ordinary rubber garden hose, the lower end of which was nearly even with the lower end of the chisel-tooth. At the top a small funnel enabled him, as he walked along following the "planter," to drop some eight or ten seeds to the foot, and as the dirt fell behind the cultivator shovel his planting operation was completed. Once the gopher found this streak of soft earth it was an easy matter to follow the row and dispose of the seed.

The next batch of seed was prepared according to the usual strychnine-sugar or syrup formula. The poison was poured over the grain while it was still warm, but the seed was not cooked or destroyed. The same method of distributing was followed as in planting, and a material lessening in the work of gophers was noted. The next trial was in an alfalfa field. A short time after rains, when soil was in good condition, the same chisel-toothed cultivator, the same polsoned seed, the same funnel with hose were brought into action. When the work of gophers showed up thickly, the field was traversed with regularity, but more often, here and there, as the need appeared. The result was a great lessening of gopher damage to that alfalfa field. Five gallons of poisoned grain will cover about ten acres.

This is the plan as reported by C. A. McDermott who first practiced it in Tulare County and succeeded with it for many years.

CLUB WORK PROFITABLE

Agricultural club boys in Eldorado County borrowed $592 in March, 1918, from local banks to start their pig club projects. In August, 1919, an inventory showed that these boys owned or had sold $5,826.25 worth of swine. Eight gilts, exhibited by the Eldorado boys at the state fair, brought an average price of $56.50. They were from the first litter out of the original sows.

Owing to the high prices of pork last year, 63 per cent of the 1919 enrollment in the California agricultural clubs went into either the sow and litter or the pig feeding contests. Many club members in the state paid high prices with borrowed money for pure bred animals, and in most cases have more than repaid the loans out of the first litters.

Occasionally the pure bred pig clubs in California have found difficulty in securing adequate prices for the stock they raise. To eliminate this trouble they have resorted to the means used by other pure bred breeders and have organized auction sales. Two were held in the past year, one at Lemoore, Kings County, and one in Fresno County. At Lemoore 38 animals brought a total of $2,751, or an average of about $72 a head, which is about the market price for pure bred animals in California. In Fresno County 29 head of pure bred Poland Chinas brought a total of $981.50, or an average price of $68.30.

HIGH YIELDING CORN

E. C. Frazee, a Sonoma County subscriber, writes regarding the value of seed selection in building up a strain of higher producing corn. Corn is a more expensive crop as grown in California than in the East. On the other hand, it is a higher producing crop in this state than it is in the East. Hence, its culture should be encouraged and the campaign undertaken by a number of careful growers, by the Sperry people, and others has increased the popularity of this crop. Regarding methods and the value of selection, Mr. Frazee writes:

"It's really quite a simple matter. In the first place I had the good fortune to find a suitable sport from which I grew and successfully (perhaps it was partly luck) selected the parent stock which in ten years' time has produced results almost unbelievable to those who have not seen it.

"I started early in the work of corn propagation. When I was yet a boy I took a great fancy to corn. I always thought that corn should produce several ears per stalk instead of one. I hunted the corn fields far and near for a likely mother stalk. Many a day and many a field I hunted and many a year I continued this.

"For 50 years corn had been but slightly improved. To be sure, this, that and the other seedsman had introduced new varieties by the score but their newness consisted mainly of a varying of color, texture of corn, earliness or lateness of ripening, etc. They all seemed to be mainly striving for a cylindrical ear. Probably the corn shows where cylindrical ears were so favored had quite a bearing on holding back development looking to heavy production in preference to type of ear, for almost invariably the 'handsome' ears were awarded the prizes.

"During my many years of search for a suitable sport showing multiple ear qualities I discovered many more or less suitable, but none of them developed up to the standard which I had set, until, while searching a large field of particularly fine corn in a mid-west corn belt state I discovered a fine vigorous, upstanding stalk with five good ears on it. It proved to be a strong transmitter of its high yielding qualities and became the original foundation mother stalk of a strain which now produces stalks giving an average of more than five ears."

PARALYSIS OF BEES

At a meeting of beekeepers at Orange, Professor Coleman was asked what produced paralysis of adult bees and what would cure it. He answered that no bacteria had been discovered that would cause such trouble. The bees come out of the hive, have convulsions, and die. Dr. Sturtevant has studied the problem deeply without being able to discover a cause. The so-called disappearing disease appears to be the same thing. It seems that bees confined in hive and that have eaten all stores go out in fine weather, eat heavily of nectar, and this causes auto-intoxication. It seems to affect only the older bees. Weather conditions are probably more to blame than anything else we can at present ascribe.—E. B.

Don't get cold feet when things look dark. Any man who has reached the top can tell you that the road to success is lined with toll gates.

Light Service Tractor Harrow

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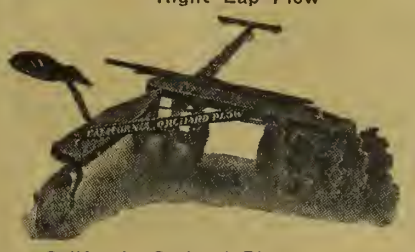

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Clark "CUTAWAY"

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CLARK "CUTAWAY" Double Action Harrows thoroughly dig, mix and pulverize every inch of soil. A perfect seedbed is prepared by their forged sharp cutout disks made of toughest cutlery steel that does not chip, crack or break. Once over does the trick, same as going over your ground twice with any ordinary implement. They

Thoroughly Pulverize every Inch of Ground

The rear gangs are forced to cut exactly midway between the track of the front gang disks. The Improved CLARK Main Frame of special steel holds all gangs in their appointed place as in a vise. Sliding and trailing is impossible. Each disk does its duty—cuts its own way.

CLARK "CUTAWAY" Tillage Machines contain the most advanced, most practical features of construction. They stand foremost in quality and service. They have many valuable, exclusive features. They work out the price the first season, in better cultivation and greater crop yields.

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Have your dealer show you CLARK "CUTAWAY" Harrows and other tillage machines illustrated on this page.

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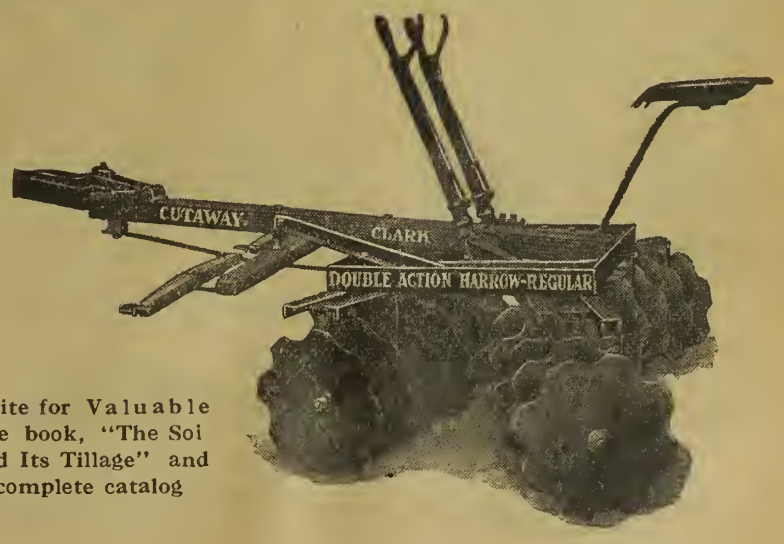

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Born June 18th, 1919. **75 Per Cent. White.**

Straight and Strong. **An Individual you can be proud of.**

DAM—A 20-lb. cow, 90 per cent white. Her daughter made 26.96 lbs. butter from 527.4 lbs. of milk. By a 25-lb. son of JULIANA KING OF RIVERSIDE, whose 16 A. R. O. daughters include 3 above 28 lbs. butter in 7 days, 3 yearly records above 1,000 lbs., and who has 3 granddaughters above 34 lbs., and 4 with year records from 1,113 to 1,331 lbs. butter. Dam is out of a 21-lb. four year old sister of ARALIA DE KOL, age 12 years, 30.14 lbs. butter, 365 days, 1,142 lbs. butter, and is half sister to two 30-lb. cows.

SIRE—Has 2 A. R. O. daughters and more coming on. Combines in the closest possible degree both through sire and dam, the blood of the noted sires, FOBES TRITOMIA MUTUAL DE KOL, (38 A. R. O. daughters, 3 from 30 to 36.44 lbs.) and HOMESTEAD JUNIOR DE KOL, (72 A. R. O. daughters, 7 from 30 to 35.55 lbs., 12 granddaughters 30 to 39.37 lbs.). This cross produced all the high record daughters of the former sire. Both his sire and dam have 3 30-lb., 75 per cent sisters, one being a former WORLD RECORD HOLDER in 30 day class.

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Three Miles south of Downey on Downey-Long Beach Boulevard.

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TOSANTOS WALKER PONTIAC

Sire—King Korndyke Pontiac 20th, Mr. Higdon's $6500 Bull

Dam—Miss Filled Korndyke Walker, Butter 7 days, Jr. 4, 26.38 lbs.

TOSANTOS HERD

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GUERNSEYS

$546 Was the Average Price paid for all Guernseys sold at public auction in 1919. This figure indicates the buyers' high estimation of the value of the breed. Let us tell you WHY Guernseys lead in popular favor.

QUALITY ECONOMY QUANTITY

THE AMERICAN GUERNSEY CATTLE CLUB.

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Raise Calves

On AN-FO Calf Meal in water or skim milk. Watch how well they do. The cost is less, the calves are sleeker. No scours. Your feed dealer or Animal Food Co., Oakland supply.

AN-FO BRAND CALF MEAL

JERSEYS

3 BULLS	No. 1 born Mar. 1, 1919. Sire, Our Noble Maytair Hero.	3 BULLS
No. 2 born Oct. 1, 1919. Sire Our Kathie's Eminent.	All from high record cows in Arden herd	No. 3 born Dec 20, 1918. Sire same as No. 2

ARDEN DAIRY CERTIFIED, EL MONTE, CALIF.

Brighton Farm Herds

Registered Shorthorns

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Berkshires---Both Sexes

H. L. & E. H. Murphy

Perkins, Cal.

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Berkshire Breeders Hold Fine Meeting

The annual meeting of the Western Berkshire Congress held at the university farm, Davis, February 18-19, was considered one of the most satisfactory ever held by that organization.

The morning of the first day was devoted to a student's judging contest, a large number of university and farm school students participating. At the close of the contest Professor J. I. Thompson announced the following winners: 1, J. R. Waters, West Lafayette, Indiana; 2, G. V. Steed, Los Angeles; 3, A. H. Sinnock, Berkeley; 4, S. Harrington, Berkeley; 5, R. L. Suppes, Los Angeles; 6, E. J. Phillips, Pasadena; 7, Miss Ruth Grim, Anaheim; 8, Lyle Ferguson, Yuma, Arizona; 9, L. T. Baldwin, San Francisco; 10, S. A. Anderson, San Gabriel.

Miss Ruth Grim of Anaheim was awarded the prize for the best woman judge of Berkshires.

At the annual meeting, held the afternoon of the first day, James Mills of Hamilton City, one of the largest breeders of the West, was elected president; H. C. Muddux, prominent banker-breeder of Sacramento, vice president; J. Francis O'Connor, Castleview Ranch, Santa Rosa, secretary. The following breeders were named as the board of directors: W. S. Guilford, Butte City; A. B. Humphrey, Escalon; W. F. Sandercock, Sacramento; Mrs. Ruth Hardy, Orland; W. M. Carruthers, Live Oak; Frank B. Anderson, Sacramento; George Murphy, Perkins; D. C. Bunn, Prosser, Washington; A. P. Warnock, Pleasant Grove, Utah; J. P. Bonner, Silverton, Oregon; W. Teesdale, Fallon, Nevada.

The retiring president, A. B. Humphrey, in his opening address outlined the activities of the congress during the year of his administration and reviewed in detail the more salient accomplishments. Humphrey expressed the opinion that the outlook for the breed was never brighter but urged that the breeders adopt a vigorous promotion policy.

In his annual report the retiring secretary, Frank B. Anderson of Sacrameto, disclosed the fact that during the year 1919, 114 Berkshires were sold through the promotion sales sponsored by the association and that the sales resulted in 46 new men entering the business.

During the meeting plans were discussed for furthering the Berkshire cause and it is probable that the congress will engage the services of a field man whose duty it will be to devote his entire time toward securing wider distribution for Berkshires. The members of the association feel that with a field man to look after the staging of sales, developing the market through pig clubs and county units and securing publicity for the activities of the breed, many men will be attracted to the business of producing Berkshires.

The congress adopted a new constitution and by-laws including a unique plan for membership dues. It is proposed that each member be assessed two dollars and in addition one dollar be collected for each sow maintained in the herd. The dues will be payable March 1 and September 1. Junior memberships are also provided for boys and girls, dues being one dollar.

It was proposed that arrangements be made for holding a futurity show at the coming state fair.

Following the sale a banquet was held in Sacramento. A. B. Humphrey presided and an opportunity was given all to express their views.

A Magnificent Dairy Barn at Oakley

A fine example of saw-tooth roof barns built by the Central Creamery Company. As may be noted, sliding doors are located at the end of double cow alleys. Note litter carrier track extension at right hand of barn where litter is dumped into manure spreaders. Note openings in silos with galvanized iron chute hanging from one. In the top of the left hand silo there is located a 10,000 gallon water tank which furnishes supply for watering cattle and washing stable. This is fully equipped with one of the most up-to-date milking machines and in every way a thoroughly up-to-date barn.

Berkshires in Strong Demand

The annual Berkshire classic, the Western Berkshire Sale, held at the university farm, Davis, February 18, proved to be one of the most successful sales ever held by that organization and served to lend the greatest encouragement to the supporters of that breed. Twenty-nine head, 16 sows, eight gilts and five boars sold for a general average of $174.65. The 16 sows sold for an average slightly higher than $200 and the boars averaged $195.

The top of the sale was fetched by the good young sow, Hopland Grand Lady 2d. from the consignment of H. C. Muddux & Son, Sacramento, and purchased by J. Francis O'Connor, Castleview Ranch, Santa Rosa, for $750, the highest price paid for a Berkshire sow in California in recent years. The sire of this sow was a son of Rival's Champion and the dam was a daughter of Grand Leader 2d.

The top boar was Wilsonia King Laurel, a two year old son of Laurel Champion and out of Miss Vilia 2d, and a litter mate to the well known Eastern boar, Real Type. It is of interest to note that the only time the two brothers met in the show ring Wilsonia King Laurel stood higher than his illustrious litter mate. The boar was consigned by the Sandercock Land So., Sacramento, and was purchased for $600 by A. B. Humphrey of Escalon.

A feature of the sale was the rating of the sale animals by Professor J. I. Thompson of the animal husbandry division. Three classes were arranged, one for boars, one for sows and one for gilts. The Duke's Improver, an April, 1919 boar consigned by E. J. Ferguson of Santa Rosa, won the boar class; Hopland Grand Lady 2d consigned by H. C. Muddux & Son, Sacramento, won the sow class and Escalon Fashion Lady, consigned by A. B. Humphrey, Escalon, was awarded first place among the gilts.

A splendid crowd of buyers was on hand to purchase breeding stock and it was the opinion of a number in attendance that the Berkshire swine industry of the state faces a period of prosperity and that the demand for good Berkshires is rapidly increasing. Prof. J. I. Thompson selected a number for the College of Hawaii, the remainder of the offering being scattered to various sections of the state. Col. Ord L. Leachman was the auctioneer. Following is detailed report of the sale:

BOARS

5. Packer Bend Farm, Willows, $145.
13. A. B. Humphrey, Escalon, $600.
21. R. W. White, Woodland (pig), $50.
31. Geo. P. Upham, Martinez, (pig), $50.
35. Montezuma Ranch, Collinsville, $120.
32. Anchorage Farm, Orland, $130.

SOWS

2. J. Doto, Woodland, $165.
3. A. R. Kruger, Sacramento, $150.
4. Anchorage Farm, $250.
7. Mrs. E. M. Holje, Calistoga, $160.
8. J. Francis O'Connor, Santa Rosa, $750.
9. J. Francis O'Connor, $330.
10. Geo. Glade, Davis, $130.
11. Geo. A. Stingle, El Monte, $135.
12. J. Francis O'Connor, $225.
14. H. C. Muddux and Son, Sacramento, $300.
15. Packer Bend Farm, Willows, $210.
19. A. B. Humphrey, $110.
20. H. F. Alps, Reno, Nevada, $110.
22. Geo. M. York, Modesto, $145.
23. Packer Bend Farm, $140.
26. C. E. Barrows, Orland, $105.
28. College of Hawaii, $100.

THOMPSON TO LEAVE UNIVERSITY

Although it has been known for some time among his intimate friends, it has just been announced to the public that Professor J. I. Thompson, associate professor of animal husbandry in the University of California, has tendered his resignation to the board of regents to take effect July 1, at which time he will take over the management of the newly established breeding farm owned by C. Harold Hopkins and located just west of the university farm at Davis.

Thompson came to the university following his graduation at the Iowa state agricultural college in 1910, and during the ten years that he has been identified with the livestock interests of this state he has come to be regarded as one of the soundest authorities and judges in college circles and his work has been a large factor in the development of better livestock in California.

Much of the popularity that the animal husbandry division enjoys is due to the personal popularity and esteem the livestock men of California and the West accord "Tommy."

Thompson has been secretary of the California Swine Breeders Association since its organization. He has also served as secretary of the California Draft Horse Breeders Association and has officiated as judge at many of the state, western and national livestock shows. During the year 1917-1918 he was exchange professor at the Kansas state agricultural college.

His resignation will be a distinct loss to the university but the fact that he will remain in this state is a source of great satisfaction to his hundreds of friends. In his new work he will have charge of the development of what promises to be one of the most important breeding farms to be established in the West. The owner has already laid a discriminating foundation for a select herd of Shorthorns and it is expected that future plans will include swine and sheep.

CALIFORNIA CATTLEMEN'S ASSOCIATION NEWS

Reports on the drouth situation continue to arrive at the offices of the California Cattlemen's Association. The consensus of opinion is that the cattlemen in almost all sections of California will suffer in some degree. Many sections, however, profess ability to pull through on feed that is available.

Following receipt of advices from the Cattle Raisers Association of Texas to the effect that range was immediately available for 40,000 head, the California Association is making further investigation of Texas conditions. The Texas association said that the range offered could be had at 50 cents to $1 per head per month. Texas was also stated to be in the market for cattle to restock its ranges which were depleted by the drouths of the previous three years.

* * *

Two enthusiastic meetings of county associations were held February 14, one at Suisun and the other at Sonora. In Suisun the Solano Cattlemen's Association held its annual meeting and banquet. The principal speaker was Fred H. Bixby, president of the state association. Mr. Bixby's talks are always straight to the point and his address was warmly received. He told the cattlemen that only by united effort could they get the legislation and other protective measures that their industry needed.

The feature of the Tuolumne County gathering at Sonora was the return to the association of former state senator John Curtin, who announced that he was in full accord with the present plans of the association and pledged himself to work for their fulfillment. He was elected vice president of the county association. W. J. Rushing was re-elected president.

* * *

Senator John Kendrick, president of the American National Livestock Association, has been invited to address the semi-annual convention of the California Cattlemen's Association to be held in Los Angeles in April.

PETERS LEAVES HOLLYWOOD

In a recent leter from F. S. Stimson, Hollywood, Washington, owner of Hollywood herd of Holsteins, he says: "C. W. Peters, formerly superintendent of the Hollywood farm, has left us to go into farming and dairying on his own account at Issaquah, Washington. While we were very sorry to lose his valuable services we realized that, with his great ability to produce, he surely would be successful, and we could only wish him every success in his new venture. Mr. Peters came to Hollywood in August, 1912, as herdsman, and by untiring persistence, ability and honesty, gradually became superintendent of all Hollywood. He is responsible for placing the herd where it has been at all times. Here is another case of how a man rises from the ranks to a high position by paying strict attention to his business."

STATE RECORDS BY DAUGHTERS OF KING KORNDYKE PONTIAC 20TH

The two first daughters to freshen of King Korndyke Pontiac 20th, the great young Holstein sire owned by W. J. Higdon, Tulare, have both established new California records at their ages. Both were bred exceedingly young, and neither has attained the growth usually desired in first calf heifers. One of them, Anoakia Pontiac Beets 2nd, freshening at one year eights months and two days, on official test made 16.51 pounds butter from 400 pounds milk in seven days, both of which are California records at age. It will be noted that this milk production is an average of over 57 pounds per day. The other, Anoakia King Korndyke, after a very difficult calving, at the age of one year, five months, 24 days, made on official test 15.25 pounds butter from 355 pounds milk, the latter being the California record at age. Note that she averaged over 50 pounds milk per day. Both of these heifers are of excellent type, carrying splendid udders of fine texture and good balance, and indicate the fulfillment of the great promise held out by daughters of this bull. Both of these heifers were bred and are now owned by Anita M. Baldwin, Santa Anita Rancho, Santa Anita.

A New Mexico farmer claims to have produced a hybrid of millet and Johnson grass which is proving remarkably fine forage under New Mexico conditions. It is claimed for it that it will produce three crops during the summer and remain green in the winter.

The Modesto Sale

Modesto, March 18, 1920

50 Registered Holsteins 50

This offering contains offerings from eight well known Stanislaus County herds, including a considerable number of A. R. O. cows and daughters of such cows, many of them in calf to some of the best bred bulls in the state. The sale includes:

A 26.19 POUND DAUGHTER of Pontiac Jewel Butter Boy, bred to the three times grand champion King Segis Alcartra Prilly.

A 25.45 POUND GRANDDAUGHTER of Colantha Johanna Lad out of a sister to the 37 pound cow Boweda, bred to King Alcartra Prilly.

A 22 POUND GRANDDAUGHTER of Ignaro De Kol, bred to an 823 pound son of King Segis Alcartra Abbekerk.

A 21 POUND 3 YEAR OLD half sister to the state record 2 year old Belle Faskie De Kol Witkop, bred to Segis Pontiac De Kol Dutch, whose three nearest dams are all 1,000 pound cows.

A 21 POUND 4 YEAR OLD daughter of a 26 pound cow, well along with calf to King Segis Alcartra Abbekerk, proven 30 pound son of the $50,000 bull.

A 16 POUND COW bred to Segis Pontiac De Kol Dutch, whose three nearest dams are all 1,000 pound cows.

A GRANDDAUGHTER OF SEGIS PONTIAC DE KOL BURKE out of a 27.54 pound granddaughter of Hengerveld De Kol, due to calve April 17 to the 41 pound $5,000 bull King Abbekerk Johanna Segis.

TWO A. R. O. HEIFERS bred to the 41 pound bull Sir Johanna De Kol Rag Apple.

A NUMBER OF WELL BRED A. R. O. COWS in calf to a highly bred son of King Mead of Riverside.

THREE GOOD COWS bred to a 31 pound son of El Prado Wayne Colantha.

A CHOICE LOT OF COWS AND HEIFERS in calf to a well bred grandson of Colantha Johanna Lad.

A DAUGHTER OF THE 41 POUND BULL Sir Johanna De Kol Rag Apple.

A GOOD SELECTION of unbred heifers of desirable breeding and individuality.

A Bull Offering of Real Quality

A SON OF PRINCE ARALIA WALKER out of a 25.77 pound 3 year old whose dam is a 34 pound daughter of Sir Skylark Ormsby Hengerveld. He belongs at the head of a registered herd. A first prize winner in the show ring.

A SON OF KING SEGIS ALCARTRA ABBEKERK out of a dam that made 823.19 pounds butter in one year from 19,439.4 pounds milk in one year. He was a first prize winner at California International and is ready for heavy service.

A SON OF KING SEGIS ALCARTRA PRILLY, the three times grand champion bull out of a 21 pound 2 year old daughter of the 41 pound bull King Valdessa and a 28 pound daughter of a 30 pound bull.

A GOOD SELECTION OF YOUNG BULLS of substantial breeding and good individuality that should interest dairymen.

CATALOG FREE ON REQUEST

Contributors to Sale:

E. E. FREEMAN, Modesto
C. L. MORSE, Modesto
R. L. HOLMES, Modesto
A. M. BIBENS, Modesto
BRIDGFORD HOLSTEIN CO., Patterson
MACOMBER & SON, Modesto
H. E. CORNWELL, Modesto
E. PETERPOSTEN, Hughson

Every animal positively guaranteed to be a breeder; no animal tuberculin tested.

Sale under auspices of

Stanislaus County Holstein Breeders Association

A. M. Bibens, Pres., Modesto. E. M. Morrow, Sec., Modesto.

Auctioneers:
COL. BEN A. RHOADES, Los Angeles
COL. CY N. CLARK. Modesto

Sales Manager:
C. L. HUGHES,
211-212 Ochsner Bldg.
Sacramento, Cal.

The Holstein Classic

80---Superb Cows, Heifers and Bulls--80

Sacramento, Cal., March 25, 1920

Selections for the 1920 Guaranty Sale are now complete, and show a total of eighty head from nineteen western herds.

This offering contains positively the highest class collection of Registered Holstein Females ever offered in a western sale ring and will compare favorably with any offering of equal numbers ever made in any sale ring

Eleven 30 to 35 Pound Cows **Over twenty 25 to 29 Pound Cows**
A wonderful lot of High Record 2 Year Olds

Included among them a great number that either have completed yearly records or are now on yearly test

An Outstanding Feature of the Offering

is the reference sires to which the females are bred. There are twenty such sires, every one of them a top notcher. Their calvs will unquestionably in most instances be worth all the dams sell for.

A REMARKABLE LOT OF BULLS

Ten of the best bulls available have been selected for this offering, permitting the buyer a wide selection of the most popular breeding, backed by both long and short time records of first class merit.

Every animal positively guaranteed to be a breeder; every animal over six months of age tuberculin tested and sold subject to 60 day retest by the buyer

CONTRIBUTORS TO SALE:

CARNATION STOCK FARMS, Seattle
A. E. SMITH, Sumas, Wash.
LONGHEATH FARM, Fallon, Nev.
ROSAMAINES RANCHO, Riverside, Calif.
SANTA ANITA RANCHO, Santa Anita,
JAS. J. JEFFRIES, Burbank, Calif.
W. J. HIGDON, Tulare, Calif.
ALEX WHALEY, Tulare, Calif.
R. F. GUERIN, Visalia, Calif.
BRIDGFORD HOLSTEIN CO., Patterson.
TOYON FARM ASSOCIATION, Los Altos.
THE J. S. GIBSON CO., Williams, Calif.
FRED W. KIESEL, Sacramento. Calif.
LEEMAN & KILGORE, Ripon, Calif.
E. D. BARRY, JR., Daggett, Calif.
DR. E. J. WELDON, Sacramento, Calif.
R. C. STURGEON, Tulare, Calif.
R. L. HOLMES, Modesto, Calif.

Catalog free on Request

Management **California Breeders Sales and Pedigree Company**

J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, California

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare

HAYES

How to Kill the Pests and Stop Your Losses

SEND THE COUPON on opposite page. Read these *new* facts on spraying now. You can't expect your apples, peaches, pears, plums, grapes and other fruit to live and produce profitable crops if infested with San Jose Scale, Codling Moth, Scab, Blotch, Bitter Rot and other deadly, life-sapping diseases and pests. You can't expect your potatoes to develop and grow—your Hogs to put on money-making weight —or your Hens to lay—if eaten up and tormented by bugs, mites and lice. Authorities say that the deadly ravages wrought by these ruinous, destructive pests cost farmers untold millions each year.

Spraying Will Stop Your Losses

Learn how spraying will enable you to drive these pests from your farm. How spraying will save your part of this tremendous loss and add hundreds—even thousands—of dollars to your profits each year. Send the coupon for all the facts now.

* * * *

There is a type of Hayes Sprayer for Orchards, Gardens, Field Crops, Vineyards, Nurseries, Trees, Potatoes, Cotton, Flowers, Alfalfa, Sugar Beets, Disinfecting Hogs and Poultry, Whitewashing and Cold Water Painting. Whether you need the great Triplex Fruit-Fog Power Sprayer or the smallest Garden Atomizer, you'll find it in the Hayes Line.

Send the Coupon

Fill out and mail the coupon on opposite page now. Tell us how many trees you want to spray and how old on the average. Also other uses you have for your sprayer. We'll tell you where and how you can get the style of Hayes Sprayer best suited to your needs, and its price. We'll also send our Big New Book of Hayes Sprayers and our Valuable New Spraying Guide FREE. Send the coupon today.

50 Styles of Sprayers for All Purposes

The Hayes Compressed Air Outfit sprays Garden quick, easy and cheap.

The Hayes Wheel Barrow Sprayer is ideal for spraying Hogs.

The Hayes Atomizer is worth its weight in gold for spraying Flowers.

"America's Foremost Spraying Apparatus"

Sprayers for All Purposes

FRUIT-FOG SPRAYERS

Send Coupon for Secret of "Fruit-Fog" Spraying

LEARN why Fruit-Fog is the greatest boon to Fruit Growers ever discovered. How mighty yields that are almost unbelievable are being produced in Fruit-Fogged Orchards. This is because Fruit-Fog---the vaporous super-spray---is the only spray *fine enough* to seek out and kill the *hidden* pests.

These *hidden* pests are the millions of insects that infest the microscopical niches and crevices in bark, buds and foliage, where no heavy, coarse low-pressure spray can reach. These hidden pests cost fruit growers untold millions each year. They sweep away fine fruit worth fortunes in a single season. Yet Fruit-Fog will entirely *exterminate* them. Fruit-Fog will add 100 per cent to 5,000 per cent to your yield and your profits this year. Send the coupon and learn *all* the facts.

"Fruit-Fog" Sprayers With Famous Engine

Fruit-Fog is produced by Hayes guaranteed 300-lb. high pressure and the Hayes Scientific Nozzle. Because of its vapory fineness, Fruit-Fog has wonderful adhering power. No drops form—no solution wasted—no buds or leaves knocked off—as with heavy, coarse, low-pressure sprays.

Hayes Fruit-Fog Sprayers are skillfully designed and finished. Every part is positively standardized. They give enduring service and greatest efficiency under high pressure. To insure the best possible engine service, we have selected the famous Fairbanks-Morse "Z" Engine after countless comparative tests.

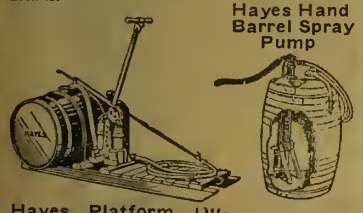
Valuable Spraying Guide Sent FREE

Send the coupon for Big Book FREE, which pictures and describes the Fifty Styles of Hayes Sprayers. Also for our valuable FREE Spraying Guide. See why the deadly pests that infest your farm cost you more each season than several Hayes Spraying Outfits. Learn how to stop these losses. How to recognize and kill every pest! What solution to use—how to mix it—how and when to apply it. The Book and Guide are worth hundreds of dollars to any Farmer or Fruit Grower. In sending coupon please tell us how many trees you have and how old on the average. Also other uses for your sprayer. Send coupon today.

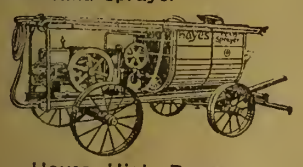
Hayes Fruit-Fog Gun

World's fastest spraying apparatus. The only gun which combines great speed with the thoroughness of Fruit-Fog One man handles capacity of big Power Sprayer. Simple twist shoots long spray to top of tallest trees, or wide spray for close-up work, or shuts off tight—preventing waste of solution between trees. Guaranteed. Write for details.

Hayes Hand Barrel Spray Pump



Hayes Platform Duplex Hand Sprayer



Hayes High Pressure Triplex Power Sprayer with truck

Nation-Wide Service

Users of Hayes Powsr Sprayers ars within only 24 hours of a servics station at all times In cass of accident at a critical time this quick service may savs your fruit crops. Hayes Power Sprayers, Engines and Repairs ars distributed by

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Hayes Hand Sprayers ars distributed by Hardware, Implement and Seed Jobbers

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Hayes Pump & Planter Company

Department D, Galva, Illinois

Hayes Pump & Planter Co. Dept. D, Galva, Ill.

Please send FREE and without obligation, your Big New Sprayer Book and your Valuable Spraying Guide.

Number of trees .....

Average age .....

Other uses .....

Name .....

P. O. .....

State .....

R. F. D. .....

Horse Association of America Fully Organized

The Horse Association of America, a non-profit corporation organized under the laws of Illinois, is now an accomplished fact. The organization is backed by horse breeders representing all breeds of horses, by the saddlery and harness interests, by the horseshoe manufacturers and master horseshoers, by the hay, grain and feed interests, and by the carriage and wagon builders of America. The purposes of the association as set forth in its charter are to aid and encourage the breeding, rearing and use of horses. The primary aim of the organization will be to bring prominently before the public and all transportation users the great part which the horse plays in agriculture, commerce and transportation, to emphasize the important part the horse occupies in pleasure, and to work ceaselessly for the improvement and upbuilding to higher standards of our existing types of horses. Of the 21,000,000 horses now on farms and ranches in the United States, it is safe to say that less than 5,000,000 are of distinct types well calculated to do their particular job in life. The Horse Association of America, through every conceivable avenue of effort, will work for the improvement of our horses to the end that the majority of them may be highly efficient in the particular line for which they are intended.

It must be understood that the Horse Association of America is not fighting mechanical motive power as such, for in its proper place it is of value, but the use of mechanical motive power units in lines of work where horses will do the work more cheaply and more efficiently is a distinct loss to everyone concerned and increases materially the cost of business operation and thereby the cost of living for every family in America.

The officers of the new association are men whose business experience and standing in their respective lines of industry will give the public confidence in the organization. Their names, with brief sketch of business connections, follows:

W. S. Dunham, president, is proprietor of Oaklawn Farm, Wayne, Illinois; John W. Gaver, vice president, is president of the Scheffer & Rossum Company, St. Paul, Minnesota, one of the largest saddlery houses in the Northwest; Glen Perrine, second vice president, is chairman of the publicity committee of the Carriage Builders National Association, Cincinnati, Ohio; Wayne Dinsmore, secretary, is secretary of the Percheron Society of America, which position he has occupied for the last ten years; George S. Bridge, treasurer, is a member of the firm of Bridge & Leonard, members of the Chicago Board of Trade.

The other directors are: L. J. Elliott, Racine, Wisconsin, president of the Imperial Bit & Snap Company; F. H. Sweet, Kansas City, Missouri, is a member of Sweet-Piper Commission Company; John E. Madden is proprietor of Hamburg Place Farm, Lexington, Kentucky; M. C. Peters is of the M. C. Peters Mill Company, Omaha; E. W. O'Grady is secretary of the Master Horse Shoers Association of Chicago; Lynn H. McCurdy is president of the Hercules Buggy Company, Evansville, Indiana; Walter Schuttler is secretary and treasurer of the Peter Schuttler Wagon Company, Chicago.

Membership in the new association will be $5 per share, and individuals, firms, or corporations may subscribe for as many shares as they desire. The initial payment of $5 per share also pays the first year's dues; subsequent dues are $5 per year per share. The funds drawn from the different industries and sources will be used to carry out the purposes of the association which have already been outlined above.

Parties desiring to become members of the Horse Association of America and to become identified in the support of its work should make application to Wayne Dinsmore, Secretary of the Horse Association of America, Union Stocks Yards, Chicago, Illinois.

Dairy People, Not Women, at Fault

While the manufacturers of so-called milk and butter substitutes, a dozen or so in number, are spending millions of dollars to exploit their products and steal the good name of butter, the manufacturers of milk and butter, thousands in number, sit idly by—with the exception of a very few—and let the tirades against dairy products run their race and die a natural death, is the opinion of Sam H. Green of the California Dairy Council. At least, they let those die which will die, but the most dangerous propaganda has been permitted to continue uncontroverted until it has reached the point where the rank and file of consumers, club women and politicians secure their information from that source and their opinions are molded accordingly.

No industry ever possessed ammunition for protecting and advancing itself such as Doctor McCollum has given to the dairy industry, and the time has come when the dairy industry needs ammunition, and needs to use it for the protection of its own welfare.

The time has certainly arrived when it would appear to be the part of wisdom for those whose business depends upon the cow to open their purse strings just a little and get solidly behind an organization of their own with their moral and financial support.

Those interested in the manufacture and sale of so-called milk and butter substitutes have, in their wisdom, spent large sums of money educating the consuming public to think as they desire it should think. It is quite evident that as a result of their business-like efforts they have reached the point where the public is beginning to fight their battles for them, which battles are against the dairy industry.

Will those interested in dairying, from the man who milks the cow to the man who markets her products, continue in a state of lethargy while the foundation of their industry and the foundation of health, vitality, vigor and life of the nation's people is being undermined by all who care to libel milk, butter and other dairy products, or will we realize that this foundation is too necessary, too sacred to be demoralized?

This is no time to complain of or blame those who attack dairy products in the belief that they are too expensive. This is the time for proving that dairy products are not too expensive as compared with other foods; that they are absolutely essential in the human diet to the extent of 18 or 20 per cent. This is the time to quit blaming others and begin blaming ourselves for the adversities which are taking place in the dairy industry and which promise to be more serious unless definite and unified efforts are promptly made.

The National Dairy Council, 910 Michigan Avenue, Chicago, is vested with the machinery for telling the story that will impress itself indelibly upon every American mother. All that is needed is the cooperation and support of every man interested directly and indirectly in dairying. The amount of money that would be necessary from every dairyman, if all would cooperate, would be a sum so small that the amount paid by the laboring man to his union would look like a young fortune. If you would do your part in the biggest work that can be done for your industry and for the welfare of this country, just drop a card to the National Dairy Council and let them tell you what your part is.

THE POLAND CHINA SALE AT MERCED

The first consignment sale of the Merced County Poland China Breeder's Association was held in Merced, February 21. The top of the sale was the sow Long Wonder consigned by Paul E. Mitchell, being purchased by J. F. McSwain, Merced, for $275.

What was particularly pleasing to the members of the association was

W. L. Haag & Son **John M. Bernstein**

Announce Their

Second Banner Poland China Sale

Hanford, Cal., Saturday, March 13, 1920

W. L. HAAG & SON

Four sows by YOUNG JUMBO bred to that phenomenal young sire SKY ROCKET. This boar is a pronounced wonder and is by Buster Defender with Bob's Model Maid for a dam. 12 bred to YOUNG JUMBO and Lendorris Liberty Bond, an excellent son of the famous Liberty Bond.

LIBERATOR

Two boar pigs by this WORLD'S FAMOUS SIRE, out of Helen Buster a granddaughter of Giant Buster. Real herd headers of the most pronounced type and breeding. ALSO
One boar pig by Lendorris Liberty Bond, that will show for himself.

JOHN M. BERNSTEIN

3 **Bernstein's Big Lassie**
Big Square Lassie
California Square Lassie 3

By Big Square Jumbo 2nd, dam Big Bone Lassie and bred to THE YANKEE, JR., LENDORRIS LIBERTY BOND and Vaughn Jones, three California boars that are producing type and quality.

One by King's Big Bone Leader.
One by Giant Jones.
One by Miller's Long Chief.

bred to THE YANKEE, JR., the sire of sires.

The above gives you some idea of the class and breeding of the animals we are putting into this sale. We will strive to make each succeeding sale a better one. Every sow in this sale has proven her worth as a producer, as a mother and is bred to a boar whose breeding and individuality assure litters of the correct type.

You will find a wealth of big type breeding in this sale, the kind that stands for breed improvement. We believe you will appreciate this offering and they sell at your valuation.

Sale at 12.30 *Lunch at 11.30*

Sale will be held on Kings County Fair Grounds, Hanford, Cal.

Geo. W. Bell, Tulare, Auctioneer **Write Today For Catalog**

the fact that the majority of the animals sold remained in Merced County. Pure bred swine are not so thoroughly established in Merced County as in some of the other counties of the state. and special effort had been made to interest the local farmers. The average of a little more than $100 was deemed by the breeders as highly satisfactory and as a result of this sale the swine industry of the county has been materially improved. Ord L. Leachman, Sacramento was the auctioneer. Following is report of animals selling for $75 or more:

2, P. Carmean, Merced, $75.
3, A. W. Morley, Merced, $75.
10, J. F. McSwain, Merced, $275.
11, J. F. Wolfshin, Merced, $100.
12, T. R. McSwain, Merced, $185.
13, S. H. Allen, Merced, $105.
16, P. B. Poor, Merced, $145.
17, Mrs. O. Silman, Merced, $100.
18, M. & A. L. Bassett, Hanford, $110.
20, J. W. East, Snelling, $80.
21, Mrs. O. Silman, $110.
22, Les McCracken, Ripon, $100.
25, J. Wilson, Merced, $170.
26, P. Carmean, Merced, $105.
28, Wm. Bernstein, Hanford, $125.
30, E. L. Morley, Merced, $75.
31, J. Wilson, Merced, $210.
36, P. Carmean, $135.

BERKSHIRE SALE AT CLEARWATER

Success was written all over the records of the first auction sale of 23 bred Berkshire sows and gilts held at Clearwater on February 21, by the Southwestern Berkshire Congress. Although the bad weather (or good rainy weather) and lack of time to prepare a sale somewhat handicapped the organization in its efforts, yet the good crowd assembled and the fair prices obtained indicated that the demand for Berkshires is stronger than it has ever been in Southern California. There were no sky-rocketing prices, neither were there any entries withdrawn from the ring. The top price of $250 was paid by the Italian Vineyard Co. of Guasti for Emblem Lady Duchess 5th, a bred sow consigned by E. J. Barker of Thorntown, Indiana. The 23 head sold at an average of $114.65. Five baby pigs donated to the congress brought $119.50. Animals were consigned by Italian Vineyard Co., Guasti; F. L. Hall, Perris; D. J. Bastanchury, La Habra; John Donaldson, Perris; Inglewood Union High School Pig Club; Geo. A. Stingle, El Monte; California Truck Co., Los Angeles; A. B. Humphrey, Escalon; E. J. Barker, Thorntown, Indiana; Whittier State School; J. Francis O'Connor, Santa Rosa, and Carruther's Farms, Live Oak. Col. Ben Rhoades cried the sale in his usual spirited manner. The animals were distributed among the following buyers:

Model Leader 3rd, Italian Vineyard Co., Guasti, $160.
Rose Crest Mistress 6th, D. J. Bastanchury, La Habra, $110.
Rose Doon 2d, B. Hiregoyer, Heber, $75.
Rose Doon 3d, Cal. Truck Co., Los Angeles, $125.
Anchorage Duchess 8th, Italian Vineyard Co., Guasti, $115.
Dukes Julia of Hollow Hill, Italian Vineyard Co., $200.
Improver's Master Bella, 2d. J. C. Biedebach, Pasadena, $77.50.
Wilentha Lady 20th, J. L. Wilson, Lamanda Park, $75.
Emblem Lady Duchess 5th, Italian Vineyard Co., $250.
Polly's Queen 2d, Geo. A. Stingle, El Monte, $100.
Star Oaks, F. L. Hall, Perris, $165.
Longfellow's Queen 18th, Italian Vineyard Co., $100.
Artful Julia, D. J. Batanchury, $100.
Improver Rival Belle 6th, Frank M. Hinton, Santa Fe Springs, $90.
Escalon Polly 4th, F. L. Hall, Perris, $150.
Rose Crest Laurel 5th, B. Hiregoyer, $115.
Julia Hill, B. Hiregoyer, $122.50.
Whittier Longfellow Belle, J. C. Biedebach, $87.50.
Whittier Longfellow Belle 2, J. C. Biedebach, $62.50.
Whittier Rival Dollie, E. D. Steburg, Lamanda Park, $70.
Whittier Rival Jewel, J. C. Biedebach, $77.50.
Meadow View Lady 4th, D. J. Bastanchury, $100.
Castleview Grand Lady, Geo. A. Stingle, $110.

Owing to the interest evidenced at the first sale the Southwestern Berkshire Congress has decided to hold a series of sales, the next one to be held in the near future.

DIP DRIVING OUT SHEEP SCABIES

In the work of eradicating sheep scabies from the United States employes of the United States department of agriculture made more than 22 million inspections and supervised more than ten million dippings during the last fiscal year. The work was conducted in cooperation with state officials. No cases of sheep scabies are now known to exist in Montana or North Dakota, in addition to numerous other states where the disease had previously been eradicated. In Idaho a spread of the infection during the previous year has been brought under control. Sheep scabies is a disease that has been prevalent chiefly in the western part of the United States.

GRAZING SEASON ON NATIONAL FORESTS TO BE SHORTENED

Early spring grazing on Western ranges has so materially reduced the carrying capacity and forage resources that the forest service, United States department of agriculture, has found it necessary on many of the national forests to shorten the present grazing season from two to four weeks. This cut will be put into effect this spring.

"It is the purpose of the forest service," states an official in charge of grazing, "to place the livestock industry on the national forests on a substantial, permanent basis. To do this it is necessary to produce a maximum cover of vegetation on all ranges. The first precaution is to avoid too early grazing. Every stockman interested in his business knows that forage plants can not be grazed the instant they begin to show above the ground. Such early spring use of the range not only decreases the density and luxuriance of plant growth, but also reduces the carrying capacity and the fertility of the soil, and if continued, ultimately results in waste range.

"Studies carried on at the Great Basin experiment station in Utah have proved that where plants are continually cut back or cropped, the root system loses its vitality and the plant soon dies. On some of the national forest ranges, which are grazed early and heavily, the forage plants are showing similar signs of serious damage, and will rapidly go from bad to worse if remedial measures are not put in force. The old grasses, with their root systems weakened by repeated cropping, are almost exterminated and are being replaced by worthless weeds. Erosion of the soil has also started in many places and threatens serious damage. Experiments have shown that from a ten acre tract, heavily overgrazed, as much as 25 tons of earth and rock have frequently been washed down after a few minutes of heavy rain. These are some of the things which follow in the wake of too early use of the range and from overgrazing.

"A grazing season that starts later in the spring, thus giving the forage plants a chance to develop, and more careful management of the range, will do much toward bettering and eventually eliminating such conditions."

DOES THE ADVANCED REGISTER PAY?

In order to obtain the best prices for surplus stock Advanced Register records are almost indispensable. This has been well illustrated in practically every Guernsey sale held since the Advanced Register was established. A study was made of 21 sales held in ten states during the year 1919 and it was shown that the average price of 141 A. R. females was $1,255; of 183 females without A. R. records but having A. R. dams, $607; of 485 females without A. R. records and without A. R. dams, $438. Average price of four bulls with A. R. progeny was $2,240; 85 bulls with A. R. dams, $740; 57 bulls without A. R. dams, $193.

It will be noted that in 1919 Advanced Register cows sold for nearly three times the price paid for females without Advanced Register records or Advanced Register dams, and that daughters of Advanced Register dams sold for $169 more than the daughters of untested dams. The high average of $438 for females without records and whose dams have no records can be largely attributed to Advanced Register records elsewhere in the pedigree of these animals.

According to these statistics, an Advanced Register record placed on a foundation cow in the average breeder's herd would increase the value of her progeny by at least $175, and the cow herself will triple in value. It has been estimated that the cost of placing an Advanced Register record on a cow ranges from $45 to $150, depending on the number on test, therefore, it is apparent that investments in Advanced Register work return liberal margins of profit.

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natural milker

The Universal enables the dairy farmer to do more work with less men and at less cost.

The alternating action of the Universal milks two teats while relieving and massaging the other two.

The rubber-lined teat cup fits all cows.

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Learn about this simple, dependable, mechanical milker that enables one man to do the work of three—and do it better. It's mighty interesting reading for the dairyman who has an eye on profits.

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Dr. Belknap of San Jose, Cal., will on

MARCH 10

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Auctioneer, Ord L. Leachman

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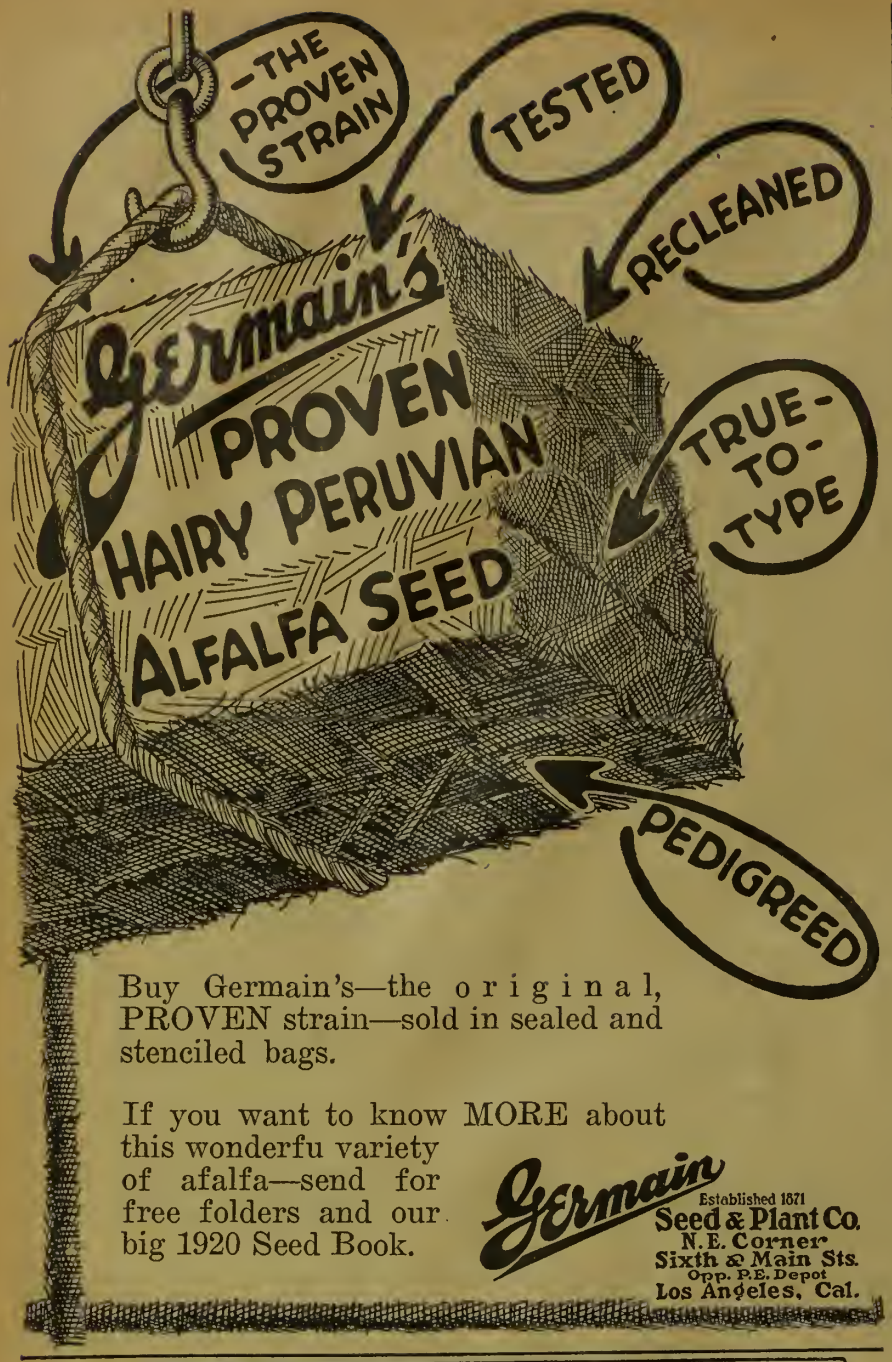

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THE fact that many thousands of America's farmers raise all their calves on Blatchford's Calf Meal—and have becn raising them on it for years—PROVES CONCLUSIVELY that calves THRIVE on it.

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Every pound of Blatchford's Calf Meal makes *one gallon* of rich milk-substitute. With milk selling *per gallon* for about **four times** the cost of Blatchford's Calf Meal *per pound*, a wise and economical thing to do is to raise your calves on Blatchford's.

WHY NOT test the "Blatchford Way" this spring? Try it on one calf only, if you prefer—but at least MAKE THE TEST. You are certain to be entirely satisfied with the way your calf will *grow* and *develop*—and the *money* you will save will open your eyes to the fact that the "Blatchford Way" is the sensible way, the economical way, the right way.

Get it at your local dealer's. If he cannot supply you WRITE US. We will refer you to some one near-by who can. Illustrated literature free on request.

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In business over 119 years

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Gives Greatest Value for Least Money
It Makes Them Fat

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Is a Calf Worth 23 Cents?

For 23 cents you can insure your calves against death from Blackleg by having them vaccinated with PURITY BLACKLEG AGGRESSIN. (The Kansas Germ Free Blackleg Vaccine.) One treatment immunizes for life and there is no danger in introducing Blackleg into healthy herds of cattle. We also manufacture and sell PURITY ANTI-HOG CHOLERA SERUM, PURITY MIXED VACCINE for swine, and PURITY HEMORRAGHIC SEPTICEMIA VACCINES for cattle and sheep. Stop your losses and increase your profits—it's good business. For service that counts, and does not end by selling, write, wire or phone

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Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
Thursday, March 25, Guaranty Sale, Sacramento.
April 8, Breeders Sale, Tulare.
Wednesday, April 21, A. M. Bibens, Modesto.
Wednesday, May 12, Leeman & Kilgore, Dispersal, Ripon.
Shorthorns
April 17, Butte City Ranch, Butte City.
Berkshire Swine
April 17, Butte City Ranch, Butte City.
Poland Chinas
March 13, Haag & Bernstein, Hanford.
April 3, Kings County Pig Club sale, Hanford.
April 24, W. T. Dice and Harrold Waltz, Hanford.
Shetland Ponies
April 17, Butte City Ranch, Butte City.
Shropshire Sheep
April 17, Butte City Ranch, Butte City.

The preliminary survey of the entries for the Holstein Guaranty Sale to be held at Sacramento, March 25, indicates a total of about 80 head from more than 20 herds, making the largest number of cattle yet offered in this annual event. It is believed that when the complete entries are checked up the offering will be revealed as the most sensational yet made in the West, the offering of high record cows being particularly strong.

An official record of 32.35 pounds butter from 528.5 pounds milk in seven days has just been made by Minnewawa Louise 3d, a registered Holstein cow owned by James McGillivray, Sacramento. She is a daughter of the great old cow Minnewawa Louise, who has seven A. R. O. daughters, and is sired by Korndyke Pietertje of Oakwood, who will be remembered as the big white bull in the McGillivray show herd some years ago. Other good records recently made in the McGillivray herd are 26.31 pounds butter in seven days by Nadgy Korndyke Walker, a senior three year old daughter of Prince Butter Boy Walker; 22.30 pounds butter in seven days by the junior four year old Carlotta Aaggie Mona; and a record of about 25 pounds butter in seven days just being completed by Modjeska Crane 4th, a daughter of Aralia King Acme.

Troutbrook Pontiac Starin, a granddaughter of King of the Pontiacs, owned by W. J. Higdon, Tulare, recently completed an official record of 35.46 pounds butter from 531.5 pounds milk in seven days. Sir Skylark Ormsby Hengerveld Pet 2nd, another Higdon cow, increased her last year's 30 pound record to 32.30 pounds butter from 621.6 pounds milk, best day's milk 100.6 pounds. Herdsman Harry L. Redd has several other good looking prospects coming on, among them some daughters of Prince Riverside Walker, about to drop their first calves.

Alex D. McCarty, secretary of the California Poland China Breeders Association, has announced that the association sale which was to be held February 26 at Davis has necessarily been postponed. We presume the association will make announcement later as to future plans.

The consignment sale held at Lodi, Thursday, February 12, by the members of the San Joaquin County Poland China Breeders Association was one of the big disappointments of the present sale season. Only a small part f the offering was sold owing to the lack of a disposition to buy on the part of the local ranchers who were doubtless influenced by the unfavorable weather. The prices on the better stuff were fairly satisfactory, the top being $210, at which figure Eugene Miner got Miss Lodi, consigned by Beckman and Sons, Lodi. Mesdames Andrews and Hamilton of Modesto made a very excellent selection when they got King's Queen 2nd from the Lehman consignment at $205. Other buyers were: Les McCracken, Ripon; E. Archer, Lodi; Alberta Horan, Lockeford; W. O. Forbes, Napa; Dr. W. W. Fitzgerald, Stockton; W. J. Horan, Lockeford; E. E. Durston, Lodi; Hale I. Marsh, Modesto; G. R. Pierkert, Acampo, and W. A. Young, Lodi. Ord L. Leachman of Sacramento was the auctioneer and he was assisted by Fred Gatewood of Fresno.

George C. Aydlott, one of Hanford's leading business men, is founding a herd of pure bred Duroc-Jerseys. Mr. Aydlott owns a 600 acre ranch a few miles north of Hanford, and while his many business connections demand a greater part of his time he finds his greatest pleasure in improving and building up his ranch. He has been producing pork for a number of years but is now turning his attention to pure breds and has been a good purchaser at some of the fall and winter Duroc-Jersey sales. There is also maintained on the ranch quite a herd of Holsteins, part of which are pure bred. Grade Holsteins, like the Durocs, will have to go as Mr. Aydlott intends replacing all grades by pure breds just as rapidly as possible.

The third sale of the Fresno County Poland China Breeders Association was held in Fresno February 11. There was a noticeable increase in both size and quality over that of previous sales and the Fresno County breeders are making every effort to interest the farmers in their community in better hogs. Thirty-five head were sold for prices ranging from $75 to $230. The top of the sale was Black Favorite by Black Giant from the consignment of H. Barkema, selling to J. A. Arthur, Clovis. Mr. Arthur, who is establishing a herd, was a liberal buyer, securing a number of the top animals at very satisfactory prices. One of the features of the sale came from the consignment of W. L. Choisser, Riverdale, and was found in two sow pigs of September farrow, sired by Vaughn Jones by Gia t Jones at head of the herd of A. J. Van Cleef. One of these went to Lendorris Ranch, property of W. L. Haag and Son, Hanford, for $170 and Thos Caesar and Son, Reedley, paid $110 for the other. While the prices secured did not represent the true value of the animals secured the breeders demonstrated their faith in the future of the hog business in California. Geo. W. Bell of Tulare was the auctioneer.

In a recent letter from W. M. Carruthers, Live Oak, he says: "I have sold down on Berkshires until I have only 12 sows, some of them our old matrons that have produced many a prize winner. Two are sired by Rival's Champion; three are by Rival's Champion Best and the others are by Ames Rival 100th and Mayfield Champion. I have secured a new boar, a grandson of Rival's Champion Best out of Artful Belle 145th, an International grand champion bred by Mr. Spicer. We have been rather handicapped with our Berkshires on account of moving them twice during the last year, but at last we have them on alfalfa and before long we will be 'out among them again'"

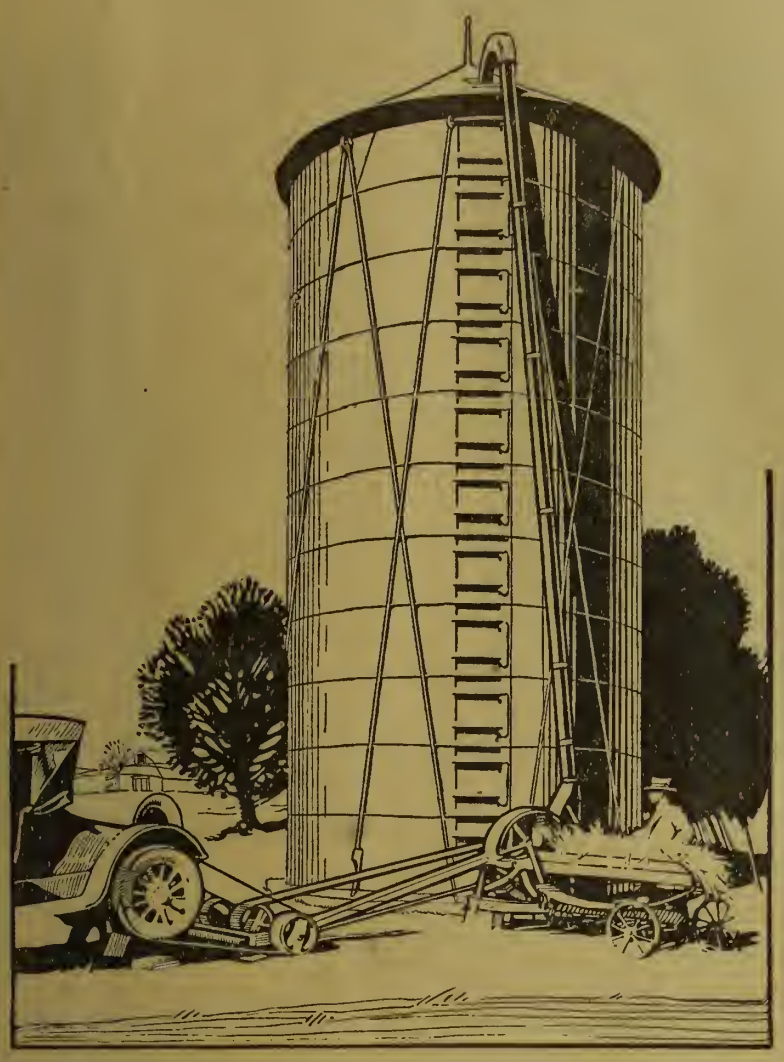
Clayton Slocum, Duroc breeder of Willows, writes that he has been forced to give up his trip East, having been delayed on account of moving to their new ranch. Slocum reports that he is having fine litters farrowed nearly every day.

In the recent sale of Berkshires, held at the state fair grounds, Sacramento, by H. C. Muddux and Son, a general average of $145 was established. The top sow was Rookwood Lady Double 2d, selling to R. Sims of Sacramento for $225. Melvin Boyd of Sacramento paid the top price, $195, for the boar, Meadow View Rival 3d. The sale was regarded as one of the best sales of Berkshires held in several years.

Mrs. Ruth Hardy, manager of Anchorage Farm, Orland, has sold a fine young Berkshire boar to F. W. Leavitt, owner of Packer Bend Farms, Butte City. Senator Leavitt is establishing a very excellent herd of Berkshires on his Packer Bend Farms and within the year expects to lay the foundation for a herd of Shorthorn cattle.

W. L. Haag and Son and John M. Bernstein will hold their second banner sale of Poland Chinas in Hanford, March 13. Viewed from the standpoint of blood lines, in all probability no sale this year will offer a greater or more desirable variety. Included will be found the blood of such sires as The Yankee, Liberator, Young Jumbo,

The Question of Silos



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The Papec is easy to set up and take down—operates on as low as 4 horse power; cuts and elevates at least one ton of green corn silage per hour.

When the loss of time and quality of ensilage due to depending upon a hired ensilage cutter and crew is considered, it is easy to understand why a Papec will pay for itself.

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San Francisco, Cal.

The question of silos is not "Will a silo save money?" but "What kind of a silo will save the most money?"

The fundamental principle in preserving silage is to retain the moisture within the silo and keep out the air. In order to do this a silo must have three qualifications:

1. It must be air tight and water tight.
2. It must have strength to resist pressure from within which is 11 pounds to the square foot for each foot of silage depth.
3. Its inner walls must be smooth and perpendicular, for silage always settles a few feet, and if the walls are rough air spaces are left causing the silage to spoil.

The more perfect a silo is in these respects, the more money it will save for you.

The Simplex Silo

The staves of the "Simplex" Silo are furnished in ONE PIECE LENGTHS THE ENTIRE HEIGHT OF THE SILO, and have heavy tongues and deep grooves. When in place they form an absolutely air and water tight structure, incapable of leaking, without end joints. This is a "Simplex" feature.

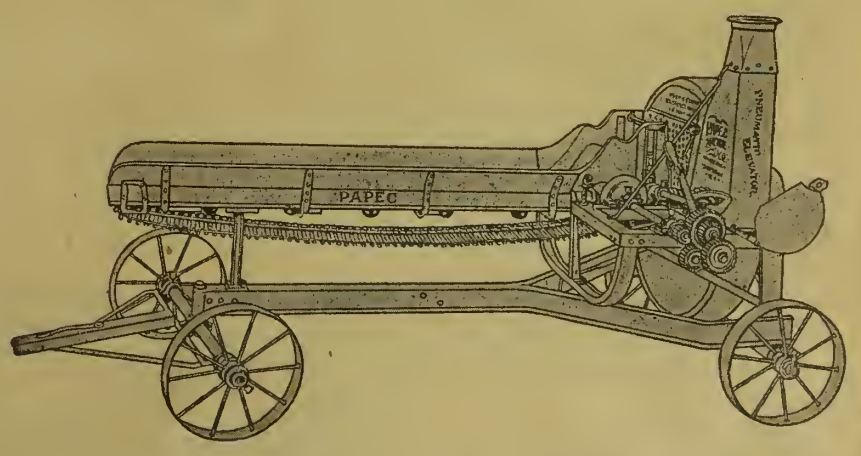
The hoops of the "Simplex" Silo are made of new steel—not scrap iron. These together with the Interlocking Anchorage System—found only on the "Simplex"—securely bind the staves into one inseparable unit, defying inside pressure and high winds.

The material used in the "Simplex" is Clear Oregon Pine (Douglas Fir), which gives the inside surface of the silo the smoothness of a shot gun barrel.

Other exclusive "Simplex" features are: The Crissell Tangent Top, guaranteed to keep the silo in a true circle at all times; and the combination Hinge and Lift door.

When you buy a silo you have but one purpose in mind—to minimize your feed bill. When we designed the "Simplex" we had the same purpose in mind and we have accomplished it by building a Silo based upon the actual needs of the California rancher instead of building a silo merely to sell. Is it not worth your while to take this point into consideration when you buy a silo?

We await your inquiry for more detailed information. You can secure it by mailing the coupon.



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For the wholesale milk trade, for delivering milk to condensaries or cheese factories, for the production of butterfat, the skim milk being retained to feed pigs and calves, thus preventing the depletion of the soil which never fails to occur where whole milk is shipped, the Holstein-Friesian cow is most profitable.

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whose dam and sire's dam average:
Butter, one year..... 1096.58
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All animals guaranteed
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HAVE GREAT
Quality and Breed Character

See the sons of PATRICIAN 5th in the February sale at Davis. Young stock for sale.

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They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.

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are the kind that make good under all conditions. They have the size, bone and constitution that the range operator wants. Herd headed by Don Perfect 2d, one of the best bulls in the West. Correspondence invited and visitors welcome.
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is proof of his ability. See the pigs by
VAUGHN'S JONES
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Liberty Bond, Buster Defender, Big Square Jumbo 2d, Vaughn Jones, Giant Jones, Miller's Long Chief and King's Big Bone Leader. This sale will also offer California buyers their first opportunity of securing at public sale Poland Chinas by the famous boar Liberator. Two boar pigs by this boar as well as three gilts by the celebrated Meharry boar, Big Square Jumbo 2d, will be included in the offering.

The fourth annual Inter-Mountain Stock Show will be held at North Salt Lake, Utah, April 5-7. Entries are limited to exhibitors in Utah, Idaho, Nevada, Western Wyoming and Eastern Oregon.

Thirty imported Shorthorn females and the bull, The Conqueror, have been sold by the importer, William Hartnett, for $85,000. The bull figured in the transaction at $25,000.

Shorthorn Blood Crosses Well

California Grizzly, a cross bred calf sired by a Shorthorn bull, third in class at the 1919 International. Bred and shown by the University of California. Shorthorn blood adds size, quality and early maturity. The Shorthorn grade is second only to the pure bred Shorthorn.

Seven hundred and fifty Hereford bulls and females will be offered in the annual Roundup Sale to be held at Kansas City next week. The sale is held under the auspices of the American Hereford Breeders Association.

Calves formed 21.9 per cent of the total receipts of cattle and calves at 50 markets in 1919, as compared with 18.5 per cent at the same markets in 1918. The total slaughter of cattle and calves at these markets included 29.9 per cent calves in 1919, as compared with 24.7 per cent in 1918. While receipts of cattle alone at these 50 markets in 1919 declined 6.3 per cent as compared with the receipts in 1918, calf receipts increased 15.8 per cent. The number of cattle slaughtered at these markets showed a decrease of 15.4 per cent, whereas the number of calves slaughtered increased 10.1 per cent.

There are 2,889 enthusiastic boys and girls in Idaho ready to testify to the profitableness of club work. Reports for 1919 show that the clubs' production amounted to $95,992.31. The cost involved was $38,087.70. The net profit was $57,904.61. The largest project was canning. A total of 111 clubs with 934 members canned fruit, vegetables and meat worth $34,909 at a cost of $17,181.

Minnesota claims the distinction of leading all other states of the Union in the number of accredited cattle herds. The figures given out by the state livestock sanitary board February 1 show 318 herds that have been tested and found free from tuberculosis. More than 2,000 Minnesota herds are now under test.

The Institute of American Meat Packers has issued the following special bulletin on the foreign situation. "The export trade of the packing industry, which is the largest industry in America, has practically ceased. The significance of this fact will be apparent when it is remembered that the United States normally exports a considerable part of its federally inspected pork products. Exports of pork products in the year just closed exceeded two and a half billion pounds. Since the last regular monthly review of the meat and livestock situation by the Institute, there has been no adequate improvement in the foreign exchange situation. This accounts for the present practical cessation of pork exports. Beef exports ceased some time ago.

Vaccine for immunizing cattle against blackleg is still in great demand. A report of the bureau of animal industry, United States department of agriculture, shows that 3,339,815 doses were distributed free to stock owners during the last fiscal year. The vaccine sent out by the bureau is in the powdered form.

Cross Bros., Poland China breeders of Merced, have recently added to their herd the yearling sow, Ohio Beauty by Blue Valley Big Bone and out of Mollie Big Bone, grand champion of Ohio, 1918 and bred to The Conqueror. She was selected for them by C. H. Walker, publisher Poland China Journal.

J. F. McSwain, Poland China breeder, Merced, and whose senior herd boar, Big Model Fellow was reserve grand champion at the last state fair, has recently secured the young boar McSwain's Long Chief. He has for his sire, Long Chief Again, grand champion of Indiana, 1918, and for his grand sire, Long Chief, grand champion in the same state, 1915. Mr. McSwain is of the belief that this young boar has added considerable strength to his herd.

Prime Shorthorn Beef

California Majestic, pure bred Shorthorn steer, bred and shown by the University of California and first in class at the 1919 International Live Stock Exposition, Chicag Shorthorn blood has been the greatest factor in improving the native cattle f America.

Todos Santos Ranch at Daggett steps into the ring for the first time in the Holstein Guaranty sale to be held late in March. Its first offering is to be Todo Santos Walker Pontiac, a fine young bull, a double cross of Prince Gelsche Walker blood. His three nearest dams average 30.95 pounds butter in seven days and his seven nearest dams average 28.61 pounds butter in seven days. His dam's full sister has just made 32.76 pounds. The little bull is now in charge of Charles Humphreys who will see him through the sale.

HOW TO IMPROVE YOUR LIVESTOCK

The United States department of agriculture, after analyzing the enrollment records of the first three months of the better sires campaign, announces that the data shows that the use of pure bred sires leads to the obtaining of blooded females also. The department sums up the factors which will hasten the improvement of the country's livestock and makes the following requests of the owners of livestock:

Use pure bred sires of good quality in all classes of livestock. Dispose of scrub, grade and inferior pure bred sires.

Keep breeding records. Many excellent animals of pure breeding have in the past been forced to rank as grades or scrubs owing to lack of records.

Join an active livestock association and attend fairs, exhibitions and judging contests where well bred animals of good type are shown.

Read good agricultural literature, including livestock and farm papers. The department of agriculture and the various states will send helpful bulletins on request.

Cooperate with your county agent, your agricultural college and other constructive forces in improving the quality of livestock in your community.

HOW FOREIGN COMPETITION AFFECTS DAIRY INDUSTRY

To meet foreign competition dairy farmers of the United States must be able to produce a better quality of product and produce and market it more economically and more efficiently, according to specialists in the United States bureau of markets.

Arrivals of shipments of Danish butter are already affecting prices on the New York City market. Argentine is producing nearly three times the amount of butter and cheese consumed, and some of the surplus may be expected to come to this country or compete with our products in foreign countries. Before the war Siberia was rapidly extending its dairy industry, and when conditions become settled in that country it may be expected to come back as a factor in the world's market. Recently there have been signs of interest in dairying in South Africa, and the industry as developed in New Zealand and Australia must be reckoned with.

If the dairy products manufactured in the United States are of a better quality than those from other countries they need not fear competition. Canada's cheese industry illustrates this. A strict system of government supervision in the training of cheese makers, in the operating of the factories, and in the grading, marketing and exporting of the product, exists there. This has tended toward an improvement in the quality of Canadian cheese until it ranks with the finest on the English markets.

The dairy industry in Argentina has grown rapidly since the beginning of the war. Before the war butter exports from that country totaled 3,262 tons a year; in 1918 they were five times that. Cheese exports were far exceeded by the imports in 1913. Now the conditions are reversed, over 6,000 tons of cheese being exported in 1918.

Today most of these exports are going to European markets, but should conditions become favorable it may be expected that some of them will come to this country. The bureau of markets warns dairymen to be prepared to meet this competition.

SPINELESS CACTUS

Prof. J. J. Thornber, botanist of the University of Arizona, gives the following rogarding spineless cactus:

"Spineless cactus is not native to Arizona. Spineless cactus has been grown under cultivation in a number of instances in small lots, but probably never with any degree of success. A small amount of money might be made from them as long as the joints could be sold at a good price for other people to plant and grow.

"Under Arizona conditions spineless cactus is not a very hardy nor a very rapid growing paint. The varieties which make the most rapid growth are injured severely by temperatures of eight or ten degrees Fahrenheit. If their growth bas been hastened during the summer season through abundant irrigation they suffer rather more severely from the winter cold than they otherwise would. Where they are given little or no irrigation during the summer season they suffer from heat and drouth. I am not able to give an estimate of a fair tonnage per acre, but under Arizona conditions it would certainly be low. With careful cultivation and irrigation at the university farm spineless cactus made a growth of three to six feet in height in three years time. Many of the individual plants weighed several hundred pounds each, but this forage was probably 90 per cent water. These plants were practically frozen to the ground with winter temperatures of ten degrees and 12 degrees Fahrenheit. Sandy soil is well suited to the growth of spineless cacti. The ordinary mesa soils in Southern Arizona, which are clayey in character, with considerable sand, are also well suited. My recommendation is that you will grow more forage and better forage on cultivated land if you will grow alfalfa or sudan grass, and that for mesa soils you will grow a great deal more forage by using Rhodes grass."

PROGRESS IN 20 YEAR EXPERIMENT

The 20 year breeding experiment which the bureau of animal husbandry is conducting in cooperation with the Kansas agricultural experiment station at Manhattan has been in progress since September 1, 1915. The principal objects are to determine whether the milking tendency in beef cattle is transmitted mainly by the dams through the male line of descent and to what extent this milk giving function of the dam influences the beef character of the progeny. Several steers and bull calves have shown unusual merit and have become prize winners of importance.

Experiments of the kind mentioned are particularly adapted to cooperative federal and state work. The great length of time necessary for satisfactory results in cattle breeding and the need for records of official character make it difficult for individual breeders to conduct the work in a manner likely to be of general value to the industry.

LOSSES FROM ANTE-PARTUM PARALYSIS

The state department of agriculture advises that pregnant ewes that are approaching parturition should be given special attention if this disease is to be warded off. A laxative diet should be given if possible, or if dry feed only is available keep the animals on a light ration for the last month of the gestation period. An excess of fat is a predisposing cause of the disease and must be avoided.

Do not wait until cases are developing in the flock. Prevent the tendency to sluggishness and excess fat by anticipating the danger a couple of months in advance. No medicinal treatment is of value, but the following very simple program, if followed out, will absolutely prevent the disease. Drive the ewes carefully once daily toward midday for a half mile or a mile to some pasture or grazing ground, preferably where some succulent food may be procured. Permit the animals to pasture for an hour and then return the flock to the original paddock. The exercise resulting from driving the band is the important part of the treatment, and even though no succulent pasture is available the drive should be made for the exercise alone. This tends to increase the appotite of the animals, increases the circulation, stimulates the muscles and liver, tones the alimentary tract and thereby relieves the tendency to constipation which is very commonly associated with the condition, and seems to be the factor that safeguards against the attack.

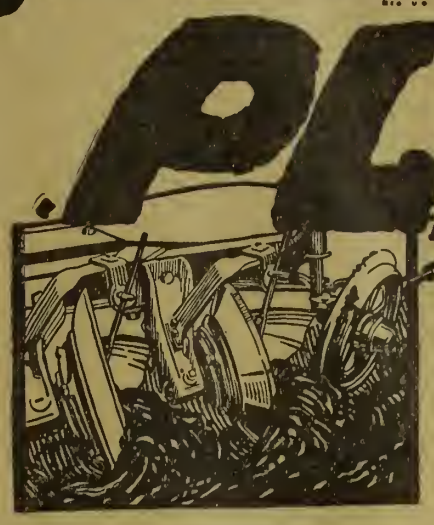
The cause of the disease is undoubtedly physiological. It is not due to any specific infection, therefore is not contagious in any sense.

The first symptom of the disease is dullness on the part of one or two well conditioned ewes in the flock ten or 20 days before lambing; they appear dull, remain away from the rest of the flock and do not eat; when approached they take no notice, or may shamble away if they are considerably disturbed; they continue to appear more stupid; the mouth becomes clammy and the eyes apparently sightless; the wool at times is found to have become loosened and within a day or two death ensues. The course of the disease from the beginning may run from eight to ten days. Probably in most cases the disease is not observed until the latter stages.

James McDonald, superintendent of Ormondale Ranch, informs us that he has just made the sale of a fine red Shorthorn heifer by Golden Goods, Jr., to Larco Bros., Peru, South America.

THE CATERPILLAR DISC PLOW

PLOWS



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Better and cheaper

NOT LIKE OTHER PLOWS

The "Caterpillar" Disc Plow is like other disc plows *only to the extent that the plowing is done with discs.* In every other respect, it is in a class by itself. *It is the only four wheel tractor plow. It runs like a wagon, steers like an automobile.* It has big, dust proof bearings, liberal clearance. The discs can be adjusted to *five different positions.* Side draft is overcome, *tailing entirely avoided.* Our new catalog gives complete details of this plow. Write for it!

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Plows Better—The "Caterpillar" Disc Plow pulverizes the soil properly—leaves it in the right condition to aerate. It plows deep—some owners plow as deep as 18 and 20 inches with it. Ridging is avoided. No unplowed strips are left, even on the turns. Under no circumstances does the tractor have to travel on unplowed ground.

Plows Cheaper—The "Caterpillar" Disc Plow saves power, because it is light of draft. It saves labor, because it is easy to handle. It saves repair expense, because it is built of the best materials, strong enough to stand up under the most severe work. For all these reasons, and chiefly because it isn't delayed by adjustments or breakdowns in the field, it plows cheaper.

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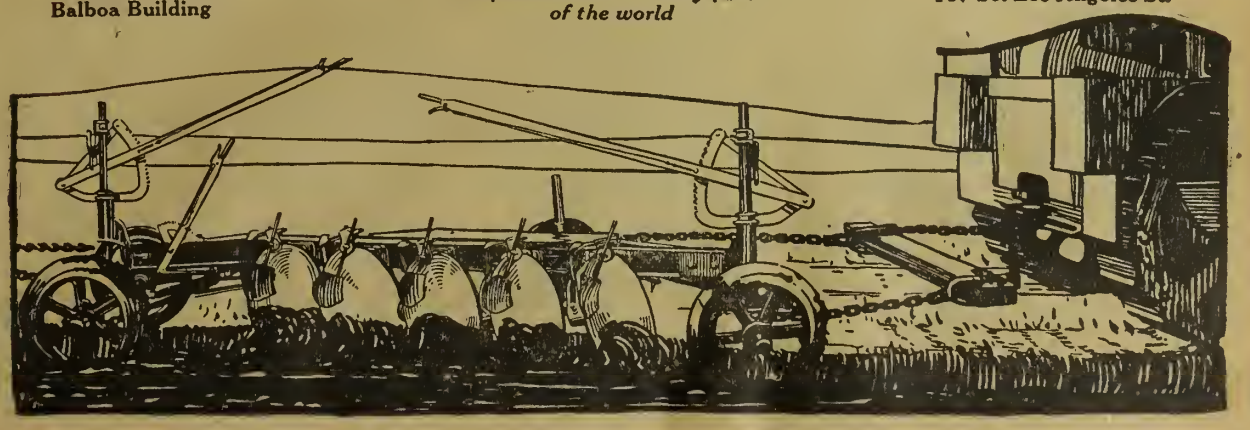

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No machine used on the farm returns a larger profit on the investment than a De Laval Cream Separator.

It saves from 25 per cent to 50 per cent of cream twice a day every day in the year over crocks and pans; and from 10 per cent to 25 per cent of cream over an inferior or half-worn-out separator.

With butter-fat at the present high prices these savings mount rapidly. Many thousands of users have found that their De Lavals paid for themselves in a few months. De Laval users are always on the profit side of the ledger at the end of the year.

More De Lavals are used than all other makes combined.

Your local De Laval agent will be glad to demonstrate what an improved De Laval will save you. If you don't know the nearest agent, please simply write the nearest office below.

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Economy Stock Powder

will keep your pigs in condition by acting on the liver, kidneys and blood. Will keep the stomach sweet, expel worms, aid digestion and prevent white scours and thumps.

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O.U.R. "Annabel" of Braemar (139626) by Blythedale Jim (2117).

Buff Orpingtons

We have a few high class Cocks and Cockerels, prize winning strain, left for sale; exceptional value. Please write us your wants.

Large winners of blue ribbons at State Fair and Los Angeles Livestock and Poultry Shows.

Hampshire Swine
(Registered)

Young boars and gilts from the finest blood strains in the country now for sale.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Hereford Points and Pointers

Continuing Hereford Points and Pointers, begun in the issue of the 14th and continued on Pages 288 and 289 of last week's issue, we give the remainder of R. R. Miller's article. Mr. Miller is a member of the American Hereford Breeders Association and is giving a valuable fund of information as to possibilities and wonderful advantages afforded by the Hereford.—Edit.

* * *

The price to be paid for a herd bull should be a secondary consideration. First find the bull that suits, then look at the price. It is practically impossible to obtain a tried and true herd bull at any price. One must ordinarily purchase a calf, yearling, or two year old and grow him out for the head of the herd. Often great herd bulls have been picked up from the pens at the stock yards and bought very cheaply, but most breeders now realize the value of their cattle and develop their herd bull prospects. The limit of price that one should pay for a herd bull depends upon the size of herd, class and breeding of females, but the fact must always be borne in mind that the degree of success attained is directly proportional to the kind of bull at the head of the herd.

In order to work improvement in a herd, the breeder must have some standard, some definite goal or ideal to which he aspires. The ideal should be set high enough that one will not become self satisfied and think that he can work no further improvement. As yet a perfect animal has not been produced and no matter how good they are, a competent judge can without prejudice find parts of the conformation or makeup of an animal that might be improved upon.

Too many breeders maintaining a herd of purebred cattle breed their cows to a pure bred bull, but pay no attention whatever to a proper mating of the animals. By such procedure, no progress will be made, except possibly by chance. The more likely result is a backward or retrogressive movement.

It is simple enough to breed the common, ordinary kind, but it takes deep study, patience and good judgment to produce the better classes and keep breeding them better all the time.

When an ideal has been set up, and the ideal should be nothing short of perfect, the breeder should make a careful survey of the herd, individually noting the deficiencies and objectionable qualities of each animal. Then measure up the poorer cows with the best and if the margin between them is too great, cull out and dispose of the poorer ones, replacing with others above the herd average. This should be done at least once a year. One is too apt to become acquainted with the strong points of his own cattle, paying no attention to their weaknesses at which places should be directed the initial move for improvement.

By all means endeavor to get a herd uniform in type throughout. The uniformity of a herd is the quality that impresses the buyer or visitor as soon as he sees the cattle. If he finds the cow herd uniform in type and the younger generations of the same stamp, his estimation of the herd is increased and a desire to own animals from such a herd is generated.

Breed character is the power of reproducing physical characteristics in animals. There is nothing more attractive in a herd than similarity of appearance. Such a sight shows immediately that sires of strong character have been utilized in the herd and that the breeder has a definite purpose in mind, whether the type chosen conforms to the visitor's ideal or not.

It is through the herd bull that continued improvement is carried out. He must be a good individual, much better than the average of the cow herd, of superior character and possessing the ability to impress his character upon his get, for unless he can sire uniform crops of calves of a better general average than the herd, then he should be immediately disposed of. The herd bull should be strongest in the points where the cows are the most deficient, for if the bull is not strongest where the cow herd is weakest, the necessary improvement will not result.

If possible, a new herd bull should not be put to heavy services in a herd until tried out, unless he is a tried and proven sire. Breed a few of the poorer and a few of the best cows to the bull intended for herd use and observe his calves before using him heavily.

Do not do as some breeders have done and buy a pedigree instead of a bull. The individuality should stand above all things. That should be the first consideration. No matter how perfect the pedigree, if the individual is deficient, a tabulation of his ancestors cannot be expected to produce good calves.

A complete record of the herd is of inestimable value in this regard. The record should be kept of the produce of each cow, the get of each bull, the age at which sold and the price of each. Through a study of these records and a knowledge of the value of the produce of each cow, a definite point is arrived at from which the breeder can start to cull his herd. This is essential as often the poorest looking cows produce the most valuable calves, both from the individual and a market standpoint.

Propaganda Hurts Production

By A. L. Spellmeyer

The next move for the farmer and the stockman will be to enter the propaganda game themselves merely as a matter of self protection against false impressions conveyed to the public.

We were inflicted with the packers' propaganda, but it has rather seemed to be a failure, and the advertising contracts are now devoted to the superlative qualities of various hams and bacons instead of condemnation of the federal trade commission or of lies as to the great prosperity and profit of stock raisers.

We are now experiencing a wave of statements put out in justification and self laudation of the railroads, their efficiency and low cost of handling products, etc.

Quoting from an advertisement of February 7, 1920, published by the Association of Railway Executives, there are several typical statements with just enough truth in them to make a wrong impression.

"The average charge for hauling a ton of freight is a cent a mile." This may be true, but it would be indeed great news for the West if such a base existed here. To haul stock in cattle cars from North Central Arizona to Los Angeles, or less than 500 miles, costs the stockman about $150 per 15 tons of cattle, or two cents per ton per mile. Perhaps the stockmen are getting the worst of it.

Again: "Beef pays only two-thirds of a cent a pound freight from Chicago to New York."

Of course this low beef rate is because the packers are the only ones who ship from Chicago the great quantities of dressed beef. The farmers and stockmen ship it to Chicago on the hoof and pay their contribution. To ship 15 tons of cattle on the hoof from a western point as far as New York from Chicago, not figuring Omaha or other packers' slaughter centers, would cost more than three times the price for transporting livestock in cattle cars, than the cost for transportation of dressed beef in iced cars.

We are told the freight charge of a suit amounts to but 22 cents, and on shoes is 5 2/3 cents, etc. Do these estimable gentlemen forget that a suit contains wool and cotton, that not only must freight be paid on the wool and cotton, but on the sheep and on the feed for the sheep and on everything the cotton raiser needs or uses. On the shoes it's a trifle, but the steers and the steers' feed has paid continued tolls, and then as a hide and also products used in making that hide, and food and labor. The largest single

THE BEST LINIMENT
OR PAIN KILLER FOR THE HUMAN BODY
Gombault's
Caustic Balsam
IT HAS NO EQUAL

For the Human Body — It is penetrating, soothing and healing, and for all Old Sores. Bruises, or Wounds, Felons, Boils, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

A Perfectly Safe and Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Strains, Lumbago, Sore Lungs, Rheumatism and all Stiff Joints

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. DEYER.

Price $1.75 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R.

The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.

Will reduce Inflamed, Strained, Swollen Tendons, Ligaments, or Muscles. Stops the lameness and pain from a Splint, Side Bone or Bone Spavin. No blister, no hair gone and horse can be used. $2.50 a bottle at druggists or delivered. Describe your case for special instructions and interesting horse Book 2 R Free.

ABSORBINE, JR., the antiseptic liniment for mankind, reduces Strained, Torn Ligaments, Swollen Glands, Veins or Muscles; Heals Cuts, Sores, Ulcers. Allays pain. Price $1.25 a bottle at dealers or delivered. Book "Evidence" free.
W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

SANTA ANITA RANCHO

Anoakia Breeding Farm

Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion and Don Castano, five gaited saddle stallion, winner in many prominent shows.

Mammoth Jacks

We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

Poland China and Berkshire Boars

Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited

Anita M. Baldwin
Santa Anita Cal.
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The Leading Live Stock Auctioneers

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Harold B. Rhoades

Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References. The leading breeders in the state. Write or wire for dates and terms.

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Beef Cattle Specialist

For 30 years I have been devoting my entire time to pure bred beef cattle. I know where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence Invited. R. M. DUNLAP, Hotel Land. Sacramento, Cal.

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

contribution to general high cost of living was the raise in railroad freights, whether the H. C. of L. caused the raise or a guaranteed percentage on a vast amount of water, or other reasons.

Do these propagandists take the American people for gullible fools to swallow all these half truths and fact fragments? Let them keep their innuendo off the subject of meat and livestock products if they want to make it stick, as the cattle industry is unprofitable enough and sick enough not to be maltreated further. Between the railroads, the packers and the retail butchers, odium has been laid upon the producer who, in actual fact, has not made a living profit on cattle during the last two years. Thousands of men have quit the business and production needs stimulation.

CASTLEVIEW BERKSHIRES AVERAGE $133

The first public sale of Berkshires from the Castleview Ranch, Santa Rosa, resulted in the satisfactory average of $133. This sale which was the first ever held by a Sonoma County breeder was arranged by Mr. O'Connor to interest the ranchers of that community in better hogs, and while the local support tendered the offering was disappointing, the quality was such that breeders from all over the state were there to bid on the better things. The fact that Rookwood Lady 100th, grand champion at the 1917 National Swine Show, had been cataloged created marked interest in the event. She was secured by the Sandercock Land Company of Sacramento for $590, a very conservative estimate of her real value. Dr. H. C. Rieze of Cloverdale got the second top animal when he bid $275 for Castleview Princess L., a senior yearling daughter of the former champion, Baron Duke 201st. H. C. Muddux and Son of Sacramento paid $220 for Castleview Royal Princess, known in Berkshire circles as "Cutie." Cutie was one of the most talked about entries at the last state fair. D. J. Bastanchury of La Habra got one of the tops in Leader's Rival Lady, a daughter of Grand Leader 2nd, at $190.

The sale served to bring together a large number of distinguished breeders, and at the opening of the sale Chas. M. Talmadge of Washington, and a director of the American Berkshire Association, made a short address. He was followed by A. B. Humphrey, president of the Western Berkshire Congress, and several representatives of the press.

The sale was opened with a judging contest for women, which was won by Mrs. F. S. Peterson of Sebastopol.

Ord L. Leachman of Sacramento, cried the sale and was assisted in the ring by Frank B. Anderson, secretary of the Western Berkshire Congress.

Animals selling for $75 or more appear in the following list:

1. D. J. Bastanchury, La Habra, $190.
2. S. B. Wright, Santa Rosa, $100.
3. Mrs. Winslow Anderson, Kenwood, $75.
4. H. C. Muddux & Son, Sacramento, $125.
5. Italian Vineyard Company, Guasti, $115.
6. Butte City Ranch, Butte City, $75.
7. S. B. Wright, $125.
8. S. B. Wright, $75.
9. D. J. Bastanchury, $125.
11. S. B. Wright, $85.
12. Sandercock Land Company, Sacramento, $590.
15. Sandercock Land Company, $130.
17. S. B. Wright, $100.
18. A. B. Humphrey, Escalon, $100.
19. D. J. Bastanchury, $85.
20. Ratto Stock Farm, Napa, $135.
23. Ratto Stock Farm, $185.
24. Dr. H. C. Rieze, Cloverdale, $275.
25. Geo. A. Stengle, El Monte, $75.
26. H. C. Muddux & Son, $220.
27. J. G. Trockmorton, Santa Rosa, $105.

HOLSTEINS REGISTERED

Owing to the rapidly increasing number of Holstein-Friesian animals to be recorded, three volumes of the Herd-Book were published during 1919. The latest volume, which is No. 41, contains a record of 40,150 entries made from February 1, 1919, to June 1, 1919, 13,385 males and 26,765 cows. Volume 41 is now in the hands of the binders and will soon be ready for distribution. These figures bring the number of registrations that have been recorded by the association, June 1, 1919, up to the grand total of 781,810.

"FEEDFINE" FEEDS

are scientifically compounded in proper proportions for dairy and all livestock feeding, of the following ingredients with the most economical results always in view.

YEAST — A concentrate high in PROTEIN and FAT content, sterilized and predigested.

CANE MOLASSES — The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.

ALFALFA MEAL — Gives body to the ration and supplies the mineral matter which is absolutely essential to all animals.

The greatest known combination for health, strength and productiveness.

YEAST, CANE MOLASSES and ALFALFA

Mason By-Products Co.

No. 2 Pine Street
SAN FRANCISCO

Factory:
Sausalito, Cal.

There Must be a Reason

for our rapidly increasing business. Our business is breeding the farmer's friend, the big type Poland China hogs.

Golden West King Grand Champion at San Francisco Livestock Show
Blue Valley King by Big Bone Leader

are boars that sire the kind of Poland Chinas that help us increase our business. If we didn't breed the right kind and absolutely satisfy our customers we couldn't increase our business. This is a good reason why you should be one of our customers. Write us.

A. Buckland & Son, R.F.D., Fresno, Cal.

SEQUOIA HERD of Big Type Poland Chinas

Senior Herd Boar—GIANT BOB, grand champion at state fair. Highest priced boar in the West and the sire of the right type of Poland Chinas.
Junior Herd Boar—THE SEQUOIAN, by Blue Valley Big Bone, a young sire of remarkable possibilities.

Z. M. DICKEY, DINUBA, CAL.

AV-I-A-TOR

represents the highest accepted standard of a Poland China boar. As breeders who have seen him say; he has everything to recommend him—nothing to condemn him. Get a sow bred to him. Merced County Breeders Sale, Feb. 21

CROSS BROS. MERCED, CAL.

King's Big Bone Leader

has amplified our greatest expectation as a sire of big type Poland Chinas.
GIANT BOB 2nd is a young boar of great possibilities.
We feel confident they represent the type most desired.

Les McCracken Ripon, Cal.

The Practical Test

of any breeder is satisfied customers. Recent sales to old customers indicate to me that my practical herd of big type Poland China sows headed by Forrestview Bob, a son of Caldwell's Big Bob, are producing the kind that satisfy. I will be pleased to satisfy you. Write me.

J. H. Cook Paradise, Cal.

THIS IS WHAT COUNTS

If you are raising hogs the quicker you can make 200 pounds of pork the more money you make. I breed Poland Chinas that mature quick.

BIG MODEL FELLOW—my herd boar was Reserve Grand Champion at last state fair. Buy a sow bred to this boar and secure both quick maturing and show qualities.

J. F. McSwain Merced, Cal.

You Can Buy Choice Pigs Now

from my herd of big type Poland Chinas I can offer some exceptional buys. Bred sows and gilts or pigs. First that write me will get some choice animals. Priced very reasonable. Write me at once for full description.

Exceptional Herd Boar For Sale.

Eugene Miner Lodi, Cal.

If It's Worth While

having stock on the farm it's worth while having pure breds. Our business is breeding Holsteins and big type Poland Chinas. We will be pleased to furnish you foundation animals of proven quality. Write us.

R. F. Guerin Visalia, Cal.

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POULTRY

BROODERS

We are offering to the California public, the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in, and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

We Are Specialists in production of high grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strain of America's choicest Leghorns fill our pens, and my personal attention is given to all details, assured each customer of highest grade stock. All baby chicks guaranteed and only healthy baby chicks shipped; if not satisfactory on arrival your money returned. Catalogue free. F. C. Rhode, Vineburg Hatchery & Poultry Yard,s Vineburg, California.

We Are Now Booking Orders for Eggs. Eggs from our Mammoth Bronze Turkeys, $1, $2, $3 from show stock and 50c utility stock. Eggs from Toulouse Geese, winners at seven shows, $1 each. White Muscovy Duck Eggs, 35c. White Wyandotte Eggs, $3 and $5 a setting. Young unmated pairs, White King Pigeons $2, old mated pairs $3. Pearl Guineas $4 a pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY (Electric), Box 122, Artesia, California.

For Sale—Baby Chicks from my thoroughbred carefully selected flock of S. C. White Leghorns. Orders accepted now for spring delivery, at $15.00 for 100 chicks, $140.00 per 1,000. Every order receives my personal and most careful attention. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Thoroughbred Barred P. Rocks—Egg records 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 5599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

White Leghorns—Breeding Stock; Hatching Eggs. Bred to standard and to lay. At 1919 Oakland Show won 2nd and 4th cock, 4th hen, 4th and 5th pullet, 2nd pen. 178 birds competing. All curves, white plumage, vitality, high egg production. MAHAJO FARM, P. O. Box 597, Sacramento, California.

Golden Rule Poultry Farm — Specialty breeders in profitable quality in Barred Ply. Rocks and White Leghorns. Remember the best is none too good for your foundation stock. Guaranteed hatching eggs. PENN & STAMELEN, Porterville, California.

If You Are After Good Layers, buy your Barred Rock, White Leghorns, Ancona, Rhode Island Red, Buff Leghorn and Black Minorca Baby Chicks from the STEVENSON HATCHERY, Watsonville, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Thoroughbred White Leghorns and Mottled Anconas. Eggs from carefully selected stock of high laying strains. The White Leghorn Hatchery, Pomona, California.

Just Rite Chicks from selected eggs. Barred Rocks, R. I. Reds, Black Minorcas, Brown-White Leghorns. Prices just rite, shipped just rite. We deliver free. Willow Glen Poultry Yard, 582 So. 9th Street, San Jose.

Newton Poultry Farm — White Leghorn Baby Chicks from our well known, carefully selected stock. Best strain. Big plant. Order now, any number, and get them when you want them. Los Gatos, California, Dept. 2.

"Watch Us Grow" Baby Chicks. Booking orders now for January and February deliveries. Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

Baby Chicks—Hatched from our utility S. C. White Leghorns, a result of many years' selection and breeding for egg production. San Jose Poultry Yards, 15th and Margaret Sts., San Jose, California.

Chix or Eggs—Hoganized W. Leghorns—also limited quantities of Buff Leghorns, Buff Minorcas, B. P. Rocks, L. Brahmas, Reds. S. Martina, R. 2 —627, Santa Cruz.

S. C. Buff Leghorn Hatching Eggs—This is your opportunity to secure a start in pure breds at reasonable prices. Price list free. Wrieden Poultry Farm, Dept. C, Calistoga, California.

Purebred Chicks from selected bred-to-lay S. C. W. Leghorns, Barred Rocks, R. I. Reds. Order now for February-March delivery. Maxwell Hatchery, Madera, California.

For Sale—Pure bred Buff Orpington eggs $3.00 per setting of 15; incubator lots $10 per hundred. Mrs. M. L. Trewhitt, Rt. B, Box 47, Hanford, California.

Pit Games, Cocks, Stags, Hens, Eggs. R. H. Crane, Route 3, Santa Rosa.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS

We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

S. C. White Leghorn Breeding Cockerels—I am now taking orders for young breeding cockerels to be delivered at age of three months and upward. This is the same class of stock that I have entered in the Santa Cruz Egg Laying Contest, and which at present is leading over all others. Also, a few dozen, each week, of extra choice hatching eggs from specially selected two year old hens, mated with vigorous 10 months old cockerels from high laying strain. D. B. Walls, Rural Route 4, Box 88-A, Petaluma, California.

For Sale—Hatching Eggs, Day Old chicks, from Kopps' famous Anconas, the heavy winter layers; they have the vitality and the laying habit and are bred to lay eggs; $3 per 15; $12 per 100. Day old Ancona chicks from my own stock, $20 per 100. S. C. White Leghorn eggs, $2.50 per 100. George Kopp, P. O. Box 819, Los Angeles, California.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

Sly's Single Comb Rhode Island Reds prove their quality by winning at Los Angeles, 2 firsts, 4 seconds, 2 thirds, 2 fourths, 2 fifths, 2 shape specials, 2 color specials, 1 gold special, 3 silver cups. A top notch exhibition and utility strain. Send for Catalogue. A. G. Sly, 1642 E. Middleton Place, Los Angeles.

Day Old Baby Chicks—From mature hen eggs—February—White Leghorns $17.00 per 100; Black Minorcas, Barred Rocks, Rhode Island Reds $22.00 per 100—March $2.00 per 100 less. Terms, One-third cash with order. T. C. Hawley, 504 East Elm Street, Lodi, California.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Buff Orpingtons, Black Minorcas, Anconas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306. San Jose, California.

I Won More First and special prizes on S. C. R. I. Reds at the recent Oakland Show than all other exhibitors combined, 188 Reds competing. Hatching eggs from prize birds for sale. F. M. Lail, 6 Lupton Ave., San Jose, California.

For Sale—Thoroughbred White Wyandotte settings, $2.50 for 15 eggs, also, choice White Wyandotte cockerels from $5.00 to $8.00 each. Apply Gordon O. Tetley, 190 Edgewood Place, Riverside, California.

Booking Orders in limited numbers for hatching eggs of S. C. Rhode Island Reds, Buff Orpingtons, Pearl Guineas, White Muscovy Ducks, Toulouse Geese. E. A. McKinley, R. F. D., Ukiah, California.

Big, Strong, Vigorous Plymouth White Rock cockerels from excellent stock. March and April hatch. Price $5.00. Only a few left. Geo. E. Dierssen, Box 913, Sacramento, Cal.

Baby Chicks and Hatching Eggs from Standard S. C. White Leghorns. We sell only strong, hardy chicks from heavy laying parent stock. Tacker's Poultry Ranch and Hatchery, Escalon, California.

Conklin's Heavy-Laying Strain R. I. Reds, S. C. Light and Dark Brown Leghorns, Eggs reasonable. EVA V. CONKLIN, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

White Minorca Baby Chicks and Hatching Eggs—Dark Cornish and Silver Campine Eggs. Folder. Leech Poultry Yards, Baldwin Park, California.

For Sale—Guaranteed Day Old Pullets. S. C. White Leghorns. March delivery. One ranch here buys 20,000 a year. Eureka Hatchery, Petaluma, California.

Rhode Island Red hens and pullets to exchange for Black Minorcas same age. Mrs. G. E. Rasdall, Shawmut, Tuolumne Co., California.

R. I. Red Hatching Eggs from good laying stock of good color, $2.00 per setting. W. M. MARQUAM, Bishop, California.

Baby Chicks, thoroughbred White Leghorns. No weak ones charged for. Schellville Hatchery, Schellville, California.

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S. Reservoir, Pomona, California.

Thoroughbred high record strain S. C. White Leghorns. Quality chicks. Folder free. C. R. Shipway, Santa Cruz, California.

Baby Chicks, standard varieties, high quality, low price. Catalog now ready. Can fill large orders. Madera Hatchery, Madera, California.

Fowler's Reds — Win—Lay—Pay. Cockerels and eggs for sale. Send for mating list. Duarte, California.

POULTRY

White Leghorns—Chicks and hatching eggs from Curtis heavy layers. Our stock has orchard range which in connection with most modern methods assures heavy producers with excellent vitality. All chicks hatched from our own stock exclusively. Progressive poultrymen demand the best. Write for folder. O. B. Curtis & Son, Route 1, Box 29, Gardena, Cal.

Barred Plymouth Rocks—"Nothing Better in Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Vodden, Los Gatos, California.

For Sale—Baby Chicks—Barred P. Rocks, Rhode Island Reds, Anconas, $20.00 per 100; White Leghorns, $17.50 per 100. All chicks are from fine thoroughbred heavy laying stock. Eggs for hatching from all above breeds, $1.75 per 15. Ringlet Barred Rock Eggs, 15, $5.00. McConnell's strain Black Minorcas, 15, $3.50. Send for sale list. W. H. Rails, Orange, Cal.

Santa Cruz Chicks—We specialize on very best White Leghorns, hatching many thousands each week; also Brown and Buff Leghorns, Anconas, Minorcas, Wyandottes, Orpingtons, Barred Rocks and Rhode Island Reds. Write for folder. B. W. Archibald, Soquel, Santa Cruz County, California.

Thoroughbred S. C. White Leghorn Chicks—In 100 and 1000 lots from our Hoganized and Trapnested Stock. Order now for spring delivery. Inventors and Distributors of "Forbros" Separator and Trapnest combined. Write for circular. Forster Brothers, 2918 Otis Street, Berkeley, California.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Baby Chicks — Every week, White and Brown Leghorns, R. I. Reds, Barred Rocks, Anconas. Also Baby Ducks. All strong youngsters. Safe arrival guaranteed. Write for free circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

White Leghorn Baby Chix. Heavy laying. Hoganized stock. May and June delivery. $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

For Sale—Settings from Toulouse Geese, Giant Bronze Turkeys, White Leghorns, $1.25 for 15; Pekin Ducks, $1.75 for 12; Barred Rock Cockerels, $3.50; Pekin Drakes, $3.50. Stamps. Mokelumne Poultry Ranch, Box 2, Lockeford, California.

For Sale—Very gentle Pea fowls. Price $25.00 per pair at 2 years old. $17.50 at 1 year. Will contract to raise for Nov. delivery at $10.00 per pair. Eggs $1.50. Peacocks have full tails at 2 years. A Everett, Moorpark, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

S. C. R. I. Reds—Eggs for hatching, $7.00 per 100, $1.50 for fifteen. Mrs. A. B. Cobb, R. F. D. B, Box 120, Bakersfield, California.

Eggs—From beautiful Buff Orpingtons. First prize winners. $5.00 for 14. Nellie D. Maehl, 1220 McCadden Place, Hollywood, California.

Rhode Island Whites — Hatching Eggs, Chix from best matings possible. Free mating list. Phil. Lehrbach, 1608 N. Ave. 56, Los Angeles.

Purebred Buff Orpington Eggs — Heavy laying strain, choice stock, setting $2.50. Mrs. M. Lopez, Box 436, Manteca, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C, Ceres, California.

"Eastman's Bred-to-Lay" trap-nest Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

MISCELLANEOUS

For Sale—7,000 Feet Irrigating Pipe 3,500 feet 3-inch, 2,000 feet 4-inch, 300 feet 7-inch, 500 feet 9-inch, 500 feet 10-inch; price right. Don't wait a month and cuss us because its gone. Demmitt Co., Office 120 North Main, Los Angeles.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Red Leaf Tobacco — Homespun aged in bulk. Chewing or Smoking, 6 pounds $3.30; 10 pounds $5.00. Postpaid. Murphy Company, Martin, Tennessee. Reference, People's Bank.

Fords Double the Mileage with Picard Carburetors. Easy starting. More power. Free trial. Agents wanted. York Sales Co., Dept. CC 1518 East Jefferson, Detroit, Michigan.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale Cheap—Five 10,000 and nine 5,000 gallon redwood tanks. Apply OLD HERMITAGE VINEYARD, 1623 No. Main, Los Angeles.

For Sale—Nitrogen Bacteria for Legumes, 50c per acre guaranteed. William Brunner, Holtville, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents

HOGS

For Sale—70 head of high grade brood sows due to farrow in March and April. Wm. Harlan Smith, R. D. C, Box 258, Hanford, California.

DUROC-JERSEYS

Special Sale of pure bred Duroc-Jersey weanling pigs (registered). Sired by First Prize Boar of Grand Champion breeding. Marked down in price to advertise our stock. Also a few choice bred and open gilts at slight advance over pork prices. Green Canyon Ranch, Fallbrook, San Diego County, California.

Duroc-Jersey Swine for Sale — Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Duroc-Jerseys—Gilts sired by Orion's King Gano, out of a dandy sow bred to Crimson Col. and Great Model boars. Cal. Orion Cherry King gilts bred to an Orion's King Gano boar. L. R. Hitchcock, Sweet Clover Ranch, Van Nuys, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Priced Right — Sept. boar pig, Orion Cherry King stock. He will make you money. El Bendito Rancho, Lancaster, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K Walker.

Six Bred Duroc Gilts—Champion breeding, big type. Weanlings $15. Fall pigs $20. El Dorado Duroc Association, Placerville, California.

Weanlings—Gilts open or bred to a son of Great Wonder I Am. Service boars. Derryfield Farm, Capital National Bank Building, Sacramento, California.

Start Right — Registered Duroc-Jersey weanlings every month in the year—$15 each. Red Rock Ranch, Glen Ellen, California.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Wondergerst, California's leading Poland China sire—big himself, bred big and his pigs show the same qualities. His dam was Giantess Wonder, his sire Big Jones—both big, both winners—a combination of the greatest blood of the breed. Breed big type Polands. Start right by using this blood. Write for special offer. A liberal consignment made to the Tulare Poland China Associated Breeders' sale held Tulare, October 21st. OXBONE Herd Poland Chinas, Tipton, California.

Big Type Poland China Bred Sows and Gilts. Also a few open Gilts sired by A Price. Am booking orders for winter and spring boars. Address: W. S. Adams, Gridley, California.

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES
Orland, California.
BRED GILTS FOR SALE.

3 Long, Stretchy Boar Pigs farrowed in July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St. at Third, San Francisco. In charge of Natomas Land Sales.

BERKSHIRES

are bred on the Lark Meadow Ranch for big bone, strong backs and the right type to produce profit for the purchaser. Bred and open gilts from most popular strains for sale now.

GEO. A. STINGLE, El Monte, California

ACHIEVER
BERKSHIRES

At our recent sale sows and gilts bred to Achiever, the boar that puts more vitality, more bone and more pork-making qualities into his pigs, were in strong demand. We can offer, at reasonable prices, a few choice gilts bred to this great boar. Write for details and prices. Castleview Ranch, Santa Rosa.

Grape Wild Farm Berkshires—Guernseys—spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. B. Humphrey, Prop., Escalon, California.

Solano Berkshires. Choice stock for sale, service boars of varying ages, bred gilts, unrelated pairs and trios. Reasonable prices. Write for information. R. C. Gruhike, Dixon, Solano County, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

GEESE

McNeely's Mammoth Geese. Fine stock, ready to ship at the old price of $5.00 each for as many as you want. First come first served so order early. Chas. McNeely, Alpaugh, California.

FARM LANDS FOR SALE

FOR SALE:
A HOME AND RANCH COMBINED.
An extremely well laid out plot of land 220 ft. by 454 ft. with full width city streets on three sides and an alley 30 ft. wide on the fourth, only eight blocks from Santa Barbara Post Office and business center. The land is first class sandy loam and will grow anything. There are 146 full bearing fruit trees, including apples, pears, peaches, nectarines, plums, apricots, oranges, lemons, figs, walnuts, loquats, avocados and berries; a good assortment of the best varieties and planted in perfect order. The place is planned for a first class chicken ranch and is fully equipped for 10,000 to 12,000 head of fowls, including houses of the best construction and all modern, with cement floors, automatic drinking fountains, feed hoppers, brooders and houses, manure shed; feed house with alfalfa cutter motor driven, in fact everything in order for a first class farm. There is a well built house containing three bedrooms, livingroom, diningroom, kitchen and bath, (oak floors) for a home, and a two story, eight room house for working men. Garage for two cars. The fruit from the place will more than pay expenses. This property must be seen to be appreciated. It is offered at the low figure of $12,000 to settle up an estate. Come and see it, or write for fuller particulars and terms to F. H. Lingham, 10 West Anapamu Street, Santa Barbara, California. (Exclusive Agent.)

STROUT'S SPRING CATALOG
FARMS! JUST OUT!!
More than 1,000,000 people will read this new 100-page illustrated catalog packed with money-making farm bargains in 33 States. You'll want to read on page 11 details of 160 acres, 10-room house, barns, silo, with pair horses, 7 cows, hogs, poultry, implements, to close estate for $2500, only $1000 down. See page 75, splendid Midwest 160 acres corn, grain, stock farm, 8-room brick house, big barns, silo, cornhouses; widow throws in 2 horses, cows, machinery, wagons, etc., all for $12,000, only $3000 down. Beautiful "Overlook Farm," page 8, borders river, 65 acres, 6-room house, new barns, pair horses, other stock, machinery, furniture, everything included by woman owner for $1650, part cash. Details page 22, great stock and dairy, 360 acres, new 12-room house, 3 immense barns, 2 silos, 2 horses, 26 cows, bull, other stock, complete high-grade implements, ready for business at $7200, easy terms. This book goes to every corner of America; write today for your free copy. STROUT FARM AGENCY, 831 A. G., New York Life Bldg., Kansas City, Mo.

Stock and Dairy Ranch—500 acres; will sell all or part; one mile from Valley Springs R. R., Calaveras County. Over two thousand cords of wood on the stump, oak and pine. Well fenced and cross fenced; water runs in pasture all year, springs and creek run through the place; 100 acres bottom plow land; Burr Clover, hay and pasture; pumping plant on creek; 4 acres alfalfa, large barn and corrals, garage, blacksmith shop, bunk house, sheds, etc. Pump at house and large storage tank; variety of fruit trees around house. Splendid large house, hot and cold water in kitchen and on back porch, bath. Price $30,000. Can give any terms at 6%. Would consider small City Property or business or small farm 10 to 20 acres in trade. For further particulars apply to owner on place. H. W. HANMAN, Valley Springs, California.

An Ideal Dairy Ranch—The Redlands & Yucaipa Land Company is offering for a limited time a 1500 acre Dairy Ranch in the famous Yucaipa Valley—two miles from Redlands city limits—on the Ocean to Ocean paved highway. This ranch is equipped with buildings; no better soil in the state; has 500 acres suitable for alfalfa; 800 acres grazing land with live oak trees and living springs; also 100 inches water. One of the best dairying locations in the state. Price reasonable and terms easy. Address Dike & Logie, Sales Agents, Redlands, California.

For Sale—112 acres cultivated farm land south of Red Bluff, Tehama Co., Cal. Adapted to alfalfa, beans, cotton, grains and fruits. Irrigation water $2.00 per acre. New house never occupied, schools, telephone, rural delivery. Price $200 per acre. $7500 cash, balance long time. 6% int. Courtesy to agents. E. S. Kinney, care Union Oil Co., Brea, California.

For Sale—Dairy Ranch 250 acres of land in best farming section of California, the Turlock District. 64 head cows and heifers. 100 acres of alfalfa, 4 miles from Turlock, good melon or sweet potato land. Ideal for subdividing. Price reasonable, write to or see C. J. Densmore, R. F. D. 1, Box 305, Turlock, California.

FOR SALE AND EXCHANGE
10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.
FOR SALE
Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

For Sale—20 acres APPLE and PEAR Land; 5 acres planted to Bartlett Pears, 15 acres in grain. Located about 1½ miles from town in a proven pear and apple district. Price $4250.00. Mortgage of $1270.00 due Feb. 1, 1921. Jos. A. Haubrich, Tehachapi, California.

For Sale—A 100 acre ranch; 45 acres in alfalfa, rest in grain and pasture. Young orchard and fair buildings. Good place for dairy. Price $13,000. Communicate with or see owner. R. B. Box 119, Bakersfield, California. Paul Durisch.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

Lake County Land for Sale—Bearing pear and prune orchards, dairy and stock farms. Alfalfa and grain land and other properties. Address Joe Hyman, Lakeport, Lake County, California.

Alfalfa Ranch—For rent. 70 acres gravity water and pumping plant. Will take share or cash rent. Address P. Herlick, Helendale, Cal.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

FARM LANDS FOR SALE

For Sale—160 acres good soil in Alberta, near town and railroad; some improvements. Easy terms or exchange. W. L. Rideout, Placentia, California.

I Have Cash Buyers for saiable farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

40 Acres good fruit and vegetable land, partly improved; plenty water and wood; near school. H. Kocnig, Fort Braggs, California.

SEEDS AND PLANTS

Cotton Seed For Sale—Mebanc and Durango seed, ginned from our crops, grown West Side San Joaquin Valley, which gave generous production, grading excellent staple and color. Quantity limited. Shipped in new sacks weighing approximately fifty-five pounds. If ordering less than ton state number of sacks wanted. Should plant approximately twenty pounds per acre. Prices: seven one-half cents per pound; in lots of ten tons or more to one consignee, seven cents per pound. All quotations f. o. b. Southern Pacific Westhaven. Boston Land Company, Westhaven, Fresno County.

Tomato Seed — Save 100% on Hummer Glove, Stone, San Jose. Postpaid $3.00 pound. Send money order. 20 cents ounce, stamps accepted. Order today, supply limited. Dana Walden, Wholesale Terminal Bldg., Dept. 25, Los Angeles, California.

Tomato Seed—Save 100% on new, improved stone, San Jose Canner, postpaid $3.00 pound. Send money order. or 20 cents ounce. Stamps accepted. Order today, supply limited. Dana Walden, Dept. 25, Wholesale Terminal Bldg., Los Angeles, California.

Grow Your Rabbit Feed—Giant Kale, 25c package; 50c ounce; Chicory, 25c package; 75c ounce; Mammoth Carrots, 25c ounce; Roselle—Australian Jelly Plant, 25c package. Directions to make. Mrs. C. A. Richey, R. 7, Box 854, Los Angeles.

For Sale: Tomato Seed—Spark's Earliana, New Stone (improved), Livingston's Favorite; $4.00 per pound each. Postpaid any quantity. All these varieties are the very best select stock. Patton Seed Co., South Pasadena, California.

Strawberry Plants—Americus everbearing. Strong, healthy plants. Do well in California. $2.50 per 100, $5.00 per 250. Postpaid. Catalogue free. F. I. Moffet, Eliensburg, Washington.

Seeds—Alfalfa Seed 40c f. o. b. San Francisco. All varieties Vegetable and Flower Seed. Write for special prices. Bay Counties Seed Co., San Francisco, California.

Grow Your Own Melons. Secure a package of seed, 25 cents. The world's finest musk melon "Casad's Special." Roland C. Casad, Covina, California.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc. Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

For Sale — Giant Himalaya Blackberry Tip plants from bearing vines. Immediate delivery. Sylvan Grove Farm, R. D. 1, Box 147, Santa Cruz, California.

Rhubarb Roots—1 year old roots, $3.00 per hundred; 50c per dozen. Two year old roots $1.00 per dozen. Currier Bulb Company, Santa Cruz, California.

Cory Thornless Mammoth Blackberry—Write for price list on plants. Wm. Mortenson, Rt. A, Box 209, Lodi, California.

Berry Plants — Ettersburg Strawberries, Blackberries, Dewberries and Raspberries. M. J. MONIZ, Berry Specialist, Sebastopol, California.

To Get Acquainted—I will mail you for $1.00 two each Cory's Thornless, Bishops Tree and Crandall blackberries. Bishop's Nursery, Highland.

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Dahlia Novelties—Superb collection. Write for catalog. Dietzel's Dahlia Garden, Oakland, California.

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Burbank Thornless Blackberry Plants—6 for $1.00; 15 for $2.00, postpaid. Wm. Gias, Madera, California.

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For Sale—Turkey Eggs, Mammoth Bronze and Wild Domestic, crosses; raise more poults, introduce wild blood into your flock. Get hardy, vigorous poults. With each order we send you formula for raising close to 90% of those you hatch and special feeding instructions. Will be worth many dollars to all turkey raisers to know the real way. Pamphlet tells you all. The WILD & DOMESTIC Turkey Home, R. D. Box 26 A, Hemet, California.

Giant Bronze Turkey Eggs for hatching from the famous Gold Nugget strain. Range raised, insuring strong poults. Phone city agent Lincoln 333. Mrs. A. H. Aiken, R. F. D. 13, box 315, Los Angeles.

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For Sale — Seed Bed Stock, sour and sweet. Budded Valencias, navels, lemons. Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena, California.

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For Sale—One of the best bred registered Holstein bulls in California. McAlister & Son of Chino, breeders. His dam at two years old made nearly 21 lbs. butter in 7 days and at three years 31.48 lbs. The dam and grand dam of his sire averaged over 35 lbs. butter in 7 days. He was three years old last Dec. Is half black and white. Price $500.00. A. Everett, Moorpark, California.

For Sale—8 head of registered Jerseys, all good producers. Prefer to sell in one lot. Also 6 heifer calves whose sire is from a dam that produced 600 lbs. of fat in one year. Also have 3 yearlings. D. F. Conant, Route B, Box 231, Modesto, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

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Registered and Grade Dairy Cows and Heifers on time notes. When winter is over in the East Europe will take all. Geo. R. Mokel Cow Co., Lock Box 1137, Los Angeles.

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Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

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Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

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Bean Threshing Machine, "American"—26x26, 8 H. P. International Gas Engine mounted on heavy truck with iron wheels, belts all complete, outfit nearly new; worked about 50 hrs. Price $750.00. Will take a team of two mules and harness in part payment, or will trade same for land. A. Bayliss, Anaheim, California.

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For Sale—One Trundaar Tractor and one Trundaar Junior Tractor. Both have been thoroughly overhauled and are in perfect condition. A bargain. Wm. Gregory & Sons, 602 N. Main St., Los Angeles.

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For Sale—Sharples Suction Feed Cream Separator No. 7; can be operated either by hand or power. good condition, can be bought for less than half its value. J. G. France, Fontana, California.

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Samson Tractor in good condition for sale or trade. Apply to Mel. Harding, East Telegraph Road. Phone 9132, Santa Paula, California.

For Sale—Cheap Universal Milking Machine complete, including gas engine, or will exchange for cows. Glendora Dairy, Glendora, California.

WANTED

Wanted—By San Francisco firm, competent salesman to sell a well known brand of semi-solid buttermilk through California, with headquarters at San Francisco. State salary expected and experience with this class of merchandise. Answer Box "D," California Cultivator, 112 Market Street, San Francisco, California.

Wanted—Married man as herdsman of large certified dairy. Good chance for right man. Permanent position and advancement for right man. Must be good cow man and not afraid of work. Good new bungalow and good wages besides. Inquire Superintendent, Arden Dairy, El Monte.

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Manager Duroc-Jerseys at Ireland Ranch for 4½ years, with experience in selection, general management and show ring, is open for new location. Address Owensmouth, California.

Wanted—High-Class Salesman—Familiar with Hay and Dairy trade in Southern California. Apply Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles.

Man With Years of Experience desires position on ranch as cook; steady; best references. Oscar George, Bellflower.

Wanted—To buy cattle, 75 or 100 steers preferred; will take good stock cattle. Address P. Herlick, Helendale, California.

Wanted—2 peafowl hens. Address Todos Santos Ranch, Daggett, California.

LIVE STOCK

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Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Third sale at the Ranch—all breeds—April 17, 1920. W. P. Dwyer and W. S. Gulliford, Box C, Butte City, Glenn County, California.

For Sale—Four well bred mammoth Spanish Jacks 1 to 6 years old, also five Jennets 1 to 6 years. Tennessee ancestors. Price $1200.00 for the lot. A. Everett, Moorpark, California.

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Spreading Manure

A rents a dairy ranch to B who agrees to spread manure on the land. When the lease expires, he leaves 150 loads of manure in the barn and corral. B builds a porch on the house for which A agrees to pay at the expiration of lease. In settling A retains $50 to pay for the spreading of manure. Can B collect the $50? All agreements were verbal.—Subscriber, Turlock.

The mode of judicially determining the matter would be for B to bring suit for $50 and for the costs of building the porch, whereupon A could counter-claim for the actual costs of spreading the manure. It is quite probable that the agreement to pay for the building of the porch would be void under the statute of frauds, being a contract with relation to real property, however, it would depend upon the exact nature of the contract to be developed in the evidence.

Eucalyptus Trees on Street

There is a row of eucalyptus trees six feet from the public street upon my land. I am told that the supervisor would not allow me to cut these trees. My fruit trees, 30 feet from the eucalyptus, are being killed out. Has the supervisor any legal right to stop me from cutting the trees? I wish to replace them with fruit trees. If I could not move all of them could I remove some of them? Could I legally dig a ditch cutting off the roots between the euclayptus and the fruit trees, if so, how close could I dig this ditch to the eucalyptus? There is an electric line running close to the trees. If this ditch should weaken the trees so that they would blow over on the wires, would I be liable for the damage?—Subscriber, San Diego.

If the eucalyptus trees are actually upon your land and outside of the public road, the supervisor has no authority whatsoever, and they could be cut down by you just the same as you would cut down your fruit trees if you so desired. I take it, however, that they must be upon the road right of way. In such case, you would require the permission from the supervisor in his capacity as road commissioner to remove any of them. As to cutting the ditch, the supreme court of this state has twice decided that the branches overhanging and the roots projecting into the soil adjacent to the land whereon the trees grow, are the property of the owner or occupant of the land, and while this owner or occupant may not cut down the trees, he can cut off the branches which overhang his soil and is entitled to whatever these branches produce. He may also abate the roots projecting into his soil by digging a ditch on his boundary line and cutting off these roots. While there seems to have been no decision in respect to liability in case the trees should fall after cutting the roots projecting into your land, it would seem in reason and theory that there could be no liability upon your part, as there is no obligation upon you to furnish a support for trees growing on other property. If the supervisor desires to have the trees growing there, it would be the duty of the county to protect the public as well as your own property. To avoid any question of liability, you might bring an action or injunction to restrain the supervisors from permitting the roots of these trees to permeate your land, asking for an order requiring to cut these roots, which is the of action wherein the supreme court passed upon the points above stated.

Patented Water Right

I am writing to see if you can give me any information on whether there is such a thing in existence as a patented water right. I have been farming here in Soledad Canyon, using water for irrigation from the Santa Clara Creek for nine years, and now the ranch above me has changed hands and the new owner claims a patented water right. The water in question is to be taken out and used on an old homestead on which the water has not been used for seven years. I complied with the law in my water filing when I homesteaded here. —Subscriber.

It would certainly seem that if there is any such thing as a patented water right, it is in your possession and not in the possession of the new comer on the property, as you have acquired it not only by the appropriation but also by actual use. Probably the best means for you to take will be for you to file a petition with the state water commission to investigate the rights of water on this creek. It will thereupon send a man to make a thorough investigation of the matter and a decision will be made which will clear these rights.

RURAL COMMUNITY BUILDING

The United States department of agriculture has issued Bulletin 825, "Rural Community Buildings in the United States." It was compiled by W. C. Nason, assistant in rural organization. The bulletin refers to the growing interest in community buildings. This is a feature "so recent and so essentially an outgrowth of rural life and conditions that knowledge regarding it necessarily has been fragmentary." However, several examples, located in various states of the Union, are referred to as indicating, or even giving proof, of the value to rural life of such community centers.

These community buildings are classified according to source of funds for their establishment. These include buildings financed by local manufacturing concerns through individual donations, through club or society initiative, or sometimes financed by local government, and again through community endeavor. The character of these buildings, methods of maintenance, operation and management, and the uses to which they are put, such as recreational, gymnastic, athletic, social, even political, cooperative and religious, are described. Then follow specific examples of community buildings located at Holden, Massachusetts, Matiecock, Long Island, Elgin, Nebraska, Kentfield, California, Red River, Minnesota, and other points.

These buildings have been established in communities of from 500 to 30,000 people and, in fact, the greater number, 83 of them, have been established in what is termed open country without sufficient inhabitants to be classed even with the less than 500. The bulletin will have particular interest for people in isolated communities, or rather in communities which are not now provided with proper assembling place, whether through schools, churches or other organizations.

GOING WITH THE WIND

"It's an ill wind that blows nobody good," said the ready-made philosopher.

"Yes," replied Cap'n Starboard; "but the kind of man that sits around waitin' for the wind to come from exactly the quarter that suits him is mighty likely to have no more sense than to hoist sail in a hurricane."

DOING FINE

Dick, whose father drives an automobile, is much interested in the operating of the car, especially the position of the gear shift lever. One day when some one asked him how his little sister, who was sick with the flu, was getting along, he replied: "Oh she is getting along fine; her fever was down to neutral this morning."

Irrigated Tulare County Land at $125. per Acre

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For 60 days price $125 to $150 per acre. No higher. Terms one-fifth cash, balance on or before five years at 6 per cent interest on deferred payments.

This is your opportunity to purchase choice Tulare County land under irrigation that will pay for itself from the beginning. If interested, this offer should be investigated immediately.

J. M. DAVIS,
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Tractors for Subsoiling

By Arthur L. Dahl

IT has come to be looked upon as good agricultural practice to plow deeply every few years, to break up the hard stratum of packed soil caused by shallow plowing, and to make available for the root systems of plants the added nourishment to be secured from the deeper soils.

In orchard practice this subsoiling is even more important because the tree roots penetrate the soil to a greater extent than annual plants and the condition of the top soil, drainage, acidity and many other factors are largely influenced by the handling of the subsoil.

Almost all orchard owners believe in the efficacy of subsoiling, but to many of them the plan does not appear feasible because the power required is more than is available on their own places, but since the advent of the big tractors, with horse power ratings up to 60 or 70, the problem of conducting subsoiling operations on the average orchard does not appear so difficult.

During the last few years a number of experiments have been conducted in the orchards of Tulare County to determine the best means of subsoiling, the cost, and the benefits to be derived, and some of these experiments are of interest to all orchard owners. Those who have watched the tests in that district are convinced that deep subsoiling of orchards is a real investment that will return dividends to the owner.

The Tulare County experiments were largely the result of the deep interest and untiring efforts of E. L. Tobin of Lindsay who spent several years in trying various methods and in devising a subsoiling machine that would prove successful. The first two machines proved unsatisfactory, but the third, built especially for the work, proved satisfactory, and this machine is doing excellent service in various parts of the state.

The subsoiler weighs two and a half tons and is operated with drums and cables arranged to hold the blade in the ground and yet to release it quickly when pipe lines or other obstructions are met.

The submerging blade is five feet long and two inches thick and made from Norway steel. A shoe four inches wide and two feet long appears at the bottom, to which is attached the digging point. This point is removable and must be replaced every few hours as the hardpan wears it away as quickly as an emery wheel. To operate the subsoiler required the combined power of two machines, one of 75 horsepower and the other of 45.

The outfit required the services of six men, but wonderful results were secured on the 1,350 acres of land plowed in the Lindsay district. The machine covered from ten to 12 acres a day and plowed an average of over three feet, frequently going five feet under the surface. So powerful was the outfit that where hardpan lay close to the surface the blade tore it up for a distance of three or four feet on each side of the furrow and often large blocks of hardpan were pulled to the surface and exposed.

The use of this outfit cost the orchardist about $15 per acre for subsoiling two ways, or tearing up the soil between the tree rows in both directions, and where the hardpan existed under new orchards some of the owners found it advisable to use the subsoiler twice over the same area to thoroughly break up the hardpan and enable the tree roots to penetrate below.

As examples of the benefits derived from the subsoil operations in the Lindsay district one owner reported that it required four times as long to irrigate the area subsoiled as previously, but in a few days the trees made more new growth than they had for the preceding two years. On another orange orchard it had previously been impossible to successfully grow a cover crop, but after the owner had subsoiled half of the grove as an experiment a volunteer cover crop sprang up on the part subsoiled and grew to a height of three feet. On the area not subsoiled no cover crop whatever was secured.

While the Tulare experiments demonstrated the value of subsoiling lands underlain with hardpan at a depth which can be reached with the machine, the practice would undoubtedly be beneficial on lands not so handicapped by hardpan, for the practice would result in allowing the soil to be aerated to a greater depth than with ordinary plowing, and to that extent it would keep the soil sweet and in good condition. The practice would also increase the food area for the roots and enable the trees to become more hardy and better developed. On lands containing alkali or other injurious mineral salts the subsoiling would improve the drainage conditions of the orchard and permit of the leaching out of a considerable part of these deleterious salts.

There are a number of districts in California where the development of wild lands is largely dependent upon the overcoming of the hardpan menace. In some cases this hardpan occurs from a few inches to two feet below the surface, and underneath it is a fine body of loam that is capable of furnishing a large amount of plant food. In the breaking up of this shallow hardpan a number of experiments have been tried, some of which have been successful. For instance, in the new fig district of Fresno County, where hardpan occurs near the surface, the planters have found that they can break it up sufficiently to use for orchards by drilling holes with a portable drill mounted on a tractor and moved from point to point quickly by the machine. By drilling a small hole and then inserting a charge of dynamite the hardpan is quickly and effectually shattered and at a moderate expense the entire area can be made ready for the trees.

With the successful performance of a deep subsoiling outfit such as herein described, and with ample power supplied by one or more large tractors, it is not too much to expect that large areas of land not heretofore utilized for cultivation, or orchards, can be added to the productive area of our state by breaking up the hardpan and rendering available for plant growth the richer soils that lie below. The successful operation of such an outfit, however, is entirely dependent upon an adequate source of power, such as the large tractors, for animal power would be too unwieldy to handle.

That subsoiling is productive of increased returns in ordinary agricultural operations is shown by the experience of Robert A. Todd of the Imperial Valley.

In describing his experience, Mr. Todd said: "Before using the subsoiler my crops of grain were unsatisfactory both as to quality and quantity of production. I have the medium type of soil, and previous to purchasing the subsoiler I disked the land as deeply as possible and seeded and irrigated according to the best farming practice in the Imperial Valley and believed I was getting good results." About this time, however, Mr. Todd learned that he might improve his crops by subsoiling, and after considerable thought he bought a machine for doing the work. Continuing, he said: "Last season I subsoiled every acre of my land, thoroughly pulverizing and aerating the soil. Then I planted and irrigated as I had done before. The result was marvelous. One piece of land that produced 12 sacks of barley the year previous yielded 27 sacks of early Baart wheat, weighing 140 pounds to the sack and testing 61½ pounds to the bushel." In the operation of his subsoiler, Mr. Todd used one of the heavier types of tractors, for he found that it would be impossible to manage a sufficient number of horses to pull the outfit.

When one visits the cane fields of Hawaii the large number of heavy tractors or steam plows will excite comment. This practice is largely due to the necessity for plowing the soil for sugar cane much deeper than is practiced in the United States, and only the heavier power machines can stand up under the work. This type of work is virtually subsoiling, for the plows penetrate deep into the ground and open up for the cane roots an ample source of plant food for the entire growing season of 18 months, until the cane is fully mature and ready for cutting.

TOP DRESSING TALKS

Increased Profits from the Orange Grove

In an orange grove on the Chase plantation of the American Fruit Growers, Inc., a fertilizer demonstration was undertaken in 1918.

Arcadian Sulphate of Ammonia was applied to one plot at the rate of 5 pounds per tree per acre in four equal instalments—March, April, June and September.

The picking record is as follows:

Treatment	Total yield from 46 trees
Without Sulphate of Ammonia	209.8 boxes
With Sulphate of Ammonia	242.9 boxes

Figuring on an acre basis (87 trees) the Arcadian Sulphate of Ammonia produced a gain of 62.6 boxes, which at $2.00 per box amounts to $125.00 per acre. The cost of the fertilizer was $28.27 per acre.

Arcadian is a quickly available non-leaching form of nitrogen, especially suited to California soils. Its fine dry crystals make application easy by hand or by machine. Ammonia 25¼ per cent guaranteed.

Write for free bulletin "Citrus Fertilization."

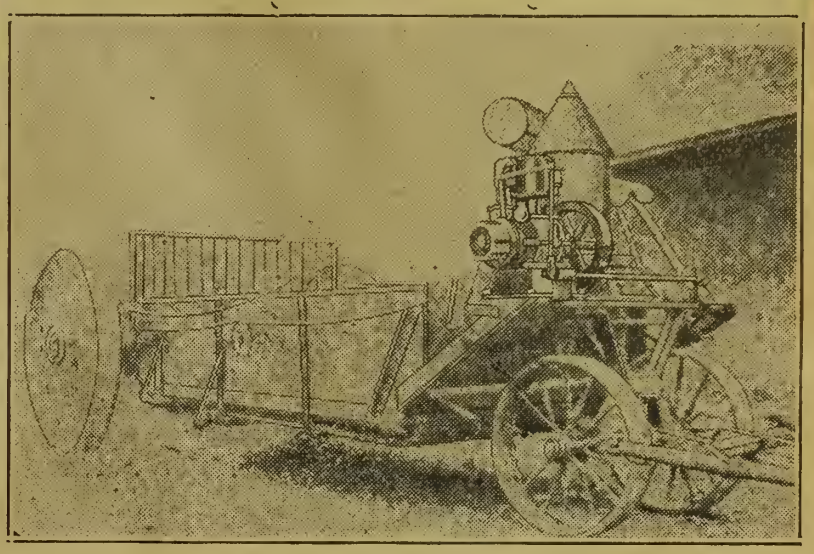
ARCADIAN
Sulphate of Ammonia

FOR SALE BY

CALIFORNIA: San Francisco; Hawaiian Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Pacific Guano & Fertilizer Co., Western Meat Co., California Fertilizer Works. Los Angeles; Pacific Guano & Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Agricultural Chemical Works, Hauser Packing Co., Hawaiian Fertilizer Co., Ltd., Southern California Fertilizer Co. OREGON: North Portland; Swift & Co.

For information as to application, write The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.



How to Make Them Like New

If you have an old manure spreader which has worn gears which you cannot replace or which have been breaking frequently with inconvenience and loss to you, do away with the main gears and mount a 4 H. P. Cushman engine to drive the mechanism.

Easier on team and machine—saves time and money. Engine can be quickly taken off and used for any chore work on the farm.

The Cushman will do more kinds of work than any other farm engine made. Will operate grain or rice binders, potato diggers, mowers, reapers, headers, corn binders, as well as doing all kinds of stationary work.

Write for information.

CUSHMAN MOTOR WORKS

Stockton Branch:

207 Yosemite Bldg., Stockton, Cal.

GRAPE VINES are here

We Can Still Supply

Cornichon	Emperor
Thompson Seedless	Muscat
Tokay	Sultana
Other Varieties Sold Out	Malagas

Also a small surplus of

Red Astrachan and Rome Beauty Apples

Send for "Hints on Gardening"

MORRIS & SNOW SEED CO.

439 So. Main St. Los Angeles, Cal.

Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

Los Angeles Markets

Los Angeles, February 25, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 66 cents.

Dairy Exchange prices last week on extras:

Feb.	18	19	20	21	23	24
'20	65	65	65	66	66	66

CHEESE

Brokers' prices:
California, lb., 28, price to retail merchants, 28@30.

EGGS

Fresh extras, Produce Exchange closing price, 39 dozen; case count Produce Exchange closing price 38 dozen; pullets, Produce Exchange closing price 37 dozen.

Dairy Exchange prices last week on extras:

Feb.	18	19	20	21	23	24
'20	41	42	42	42	42	39

POULTRY

Price to producers: Hens, lt., 35; heavy, 37; colored over 4 lbs., 38; broilers, 40-43; fryers, 40; roasters, 38; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47. Belgian hares, 3 to 3½ lbs. live, 17.

LIVE STOCK

Los Angeles, Feb. 24 — Weighed and delivered off cars without food or water:

Hogs (hard-grain fed), 125 to 150 lbs., 14.50; 150 to 175 lbs., 15.00; 175 to 225 lbs., 15.50.

Cattle (on foot, gross weight): Steers, good, 11.50@12.00; medium, 11.00@11.50; heifers, good, 9.50@10.00; fair, 9.00@9.50; bulls and stags, 6.00@6.50; calves, 125 to 150 lbs., 12.50; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock February 24, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Market stronger. New stock: Stockton, Burbank, special brands, 5.50@6.00, mostly 5.85@6.00; fancy, 5.25@5.50. Idahos: Russets, 5.50@5.60. Local stock, lug boxes, 1.75@1.80; local White Rose, mostly 5.75@6.00.

Sweet potatoes: Market strong. Lugs, 1.50@1.60; cwt. mostly 4.25@4.50; best, 5.00.

Carlots: Demand and movement slow, market firm, supplies limited. Straight cars, too few sales to quote, mixed cars, 4.50 per cwt.

Onions: Demand and movement slow, market weak. Homegrown and Stockton: White Globes, per cwt., mostly 6.50. Yellows and Browns, 5.00@5.50; lugs, 1.75; per lb., 6@7. Garlic, lb., 40@45.

VEGETABLES

These are the actual prices obtained February 24, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.65@1.75.

Beans, green, lb., best, 15@17; other 8@9.

Beets: Doz., 40@50; lb., 4@5; sk., 3.00@3.25.

Brussels Sprouts: Per lb., 10@13, poorer low as 7; best shipping stock, 15@17.

Cabbage: Market steady. Per lb., 3@3½; per cr., mostly 2.50@3.00; some best, 3.50; poorer, 1.75@2.00 crate; sacks, mostly 3.00@3.50. Red cabbage: 4@6 per lb., mostly 5.

Carlots: Demand good; supplies limited. Winningstadt, very scarce, straight cars, few sales, 35.00@40.00, mostly 37.50; mixed cars, 40.00@45.00.

Carrots: Doz., 30@45 lb., 1½@2; sk., best, 1.30@1.60; other, 1.00@1.25.

Cauliflower: Market stronger, supplies scarce. Local stock; per dozen, best 1.00@1.25; others 65@85; field crates, best 1.85@2.50, mostly 1.85@2.00.

Carlots: Demand good, movement limited, market strong, little change in prices, quality and condition variable. Half Early and Pearl, straight cars, too few sales to quote; mixed cars, 1.45@1.50.

Celery: Local and Northern: per dozen bunches, 1.40@1.65; poorer low as 60; crates, 6.00@8.00; fancy shipping stock, 8.00@8.50.

Carlots: Demand and movement slow, market weak; prices low, supplies limited. Per dozen, straight cars, few sales, No. 1's, 70@80; few 85; No. 2's 60@70; mixed cars, No. 1's 80@1.00, mostly 90@1.00; No. 2's, 90; No. 3's, 70@80.

Cucumbers: Hothouse, 1.00@3.00 bx.

Eggplant: Florida and hothouse, 25 per lb., local, scarce, 14@17.

Peas: Local, scarce, lb., best, 8@9; others, 5@6.

Lettuce: Local Stock: Market weak. Per dozen, 25@35; crates, wide range in quality and condition, 75@1.00; poorer, low as 25@50.

Carlots: Demand improving, movement moderate, market stronger, prices higher. Los Angeles District: California crates Iceberg, mixed cars, mostly, 1.25@1.45. Imperial Valley: Straight cars, 1.75@1.85. Bells, 30@40 per lb., Chilis, 30@45.

Peppers: Supplies very light. Local stock: Bells, mostly 18@20; poorer, 15@17. Chills, best, 18@20 per lb. Floridas: Bells, 25@35 per lb., Chilis, 35@40.

Parsnips: Lugs, 80@1.00; sacks, 3.00@3.75; per dozen, 40@50.

Parsley: Doz., 30@35.

Rhubarb: Local stock scarce, bx., 1.50@2.25.

Spinach: Doz., 20@35.

Squash: Hubbard, cwt., 4.50@5.00; lb., 1½@5½.

Tomatoes: Mexicans: crates, best, 2.00@2.25; lugs, repacked, 2.00@2.50; originals, 1.75@1.85; poorer, 1.00 and up; per lb., poor condition, 6@10; mostly 6@7.

Turnips: Per dozen, 40@60; per sack, 3.50@4.00.

FRUITS

These are the actual prices obtained February 24, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: 4-tier Bellefleurs, best 2.00@2.25; quality and condition ordinary 1.85@2.00; 3½@4½ tiers, 1.50@1.75; loose 3@5 lb. Yellow Newton Pippins, 4 tiers, 2.00@2.50; 3½ tier, 2.35@2.50; per lb., 4½@6; Winesaps, 3.00@4.00; loosc, 5@7 per lb.; Delicious, 2.50@3.50; fancy large sizes, 3.50@4.00; 5@7 per lb.; Wh. Pearmain, best, 2.50@2.75; other, 2.25@2.50; lb., 5@6.

Bananas, 8@8½; Red, 9.

Cranberries: Barrels, 18.00; best shipping, 18@20 per lb.

Pears: Winter Nelis 6½@7½ lb.; bx., 3.00@3.50.

Grapefruit: California and Arizona: per box, 3.00@4.00, mostly 3.25@3.50. Local, 2.00@3.00 per box.

Lemons: Market stronger. San Fernando Valley stock; fancy packed, 5.25@5.50; loose, 3.50@4.75; juice, 2.50. Local stock; packed, 2.50@3.00; loosc, 2.00@2.25 box; 2@3 per lb.

Oranges: Navels, 3.75@5.25 box. Local stock: packed, 3.50@4.25; large sizes low as 2.00@3.00. Tangerines, lb., 6@8.

HONEY

Demand and movement good, market steady. Carloads f. o. b., usual terms, per lb.; white orange blossom, mostly 19; white sage 19@20; extra light amber sage 18½; light amber sage, supplies cleaned up; light amber alfalfa, 16½. Beeswax, local lots, 40@43.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6: Limas, 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

HAY

Rains all over the South prevented a further rise but vastly heavier rains are needed to effect any decline.

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	25.00@28.00
Barley	25.00@29.00
Alfalfa	25.00@30.00
Barley Straw	10.00@13.00

GRAIN AND FEEDS

Price bid local grain exchange, February 10.

Oats, Cal. Feed, 3.20.
Barley, 3.32@3.42.
Corn, Yellow, 3.17½.
Eastern Kafir, 2.40.
Wheat, mixed feed, 4.75@4.95.
Milo, 2.91@2.97; Eastern, 2.40 @2.55.
Shorts, Kansas, 56.00.

San Francisco Markets

San Francisco, February 24, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	66
Prime Firsts	63

CHEESE

Dairy Exchange quotations:

Jack, full cream	27@28
Cal. Flats	20½@31
Cal. Y. A.	36½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	48½
Prime firsts	47
Extras, pullets	41
Undersized	39

POULTRY

Wholesale prices are:

Leghorn, 41@43; small, 41@43; large, 41@43; roosters, young, 43@45; old, 21@23; broilers, 45@50; fryers, 45@48; turkeys live, 42@43; dressed, 52@53.

Ducks, Indian Runner, 25@27; Pekin, 33@35; geese, 30@32; Squabs, 70@75.

Belgian hares, live, 20@23; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company are:

Cattle—Grass steers, No. 1, weighing 1000 to 1200 lbs., 12@12½; do 1200 to 1400 lbs., 11½@12; do, second quality, 9½@10½; thin, 8@9.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4½@5.

Calves—Light weight, 12½@13; medium, 11@11½; heavy, 9@9½.

Hogs—Weighing 100 to 150 lbs., 15; 150 to 225 lbs., 15½; 225 to 300 lbs., 15; 300 to 400 lbs., 14.

Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle—Good steers, 1000 to 1100 lbs., 12@12½; top steers, 1100 to 1200 lbs., 11½@12; good heifers, 1000 lbs and over, 9@9½; No. 2 cows, 1000 lbs. and over, 8@8½; canner cows, 5@6; good bulls, 6@7. 15¾; 225 to 300 lbs., 14½; over 300 lbs., Calves—Light, 13@14.

Hogs—Top packer, hard and well finished; 100 to 150 lbs. 14½; 150 to 225 lbs., 13½; under 100 lbs. 13½.

Sheep: Ewes, 9@9½. Wethers, 11@12. Yearlings, 13@13½. Milk Lambs, 14@15.

POTATOES

Wholesale selling price:

Per 100 lbs.: Rivers, fancy, 4.50@4.75; choice, 4.25@4.50; Idaho Gems, 4.50@5.00; Salinas, 5.25@5.50; sweet, 4½@5 per lb.

ONIONS

Wholesale selling price:

Onions, fancy brown, 4.75@5.00; choice, 4.50@4.75; yellow, 5.00@5.25; white, 5.50. Garlic, China, 14@15; other, 25@30 lb.

VEGETABLES

Wholesale selling price:

Artichokes, No. 1, 90@1.00; No. 2, 65@80; No. 3, 40@55.
Asparagus, lb., 40@50.
Beans: So., 13; Hothouse, 75 lb.
Carrots, per sack, 1.00@1.25.
Cauliflower, doz., 1.25@1.45.
Cabbage, doz., 40@50; lb., 2½@3.
Celery, doz. bunches, 45@50; cr., 5.00@7.00.
Eggplant, lb., 15@20.
Lettuce, cr., 1.50@2.00; Imp., 2.50@2.75.
Peppers, Bell, lb., 20@25; Fla., 25@30.
Peas, lb., 8@12½.
Radish, 7@9 doz. bunches.
Tomatoes: Southern, 2.75@3.00.
Spinach, lb., 2½@5.

DECIDUOUS FRUITS

Apples: Bellflowers, 1.25@1.50; Newtown Pippins, old stock, 1.25@1.50; California storage, 4-tier, 2.00@2.25; Oregon, 2.00@2.50; Spitzenberg, choice, 1.75@2.25; fancy, 2.50@3.00; Baldwins, 1.75@2.50; Winesaps, fancy, 3.75@4.00.
Bananas: lbs., 8@10.
Pears: bx., 1.50@3.50.
Pineapples: doz., 3.00@5.00.

CITRUS

Wholesale selling price:

Per box: Lemons, fancy, 5.00@5.50; choice, 4.00@4.25; standard, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00@2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; navel, 4.00@5.50; limes, 1.00@1.50 per crate; tangerines, 1.50@3.25 per crate.

BEANS

Jobbing price per cwt.: Small white, $6.50; large white, 6.00@6.50; cranberry, 7.00@7.25; red Mexican, 8.50; pink, 6.75@7.00; California Bayo, 9.25@9.75; blackeye, 7.00@7.50; red kidney, 12.00@13.00; lima, 13.25@13.50; Garvanza, 9.50@10.50; Kotenashis (in bond), 5.35.

Dried Peas—California, 5.25@5.40 per cental for green, recleaned.

DRIED FRUITS

Prunes:

Prune prices announcel by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.

For "practically peeled" add 1½c per pound (any grade).

Prices above are all bulk basis.

For packing in 50 pound or 25 kilo boxes add 1 cent per pound.

25 pound or 12½ kilo boxes, all 1¼c per pound.

10 pound boxes, add 2c per pound.

Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.

Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.

Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:

Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:

White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.35; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:

Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

Raisins:

California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅜; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12½; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾. Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown, flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown, tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, 2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 18.00.

GRAIN

Wheat: The prices are based upon federal grades and standards at the terminals in San Francisco Bay and Los Angeles, and are as follows, per bushel of 60 pounds:

Hard White—	Per Bushel	Per Cental
No. 1	$2.20	$3.66 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.09	3.48½

The above are minimum prices.

For sacked grain add 4½ cents per bushel of 60 pounds to above prices. Deductions of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.20@3.30; black, 3.00.

Corn: California yellow, 3.10@3.20 per cental; Egyptian white, 3.75@3.80; milo maize, 3.15@3.25.

Barley: Spot feed, per cental, 3.50@3.60; brewing, 3.65@3.75.

HAY

Under date of February 21, Scott-Magner & Miller says:

Receipts past week, 1,884 tons. The increase of shipments this week has been caused by quite a bit of hay coming in to be pressed for government account and a little demand in export shipping. Stock owners have gone to the various country storage centers and have been buying up to a price of $35 per ton in country warehouses for almost any grade of good feed hay. News of this trading has stiffened up the market in San Francisco and prices have advanced from $3 to $5 a ton on different grades of hay. The slight showers of the last two days have raised the hopes of many but have so far accomplished very little practical results to help the situation. The prospect is extremely dubious and gloomy from the standpoint of the consumer of forage of any description. Alfalfa has been in chief demand and large quantities have been shipped in during the week from Nevada. This has gone all over the state indiscriminately even as far as the extreme southern districts. It is a salvation to the feeders that we are able to draw on the Nevada market even at these extreme prices. Straw is unchanged with practically no demand.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses are to be added according to conditions:

Fancy Wheat Hay (light 5 wire bales)	33.00@36.00
No. 1 Wheat or Wheat and Oat Hay	30.00@33.00
No. 2 Wheat or Wheat and Oat Hay	28.00@30.00
Choice Tame Oat Hay	32.00@35.00
Other Tame Oat Hay	28.00@32.00
Wild Oat Hay	28.00@32.00
Barley Hay	28.00@32.00
Alfalfa Hay	30.00@35.00
Stock Hay	24.00@27.00
No. 1 Barley Straw	.50@ .80

Citrus Markets

Los Angeles, February 25, 1920.

Careful estimates indicate around 7,000 cars of navels yet to go. There are about 100 cars going forward daily. This is hardly sufficient for market needs and a stiffening of the market is noted. Some auction sales are running as high as $10.00. F. o. b. quotations when made are around $5.00 and $5.25. This for regular sizes and best brands.

The lemon market is still holding up and notwithstanding 60,000 boxes of foreigns are enroute Californias are being picked up as soon as offered. Prices in auctions are ranging all the way from $4.50 to $9.25.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 7,605 cars; lemons, 1,765; total, 9,370. To same date last season: Oranges, 7,096; lemons, 2,164; total, 9,260. From Central California this season: Oranges, 3,455; lemons, 226; total, 3,681. To same date last season: Oranges, 2,228; lemons, 233; total, 2,461. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

February 18

New York: 21 or., 5 lem. Nav. 4.15-7.50. lem. 5.35-6.10.
Boston: 3 cars lemons: 7.30-10.50.
Pittsburgh: 2 or., 1 lem. Nav. 4.30-5.75. lem. 5.15-6.25.
St. Louis: 4 or., 1 lem. Nav. 4.65-6.10. lem. 3.85.

February 19

New York: 11 or., 2 lem. Nav. 3.70-6.70. Bloods, halves 2.10-2.35, Mikes, halves 2.05-2.35, lem. 5.55-6.20.
Philadelphia: 2 cars lemons, 4.35-5.65.
Boston: No receipts California fruit today.

February 20

New York: 12 or., 8 lem. Nav. 4.25-7.10. lem. 5.10-6.10.
Boston: 2 Nav. 3.45-7.60.
Cleveland: 3 or., 1 lem. Nav. 3.60-6.65. lem. 4.95-7.05.
St. Louis: 4 or. Nav. 4.80-6.25.

February 24

New York: 18 or., 4 lem. Nav. 3.35-6.95. lem. 5.75-6.40.
Pittsburgh: 1 or., 1 lem. Nav. 5.00-6.05. lem, 4.95-5.60.
Boston: 5 or., 1 lem. Nav. 6.55-8.10. lem, 5.20-9.25.
Philadelphia: 1 or., 2 lem. Nav. 6.50-7.15. lem. 2.80-5.80.
Pittsburgh: 4 or., 3 lem. Nav. 4.15-6.40.

Alfalfa Is One of Imperial Valley's Great Crops

lem. 4.55-6.10.
St. Louis: 3 or., 1 lem. Nav. 6.00-6.80, lem. 5.00-5.50.
Philadelphia: 2 lem. 3.95-6.30.
Cleveland: 2 or., 1 lem. Nav. 4.95-7.00, lem. 4.25-6.60.

MARKET NOTES

Cabbage has reached its lowest ebb on the shipping market, selling down to $35 a ton in car lots and about $45 in mixed cars. It is doubtful if prices will go lower. Cauliflower is practically over, but a few cars remaining with prices firm at $1.35 to $1.50 a crate. More than 1,500 cars have been shipped from Southern California to date. Celery prices have dropped, selling at 85 cents in car lots up to $1 in mixed cars. Lettuce is picking up, running about $1.75 f. o. b. Imperial Valley points. Movement has been light during the early part of week on account of rain but is now turning toward normal. To date 1,100 cars have gone east, about two-thirds of present crop.

In the Los Angeles market there has been a heavy slump in Mexican tomatoes. Local wholesalers bought at $2.50 a crate and have sold at $1.75 to $2.25. Potatoes are back to early January prices of $5 to $6. Cabbage is down a dollar a crate from last week's prices. Peas are down to eight or nine cents, with heavy arrivals. Florida bell peppers are up to 35-40 cents a pound, an advance of five cents. First lot of asparagus is in and the first day was snapped up at 90 cents but is now down to 75 cents. A heavy lot of French endive is on the market, with a limited supply of mushrooms and strawberries but all three are taken by strictly hotel trade. Citrus fruits are in good demand with Navels up 25-50 cents a box, being quoted at $5.00-$5.25. Pomelos bring $4.00 for the best and lemons stand at $5.00-$5.50 for best San Fernandos, an advance 50 cents to $1 a box.

FIFTY THOUSAND FARMERS OWN TRUCKS

At least 50,000 farmers in the United States own motor trucks which they use on their farms. The figures were secured from approximately 35,000 selected crop reporters of the bureau of crop estimates, who were asked to report names and addresses of farmers they knew who own motor trucks for farm use. Pleasure cars and trailers for use with pleasure cars were excluded, and the reporters were asked not to take account of trucks which are used primarily for general custom hauling, or on regularly established routes. It is believed that in no state were less than 75 per cent of the trucks reported. If not complete in every respect the figures show the relative distribution very satisfactorily.

The exact number of motor trucks reported is 49,195, divided among the states as follows: Alabama, 847; Arizona, 95; Arkansas, 721; California, 1,019; Colorado, 804; Connecticut, 357; Delaware, 100; Florida, 380; Georgia, 1,808; Idaho, 329; Illinois, 2,261; Indiana, 1,548; Iowa, 2,773; Kansas, 1,732; Kentucky, 818; Louisiana, 310; Maine, 435; Maryland, 596; Massachusetts, 661; Michigan, 1,636; Minnesota, 1,255; Mississippi, 957; Missouri, 2,065; Montana, 359; Nebraska, 2,739; Nevada, 41; New Hampshire, 283; New Jersey, 862; New Mexico, 104; New York, 3,171; North Carolina, 1,450; North Dakota, 501; Ohio, 2,261; Oklahoma, 723; Oregon, 369; Pennsylvania, 2,760; Rhode Island, 152; South Carolina, 1,190; South Dakota, 1,708; Tennessee, 978; Texas, 1,668; Utah, 173; Vermont, 282; Virginia, 1,128; Washington, 682; West Virginia, 465; Wisconsin, 1,465; Wyoming, 174.

BEET SEED

The beet seed question promises to be a most interesting one for the coming two years. Strange reports have come from Europe about "big supplies" of seed, alleged to be on hand here and there and everywhere, but when representativs of seed importing houses in New York traveled across the Atlantic to hunt up these elusive seed supplies, they were found to exist solely in the imagination of would-be dealers in seed. Our Berlin letter gives some prices for beet seed that make strange reading. A pound of the best seed for use in Germany, purchased at retail from a dealer, cost 2.30 Mk. a pound—and as the mark is valued at a little over one cent today, the pound of beet seed might be bought by speculators in Germany for about three cents a pound—and might then be smuggled out of the country.

The small amounts which could be obtained in this manner constitute the sole amount of seed available in Germany. Seed from Czechoslovakia unfortunately has not a high repute at this time, several reputable dealers in New York declining to import it. Russian seed has been shipped in large quantities to Vladivostock — first for shipment to the United States — but the Japanese discovered the valuable seed and promptly purchased every pound of it—at the high rate of one yen a pound (50 cents). In the meantime, American beet sugar companies are straining every nerve to produce their own seed for 1921 seeding, as the spring of next year will be the critical period in this business.

Dutch and Danish seed is appearing on the market again in small quantities, but the demand for good seed is far greater at this time than the visible supply.—Sugar.

THE OUNCE OF PREVENTION APPLIED

Cotton planters, already fighting the boll weevil all the way from New Mexico to the Atlantic Ocean and threatened by the pink bollworm which occasionally gets across the Rio Grande, are not to have any more alien enemies on their hands if the United States department of agriculture can prevent it. Importers recently have insisted upon bringing in a considerable quantity of cotton seed from Porto Rico. The seed may be free from disease, or it may not be. Nobody has very accurate or thorough knowledge of infesting insects and pests of cotton in Porto Rico. So, before admitting the Porto Rican cotton seed, the department of agriculture is going to make a thorough investigation of the subject. A specialist has been commissioned to go to Porto Rico and make a study of cotton insects on the island. His report will enable the department to be certain whether or not cotton seed from Porto Rico is in any way a menace to the cotton interests of the United States.

PREPARE NOW FOR ARBOR DAY

Plant a tree. Begin now to line county highways and city streets with appropriate trees that can be unveiled and dedicated with ceremonies on Arbor Day, March 7.

This is the advice of State Forester G. M. Homans who is cooperating with civic improvement clubs and other organizations seeking to secure the planting of the greatest number of trees this year.

What better memorial to our dead heroes than a flourishing tree? Then too, there is the agitation throughout the nation for tree lined highways. California is noted for its good roads and should be foremost in lining its roads with snade trees.

Arbor Day should also emphasize the relationship of forested areas to the general prosperity. Arbor Day ceremonies should embody the words of the great American, Roosevelt, who said:

"A people without children would face a hopeless future; a country without trees is almost as helpless; forests which are so used that they cannot renew themselves will soon vanish, and with them all their benefits. A true forest is not only a storehouse full of wood, but, as it were, a factory of wood, and at the same time a reservoir of water. When you help to preserve our forests or plant new ones you are acting the part of good citizenship."

BRAN MUFFINS

Roger W. Babson of the department of labor said at a dinner in Washington:

"Speaking of labor, it has been a tough job to eat some of the health foods that were turned out during the war.

"A young lady said to a young man at a Washington dance:

"'Are you the same young man who ate so many of my bran muffins at the Red Cross last fall?'

"'No,' he answered, 'and, what's more, the doctor says I never will be.'"

HAND STIRRUPS

"See any fancy ridin' while you was east?" asked Three-Finger Sam.

"I sure did," answered Cactus Joe. "But everything's topsyturvy. People in the cars have to hang on with their wrists in straps."

"Jes' think of that. Usin' the stirrups for their hands instead of their feet!"—Washington Star.

SHE WAS CAREFUL

Miss Emily looked into a room in the settlement house, where a small girl was pounding the piano to her heart's content. "You may play on, Mary, if you are sure that your hands are clean."

"Oh, I'm bein' careful, Miss Emily," was the quick response; "I'm only usin' the black keys."

JUST IN TIME

"Ye-es," hesitated the bridegroom, "these cakes are pretty good, but don't you think there ought to be just a little more——"

"Your mother made them," interrupted the bride quickly.

"——of them?" ended he.

EVER MEET HER?

Dinks — Is Miss Gabbs a rapid talker?

Winks—Well, she fills in the time pretty well. The other day I rode with her for five blocks on a trolley car and she gave me the unabridged family history of seven of her neighbors.

THE MODERN RUBE

"Say, Cy, I jest found out what a rube is."

"Thet so, Hiram? What is it?"

"Why, it's one o' them 41 hour, $95 a w ek labor guys that thinks a farmer is goin' to sell him food cheap."—New York World.

SHE NEEDED HELP

Elizabeth was going to bed and when she had carefully and devoutly said her prayers, her mother heard her add, with considerable feeling:

"And, Oh! PLEASE Lord, make Newark the capital of New Jersey."

"Why, Elizabeth?" exclaimed her mother, "what made you say that, dear?"

"'Cause I wrote it that way in the examination today," earnestly replied Elizabeth.

WEATHER REPORT

San Francisco, Cal., February 21, 1920.

Stations	Rainfall Wk.	Rainfall Season.	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	1.44	12.41	29.82	54	38
Red Bluff	.38	5.04	16.71	76	38
Sacramento	.04	3.51	13.31	70	40
San Francisco	.02	5.01	15.57	64	42
San Jose	.12	3.54	11.16	68	32
Fresno	.74	3.18	6.17	70	40
San Luis Obispo	.22	7.16	13.10	66	38
Los Angeles	1.04	6.72	10.41	66	44
San Diego	1.18	4.93	6.73	64	46

WEATHER REPORT

San Francisco, California, February 14, 1920

Stations.	Rainfall Wk.	Rainfall Season.	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.00	10.97	28.08	60	36
Red Bluff	.00	4.66	15.71	74	36
Sacramento	.00	3.47	12.37	66	38
San Francisco	.00	4.99	14.55	62	46
San Jose	.00	3.42	10.42	62	32
Fresno	.22	2.44	5.89	68	36
San Luis Obispo	.00	6.92	12.30	68	34
Los Angeles	.86	5.66	9.66	72	40
San Diego	1.04	3.74	6.27	64	44

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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Udder Trouble

I have a cow that has had trouble with her two front teats. Some weeks before time for calving the two front teats filled up with milk. Believing it was too soon as the other part of the udder did not fill I milked them out and now they have about dried up and give scarcely any milk. She has had two calves. What caused those two teats to fill before the others and do you think she will ever give milk again as she should?—Subscriber, Berendo.

Your question is not very clear. You did not state whether she had come fresh yet or not. If she is not fresh yet she may give her regular amount of milk when she is fresh. Why the two teats filled up can not be told. You may find the reason when she comes fresh.

Cows Not Breeding

I have three heifers 22 months old and two cows each four years old that fail to get with calf. The cows have each had two calves. I have had all of them to the bull six times and in the meantime have skipped some periods and changed bulls but still they fail to get with calf. They are fed alfalfa hay and oat hay all they can eat and they are in good condition. Please advise me what to do.—Subscriber, Merced.

It is a little strange that all fail. The best advice we can give is to get a young bull and let him run with the herd. About once a week take the herd out and drive them five or six miles and back. This will warm up the blood and they will come in heat right. Also reduce the feed and give plenty of salt.

CROP ROTATION FOR BEET GROWERS

Some beet growers have robbed the soil for long years, having good financial returns, putting back not a cent in fertilizing values, and then raise the cry that beets are no longer profitable. Occasionally, on the best of beet soil, this depletion has gone on for 20 years, without a change of crops or a rest of the soil. A few miles below Compton, Los Angeles County, the writer found several ranchers who have cropped continuously with beets for 16 years and have had no failures. One stated his returns had been good for that number of years and then the wire worms took his crop.

So that winter he grew a crop of cauliflower, following this in the spring with beans. The next year beets were again planted and the yield was 26 tons to the acre, enough to cheer the heart of the most pessimistic. This land, however, is of the best. But these operations plainly show what is necessary—rotation of crops. On the ranch adjoining the one just mentioned alfalfa planted in November produced five cuttings the first year, seven cuttings, running ten tons per acre for the season of the second year and was then turned under and planted to beets. The crop was enormous and of high sugar content. At the present high price of hay one may rotate barley in the scheme and get better financial returns for one or two seasons than beets would bring. But alfalfa is the crop needed for restoration of fertility for the beet crop. Of the several growers interviewed nearly all favored but a two year run of alfalfa, the minority advocating three years. All were optimistic regarding the future of the industry. Those men of longest experience in the Compton field, when asked if they expected to continue growing beets, answered decidedly in the affirmative, stating that instead of draining the land continuously with sugar beets, as in the past they would in the future run in an occasional two year change to alfalfa, or as often as shall be proven to bring best results. The past season, being very dry, all have irrigated their land by flood checks and are now ready for planting. Beet acreage in that section will not decrease except as interfered with by the necessary rotation with alfalfa. —E. B.

DOCTOR WOODPECKER

Just as plagues and epidemics wiped out whole villages of people in the Middle Ages, so if left to their enemies it would be only a few decades before all forests would be murdered—nothing but dead, grub bored stubs and fallen trunks left. To prevent this terrible condition nature sends a physician regularly to each patient. Sometimes Doctor Woodpecker has been known to spend as many as three days operating on one very bad case, constantly using to advantage his tree surgery tools. Generally his incision is only as deep as the thickness of the bark. Often he slides his spearbill between seams or crevices and draws out the worm, leaving no mark or scar on the bark to show where he did it. At other times his cuttings may be deep galleries, tunnels, or caverns.

A great deal of the drumming that we hear is only for sounding purposes—much like a man taps the wall with a hammer to find a studding. When Doctor Woodpecker has discovered a diseased part he directs a rapid fire of rattling beats upon the spot with his pickax bill, raining his hammerlike blows with automatic and astonishing precision, until his prey is brought to light. Then he thrusts in his barbed bill and, with a sudden backward jerk, brings forth the deadly grub.—Kansas Industrialist.

ARTIFICIAL LIGHTING FOR EGG PRODUCTION

The practice of lighting the hen house by artificial lights is something that is no longer a novelty. Many farmers are using lights. Commercial poultrymen have realized their value and have installed them. It is an established fact that electric lights have a definite influence on the normal production of the laying stock, says G. W. Hervey of the University of Missouri college of agriculture. This effect on egg production does not necessarily mean an increased egg yield for the year but it does mean an increased number of eggs during the winter season when the supply is low and prices are high. In Missouri, yearling hens yield about 15 per cent production from November 1 to January 20 under the right kind of management. Then the production suddenly jumps and continues to rise until the middle of April and remains at a maximum level of between 50 and 60 per cent until the second week in May when it begins gradually to decline. The problem, then, is to get the hens to shell out eggs during November, December and early January. It is simply advancing normal production two months and a half.

Many different systems of using the lights are being used. Some poultrymen turn on the lights at sundown and shut them off again at nine o'clock. Others use the light from three or four o'clock in the morning until dawn. Sometimes this artificial illumination is given both morning and night. The birds on the poultry farm of the University of Missouri are given artificial light two and one-half hours before dawn each day. Just as soon as the lights are turned on the attendant goes through the pens and fills the water pails. It has been found that the hens as soon as they jump from the perches invariably go to the drinking pails for water and if it is not then supplied they are not active. It is a good plan to throw a few handfuls of scratch feed into the litter when the pails are filled to get the birds to scratching. Artificial lighting is of no value unless the birds are made to exercise during the increased light period. Attempts to increase the working day by turning on the lights at night have not as yet met with any measure of success at the University of Missouri. It is found that after the hens are given the regular afternoon scratch ration they go on the perches whether the lights are turned on or not. At present night lighting is not recommended.

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CONCERNING THE LOQUAT

(Continued from Page 327.)

and the quince, the former being by far the most generally used in this state. Either budding or grafting may be resorted to, preference being given to the former method of propagation which is the easier of the two and the most generally satisfactory. Trees budded on loquat stock are frequently very precocious and should not be allowed to carry fruit for the first two or three years, which should be devoted to the formation of a strong framework upon which future crops are to be produced. The ordinary shield bud such as is used in citrus is quite satisfactory, the custom being to insert the buds in year old seedlings in the fall, the bud being forced out by cutting back in early spring. Trees are usually balled for setting out, which generally gives more satisfactory results than setting out with bare roots.

Orchard Management

The care of a loquat orchard or grove differs little from that given to citrus trees or other orchard fruits. Customary distances for planting are about 20 feet on the square system, although, as mentioned previously, it is a custom in certain sections to plant the trees in solid rows about 20 feet apart, the trees from ten to 12 feet apart in the row. Interplanting loquats with other fruit trees is fairly common, the loquat coming into bearing early and serving as a profitable interset before the permanent trees reach full bearing.

Since the harvesting season is the opposite of that of many of our fruits, either clean cultivation during the winter and spring or sod culture is preferable to growing a winter cover crop. Summer cover crops should thus obviously prove better for soil building on account of the necessity of allowing the winter cover crop to mature during the harvesting season.

Fertilization has been practiced but little as yet, but undoubtedly will prove profitable. Irrigation should be given in approximately equal amounts as with citrus in order to insure sizable fruits of good quality. Pruning is practiced but little, the tendency being to keep the tree close to the ground and reasonably open and free from dead wood.

Thinning out of the clusters is a practice which should be used more generally on account of the tendency to heavy bearing. This is usually accomplished by merely clipping out the ends of the bunches of clusters with a pair of shears, it being obviously impossible to thin the fruits in an individual cluster.

Bagging both to protect the fruits from bird pecking and to improve the quality is not used to any considerable extent but will undoubtedly pay, especially with the earlier and more choice varieties for fancy trade.

Harvesting

Fruits should be left on the tree until fully matured when the entire cluster should be cut with a sharp pair of clippers. The fruit is then graded into two grades usually, fancy and seconds. No standard package is used for shipping as yet, although good returns are being obtained with special baskets and cartons.

Varieties

The number of good varieties as yet is comparatively small, Amongst the best are Advance, Champagne, Early Red and Premier. Other desirable varieties to be found include the Thales which many believe to be identical with the Tanaka, a variety introduced from Japan by the department of agriculture in 1902, and some hybrids of Algerian origin introduced by the department some years later.

Of these varieties, the Early Red is undoubtedly the earliest, frequently ripening in February. For later varieties the Champagne, Advance, Premier and Thales are apparently the best, preference being given by some growers to the Champagne, and by others to the Thales.

Uses

The fruit is largely eaten fresh out of hand, but makes most excellent jellies, jams, preserves, pies and it also cans well.

Pests

The tree is remarkably free from diseases and pests. The most serious of the former are pear blight, which sometimes attacks the tree rather severely, and scab, which spots the fruit and leaves.

Birds are probably the worst pest, although where grown in large quantities injury from this source is relatively unimportant.

GO FOR THE GOPHER

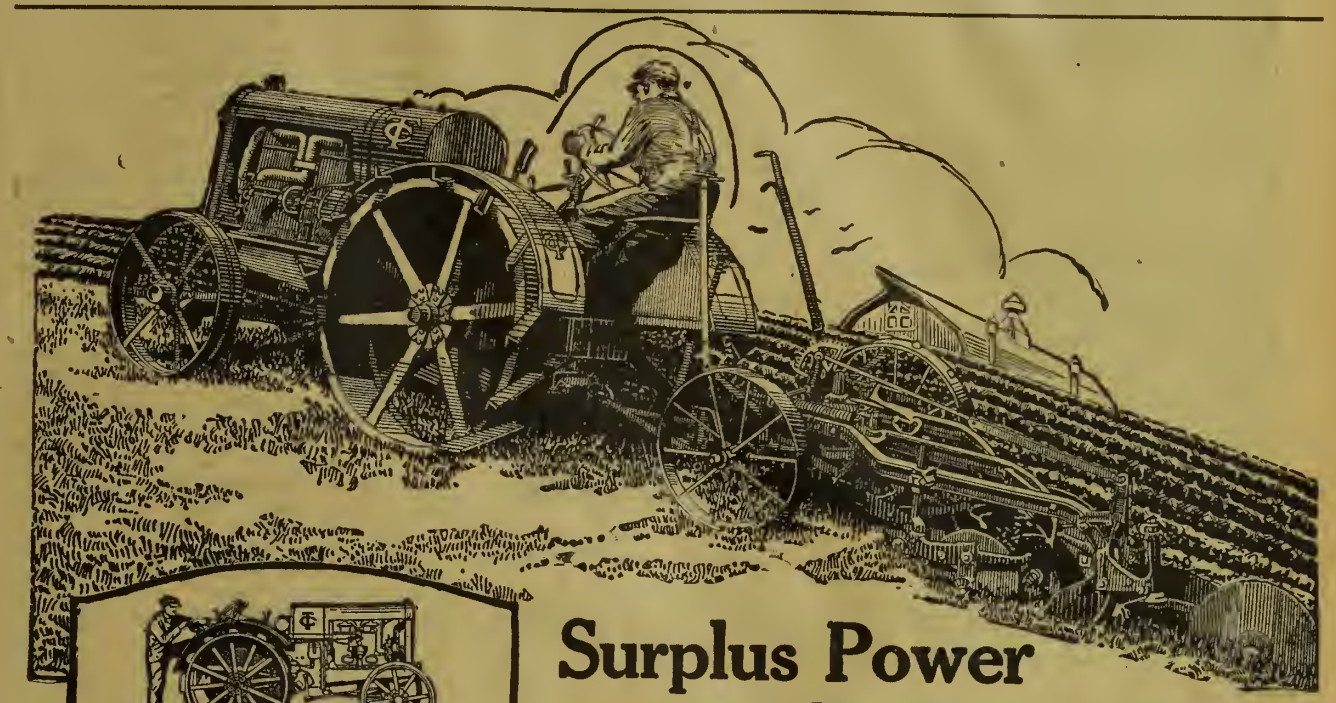
(Continued from Page 327.)

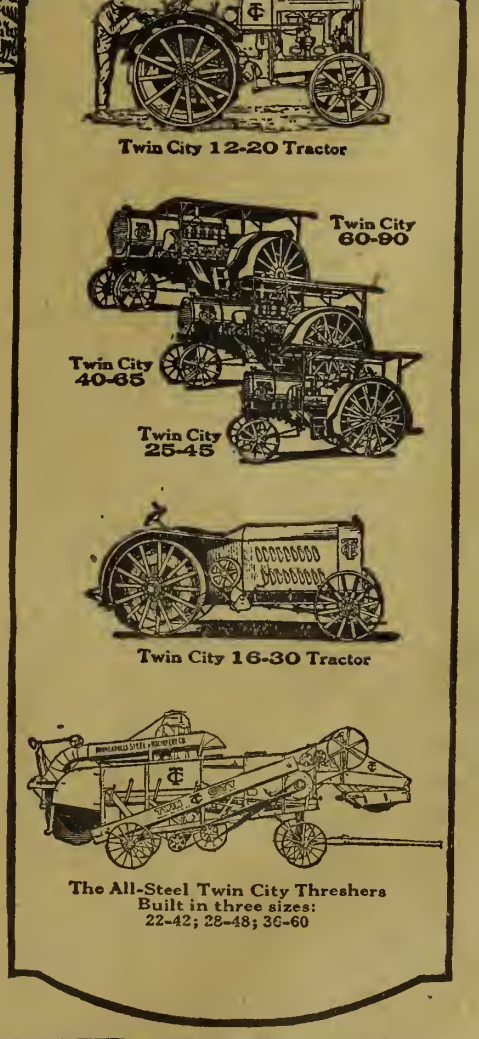
otes, skunks and weasels are all natural enemies, some of which we should at present protect. Rattlesnakes are very effective exterminators yet they in turn must be exterminated.

"If traps are set in laterals, open out and put trap in full length. Close opening with bunch of grass so a little light will enter. The gopher leaves much of his system open, some he closes. If he comes along tunnel and sees a faint light he knows he did not leave it so and goes to investigate and so runs into the trap. If you leave hole open or closed he may take it for granted all is normal and pass on. If it is fully open and he wishes to close it, he pushes a lot of soil ahead of him for the purpose and so pushes the trap out of the ground or plugs it with soil. In trapping disturb his work as little as possible.

Involuntary Suicide

"The poisoning of gophers, like trapping, is attended with some cost, but is usually more economical than trapping. Vegetables and fruits are used for bait, of which sweet potatoes, carrots and parsnips are best, though white potatoes, apples, oats, barley and even raisins are used. Of all named sweet potatoes keep the longest in edible condition beneath the soil, for we find the pieces good in ten days. We find an advantage in large pieces over small pieces or grains, for if small enough to put in his pouches he may carry and store, but if too large he eats part or all at once. So cut your bait in pieces about a half inch square and an inch long. Put it in a colander or other vessel merely to dampen it so poison will stick. Then with a common pepper or spice box shake over bait a small quantity of a poison made with one-eighth ounce of strychnine and one-thirty-second of an ounce of saccharine. This quantity is enough for four quarts of bait. Your county horticultural commission will sell you a little square pepper can, containing enough poison for four quarts of bait, for 30 cents, which is cost. The gopher likes a variety of food so if he is working in a potato field use carrots or parsnips and "switch" the kind of food occasionally. To find the runs we use a prod made from pipe with solid points welded in. Use the small end to find the run, which is easily told when you strike it, and then the larger end to make the opening large enough to admit a piece of bait. Treat each system of runs in about three places. Don't drop soil on top of bait; partially close hole with a lump of soil or bunch of leaves or grass. This prod has a total length of four and a half feet. The arm is for the hand or foot in forcing prod into hard soil."





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A POMONA ORCHARD POULTRY FARM

(Continued from Page 329.)

to prevent dust dropping through the crack upon the eggs. "Get rid of the crack," was the obvious prescription for this trouble, and so the cover is set back a little from the edge of the nest. Now when it is lifted the dust falls on the board beneath and not on the eggs.

Instead of the tightly closed eaves behind the droppings board, which were characteristic of the original Weeks house, and the expensive wooden lining behind and over the droppings board which is used in the university farm houses, Mr. Ross uses a piece of plaster board perhaps three feet square, which covers the opening and at the same time permits the air to enter. With the circulation of air thus produced he finds the window under the droppings board, usually considered necessary, is not required but is rather a nuisance than otherwise. His houses have therefore no such windows, and he has never lost a hen in our hottest spell in any of these houses.

The fact that the nest boxes are movable has led to another successful scheme for breaking up "clucks." When the hens begin to go broody in the spring they are taken from the nests immediately and put into one of the pens by themselves. The nest boxes are turned so that no hen can enter them. They find feed and all their environment exactly as usual, but no nests, and so go to eating and forget their desire to incubate. Mr. Ross believes that hens treated in this way return to laying considerably sooner than hens confined in slatted coops.

Raising the Chicks

No males are kept on the Ross ranch and no hatching is done. It is a commercial egg ranch exclusively. Day old chicks are bought from a breeder who makes a specialty of trapnested stock and come to the ranch in two lots of 1,300 chicks each, ten days apart. This year they arrived February 18 and 28. The raising of these chicks is Mrs. Ross' job, and she has worked out a system which brings nearly every one to broiler size. The chicks are kept quiet in their wire pen around the big brooder stove for from one to two days after they arrive. Buttermilk is before them in fountains, and grit, no water. They have been out of the shell from 50 to 60 hours before they receive their first meal, which consists of scratch grain only. For five days they get nothing but this chick scratch, which consists of 35 per cent cracked wheat, 25 per cent cracked corn, 30 per cent cracked milo and 10 per cent whole oat groats.

After five days the following mash is set before them: 35 per cent wheat bran, 10 per cent low grade flour, 22½ per cent corn meal, 10 per cent ground oat groats or rolled breakfast oats, 10 per cent ground milo, 7½ per cent Croley's high protein meat, 5 per cent fine bone. To 100 pounds of this mash is added 2½ pounds charcoal and ½ pound salt.

After 30 days on the chick mash, the chicks are given the growing mash, which contains 50 per cent wheat bran, 10 per cent low grade flour, 15 per cent corn meal, 10 per cent ground milo, 5 per cent oat groats (ground) or oat flakes, 5 per cent Croley's meat, 5 per cent ground bone, and the same amount of charcoal and salt as before. As soon as the chicks will eat whole grain the wheat, corn and milo which make up their scratch feed are given without cracking. As a little whole grain is mixed in almost from the first it is not long till the chicks are off the chick scratch and on the regular scratch of whole grain.

A Novel Weaning Coop

To save unnecessary labor and expense is the rule of the ranch, and the simple way in which chicks are weaned from the brooder and accustomed to the laying house is but one illustration. When the chicks are three weeks old 100 of the strongest are picked out and taken to one of the sections of the laying house. Here they are put to bed on the droppings board under a canvas hover 3 feet by 8 by 1 foot. A runway is built from the droppings board to the floor, and there you have an improvised cold brooder where the chicks soon get used to the cooler air and which they do not leave till they are ready for the laying house. To teach them to go up the runway to bed Mrs. Ross uses two toy brooms, and they quickly learn that the appearance of the brooms means bedtime.

Mr. Ross believes that most of the chicks which fail to grow to maturity are injured by either overheating, overfeeding or overcrowding. The first few days in the brooder house they need to be kept very warm; 95 degrees is none too high a temperature for the first day, but as they grow they should be accustomed to cooler air, and after three weeks the heat of their own bodies is sufficient. Pullets brooded in this way last year laid their first egg before they were five months old.

Conditioning Pullets

Instead of putting pullets on a maintenance mash to postpone laying and prevent the fall molt, Mr. Ross plans this year to put them on a ration containing less meat but more carbohydrates for from four to six weeks before the pre-maturity molt, then switch onto the full laying mash. His theory, which follows the conclusions of Professor Rice and other experts, is that a hen in order to be a prolific layer must have some surplus fat on her bones. A Leghorn that has once commenced to lay never puts on surplus fat and is very easily thrown into a molt by change of feed or unusual weather conditions. If she is to be kept from molting it will be only by full feeding. To quote the words of a thoughtful poultryman: "The feather lives in the skin. If there is no fat, the feathers die and fall out."

The laying mash, which is given as soon as the pullets begin to drop their feathers in the pre-maturity molt, consists of 35 per cent wheat bran, 15 per cent low grade flour, 20 per cent corn meal, 20 per cent ground milo, 2½ per cent coco or soy bean meal, 2½ per cent Croley's meat, 5 per cent bone; salt and charcoal.

Mr. Ross is first vice president of the Poultry Producers of Southern California and a leading member of the Pomona Valley Association, and much of his time is given to disinterested work for the betterment of the poultry industry. Not a few young men who are making a start with poultry and women who have turned to this work for a living for their families in time of need owe their success in large part to his kindly interest and advice. A day with him is equal to a week's lectures on poultry husbandry.

Poultry Queries

Conducted by J. A. Koethen

Floor Space Per Hen

How much room should be allowed 50 hens when kept penned all the time?—Subscriber, Hemet.

From three to four square feet of floor space per hen is allowed by most poultrymen, and four is better than three. A house 14 feet square is good size for 50 hens, or if you prefer a long house, make it ten by 20.

Scratch Grain

Is it necessary to feed grain twice a day? The hens have Surelay before them all the time, with either wheat, barley or milo fed at nights.—Subscriber, Hemet.

The scratch grain is usually fed at night only, but enough is fed so that a little is left over in the litter for morning.

Literature on Pheasants

Where can I secure literature on care of pheasants and game in general?—Inquirer, La Grande.

Farmers' Bulletin No. 390 of the United States department of agriculture on "Pheasant Raising in the United States" may be had from Government Printing Office, Washington, D. C., for five cents. There is also a very comprehensive volume on "American Pheasant Breeding and Shooting" by E. A. Quarles of the American Game Protective Association, published by the Hercules Powder Company, Wilmington, Delaware. I do not know its price, but it goes very fully into

all details of hatching, feeding, treatment of disease, etc., and would seem to be exactly what is desired.

Chicks With Rheumatism

I brooded 1,500 chickens, receiving them on November 29. All seemed to go well with them for about three weeks, when they developed what appeared to be rheumatism. Whatever it is, 500 completely lost the use of their legs. They appeared to be healthy and strong otherwise and apparently died because of being trampled on by the others, being helpless to get out of the way and care for themselves. No remedy tried helped them. Can you give any information on this matter? — Subscriber, Petaluma.

When brooder chicks die or develop any disease we ask first of all what the symptoms were and, second, what conditions in the environment might possibly have been wrong. These chicks may have had rheumatism. In that case there should have been apparent some stiffness or the twisting of the toes. If no such symptoms were noticed I should sooner think the chicks' legs were weak from lack of exercise. A chick doubles its weight the first three weeks. If it is in a crowded brooder with no chance to use its legs save in a limited area, and is heavily fed, the result is very likely to be over development of the body and under development of the legs. The remedy, of course, is prevention. Give your next lot of chicks more room to run and encourage them to exercise when they are confined in the brooder by throwing in something for them to play with. A few nice juicy earthworms thrown in the brooder every day after the chicks are a week old will give them a lot of exercise. If the trouble was rheumatism, it was caused without question by dampness, and here again the only remedy is prevention. After chicks are ten days old it will not hurt them to run on damp ground if they have a dry, warm place to go when they feel chilly, but the ground must always we well drained and their brooder perfectly dry. Chicks under three weeks of age must be carefully watched to make sure that they know where to go when they are cold. Sometimes they are very stupid about learning.

FINE PROGRAM FOR POMONA

The Pomona Valley Poultry Breeders Association has prepared a very attractive program for its year's work. Meetings are held the first Wednesday evening of each month.

On January 7 was held election of officers and there was discussion on moulting of early hatched pullets. On February 4 report was made on results of demonstration farm investigations in 1919 by University of California, and the brooding of baby chicks was considered. The following is the program for coming meetings:

March 3: Brooding and care of growing stock. Growing rations. Culling and grading. Weaning methods. Teaching to perch. Parasites and diseases.

April 7: Subject to be announced later.

May 5: Feeding for high egg production. Balanced ration explained. Variety, palatability, availability. How you feed as important as what you feed. Dry vs. wet mash. Litter and trough feeding of scratch. Feeding for molt.

June 7: Annual picnic. Demonstration.

July 7: Outdoor meeting. Culling demonstration.

August 4: Poultry housing. Size of units. Yards vs. no yards. Common types of houses. Economy, convenience, drainage, ventilation and sunlight.

September 1: Making a success of poultry keeping. Starting correctly. Pure breds vs. mongrels. Ways of securing stock. Size of plant necessary to secure satisfactory income.

October 6: Breeding for higher egg production. Trapnests and their use. Selection of breeders without trapnests. Line breeding. Grading up.

November 3: Timely topice. Electric lights. Cooperative buying and selling. Systems of records and accounts. Books, periodicals, state and federal literature.

December 1: Appurtenances of the poultry ranch. Convenience, simplicity, labor saving.—J. A. K.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

Santa Cruz report for week ending February 14:

Pens to date having laid over 50 per cent: Walls, 540 eggs; Neef, 476; Rose, 471; Enterprize Poultry Ranch, 456.

Individuals averaging 70 per cent and over to date: Walls, 80; Walls, 68; Hollis Peck, 68; Barker, 68; Gibson, 65; Bellow Bros., 64; Webb, 64; Hale, 64; Neef, 64.

High pens for week, 60 per cent and over: Rose, 50; Bellow Bros., 50; Enterprize Poultry Ranch, 49; Amsbaugh, 49; Hollis Peck, 46; Walls, 46; Wilson, 43; Neef, 42; Lehman, 42; Wood, 42.

AMERICAN EGG LAYING CONTEST

Leavenworth, Kansas, report for January, 1920: While no startling records were made in January, the pullets made a good average for the month and no pens made an extremely low record. A S. C. Red pullet from New York led the month's individual records with 30 eggs to her credit. The ten highest pens for January were: White Wyandottes, Pennsylvania, 113 eggs; S. C. Reds, Nebraska, 112; White Leghorns, Washington, 112; S. C. Reds, New York, 109; White Leghorns, Pennsylvania, 106; White Orpingtons, Ohio, 105; White Orpingtons, Wisconsin, 104; White Orpingtons, Ohio, 103; R. I. Whites, Kentucky, 100; Barred Plymouth Rocks, Kansas, 99.

Three pens have made a record of over 100 eggs per month which is over 20 eggs per pullet for the three winter months.

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500 to 1500 Capacity
Brooder Stoves

Are guaranteed to Burn COAL OIL; GET A KRESKY and be safe, COAL OIL will always be on the market.

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every Saturday and Sunday from our pure bred and bred to lay B. P. Rocks, R. I. Reds, Mottled Anconas and S. C. White Leghorns. We have our own stock and you know what that means. Write for free catalogue and care on baby chicks.
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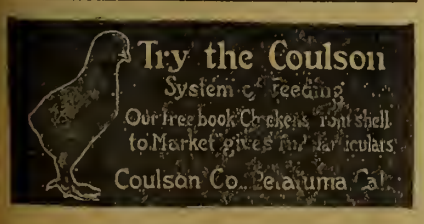
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Feeding Milkoline will make you more money —reduce mortality of your flock— keep flock healthy and less liable to disease.

Increase Poultry Profits Any poultry raiser can easily double his profits by doubling his egg production. Feeding Milkoline with other feed greatly assists assimilation, keeps digestive organs vigorous and is a wonderful appetizer, tonic and bowel regulator. Milkoline contains nutritive elements vital to egg production and not found in grain rations.

13,000 More Eggs
Jas. E. Keyes, Petaluma, Calif., says: "After feeding Milkoline for eighteen months to 2,500 hens, I find that worms cannot exist in poultry where Milkoline is used. I reduced mortality with laying hens 10 per cent. I increased the egg production of my flock thirteen thousand eggs in one year. Feeding Milkoline to laying hens keeps them in splendid health thereby preventing disease and derangements of all kinds."

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Many feeders say Milkoline lowers feeding cost one-third, because their hens assimilate all feed they eat. Our liberal Guaranteed 30 Day Trial Offer enables you to try Milkoline at our risk—to prove that it will make you mighty good money.

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For feeding mix one part of Milkoline to 50 parts of water (small feeding 6 tablespoons to gallon of water). Feed either with water or mash feed. Milkoline keeps their appetite keen and its action is highly essential to normal egg production. When fed as directed Milkoline costs only 2c a gallon or less. Trauhaft & Newman, Lankershim, Calif., say: "We would not go back feeding straight buttermilk at any price."

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we will ship you 1 Gallon for $2.25, express prepaid. Take 30 days—feed half to your poultry. If entirely satisfied simply return unused portion and we will refund every cent you paid us. Milkoline has been producing so many amazing results and we are so certain of what it will do for you that if not for portion you have used. Milkoline is legally guaranteed to be satisfactory. You are always be judge. We suggest ordering larger quantity—you get the benefit of lower price—you risk nothing—you must be satisfied or we refund every cent you paid us. Make this test now. The sooner you begin using Milkoline the quicker you will be making money.

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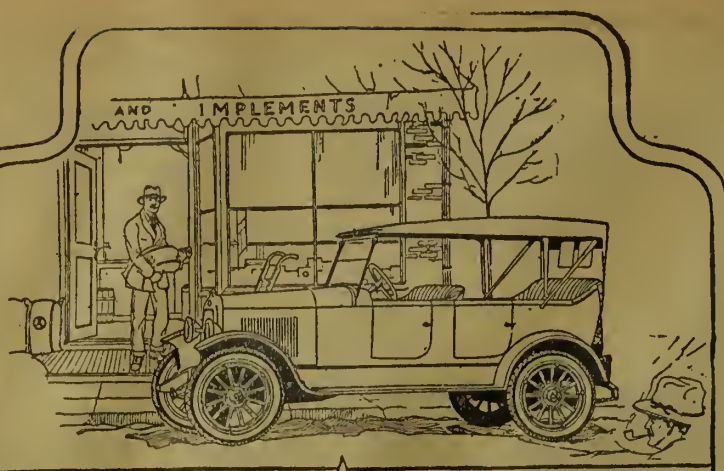

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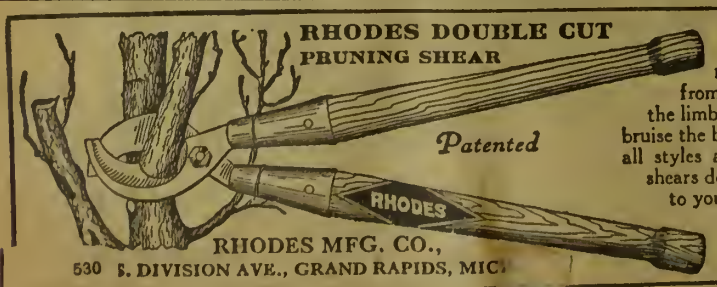

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Commercial Value of Beauty

By Ernest Braunton

REAL estate sales where the value of the improvements is acknowledged to be equal to or greater than the land value are not now uncommon and every year appreciation of landscape beauty is more manifest. A case is called to mind where a buyer paid $5,000 more for his home because of the presence of two large Canary Island palms in the front lawn. The writer recently stood in front of a little bungalow under such a palm and heard an elderly well to do eastern business man exclaim: "If I come to California to live I would pay $500 or $1000 more for a place if it had a palm like that."

The courts also have recognized such values, for in case of destruction of trees the owners have been awarded in various states, running from a few dollars up to $2,000 dollars for a single tree in the state of Massachusetts. If not all who read these lines know of land transfers where trees and shrubs were recognized in the valuation, everyone can call to mind places he or she has seen that would have a heavy added value because of the presence of these, so we will assume all are willing to admit that landscape beauty is a valuable asset and lack of it a liability, so far as home making is concerned.

And the beauty of it! Through 30 years of professional handling and observation of plant life the writer has noted the luxuriant growth and beautiful color of the country trees when compared with those of the city. A short time ago we saw some giant cedars of such a clean grayish blue-green, so unusual, that they instantly suggested such color must be the one borne by the forests of these trees in the distant Himalayas. No such color or vigor or thickness of foliage is known in any city, for soot and dust and other influences of the cities bring all such vegetation to one level in color, a monotonous, smutty, partially obscured green.

Why then, is not landscape beauty of greater value in rural districts? Tall buildings suggest the presence of more building; natural landscapes, always more or less beautiful, suggest still more of such beauty where mankind has chosen a home site, and all observers are disappointed if it is lacking.

Granted that we desire and need trees to walk beneath during summer's heat and winter's wind and rain, shrubs to beautify and frame our own little garden, flowers to cull or admire as we will and beautiful stretches of lawn as the canvas upon which our home picture is spread, how shall we plan aright? Around stately dwellings we shall have stately plants in stately groups, but in the less pretentious and more lovable home grounds we must have simplicity as the keynote and with simplicity may always be found a satisfying dignity and sufficiency. But we cannot gain this by thoughtless or irresponsible planting. More than that, it cannot be gained without a well conceived plan. No one would plan or plant his home grounds as he would his orchard. For the latter he has certain rules that govern his every move, rules recognized as economic necessitles. In the decoration of the home grounds we enter the realm of art and will here propound the rules and principles that all successful landscape artists have followed who have built the world's masterpieces, whether surrounding castle or cottage.

Landscape Rules

The first admonition is that open lawn centers must be preserved. We must have a nice sweep, big or little, that is not cluttered up with plants of any sort, for the latter must frame the lawn and be grouped about the sides. Just how this lawn should be made will be told in a later issue for it is yet too early for spring lawn making. We must next plant in groups or masses and not with isolated specimens or straggling individuals. Plant all of one kind together, the way nature does. If we are to have a thicket of bridal wreath let it be one and not have one or more bushes in various parts of the garden. Have each part of the garden with a strength of character all its own. In one part it will be built with bridal wreath, in another something else, but always but one sort. We may have a group of palms, or of elms, but we will keep them together and not dispose them in orchard form.

To observe our third rule we will avoid straight lines. Occasionally they are admissable, even advisable, but nature makes none, nor can man without the aid of strings, straight edges and the like. The canopy above us, the horizon about us, are circles. The way of rivers and other streams, the lines of a horse, bird, the human form divine, all are graceful curves. As nature makes no roads or paths and no straight lines, let us have only such roads and paths as are necessary and curve them gently except they are so short that curves would appear ridiculous. All lines that parallel unchangeable straight lines must be straight also. This will apply to paths immediately surrounding the house. But approaches, if of length, should not be straight except the general plan is severe and formal. The fundamental idea should be to have all easy, comfortable and natural; not as though man had built it, but had assisted nature in making more beautiful what was.

With these thoughts in mind we cannot go far astray. We are seeking beauty and comfort so that the garden shall please and satisfy. And though this article is intended only as general, to be followed by one specific as to materials, let us urge that you make it doubly attractive through seats to rest upon, arbors for shade, a water pool for lilies and fish, perhaps a fountain, a rock garden or a fernery, and all the things dear to the normal human heart. Then in the choice of plant life cannot we combine beauty and utility?

All in California may have some evergreen fruit trees, even if but a group of two or three loquats; in more favored sections avocados, etc. Or if deciduous trees are found more desirable use walnuts, chestnuts, pecans, or others for shade, for none are more beautiful. Why need we lose sight of the economic side when decorating the home grounds? Let us have trees, shrubs and plants that will answer to a new word—"beautility," plants of double duty or dual purpose. Reminds us of Goldsmith's piece of furniture:

"It did a double duty pay,
A bed by night,
A chest of drawers by day."

PRODUCTION OF CALIFORNIA BEANS

E. E. Kaufman, field agent of the bureau of crop estimates, reports that the lima bean crop turned out much better than expected at the time the preliminary estimate was made on October 1. The final estimate is now placed at 1,350,000 bushels equivalent to 810,000 centals or 100-pound bags. The production of "beans other than limas" is estimated to be 3,650,000 bushels, making the total crop 5,000,000 bushels, equivalent to 3,000,000 bags.

Conditions at time of harvest were ideal, and the quality was of high medium grade, or 100 per cent compared to 85 per cent for the 1918 crop.

The average "pick" (trash, split and otherwise defective beans) was light, about four per cent compared to 10.5 per cent in 1918.

Following is the estimated production by varieties in centals or 100-pound bags, in 1919: Limas, 810,000; Baby limas, 192,000; Small Whites, 630,000; Large Whites, 390,000; Pinks, 600,000; Black Eyes, 180,000; Red Kidneys, 39,000; Cranberries, 63,000; Mexican Reds, 48,000; Bayos, 15,000; miscellaneous, 33,000. 1918 yield: Limas, 1,545,000; Baby Limas, 134,000; Small Whites, 978,000; Large Whites, 618,000; Pinks, 721,000 Black Eyes, 463,000; Red Kidneys, 26,000; Cranberries, 103,000; Mexican Reds, 154,000; Bayos, 118,000; Teparies, 257,000; miscellaneous, 33,000.

Household Department

GOOD-NATURED NATURE

Oh, the orchards are in blossom, an' the skies above are blue
An' the petals o' the peonies once more are wet with dew,
The whole world's at its finest, an' I'm leaning on the gate
Thinkin' just how glad we should be that the flowers never hate.

The woods don't carry grudges, an' the clover's never mean,
The poorest girl's as welcome to their blossoms as a queen;
An' the tramp along the highway has green velvet for his couch
For the glorious part o' nature is she never has a grouch.

The breakfast o' the tulips must agree with them each day
For they nod a smile o' greeting to the travelers on the way;
An' whether days are sunny or the world is dripping wet,
I've never seen the violets in a fit o' temper yet.

I'm drinkin' in the beauty, as I'm leanin' on the gate
An' thinkin' what a pity that we mortals learned to hate;
For the flowers are always smilin' an' the song birds sweetly call,
An' the works o' Mother Nature seem to like us, one an' all.—Edgar A. Guest.

THE STORY OF WILD RICE

By J. H. Hiesser in The Rice Journal

THE history of wild rice goes far back into the impenetrable past. It has long been the principal article of diet, not only for the myriad thousands of wild fowl, but for the red men of the north also. Around their campfires the following legend has been handed down from generation to generation, being told by the Indian braves to their children.

Away back, when the world was young, the Indian tribes lived in the bright and sunny south. According to the word of the Creator they multiplied and covered the face of the earth, as far as they then knew, except into the far north. They believed that from the north came cold and darkness and that whoever wandered beyond certain restricted lines from the sunny south would be taken by the Frost King and imprisoned in his icy home.

In time the Indian tribes became so numerous that game was in danger of extinction and, in order to maintain life, they made war one tribe upon the other. Most of the Indians became cannibals, killing and eating their prisoners, but there were a few who thought this way very wrong. The chief of their tribe was named Babomwagiwiskung. He did not believe in nor would he take part in any of their cannibalistic rites.

One day he had wandered far from his tribe in search of game, and becoming exhausted from fatigue and hunger laid down to sleep. He had a vision. He saw a beautiful White Spirit which told him to gather his followers together and wander into the northland, where peace and plenty awaited them. They were to have no fear of the Frost King, as the White Spirit would ever watch over and guard them. He was to take his tribe and travel at once towards the north to the time of the third full moon, when he would come to the banks of a great lake and in a cave, which would be marked, he would find a birch bark basket containing seed and he was to take that seed and cast it upon the waters and the seed would grow and produce a food that would be everlasting; that drouth, or floods, or frost would not destroy. This was to be given to him and his people as a reward for the good and manly spirit they had shown in not becoming cannibals, as had the other tribes of red men.

Upon awakening, he hastened to his lodge and gathered his tribe together, they turned towards the north and, as stated in the vision, found at the appointed time the lake, the cave and the seed and sowed it as directed by the White Spirit. It grew and flourished and they gathered it in and stored it for future use when the cold winters came upon them. They found this rice would maintain life, health and vigor and it proved also a great attraction for wild fowl, which came to them in countless numbers. The only condition the great White Spirit exacted was that they were always to live in peace and harmony with the white race, which was to come many years after. It told him that in time the white race of men would come across great seas and occupy their lands and inhabit their country, and, as long as they kept peace with the white men just so long would the Great White Spirit furnish them with Wild Rice.

This is why the Chippewas have never been at war with the whites, and they firmly believe that the food, which is the main sustenance of the Chippewa tribes, was given to them by the Great White Spirit, through their Chief Babomwagiwiskung.

The North American Indian has for centuries known the value of wild rice as a food and it is to this day the principal article of diet of the Indian tribes of northern Minnesota, Wisconsin and Canada, the natural home of the wild rice plant. Even though white men have introduced other grains which are harvested and prepared for food with less labor and expense, the Indians devote much time and energy each year to the gathering of the wild rice crop.

An Indian courier is often required to take long journeys and accomplish them quickly. His road may be through the trackless forests or over the far-reaching prairies. His errand demands haste and he has no opportunity to stop and search for food, but must take with him that which will not only strengthen and nourish him, but be easily carried. On such journeys his only food is a small quantity of parched wild rice, which is carried in a leather pouch and fastened to his belt. As fatigue or hunger becomes apparent a small handful of rice is eaten and the traveler continues on his way with renewed energy—arriving at his destination as fresh and well nourished as when he started.

TRIED RECIPES

By "A Yorba Linda Subscriber"

Baked Eggs

Butter well some small gem pans and dust them with bread crumbs. Drop one egg in each pan, cover with bread crumbs, adding salt, pepper and a small piece of butter. Cook in a quick oven until the crumbs are browned and the eggs have set like custard.

Coffee Ginger Cookies

Mix one cup shortening with two cups granulated sugar. Add one cup New Orleans molasses and three teaspoons soda in one cup of hot black coffee. Let mixture cool, then add one well beaten egg, two teaspoons vanilla, pinch of salt and three teaspoons ginger sifted with enough flour to roll out to make a firm dough. Cut out and bake in a quick oven.

Sugar Cookies

Cream one cup shortening and three cups sugar together; add three well beaten eggs, one small cup milk in which has been dissolved one small teaspoon soda, one small nutmeg grated and flour enough to roll. They may be varied in many ways. An orange or the peel put in the cooky jar gives a delicious flavor.

To Can Rhubarb for Pies

Cut rhubarb lengthwise twice, then cut across with sharp knife or kitchen shears making small dice. Pack hot sterilized can full. Pour over boiling water, cover, let stand for ten minutes, pour off, repeat and seal.

MADE WITH SOUR CREAM

Waffles

One egg, 1 cup sour milk, 1 cup flour, 1 tablespoon butter, 1 teaspoon soda, 1½ teaspoons baking powder, ½ teaspoon salt.

Mix and sift flour and baking powder. Beat egg thoroughly, add sour milk, flour and salt. Dissolve soda in ½ tablespoon cold water. Add to mixture. Beat thoroughly. Cook on oiled, hot waffle irons and serve hot with maple syrup.

Ginger Bread

Four tablespoons butter, ½ cup sugar, 1 egg, ½ cup molasses, 2 teaspoons cocoa, ½ cup sour milk, 1¾ cups flour, ¾ teaspoon soda, 1 teaspoon ginger, ¼ teaspoon cinnamon, ¼ teaspoon salt, 1 teaspoon allspice.

Sift flour and spices, salt and soda together. Mix other ingredients in the order given and combine mixtures. Bake in moderate oven 30 minutes.

Practice Thrift When Buying a Piano

Doing without music is not thrift. You need good music. It relaxes, stimulates and inspires. It is a wonderfully good influence on growing children. Today music in the home is a necessity—and when we speak of music we naturally think of the Piano and Player Piano.

But you can practice thrift when buying your Piano. You can see to it that you get value received. Not every Piano purchaser gets value received. Many are misled or confused by the misleading advertisements and shady methods of unscrupulous dealers. These unthrifty purchasers "fall" for exaggerated statements, special inducements and apparently very low prices—only to awaken to the realization that the instrument they purchased is only a makeshift and that it is necessary to go to a reliable dealer and buy a real piano.

To be thrifty in Piano buying, the purchaser should go straightway to a good reliable Piano House and frankly state his needs and the amount he can afford. That reliable Piano House carries many grades (when measured by price) but all dependable; they can suit your purse nicely. They will arrange convenient payment terms so that your Piano purchase will not only be an example of thrift—of getting value received, but will result in permanent satisfaction.

We invite you to call at any of our stores—or write us asking for illustrated catalogs and prices.

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190-192 S. First Street, San Jose
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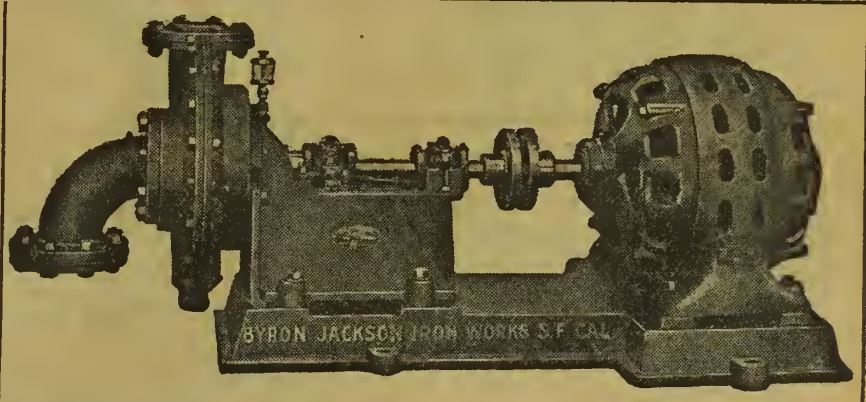

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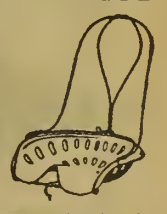

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In ½ lb., 1 lb. and 3 lb. sealed cans—
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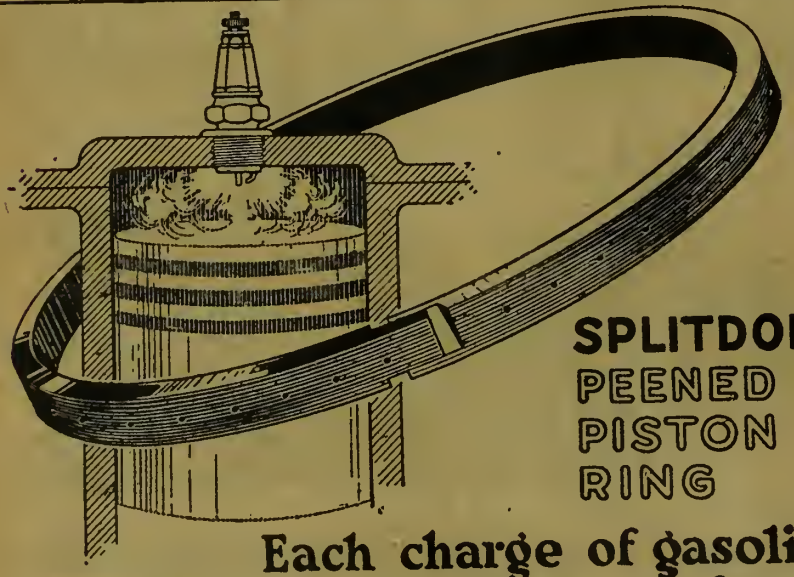

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Sour Milk Biscuit

One quart flour, 1 teaspoon soda, 1 teaspoon salt, 1 teaspoon sugar, 2 tablespoons butter. Sour milk to moisten (about 1½ cups).

Sift dry ingredients together, cut in butter with knife, add milk to make a stiff dough. Roll out thin and bake in hot oven. Serve hot with honey or maple syrup.

Boston Brown Bread

One cup whole wheat flour, 1 cup graham flour, 1 teaspoon soda, 1 cup corn meal, 1 teaspoon salt, 2 cups sour milk, ½ cup molasses.

Mix dry ingredients thoroughly. Mix the sour milk and molasses. Stir in dry ingredients, beating thoroughly. Turn into well buttered pound baking powder cans. Cover tightly and steam 2 hours. Remove cover and dry in oven for 15 minutes. Take from can and slice with string. Raisins and nuts can be added to the dough mixture, if desired.

Spoon Bread

One pint coarse white corn meal, ½ teaspoon salt, 1 cup sour milk or buttermilk, 1 tablespoon butter, 1 egg, white and yolk beaten separately, ½ teaspoon soda for each cup sour milk.

Mix the corn meal, butter and salt with enough warm water to make a smooth paste. Then add egg, sour milk and soda. Beat until very smooth. Pour into hot, well-buttered baking dish and bake quickly in hot oven.

Sour Cream Cookies

One-half cup butter, 1½ cups sugar, 2 eggs, ½ cup sour cream, 1 teaspoon soda, flour to roll.

Cream the butter, add the sugar and eggs, well beaten. Sift soda with the flour, and add alternately with cream to first mixture. Roll out, cut, and sprinkle top with sugar.

Brown Nut Bread

One-half cup molasses, 1 teaspoon soda, 2 cups sour milk, 2 cups graham flour, 1 teaspoon salt, ½ cup sugar, 1 cup chopped nuts, 1½ cups white flour.

Mix and sift all the dry ingredients. Add molasses to the milk and combine this gradually with the dry materials. Add the nuts. Half fill baking powder cans, oil cover, let stand one-half hour. Bake three-quarters of an hour in moderate oven.

Sour Cream Salad Dressing

One cup sour cream whipped until stiff.

Add flavoring of lemon and pineapple juice during the whipping. Season with salt and a dash of curry powder, when it is to be served with vegetable salads, but using only the fruit flavoring when used on fruit salad on crisp lettuce leaves.

Suggestion

Sour whipped cream can be substituted for sweet cream in any boiled salad dressing recipe.

THE COUNTY LIBRARY

The county library is very successful and popular in California. The plan, in brief, is as follows: At the county seat or largest town in the county a central library is established, stocked with an up-to-date collection of books and pamphlets giving the best and latest information on subjects of special interest to farmers, and also carrying a wide variety of reading matter of general interest and fiction. In communities of any size, branch libraries will be maintained of similar nature. The county library also will lend books to any number of deposit stations in the county, so that the smallest community, no matter how remote or inaccessible, will have a library of its own. Deliveries will be made by trucks or book wagons to country stores, toll-gates, postoffices, school houses, private homes, or wherever the deposit stations are maintained, and upon request new collections will be sent out in exchange for the books on hand. In this way every farmer will have access to the entire collection. The expense of the service is to be met locally by county taxation; the rate to be governed in each case by the needs of the county—but limited to a small assessment.

Trifles in dress can make or mar one's appearance, and the woman who studies the little things may always be well dressed.

The Cultivator Patterns

BE SURE TO SEND SIZE

3129-3008. A Stylish Spring Suit. Coat 3129 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3008 cut in sizes: 22, 24, 26, 28, 30, 32, and 34 inches waist measure. It will require 7⅝ yards of 44 inch material for a medium size. The width of skirt at lower edge is about 1¾ yards. Two separate patterns, 10 cents for each pattern.

3130. Girls' Apron. Cut in 4 sizes: 6, 8, 10 and 12 years. For an 8 year size, 1¾ yards of 27 inch material will be required. Price, 10 cents.

2844-2854. A Stylish Costume. Waist 2844 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 2854 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. A medium size will require 6½ yards of 44 inch material for the entire dress. The skirt measures about 1⅞ yards at the foot with plaits extended. Two separate patterns, 10 cents for each pattern.

2821. Girl's Dress. Cut in 5 sizes: 4, 6, 8, 10 and 12 years. Size 12 requires 3⅛ yards of 40 inch material. Price, 10 cents.

2950. A Stylish Frock. Cut in 3 sizes: 16, 18 and 20 years. Size 18 will require 4⅞ yards of 44 inch material. Width of skirt at lower edge, is about 1½ yards. Price, 10 cents.

3155. Girl's Dress. Cut in 4 sizes: 8, 10, 12 and 14 years. For a 14 year size, 4⅛ yards of 36 inch material will be required. Price, 10 cents.

3133. Ladies' House Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A medium size will require 5¾ yards of 36 inch material. The width of the dress at its lower edge is about 1⅞ yards. Price, 10 cents.

2815. Child's Play Suit. Cut in 5 sizes: 2, 3, 4, 5, and 6 years. Size 4 requires 1⅝ yards for the waist, and 2¼ yards for the rompers, of 27 inch material. Price, 10 cents.

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PATTERN DEPARTMENT
California Cultivator
Los Angeles.

LITTLE SAVINGS

By Mary L. Hootman, Puente

Some of the ways of reducing the "High Cost of Living" that we use are as follows:

When eggs are the cheapest we preserve them so we can use them ourselves and then we sell the fresh ones when the price is high.

To nine quarts of boiled water use one quart of silicate of soda. Do not wash the eggs before putting them in the liquid. They keep fine.

When the collars on the men's shirts become worn I take them off, hem the raw edges of the band under, sew a button at the middle of the back, then buy 'ready-to-wear" collars to button on. This looks better and saves washing and ironing.

And then another way is to buy articles for food in which there is no loss when preparing them for cooking, such as rice and beans, which is a great saving over potatoes, in which is quite a loss in peeling.

SPRING AND SUMMER FASHION CATALOG

A notice of the Cultivator's spring and summer catalog appeared in the issue of February 14, but did not state that this would be sent only on receipt of ten cents in silver or stamps. This catalog shows 550 designs, with helps and directions to the dressmaker, fully illustrated to make easily understood. French seams, fell seams, faced hems, seam binding, couching, fagot stitch, cording, cutting bias folds, etc., are clearly explained and illustrated. It will be found worth far more than ten cents, for it is really a little hand book on sewing.

MANY RARE FISH TAKEN IN SOUTHERN CALIFORNIA WATERS

That California is still ignorant of the vast resources of the sea is evidenced by the large number of tropical fish heretofore unknown in our state, coming to the state fisheries laboratory at Long Beach. Fishermen are becoming interested in making new finds and are vying with each other in turning over to the laboratory new and unusual fish for identification.

Among the rare unknown fishes which have recently been identified is a snipe fish, picked up on the beach at Avalon, Santa Catalina Island, so called because of the long, slender snout. This fish was first named from one taken near Laysan Island in the Hawaiian group, but the fish has a wide distribution, having been found in East Africa, the Indian Ocean, China and the Mediterranean. Unlike other rare fish taken in our waters, it is so small and slow moving that it cannot well be a stray from far distant waters. This heightens the interest very greatly, as it means the discovery of what may be a new resident species.

A crested band fish, a rare and beautiful fish of strange form, was discovered swimming in the breakers at Long Beach on July 25, 1919. This strange fish is about four feet long, eight inches deep and only one and three-eighths inches wide. The skin is smooth without scales, except for a single row against the dorsal fin, and of a bright silvery color with purplish tints on the head. The eye is large, the mouth small, armed with small bristle-like teeth, and the fins are bright red. This is the first specimen which has fallen into the hands of naturalists in America. In fact, it is so rare that probably not more than a dozen specimens have ever been taken. An Italian scientist was the first to discover and name the fish.

Of equal interest is a deep sea monster, captured in the fine mesh nets of the fish and game commission's patrol launch Albacore. So rare is the great mouthed, ferocious looking creature that it has no common name. It is known to scientists is Idiacanthus antrostomus. This fish is about three inches long, jet black in color and wormlike in form. A row of luminous spots are placed on each side, supposedly supplying light, for at the depth normally inhabited by this fish there is little light. In 1890 a specimen was taken near Catalina Island at a depth of 603 fathoms, and closely related species have been taken in the mid-Atlantic at a depth of 2,750 fathoms.

The plans for the new fisheries laboratory to be built at San Pedro call for an exhibition hall where these and similar rarities of the deep sea may be exhibited to the public.

NATURAL COMPASS MARKS—MOSS

"Especial attention may be directed to a few principles and tricks of the pathfinder's trade which every scout should understand, and should be able to apply accurately and promptly in the emergency of being lost," says George Gladden in an article entitled "On Being Lost" in Boys' Life. "But he should be sure of these principles before he accepts and acts upon them. For example, probably everybody has heard that moss grows on the north side of a tree, a most convenient thing to know if it happened to be true, which, however, isn't always the case. (Remember, incidentally, that the thin, gray parasitic lichens which grow on both rocks and trees, are not moss.) True moss is to be found on that side of the tree which retains longest the most moisture, and that may not necessarily be the north side. For example, moss will grow most readily on the upper side of a leaning tree, because naturally that side retains moisture longer than the lower side. Wherefore, a believer in the moss-on-the-north-side-of-the-tree theory would be thrown completely off his course if he should be guided by the moss on a tree leaning to the north, for then, of course, the growth would be on the south side of the tree.

"Again, moisture remains longer on rough bark than on smooth, and within the forks of trees and about their swollen bases, without any regard for the points of the compass. 'Does it follow, then,' asks Kephart, 'that exposure has nothing to do with the growth of moss?' Not at all. It merely follows that a competent woodcraftsman, seeking a direction from moss on trees, would ignore leaning trees, uncommonly rough bark, bossy knots, forks of limbs and the bases of trees, just as he would give no heed to the growth on prostrate logs. He would give special heed to the evidence of trees that were isolated enough to get direct sunlight throughout a good part of the day, while those that were in the shade of cliffs or steep mountains, so that they could only catch the sunbeams in the morning or afternoon, would be ruled out of court."

MORE GOOD CAKES

Mrs. Loretta Hoyt, Modesto

Vanilla Cake: Mix in a bowl one and one-half cups flour, one cup sugar, two teaspoons baking powder. Sift these twice.

In a cup put one egg beaten lightly, pinch of salt, two tablespoons Crisco melted, one teaspoon vanilla, and finish filling the cup with sweet milk. Add to the dry ingredients and stir lightly. Bake in a moderate oven 20 minutes. Makes two large layers. Use any preferred frosting flavored with vanilla.

BAKING POWDER BISCUIT

Sift two heaping teaspoons of baking powder in two-thirds quart of flour. Make a hole in the center. Put in one-half teaspoon salt, one and one-half cups sweet milk, one heaping tablespoon fat. Mix with the tips of fingers into a dough as soft as can be handled. Place on a floured molding board and knead till smooth, roll to one-half inch, cut out with biscuit cutter, put in a baking pan and bake in a quick oven and serve at once.—Mrs. F. M. Hubbell, Woodland.

THE MATHEMATICS OF IT

She had seven million dollars
Placed in bonds and stocks and rents;
He had 'leven million dollars,
So they merged their sentiments.
Now they've raised a son whose value
Is exactly thirty cents.
—Boston Transcript.

GETTING ON

"Well, little boy, did you go to the circus the other day?"

"Yes'm. Pa wanted to go, so I had to go with him."—Kansas City Journal.

What do you drink tea for? For taste, for cheer, for gentle stimulation; for enjoyment.

Why then do you buy common tea? It costs more per cup, though less per pound, than Schilling Tea, the fine practical economical tea.

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Gives a brilliant white light of 300 candle power—20 oil lamps are not so powerful. No wick. No chimney. No daily or weekly cleaning necessary. Handsome design. Made of brass, heavily nickeled. Will last a lifetime.

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The Coleman Lamp Co.

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To match any material, have dealer show you *"Diamond Dye"* Color Card.

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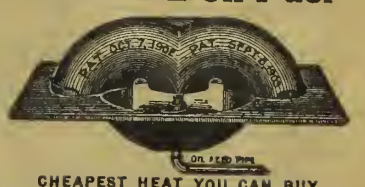

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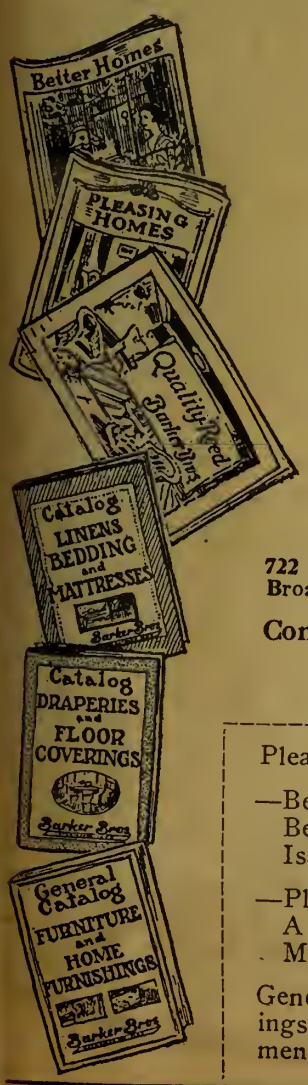

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—Pleasing Homes A splendid monthly Magazine.

—Catalog of Quality-Reed Furniture.

—Linen-Bedding-Mattress Catalog.

—Drapery-Floor Covering Catalog.

General Catalog of Furniture and Home Furnishings to be issued in Spring. See later announcements.

Why Cleanliness Is of Prime Importance in Feeding Baby Chicks

(By George R. McLeod, Agricultural Department, Sperry Flour Co.)

ONLY prime grains should be used in the manufacture of baby chick feed. Any deviation from this rule means death to a big percentage of the chicks; while those raised will be slow in maturing and not up to the standard of those fed on clean feed.

Prime grains mean clean grains, free from smut, mould and other damage.

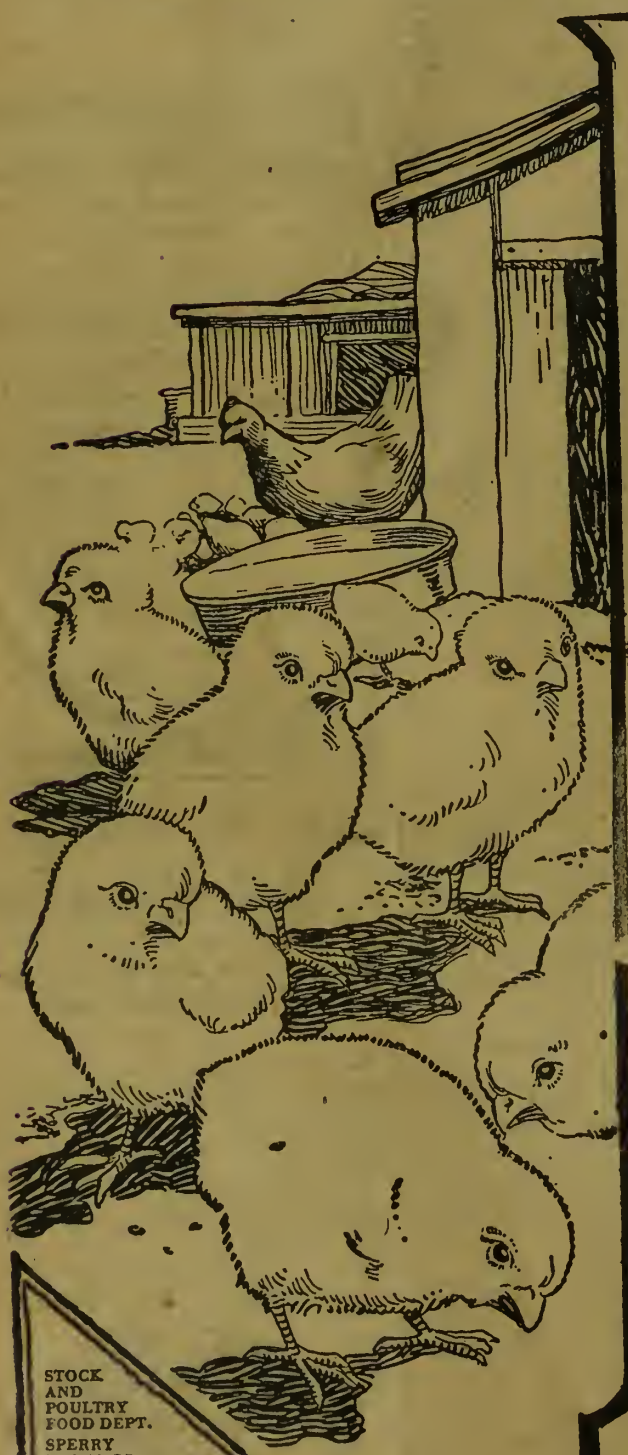
While clean feeds are necessary, it is equally essential that the feed receptacles be kept just as clean as the feed. Dirty receptacles for feed and water, or musty litter on the floor of the brooder, always result in the loss of a big share of the hatch.

Care is responsible for over half the success of a baby chick raiser. Poor ventilation and uneven temperature are often the cause of large losses which sometimes are accredited to the feed.

Care should also be taken in the selection of eggs for hatching or in the buying of baby chicks. Breeders' flocks that have plenty of range are generally healthier than those that are kept in houses or yards, and generally produce chicks with a greater amount of vitality, which develop into the best class of hens obtainable.

Chicks with poor vitality have weak constitutions, develop all types of diseases readily, and only a small percentage of the hatch can be raised, even with the best care and feed. You can't develop strong, sturdy stock out of chicks lacking in vitality.

Cleanliness Counts!



OF all the things that count for profit in the poultry business, cleanliness comes first. Because cleanliness means a healthy flock—and that means healthy profits! Therefore, the right start means everything—to the chicks and to you.

You must remember that the digestive organs of these sensitive little chicks are just as easily upset as those of a baby. Their feed must, of all things, be *clean*. No feed is good enough for a baby chick that is not clean enough for a human being.

In making Sperry Baby Chick Feed we keep this constantly in mind. Only prime, clean grains go into this feed. During its entire process of manufacture the same absolute cleanliness is observed as in manufacturing Sperry Red Package Cereals for your table.

Sperry Baby Chick Feed supplies *all* the food values that Nature intended a growing chick to have. It is clean, uniform, properly granulated and proportioned to meet the demands of fast-growing bodies. It supplies the same food values and constituents which Nature has taught the mother hen to scratch for her baby chicks.

Also—it is *absolutely gritless*. This means that you do not have to pay a fancy price for shell and grit. You merely add about 5 per cent fine shell and grit when using.

Our booklet, "Makes Hens Happy," takes up this feeding question in detail—gives you the advice of practical poultry experts. We'll gladly send it on request. Simply fill in the coupon and mail *today!*

STOCK AND POULTRY FOOD DEPARTMENT (A-37)

SPERRY FLOUR CO.

208 STOCKTON · CALIFORNIA

STOCK AND POULTRY FOOD DEPT.
SPERRY FLOUR CO.
208 *Weber Avenue*
Stockton, California

Gentlemen: Please send me, without obligation, your booklet on feeding baby chicks.

*Name*_____

*Address*_____

SPERRY Baby Chick Feed

"A Sperry Product"

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — March 6, 1920 — No. 10

Days of Grace Over March 15---Return Form 1040A and Do It Now

RETURNS of taxable income, together with schedule of farm income and expenses, must be in the hands of the income tax collector prior to March 15. There will be no extension of time excepting where it can be proved that the individual has been completely incapacitated. For the sake of safety anyone who has been incapacitated should have someone report to the nearest collector or deputy with explanation of the situation.

For the farmer, in addition to the regular individual return, "1040-A," there is "Schedule of Farm Income and Expenses for the Year 1919." This is "Form 1040-F."

Again, another form will be necessary from partnerships engaged in farming. This is "Form 1065."

This last point has been brought out by investigation made by the Cultivator because of request of a Riverside County subscriber. He writes:

"My mother, a widow, brother and myself are farming. My mother owns 120 acres out of 200 acres, also owns some of the cattle branded with — — — Bros. brand. We did our banking under the name of — — — Bros., but we have always considered among ourselves we were equal partners, as she does her part as well. We do not pay rent or anything like that to her. Would we be exempt for $3,000?"

Yes, but these steps are necessary.

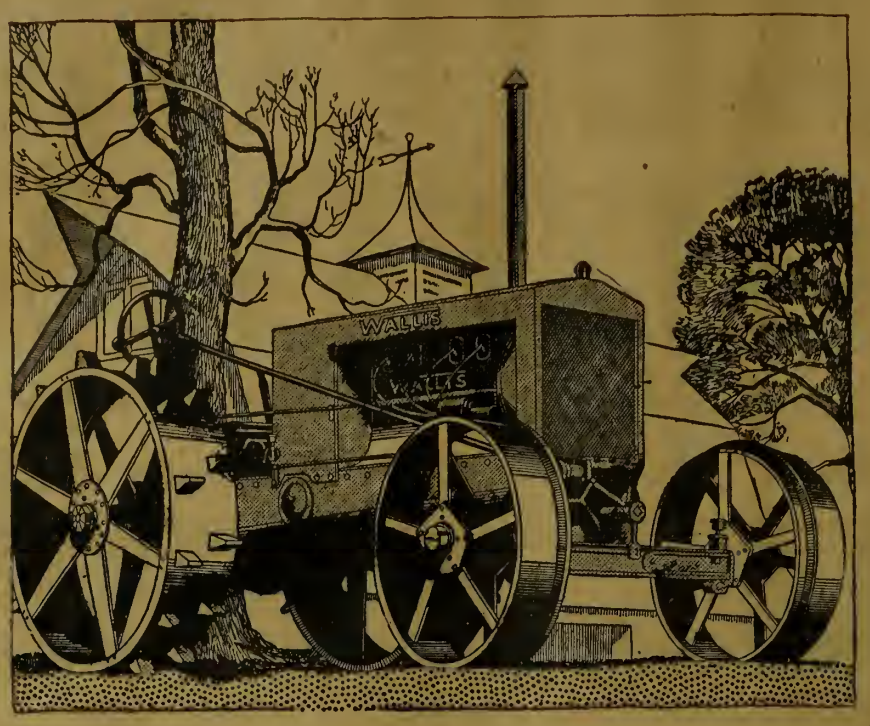
First, fill out completely "1040-F," which has to do with the farm income and expenses. Follow this with "Form 1065, Partnership Return of Income." These two reports will make the basis for three separate reports, one by the mother and one each by the brothers. This will be the regular "1040-A," providing that the income is less than $5,000 for each of the parties.

The place for making this report by each individual is on Page 2 of "1040-A" under "C. Income from Partnerships, etc."

Then the widowed mother makes her deduction of $1,000 personal exemption, as does each of the brothers in his report, unless they are married, then they deduct $2,000, before computing the tax, and an additional $200 for each child or dependent under 18 years of age.

If these reports can be filed with one of the collectors in San Francisco or Los Angeles or in one of the branches of the office which may be located in all of the larger towns of the state, personal help may be secured from assistants and field men in charge. Likewise the oath may be there administered and payment of the tax directly made. Where this is impossible any notary public may administer the oath to the one making the report and the report may be mailed to the nearest collector's office. Check or money order for the amount of the tax may accompany the Return. This may be for the entire amount or only for one-fourth. An additional amount sufficient to bring the payment up to one-half of the tax is due on or before June 15. Three-fourths must be paid before September 15, and the entire tax must be paid before December 15. It is safest to make total payment at first and prevent danger of any penalty. Greatest care should be used in making out returns, for penalties "for making false or fraudulent returns" are heavy. There may be severe penalty for failure to make return on time. This may be $1,000 and in addition 25 per cent of the amount of tax due.

There are two methods of procedure open to the farmer. First, if he is a careful bookkeeper and made on January 1, 1919 complete inventory of equipment, livestock, supplies of hay, grain, feed, etc., a complete inventory made again on December 31 of the same year would give, in addition to net cash income, the exact, correct amount which is taxable. Or, again, he may keep careful cash book account, which, with all farm expenses deducted, will make basis for computation. In the inventory plan the total value substracted from the total of all farm receipts and inventory value at end of the year gives the farm income.— (Continued on Page 382).



TO feel the steady, powerful rhythm of the Wallis as it forges ahead, leaving row upon row of clean-cut furrows in its wake, is a never-ending delight to the Wallis owner at plowing time.

Then, most of all, the clock-like regularity and almost human faithfulness of this quality tractor make money for its owner.

Only one thing has made this condition possible. The Wallis is basically right. Wallis engineers have proved time and time again that the Wallis represents the ultimate in tractor building.

This medium lightweight machine is endowed with tremendous strength by such advanced ideas as the "U" frame construction; the beautifully finished cut-and-hardened steel gears carefully protected from dust and dirt in steel housings, where they operate in a constant flow of clean oil; the valve-in-head engine with removable cylinder sleeves and completely machined combustion chambers; the oversize bearings.

These refinements you find generally only on high-grade motor cars or trucks. Most men would think it ridiculous to build so carefully a machine designed to plow around in the dirt, mud, sand, and rocks of the fields.

Wallis has proved that these very things alone can give a tractor the power and durability to work faithfully and long under these conditions.

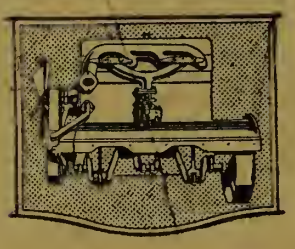
Some day all men are going to believe in the Wallis principle. That the number of converts is growing is indicated by our difficulty to keep up with the demand.

If you want a Wallis we advise you to act at once.

J. I. CASE PLOW WORKS COMPANY, DEPT. T31, RACINE, WIS., U. S. A.

Branch Houses and Distributors in All Principal Cities

THE WALLIS MOTOR



NOTICE: We want the public to know that the WALLIS TRACTOR is made by the J. I. CASE PLOW WORKS COMPANY of Racine, Wisconsin, and is NOT the product of any other company with "J. I. CASE" as part of its corporate name.

(196)

WALLIS

America's Foremost Tractor

California Cultivator

Vol. LIV, No. 10 | Los Angeles, March 6, 1920 | One Dollar Yearly

New Soil in the Orchards

By William M. Bristol

THE only known bank upon which a man may draw checks without first making a deposit is Nature's Bank of the Soil. And even at that beneficent institution there comes a time when he is certain to get notice that his account is overdrawn unless he has formed the habit of making deposits therein.

There is no producer, perhaps, who writes more checks on the Soil Bank than the orange grower. There are few men who authorize every member of their families to draw checks on their commercial bank deposits. Yet the demand of every orange tree is honored at Nature's Bank so long as any legal tender remains in its vaults. I have known some men who seemed to regard the soil as a mine and a bottomless one at that. I prefer to regard it as a combined factory and storehouse for the raw materials needed in the production of crops.

But in spite of nature's marvelous preparation for man her soil deposits are not always to his liking. Sometimes, from the orange grower's viewpoint, they are either too loose or too compact, and within the past decade he has formed the habit of changing them. I do not know what is being done elsewhere, but in the Redlands-Highland region tens of thousands of loads of fresh soil are being hauled into the orchards. The practice was begun in the case of the hard soils. The first grower who tried it on a major scale was J. E. Woodruff of Redlands. The soil in his 12 acre Valencia orchard, on a rolling ridge at the west end of Smiley Heights, was as red as an Indian and as hard as a sunbaked brick. A stream of water the size of a lead pencil would run across it and most of the stream would reach and run off in the waste ditch. The red soil deposits found scattered about Southern California, remnants of the oldest soil beds of the region, although deficient in nitrogen, are rich in the mineral elements of fertility. Although nature has stored abundant quantities of potash, phosphoric acid and lime therein, she has put such restrictions on their removal that man must be both ingenious and industrious to get them, a restriction, perhaps which the wise man will in time approve. Close observers have noted the evident durability of these hard soils, and at the same time have made plans to make them yield up their potential treasure.

Down in the bed of San Timoteo Canyon, two miles from the Woodruff orchard and 200 feet below it, the soil is a sandy sediment. Mr. Woodruff purchased a tract of this soil and entered upon the Herculean task of lifting a portion of it to the orchard on the heights. The hauling was done with teams—and it goes without saying that it was not the work of a day. In the course of time, however, he covered that refractory tract of 12 acres to a depth of at least six inches with the sandy sediment. I do not know if he kept a record of the cost. The work was done when his teams were not needed elsewhere. But whatever the cost, the expense was amply justified by the results. I have no definite statistics on the before and after crops. I do know, however, that a year later his orchard was yielding 15 boxes per tree while that of his neighbor, where every condition was identical except as to the new soil deposit, was yielding from one to three.

This is what happened as a result of covering the hard soil with a blanket of loose: The irrigation water went into the soil instead of into the waste ditch. When water runs across a fine grained soil on a grade steeper than one and one half per cent, and much irrigation is done on a steeper grade, it cuts the soil and carries particles of it in solution. In other words, it "runs muddy," and every irrigator knows that muddy water does not penetrate. Water will run over sandy or gravelly soil on a much steeper grade and still be clear because there are few particles of clay for it to pick up. Consequently, when it is turned into the furrows in the blanket of loose soil which has been spread upon clay it sinks to the clay in its clear condtion, is distributed widely over it, and penetrates it. In fact it spreads so widely that one furrow is sufficient where three were needed before, for the water becomes a sheet all over the surface of the clay.

Another advantage gained is the ease of cultivation. My own practice is to avoid going deep enough to bring up the red soil and mix it with the loose, because the clay has the same effect upon it that cement has upon sand; in other words, it defeats the purposes for which the loose soil was applied.

In some instances pure wash sand has been used to cover the red mesa soil because it was easier to get. While it contains practically no fertility it is doubtless more efficient from the standpoint of mechanical effect than the sandy loam. The East Highlands Orange Company has used thousands of loads of decomposed rock from the foothills on its property. The loose blanket being the chief object in the case of the hard soil, it seems to matter very little what is its character as to fertility.

I come now to the inverse process, the use of hard soil upon loose. In the mad rush to expand the citrus belt the planting of orange trees has been extended to tracts which might be designated as soily gravel instead of gravelly soil. While these gravel beds may have originally contained fair amounts of humus and nitrogen they were soon leached out by irrigation. Water may be run across compact soil indefinitely without robbing it of its nitrogen if the grade is light and the water goes off without carrying any soil with it. But gravelly soil under irrigation loses it humus and nitrogen quicker than the purse of a spendthrift loses its cash. Sand, with ten per cent of its bulk of cement added makes a fair grade of mortar; and it has been amply proven that a six inch layer of clay soil spread upon a loose gravelly soil will make it fairly compact and will add a thousand dollars per acre to its value for orange growing purposes.

A notable demonstration of what can be done along this line may be seen on the Yerxa tract at West Highlands, where experimentation was begun about four years ago. Perhaps 100 acres of the tract was so loose that it might properly be likened to a stack of sand sieves. Five years ago I would not have accepted it as a gift. Today it has $1,000 worth of oranges per acre on its 20 year old trees, and the transformation is due to the six inch layer of clay soil that has been spread over it. Again nature was bountiful in her providence, for an inexhaustible deposit of red clay loam lies immediately above the orchard tract and it is simply a matter of loading the stuff on wagons, hauling it down hill to the desired place and dumping it. In this instance I will grant that the soil is a mine, and an exceedingly valuable one at that. Words cannot picture the marvelous effect of the new soil upon the impoverished trees, and there are no "before" views of them available. Any one who has a bankrupt orchard on a bankrupt gravel bed will do well to see this miracle, for even if I had both before and after pictures of it and were to attach my affidavit to them my story would not be believed. Since seeing the tract a few days ago (for the first time in five years), I am wondering if loose soil with an application of clay is not worth more than hard soil with a blanket of sand. Anyhow, with due respect for Nature's Bank of the Soil, I am impressed with the improvements man can make upon it. Anyone wishing to substantiate my statements regarding the clay upon gravel treatment should communicate with the manager of the Yerxa tract, Capt. Thos. W. Frye, of Highland. I think the genial captain will be pleased to show all visitors what he has accomplished. As to the effects of sand upon clay almost any orange grower in either Redlands or Highland can point to a demonstration of its value. It is not claimed that in either case the need of fertilizer is done away with, but it has been proven that none will be needed for a couple of years after the new soil has been applied. It is not yet known how far the practice may be carried with profit or how deep the deposit may eventually be made. Experiments so far made indicate that the feeding roots continue to approach the surface with each fresh application, and there is one small orchard in Highland where a fill of three feet was made at one point, for the purpose of changing the direction of irrigation, without any ill effect upon the trees. I should add that this fill was made at least a dozen years ago.

There are some citrus orchards in California with no surplus soil deposits near at hand, but a large majority of them are near to the foothills where billions of tons of good top soil are waiting to be scraped from the sides of the canyons and ridges and transferred to the orchards to refresh and rejuvenate them and to lessen their need of water and fertilizer. So far most of the loading has been done by the primitive method of shoveling; but mechanical power devices must be constructed for putting the soil on the wagons or trucks which are to convey it. Until these devices are provided we could spare a few thousand real estate agents—land transfer experts—to wield the ancient and honorable shovels.

Melilotus Indica for Cover Crop
Crops of green manures are short this year but there should be no delay in turning under.

A Humus Former Sometimes Used—Shavings

Agricultural News Notes of the Pacific Coast

Northern California

The cooperative rice mill at Biggs has been sold and will be moved.

There were 166 exhibitors at the recent San Francisco automobile show.

Buyers are now offering $45 per ton for northern Sonoma County wine grapes.

The light rain of last week proved wonderfully beneficial to stock ranges and pastures.

Horticultural Commissioner Bremner of Sonoma County is staging gopher week.

Colusa County rice growers are sinking wells for emergency use in case of water shortage.

There was general observation of "Save the Redwoods Day" all over Northern California.

Yolo County claims location of the big Virden packing plant, which will be at West Sacramento.

Notwithstanding the dry season, there has been general planting of orchards at Orland, Glenn County.

Williams, Colusa County, is hoping for the establishment of a $50,000 warehouse and cooperative rice mill.

Geo. E. Merrill, farm adviser of Sonoma County, died at his home of pneumonia. He was 37 years of age.

The Solano County Cattlemen's Association held its annual banquet at the Arlington Hotel, Suisun, last week.

Two thousand additional acres in Yolo County will be brought under irrigation by the new Capay Valley ditch.

Vacaville, Solano County, has a large committee directing a drive for greatly improved road system in that county.

The organization committee of the Glenn-Colusa irrigation district is raising a $200,000 fund for improvement of the system.

Poultrymen of Alameda County, under the management of the farm bureau, held last week a series of meetings at Castro Valley, Independent and Livermore.

The traveling farm bureau conference will make its trek northward this year in April. Butte County is already making plans for entertaining the delegates.

California nurserymen have invested $150,000 in a bud selection and production orchard which shall supply to individual members buds and seeds which have been standardized.

The Suisun Valley Fruit Growers Association, recently organized, has filed articles of incorporation as a purely cooperative association for handling fruits of its members.

Producers of the Sacramento Valley are being urged to grow crops other than rice this year, at least so far as possible, so as to conserve water by producing crops which ripen earlier.

The Sonoma County Fair Association is being revived. New directors have been elected and the old fair grounds at Santa Rosa is being prepared for a county fair some time during August.

Sacramento Valley rice growers have organized and at a recent meeting at Yuba City serious consideration was given to the water and power shortage, and it was determined to make every effort to secure justice to rice producers in distribution of water and power.

Central California

Tulare is to have a cotton gin.

Modesto is to have a new cannery.

Two canneries are building at Reedley, Fresno County.

Turlock fat hog auction brought $14.90 for the best lot.

Fresno reports offers of 25 cents for next season's dried peaches.

Many communities are planning observance of Arbor Day, March 7.

Modesto irrigators have nearly all endorsed the Don Pedro project.

Larkin Valley, Santa Cruz County, is organizing a farm bureau center.

California wine grape growers are organizing a marketing association.

"Everybody irrigate" is the slogan of growers of the San Joaquin Valley.

Madera County farm bureau has reelected J. W. Schmitz president another year.

Merced County Poland-China people held their first auction of pure breds February 21.

Dinuba is planning for a big dehydrating plant to be constructed in time for the coming season's output.

Sequoia national park in Fresno County is to be enlarged if the plans of Fresno people are carried out.

Nearly every vineyard in the San Joaquin Valley shows a busy scene as the pruners are finishing the season's work.

Secretary Miot of Tulare County board of trade reports great increase probable in cotton culture the coming season.

The Tulare Cooperative Poultry Marketing Association shows an increase of over $7,000 over last year's business.

The farm center at Stevinson, Merced County, is taking the initiative in forming an irrigation district under the Wright act.

Farm owners and operators held a mass meeting at San Jose recently and discussed water shortage and methods of conservation.

River navigation control will yield so far as possible during the coming season to give to irrigators greater supplies of water.

One San Joaquin Valley irrigator is claiming that money spent in securing legislation would yield more water than in sinking new wells.

Members of the Milk Producers Association of Central California are hoping for the early construction of a powdered milk plant at Modesto.

Exeter, Tulare County, has shipped 826 cars of fruit. This does not include dried peaches and apricots, which would increase the total to nearly 1,500 cars.

State Director of Agriculture Hecke has been conferring with producers of Watsonville, Pajaro Valley, regarding revision of present apple standardization act.

Grape growers met last Saturday at Berkeley and conferred with specialists of the university as to methods of handling wine grapes to secure greater returns.

In a drive of the Cattlemen's Association for new members meetings will be held at Merced, Saturday, February 28; Mariposa, March 6; Livermore, Alameda County, March 13; Nevada City, March 20.

Southern California

West Riverside is growing tobacco.

California farm bureau members now total 22,000.

Coachella Valley, Riverside County, people are already eating green corn.

Alfalfa growers are appealing for new members to the state association.

More attention has been given to storage of flood waters than any preceding year.

The Olive Heights Citrus Association received an average of $3.36 per box for oranges.

Extreme cold in the East has caused loss to spinach and lettuce shipped from Imperial Valley.

Walnut men in Lankershim are organizing to market through the Walnut Growers Association.

Riverside County Cow Testing Association reports 89 cows averaging over 40 pounds per month.

Lima bean producers are talking of lowering growers prices in order to move some of last year's crop.

Congress has voted an appropriation of $19,000 to maintain the kelp plant at Summerland, Santa Barbara County.

The lands at the state hospital in San Bernardino County will have a liberal planting of different varieties of cotton.

Gopher demonstrations have been held in many parts of Los Angeles County under management of its farm bureau.

Santa Paula lemon pickers are out on strike. They are mostly Mexicans and are being replaced so far as possible by American pickers.

Farm Adviser Shaper of San Bernardino County has tendered his resignation and accepted a position as business manager of Hollow Hill Farm.

March aviation field is instructing forest rangers in wireless telegraphy, airplane patrol, and other qualifications which make for better fire patrol.

The recent rains fitted soil of citrus orchards for plowing under of cover crops. Owing to dryness and cold the tonnage to be plowed under will be light.

Ventura County still discussing matter of holding an agricultural fair and solicitors are now out asking producers to make plantings with the fair in mind.

An orchardist of Perris, Riverside County, recently planted walnut trees which cost him over $900 and thieves came in with auto truck and took away every tree.

Farm Adviser R. N. Wilson of Riverside County has resigned and accepted work with the Agricultural Legislative Committee and will have his headquarters at Sacramento.

The Imperial County farm bureau has passed resolutions asking "in the name of common justice to the taxpayers" that the county highway commission tender its resignation.

Estimates of the coming cantaloupe crop of the Imperial Valley indicate a valuation of over $11,000,000. There will be nearly 20,000 acres and it will require nearly 10,000 cars to transport the crop. Last year's crop required 7,838 cars and brought return to the valley of $9,000,000.

The Coast and General

Salt River Valley, Arizona, lettuce producers are shipping.

Idaho recently held rabbit drive in which 30,000 rabbits were slain.

Arizona's livestock sanitary board reports destruction of 2,700 predatory animals during 1919.

The floods of Southern Arizona are subsiding somewhat, but streams are still nearly bank full.

Owing to reduction in pasturage, Salt River Valley, Arizona, is carrying fewer cattle than usual.

Lane County, Oregon, sold through the Portland stockyards during 1919 stock to the value of $166,076.36.

The Smith-Hughes department of the Hood River High School is conducting a school egg-laying contest.

Clarke County, Washington, claims a membership of 1,200 in the Triple Alliance and 600 in the Non-Partisan League.

School children of Denver are being given lessons in practical forestry by specialists of the department of agriculture.

A fair association has been organized in Moro County, Oregon. A site will be purchased and a fair held the coming fall.

Lane County, Oregon, is increasing its number of dairy cows. The movement is being encouraged by bankers of the county.

Fifteen hundred acres of prunes in Clarke County, Washington, have been gathered together in a cooperative marketing association.

Arizona reports wheat, oats and barley as promising a magnificent crop. The recent storm aggregated an inch and a half to five inches.

One hundred and seventy-six different models of automobiles were exhibited at a recent Portland show in connection with its ice palace.

From present indications the watermelon planting of the Salt River Valley of Arizona, will be far below normal, possibly not more than 50 acres.

The convention of the Arizona Cattle Growers Association was recently held for three days at Tucson. The next convention will be at Phoenix.

It is expected that the lettuce shipment from the Salt River Valley of Arizona will total about 200 cars. Lettuce sold recently in the New York market for 30 to 50 cents per head.

Honey producers of Maricopa County, Arizona, have effected a temporary organization known as the Maricopa County Honey Exchange. They propose to assess the members $1 for each stand, which will furnish a working capital for marketing the honey cooperatively. The honey producers will have the assistance of the Arizona college of agriculture in perfecting their organization.

Some of the sheep men of Arizona are protesting bitterly against the policy of forest reserve officials in eliminating sheep from the Crook and Tonto national forests, and to the restriction of the area of the driveways between the northern grazing grounds where sheep are pastured in summer and the desert in the southern part of the state which affords much winter pasture. Some of the sheep men claim that this policy will result in destruction to the sheep industry if continued.

The American Beet Sugar Industry

WE recently saw discussion in one of California's largest daily papers—or, more correctly, it was an assertion—that California's future as a beet sugar producer is not as bright as the state's well wishers would desire. The statement was made that owing to the exceedingly high price of lands, coupled with the popular call for great quantities of vegetables and small fruits, lands formerly growing sugar beets would be devoted to other uses. This article also called attention to the fact that sugar manufacturers are not able to pay the price which producers feel they should have.

We believe the latter reason is the principal one affecting California's sugar production. Colorado growers are receiving greater returns than are producers in California. Here the markets seem to have been so controlled that the growers' contracts do not return a living wage and sometimes even, as was the case some two or three years ago, actual loss is suffered by nearly every producer of beets while the factories during the same year declared exceptionally large dividends, in one case known to be around 100 per cent. No industry can live under such diivsion of its returns.

It is to be noped that the California sugar beet situation will be materially improved for there are lands which will produce large crops of sugar beets but are not fitted for many other crops. The world's need for sugar calls for every possible encouragement of the industry.

Here are some figures recently given by Martin J. Kermer in "Sugar." America is producing a mere fraction of her own consumption.

* * *

There never has been a time in the history of our country that we realized the importance of this industry as we do today. During the war we took the sugar shortage as a matter of fact. We were instructed to save our sugar for the boys over there. We were glad to help wherever we could, and felt sure that as soon as Germany was licked we could have all we wanted.

Today it is different. The war is over, the boys are back home—but sugar seems far from plentiful, judging from the prices that we have to pay. We hear all kinds of rumors, and we are frank to state that we don't know what to believe or where we are at. We know this much, that there is something wrong, but we have so much to think about these days and there seems so much wrong that we like to forget about it, merely taking it for granted and living in hopes that time will take care of it.

We must be an independent nation and we can be independent in every sense of the word. We have the resources, the brains and the money to develop them. The beet sugar industry is one of them that needs your attention.

My object in presenting this paper is to put before you the present status and the possibilities of further developing this great American industry.

The total world production of sugar for this year, expressed in terms of refined, is approximately 16,500,000 tons of 2,000 pounds each. Of this the United States produces 915,000 tons, of which 795,000 tons were beet and 120,000 tons were made from cane. In other words, the United States produces approximately 5½ per cent of the world's production. In regard to our consumption, we used last year approximately 4,000,000 tons, or 22,200,000 pounds per day, or 76 pounds per capita per annum. We are, therefore, consuming one-fourth of the world's production. We are producing approximately 23 per cent of what we consume. Another 24 per cent comes from Hawaii, Porto Rico and the Virgin Islands, while the remainder, over 53 per cent, comes from the Philippine Islands, Cuba and other foreign countries.

It will be interesting to know that from 1865 up to 1914 our consumption of sugar per capita per annum has gradually increased from 18 to 89 pounds. However, ever since the world war started this consumption has been reduced year by year, due to the shortage of the world's production, which necessitated our restrictions. Today the world's production is 2,800,000 tons less than it was in 1914.

If we consider the increase of consumption per capita per annum for this country from 1900 to 1914, it is safe to say that we would have reached 100 pounds per capita per annum, if conditions had been normal. Australia consumes per capita 113 pounds; United Kingdom, 85; Germany, 30; France, 28; Belgium, 26; Russia, 14; United States of America, 78.

Before the world war broke out we held the fourth place among the beet sugar producing countries. Today we are taking the second place. However, this new position is not due to our increased production, but to the decrease that has taken place in Europe.

Europe produced in 1913-14, 9,827,000 tons, while in 1919-20 she produced 3,503,000 tons, or a difference of over 6,300,000 tons.

France had in 1913 217 sugar factories, of which 213 were in operation, producing 877,000 tons. The sugar consumption in France at that time was approximately 700,000 tons. During the campaign of 1914-15 only 69 factories were in operation, producing 303,000 tons, while in 1916-17, 65 factories; 1917-18, 61 factories; 1918-19, 51 factories were in operation, producing in that year 110,000 tons.

According to the latest information, 135 factories have been totally destroyed, in many cases now being represented by a hole in the ground, while 31 have been more or less seriously damaged or their machinery stolen. According to the official report it will require $200,000,000 to put them in operating condition, which, I believe, is a very conservative figure, as it not only includes the factory proper, but also the beet sheds, railroad sidings, etc.

Before the war Europe had some 1,250 beet sugar factories in operation and the European countries have realized for a long time the importance of the beet sugar industry. These governments were justified in encouraging the sugar industry, as it not only meant the development of the sugar industry proper, but also its allied industries. Sugar does not contain any plant food, while on the contrary we are shipping yearly to foreign coun-

(Continued on Page 413.)

Laying Out the Home Grounds

By Ernest Braunton

BEFORE planning the home grounds it is well to ask yourself what you want. Have you a well defined list of the comforts and conveniences, the beauty spots, features, effects and accessories you wish your garden to have? If not, sit down and think the matter over seriously.

Jot down on paper all of these you may think of. Look thoroughly through some book on gardening for suggestions or to check up your list and see what you have overlooked. Then, and not until then, are you ready to plan or have a professional designer plan for you. You must know what you want before work starts or you may disrupt a well conceived plan with something hard to introduce after work is under way.

Here is a list of a few things you should consider: Garage, greenhouse, tool house, poultry house and other buildings, vegetable garden, drying yard, tennis or croquet courts, place to burn or compost rubbish, to propagate or store plants, fertilizers, etc. Then come entrances for man, beast or autos, with the necessary roads and paths. All will want something of pool, pond, or fountain, swimming pool, pavilion or covered lookout, arbor, pergola, seat, sundial, shade r shelter, jungle or open distant view. Next we must look into the garden for effects, color schemes, views and the things in plant life we like; trees, shrubs, vines, lowly plants, flowers and fruits, borders, rockeries, ferneries, and collections of special plants or hobbies. My, what a list! May we have them all? Not unless both place and purse be large. You must list those things that you "just can't live without." If your garden is small and your purse slender you will be able to do your own planning, but if you wish many of the features listed an expert should be called to plan your grounds.

Now let us go over this list for locations and conveniences. Keep all buildings together if you can. Nothing about a place can look worse than a lot of secondary structures widely scattered. If one roof could cover all outside the dwelling it would be well. Sometimes small buildings may be grouped around poultry yard, vegetable garden, etc., or one continuous building could surround a court or patio. Chicken houses could open upon the court; garage and other compartments could open to the outside only. Keep the more offensive things farthest from house or ornamental grounds.

Nature makes no roads or paths; therefore have none not needed. Do not make any of these turn or twist about in ridiculous or abrupt curves. Long graceful curves are beautiful, but if distances are short and the object to which the path leads be one of utility and oft approached, the path may be straight unless it is desired to hide the object or building. Do not run paths to inconsequential objects or places or have too many or a complexity of paths or roads. Do not have them wider than necessary and seek to keep those leading to utilities separate from those that serve the pleasure grounds.

Try to keep strong or unusual features as far from the house as possible, for the latter should in no wise be made to compete with aught else. Tennis and other courts, swimming pool, etc., with their attendant noises, should be kept at a distance. Some distinct features are best in secluded parts; fish pond, rock garden and arbor are examples. Others may be close to the dwelling or even attached thereto, as a conservatory for ornamental plants; and a sundial may be so close to a much used doorway as to suggest its practical use as a time recorder or in a part so remote from the house as to suggest reliance upon it instead of the house clocks. Drinking fountains may be far away for the same reason, as may those of rustic design for water display, but if large and architectural in style they should be closely associated with other architecture. So too should stately plants, such as columnar palms, be planted close about the house and massed shrubbery, tree groups, thickets, etc., kept far away, as being a part of the wildwood.

If one lives in a sparsely settled community or where farms are large it may be you will wish to see your neighbor's house or houses. But if you would be truly rural you will blot out all evidences of civilization possible. Stand before your principal windows, on your front porch, etc., and have someone walk to the edge of your property and set a stake between you and a view of the nearby dwelling or other building and here plant a tree or group of trees. Do this only at boundary points, not nearer to your dwelling or you restrict your own views.

Between these obscuring trees or tree groups leave the views to distant parts open, for all that you see you may feast upon whether in your possession or not. Within your own grounds blot out undesirable views, features, objects or buildings by the same means or cover unsightly structures with a charitable mantle of vines. Color schemes are not necessary except to avoid magenta, which harmonizes with nothing except white flowers or green leaves, and avoid planting two shades of pink close together, for the lighter one will always appear to have faded when in contrast with the stronger shade.

In grouping trees and shrubs keep those light and airy of foliage and light of color in the foreground that it may be light and delicate in contrast with the heavy and dark of the background. This adds apparent depth to your premises. We also know that blue flowers apparently lengthen distances and yellow flowers shorten. Therefore plant yellow on points toward the house and blue in the recesses so the depths and contrasts may appear greater and stronger than they really are.

Alkali Effects on Citrus

DR. W. P. KELLEY of the citrus experiment station, Riverside, has given attention for some years to alkali content of soils and its effects. In the issues of the California Cultivator of July 12 and July 19, 1919, Dr. Kelley discussed at some length the effects of using waters carrying a small percentage of alkali. The University of California now issues Bulletin 318, "Effects of Alkali on Citrus Trees," by Dr. Kelley and E. E. Thomas. Every citrus grower will want this bulletin. It may be had by addressing Agricultural Experiment Station, Berkeley. We quote from the introduction:

It is generally believed that citrus trees are especially sensitive to alkali. One of the best known investigations on the effect of alkali on citrus was published by Loughridge in 1898. In this paper it was pointed out that orange trees may be severely injured by the use of saline irrigation water. From studies on certain groves near Corona it was found that severe injury had been produced as a result of irrigating with saline water from Lake Elsinore for a period of from three to four years.

Analysis of the water showed it to contain 917 parts per million sodium chloride (common salt), 377 parts per million sodium sulphate (glauber salt) and 391 parts per million sodium carbonate (black alkali). Loughridge concluded that the injury to the trees was due directly to the corrosive action and puddling effect of the black alkali and indirectly to the antiseptic action of the sodium chloride on the bacterial processes of the soil.

The effects were more pronounced in certain groves than in others. Inherent differences in the soil apparently exerted an influence on the depth to which the water penetrated, and therefore caused the salts to accumulate in greater quantities in the upper layers of the soil of certain groves than of others. On the whole, the effects were roughly proportional to the concentration of the alkali salts that had accumulated in the zone occupied by the roots of the trees.

The results of this investigation indicated that citrus trees are quite sensitive to alkali, and that the length of time a given supply of saline irrigation water may be used without producing injury depends mainly on the rate the injurious constituents accumulate in the layers of soil occupied by the roots of the trees.

In 1900 Hilgard pointed out that citrus trees are especially sensitive to sodium chloride. He called attention to the previous work at Corona in which it had been found that 2,520 pounds per acre of sodium chloride distributed through the soil to a depth of four feet, caused an orange tree to become completely leafless, while another tree nearby, where the soil was similar in other respects, but contained only 720 pounds per acre of sodium chloride, was much less severely injured. "Here it is apparently the excess of common salt to which the difference is due."

In 1901 Loughridge called attention to the extreme sensitiveness of the lemon tree. He said: "The lemon seems to be the least tolerant of all of the fruit trees, for it was stunted by 1,440 pounds common salt per acre, distributed through four feet depth, and was killed by 1,900 pounds combined with 1900 pounds carbonate of soda."

In harmony with the conclusions of Loughbridge and Hilgard, recent investigations by the writers have shown that different varieties and species of citrus trees are quite sensitive to alkali, especially so in the case of the lemon, and that after a few years' irrigation with saline water both lemon and orange trees may be severely injured. Again, it has been found that the effects produced by a given supply of impure irrigation water may, for a time at least, be extremely variable even in different portions of the same grove. Part of this variability is probably due to differences in the depth to which the water penetrates, which in turn affects the rate at which the salts accumulate in the root zone.

Experience in various localities has shown that, under certain conditions, continued irrigation with comparatively pure water also tends to hasten the accumulation of injurious amounts of soluble salts. Several hundred thousand acres located in different parts of California, which were free from injurious amounts of alkali previous to the introduction of irrigation, have since become veritable alkali lands. Seepage, together with a rising water table incident to over-irrigation, have been the principal means by which the salts have been brought up from below and deposited near the surface. Small areas of citrus groves have already become heavily charged with alkali by this means.

In the course of investigations on the nutrition of citrus trees, we have devoted considerable study to certain phases of the alkali problem. Early in this work, it became evident that the existing state of knowledge was inadequate. The symptoms of alkali injury have not been recognized clearly. The relations of fertilizers to the problem, and especially the effect of applying irrigation water containing alkali salts, are inadequately understood and appreciated.

It is commonly held that alkali injury is mainly, if not entirely, due to excessive concentration as such. In the course of this work, it has become evident, however, that injury may be produced under certain conditions where the total concentration is relatively low. The data obtained in a study of this phase of the subject afford the basis for an interesting hypothesis which will be presented elsewhere and further work is in progress. The discussion in this bulletin will be confined mainly to the effects of excessive concentration.

As this work has progressed, it has become increasingly evident that many of the citrus growers of California have not sufficiently grasped the significance of alkali in citrus culture. Especially is this true in regard to the bearings of impure irrigation water on the accumulation of alkali in the soil. Fortunately, a large percentage of the citrus soils was free from alkali previous to the introduction of irrigation and very much of it still remains free. There are considerable areas located in several districts, however, where harmful amounts of alkali have accumulated as a result of applying saline irrigation water, and still other areas, not yet seriously injured, where alkali is accumulating at present as a result of orchard practices which, if continued, will ultimately produce injury.

Double Your Cultivation With An Avery Motor Cultivator

With an Avery Motor Cultivator you can cultivate double or more acreage than one man can ordinarily handle with horses. You can cultivate 18 to 20 acres of corn, cotton or other row crops a day—make a 160-acre farm a one-man job. It is also easy to operate—a boy or man can handle it without previous experience, and can do better work than with a horse-drawn cultivator.

Has a variety of speeds that can be controlled to suit the size of the growing crop. You can creep along slowly when the crop is small and tender, or you can go as fast as you like when the crop is large. Hot weather and flies can't stop or bother it.

Cultivates Any Row Crop

Avery Motor Cultivators are built in two sizes—a six-cylinder two-row and four-cylinder one-row machines. The two-row size is built in widths for crops planted in any width rows. Can also be furnished with various styles of front wheels so that all row crops, such as corn, listed corn, cotton, peas, beans, beets, potatoes, asparagus, tomatoes, etc., can be handled successfully. Can also be furnished with planting attachment for planting such row crops as corn, cotton, peas, beans, etc.

A Proven Success

Avery Motor Cultivators are a proven success—their design is right and they are built right. They lead in power, durability and simplicity. As many as 6 to 25 of these machines are being used by the same men who are farming on a large scale. *In one locality within a radius of 18 miles, over 100 Avery Motor Cultivators are in use.*

Besides cultivating and planting row crops, the Avery Motor Cultivator is also being successfully used for many other kinds of light field and belt work. It is adapted to more kinds of work than any other machine, and is one of the best motor farming machinery investments you can make.

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Also includes tractors for every size farm. Six sizes, 8-16 to 40-80 H. P. with "Draft-Horse" Motors and "Direct-Drive" Transmissions. Two small tractors, Six-Cylinder Model "C" and 5-10 H. P. Model "B." "Self-Lift" Moldboard and Disc Plows, Listers and Grain Drills, "Self-Adjusting" Tractor Disc Harrows. Also, roller bearing Threshers, Silo Fillers, etc.

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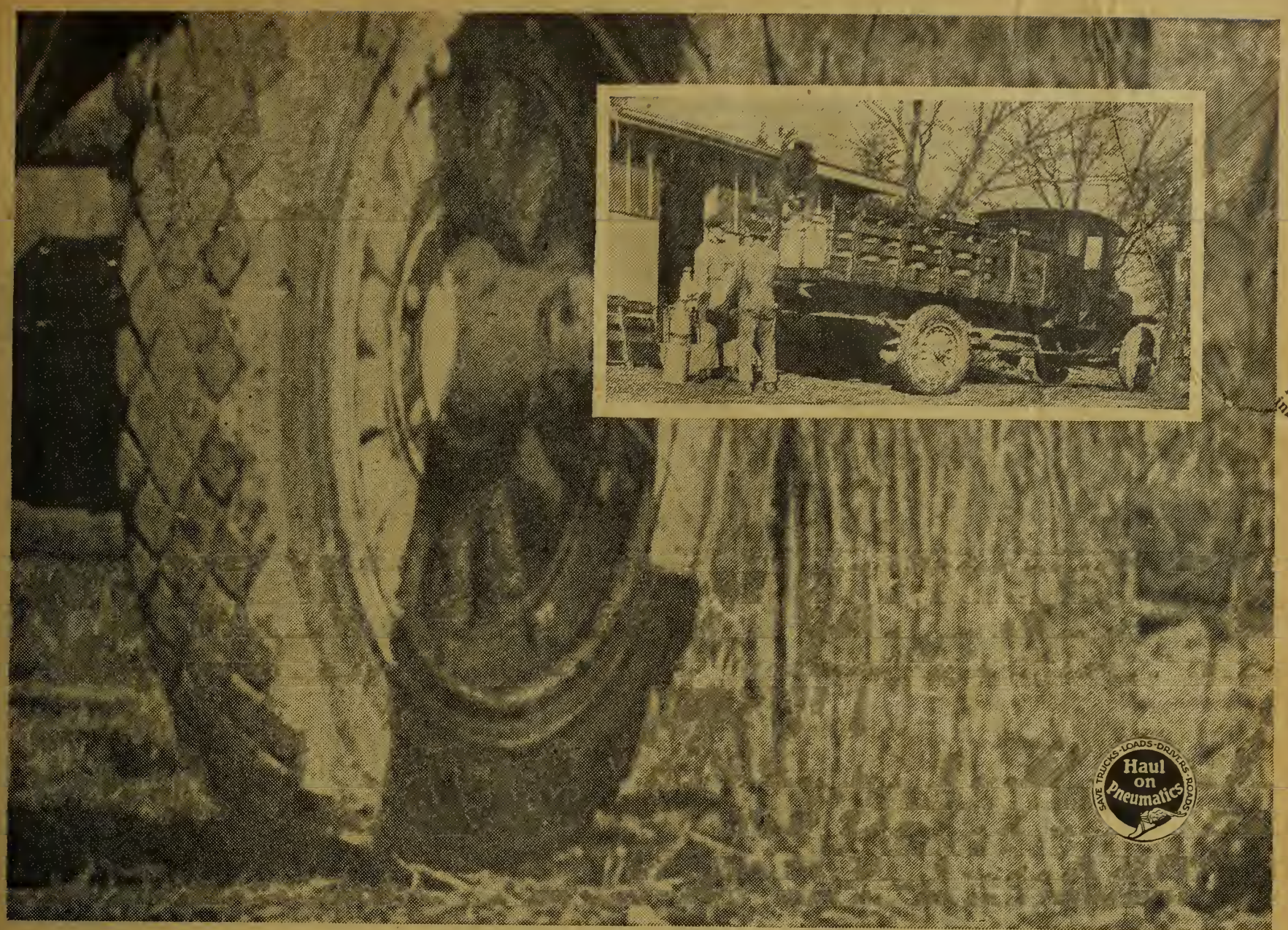
ROSTER OF GRANGE MEMBERS

We have received from Master F. L. Hunt of California State Grange roster of State, Pomona and Subordinate Granges of California. F. L. Hunt, Napa County, is master of California State Grange and the secretary is Mrs. Martha L. Gamble, Santa Rosa, Sonoma County. There are Pomona Granges located in Sacramento, Santa Clara, Siskiyou, Sonoma and Tulare Counties. Subordinate Granges are located: American River at Fair Oaks, Antelope, Aromas, Bellevue at Santa Rosa, Bennett Valley at Santa Rosa, Big Springs at Montague, Capital at Sacramento, Castoria at French Camp, Danville, Dinuba, Edgewood, Elk Grove, Elkhorn at Watsonville, Forestville, Fort Romie at Soledad, Gazelie, Geyserville, Gold Hill at Newcastle, Greenfield, Greenhorn at Yreka, Guenoc at Middletown, Lincoln at Cupertino, Live Oak, Kelseyville, Mountain View, Napa, Oakland, Orangevale at Folsom, Orchard City at Los Gatos, Petaluma, Poplar at Porterville, Potter Valley, Redwood at Calpella, Rutherford, St. Helena, Sacramento, San Jose, Santa Rosa, Scott Valley at Fort Jones, Sebastopol, Silverado at Calistoga, Strawberry Valley at Sisson, Tulare, Two Rock at Petaluma, Valley Oaks at Galt, Visalia.

The manufacture of brushes consumes about 13 million feet of wood annually. There are 30 species used Half of this is beech while birch and maple supply about 15 per cent each

Eight million feet of lumber is used annually in the manufacture of clocks



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"MY truck on Goodyear Cord Tires is the most useful piece of equipment on my farm, which I am motorizing quite thoroughly. Motorizing reduces farm costs, increases income. With a pneumatic-tired truck, the farmer can get the most work out of his other power-driven machinery because he can handle the loads fast enough in and out of the machines—also fuel, lubricating oil and other supplies."—Henry Ott, Farmer, O'Bannon, Kentucky

AS THE experience stated above makes clear, farmers find that pneumatic truck tires remove the handicap that slow hauling places on the operation of power-driven farm machinery.

They have demonstrated that trucks on Goodyear Cord Tires haul fast enough to prevent shut-downs, with the consequent loss in labor cost, when ensilage is being cut, feed ground and grain threshed.

In carrying loads to and from the machines, Goodyear Cord Tires hurry through soft fields where horses must pull hard and tediously and where solid tires are stalled by their lack of traction.

The all-round ability of Goodyear Cord Tires also means that fuel, water and additional supplies can be transported to tractors and other machines, and that a truck is available for many such chores between its more regular hauling trips.

This efficiency of the perfected pneumatic truck tire rests on its traction, cushioning and activity, and these advantages, in turn, are made entirely practical for farm work by the stamina of Goodyear Cord construction.

The results it thus makes possible in farm and related rural hauling are described in detail by many users' reports which can be obtained by writing to The Goodyear Tire & Rubber Company, at Akron, Ohio.

GOODYEAR CORD TIRES

Application of Manures

From Address by A. D. Shamel at Citrus Institute, San Bernardino

UP to a few years ago the broadcast system was generally used in applying manures in California citrus orchards. Under Eastern conditions for many of the general farm crops this is without much doubt the most practicable one to follow. In applying this method to California orchard conditions however there are certain fundamental defects which must be considered.

Most generally distributed in California citrus orchards during spring, summer and fall. During the winter or rainy season it is practically impossible to haul the manures into the orchards without danger of injuring the physical condition of the soil. When the manures are applied during the spring, summer and fall they are spread out in thin layers over the surface and usually allowed to remain of necessity in this condition for some time, frequently as much as two or three weeks, before they are plowed under or covered in some way. During this period of exposure when the thin layers of manure are subject to the intense rays of the sun, the wind and other weather conditions, there is no question but that very great losses of the plant food constituents of the manure occur. Some studies along this line have indicated that during a two weeks' exposure the manure spread on orchard soils frequently loses as much as 75 per cent of its nitrogen content. When we consider the fact that the nitrogen is probably the most important constituent of manure, this loss is appalling.

Pit Method

Another method which has been used to a very limited extent in some orchards under my observation has been the so called pit method. With the pit method holes are dug between the trees in the tree rows under the trees or near the trees. These holes are usually from 16 to 24 inches in depth. After they have been dug, which of necessity has to be done by hand labor, they are filled partly or completely full of manure, after which some of the soil taken out of the pit is thrown over the top of the manure in the pits. I have had the opportunity of studying the condition of the manure in these pits for several years subsequent to its application and of observing the apparent results of the use of this method upon citrus tree conditions. I am of the opinion that much benefit has been derived thtrough this method of applying manure to citrus orchard soils and that under certain limited conditions it is probably economical to use this method. On the other hand the cost of digging the pits is almost prohibitive, especially under present labor conditions. The decomposition of the manure in the pits studied apparently took place very slowly. Furthermore, it seems probable that the beneficial results of this method of applying manure cover a longer period than observed in the use of any other method. However, in some cases disappointing results have obtained from the use of this method. So far as I have been able to study the causes of such conditions I believe that the difficulty in these instances has been due to the fact that the irrigation water did not penetrate to the manure pits and that the manure in these pits frequently became dry for long periods, in this way nullifying to a considerable extent the beneficial results of the active fibrous root development which took place in the decomposed portions of the manure in the pits during favorable conditions.

Furrow-Manure System

The third method of applying manure, which I have called the furrow-manure system, is now being extensively used in commercial citrus orchards in Southern California. It seems probable that it is now the most generally used of all systems of applying manure in citrus orchards and that it is destined to become the almost universal method of distributing manure for the improvement of citrus orchard soil conditions.

I have described this method frequently. However, considerable progress has been made during the past year, particularly along the lines of the machinery needed in the use of this method so that I feel warranted in discussing it again in some detail. The furrow-manure system provides for the distributing of the manures, including all organic fertilizers and possibly some inorganic fertilizers, in citrus orchards in furrows alongside or near citrus trees. We believe these furrows should be made from six to eight inches deep when made near the drip of the branches of the trees. When the furrows are plowed near the middles of the tree rows they can be made deeper. I believe, however, that in no case should these furrows be plowed out deeper than ten inches.

Making the Furrows

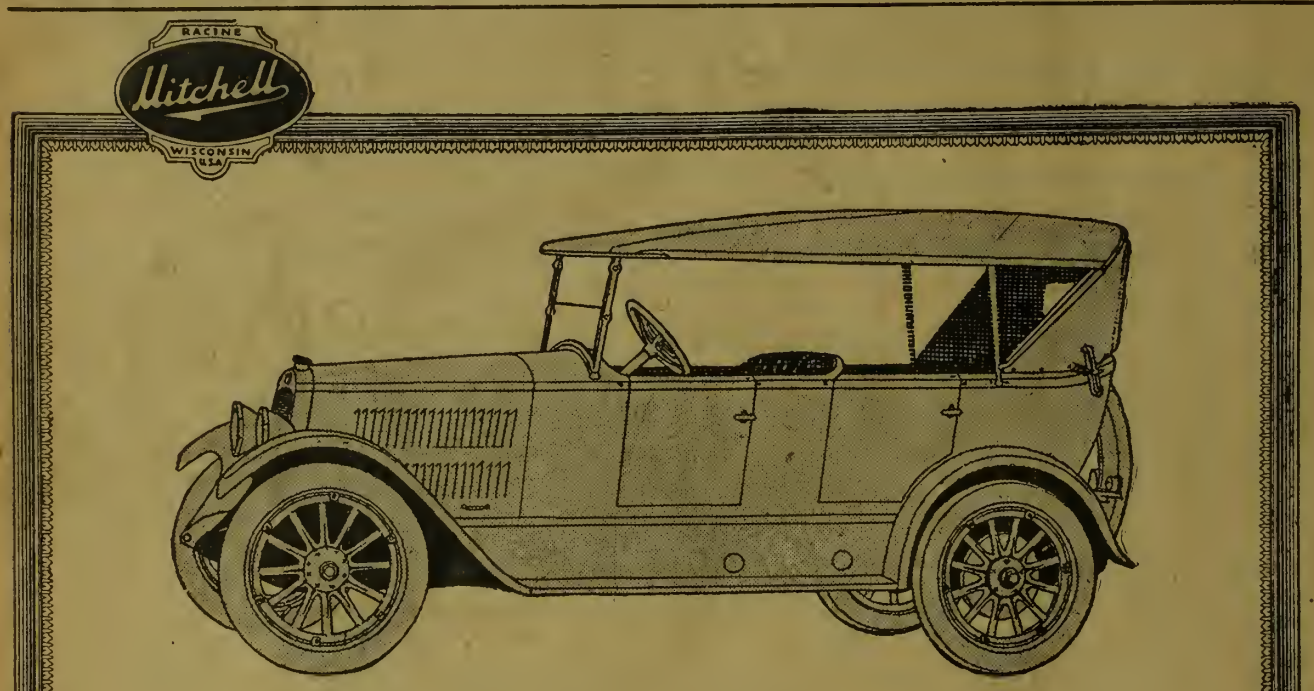
These furrows can be made with an ordinary walking plow or other plows. However, during the past year special plows adapted for this purpose have been put on the market which are in many ways an improvement upon the ordinary plow. Several of the larger citrus growers are using ordinary subsoil plows which they have equipped with middle buster shares in such a way as to make satisfactory manure furrows.

The arrangement of the furrows in the orchards will depend upon many circumstances, including method of planting, condition of soil and the lay of land. No general statement can be made at this time as to any one method which should be followed in all cases. Experience is demonstrating, however, that so far as practicable these furrows should be made as a rule, particularly during the first few applications, somewhere near the drip of the branches of the trees. It seems probable that the position of the furrows should be changed somewhat from year to year although this question is one which has not been fully settled as yet.

The position of the furrows should be arranged with the following considerations in mind: So that the manure in the furrows can be kept moist regularly throughout the irrigation season; so that the irrigation water be run alongside of the manure furrows and not over the tops as has been done in some cases during the past. I have made enough observations to show conclusively to my satisfaction that when the irrigation furrows are made directly over the manure in the furrows and the water run directly over the manure the results are not as satisfactory as when the water is carried in irrigation furrows alongside of the manure furrows.

Saving in Manure

The amount of manure to be used in the manure furrows varies with so many conditions that it is impossible to offer any statement as to definite amounts of manure for application in the furrows. As a general rule I believe that one-half the quantity of manure ordinarily broadcasted in the orchard will be sufficient for use in the manure furrows. When only a small quantity of manure is available or when other conditions warrant, as in the case of young trees or those planted widely apart, it seems probable that the best plan is to distribute the manure in the furrows alongside the trees in a space which corresponds approximately with the spread of the branches of the trees. It seems probable that the bunching of the manure in these spaces is preferable to stringing it out in small quantities the entire length of the furrows when only



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The new Mitchell development — now that factory efficiency and mechanical design have reached a high state of perfection — is a distinct advance in style.

Thus the Mitchell organization brings to motoring America the utmost in a medium priced car, a car whose values cannot be equaled.

The chief attainments in this new Mitchell are the harmonizing of lines, such as presenting the radiator at a slight angle conforming with windshield, doors and other lines of motion. This brings an innovation that was bound to come sooner or later, just as the straight-up-and-down windshield had to give way to today's slant.

Other betterments include the wonderful finish of the body, the attention to minute details. We venture to assert that you can find no car of like price with such improvements.

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And all this is possible by the factory efficiency in our great plant, by building the Mitchell complete, including the bodies, and by nation-wide distribution. Thus we save for you and at the same time give multiplied value. We advise your response without delay. Go see the new Mitchell at once. Note its beauty. Ride in it. Then place your order at once, so as to bring earlier delivery.

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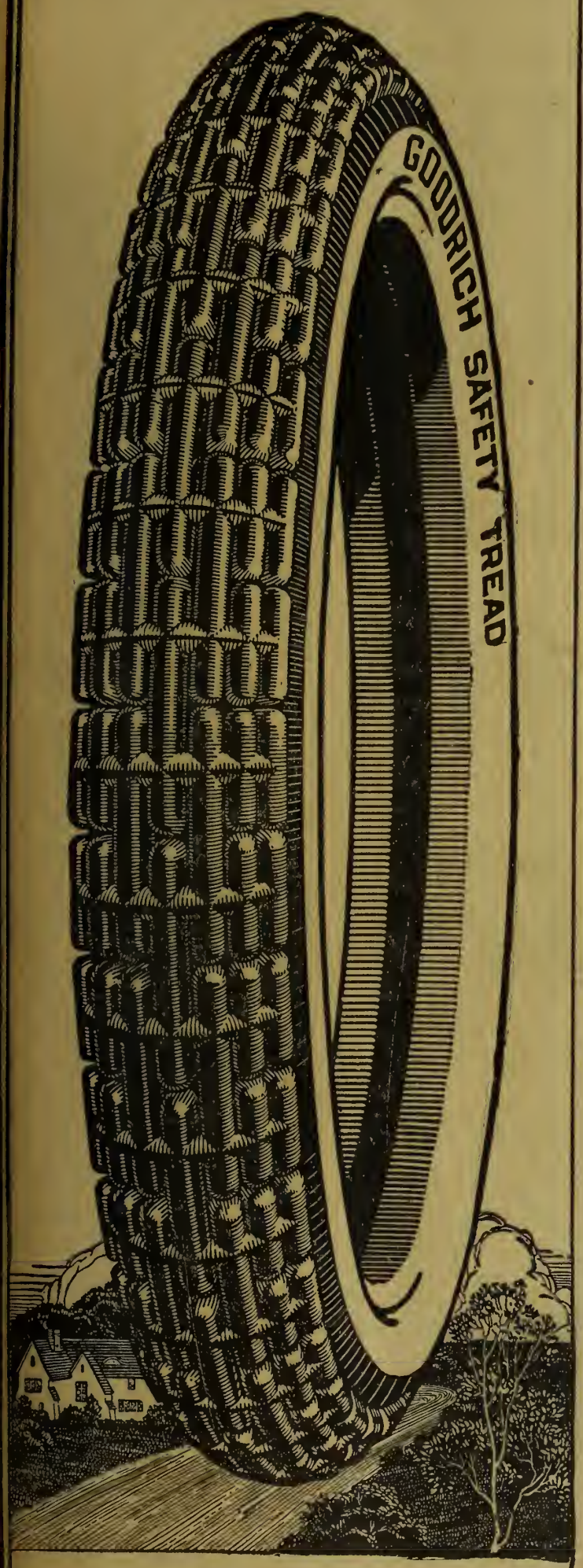

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"It is this: I was recently asked why I handled Goodrich tires practically to the exclusion of all others, and my answer was;

"Because I have not had a Goodrich tire come back, and because I believe they are the best proposition on the market today."

Very sincerely yours,
John E. Dennis.
3083 Main Street, Buffalo, N.Y."

IT IS THIS FAITH in Goodrich Tires, Goodrich methods, and Goodrich help, that has caused more than 50,000 dealers to feature Goodrich Tires.

John E. Dennis says, "*I have not had a Goodrich Tire come back.*"

If a *tire had* come back, he knew from Goodrich's clear statement of certified service that his customer had full protection in the Definite Adjustment Basis—6000 miles for Fabric Tires and 8000 miles for Silvertown Cords.

The nation-wide demand for Goodrich Tires is proof positive of the soundness and fairness of the Goodrich merchandising policy.

But more important, the economic right of this policy, and the outspoken, open-handed declaration of it, have put the purchase of a tire on a firmer foundation for dealer and user.

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TRADE MARK

The Goodrich Adjustment Basis:
Fabric Tires, 6000 Miles
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Goodrich Tires

limited quantities are available for distribution.

Covering

Most citrus orchardists have been able to arrange their work in this respect so that the manure distributed each day in the furrows is covered the same day it is distributed. Various methods of covering are in use. The most common is by plowing the soil back over the manure by means of the ordinary mold board plow. It seems logical and practicable that it is extremely important to cover the manure in the furrows as soon as possible after it has been distributed in order to conserve the plant food. Some users of this method have adopted implements especially designed for this purpose which simplify and probably reduce the expense of covering the manure in the furrows. These implements include drags so arranged as to pull the dirt back onto the manure from both sides of the furrow at the same time. Another method is to use a machine primarily designed for ridging the soil as for example making celery ridges. This method is carried out by the use of implements which are similar to disk cultivators or to large shovel cultivators.

Best Season

The season best adapted for the application of the furrow-manure method is a question which is frequently raised but one again concerning which no general rule can be laid down. On some citrus ranches in Southern California manure is applied in furrows practically every month. This is necessary because practically the entire year is required to go over the orchards. The availability of manure also enters into this question as it is frequently impossible to secure it at a particular time. Other factors are involved, including labor conditions, which make the time or season of the application of the manure one which must be determined by local conditions. Other things being equal, my opinion is that the manure should be distributed in the furrows if possible during the spring and summer or early fall. In any event it seems desirable that the furrows should be made, filled and covered in these orchards where cover crops are grown before the cover crop seed is sown.

The added experience of the past year in the results of the use of the furrow-manure system have shown it to be an economical method of applying manure, more economical and practicable at the present time than is the broadcast, the pit, or other systems of applying manure in citrus orchards in Southern California. The vigorous growth of the fibrous roots of the citrus trees in the buried manure in the furrows and the corresponding tree and fruit conditions which have universally followed the intelligent use of this system have demonstrated beyond any reasonable question of a doubt its commercial value.

The reason for the beneficial results

(Continued on Page 391.)

USL
STORAGE BATTERY
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All our repairs - on any make of battery - are guaranteed for 8 months
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Is that good old battery of yours getting balky?

IT may require only a skillful repair to bring back its snappy motor-spinning power. No matter what make of battery you have in your car, drive to your nearest USL Station for Golden Rule Service.

USL Service Stations don't have to sell a fixed number of batteries each month, that's not the USL Policy. Often when a man thinks his battery is done for and wants to buy a new USL, our Service Stations show him how they can save money for him by repairing his battery and giving him an adjustment guarantee for eight months. That is "Golden Rule" service.

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If you are having trouble with your automobile battery or your farm lighting battery, be sure to see the USL Service Station Man and have the trouble corrected at once.

The USL Farm Lighting Storage Battery

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Likely there's one of our fifteen hundred service stations in your town. If there isn't, for the address of the handiest, just drop a post card to the nearest of the following distributors:

Sunset Electric Co., Seattle, Wash.
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Automotive Service Agency or Earl D. Waldoone, San Francisco, Cal.
Electric Equipment Co., Los Angeles.

Cling Peaches $137.00

That is what some growers received who delivered their fruit to this big company which they own themselves.

The average price for all grades Number 1's, Number 2's and culls, was $117.00.

These growers expect even better prices for the season of 1920. If you are interested and want more information, write to the

California Co-operative Canneries

General Offices:—San Jose, Cal.

Plant No. 1—Vegetables, San Jose, Cal.
Plant No. 2—Fruits, San Jose, Cal.
Plant No. 3, Tulare, Cal.
Plant No. 4. Visalia, Cal.

DAYS OF GRACE

(Continued from Cover Page.)

However, from this figure may be deducted two to five per cent depreciation on farm buildings, five to six per cent depreciation on farm fences, 10 per cent depreciation on farm machinery, 15 to 20 per cent depreciation on tractors and farm autos.

The allowable deductions on account of being married, caring for dependents, etc., and in addition the total amount paid to church, charitable, educational, and scientific institutions provided the amount does not exceed 15 per cent of the net income.

But there are thousands of questions which will come up in the process of making out these reports. At least, there are 122 of them which the revenue collectors have already recognized and given answers to in "Income Tax Primer for Farmers." A copy of this primer may be had at every collector's office, or if not, and our subscribers will write and send two cent stamp, the Cultivator will send copy by return mail. This is a 32-page booklet and will prove of wonderful help. Here, for instance, are Questions 1, 2 and 3, with their answers:

1. Who is a farmer?
   The term "farmer" as used in this primer embraces persons operating stock, dairy, poultry, fruit, or truck farms, plantations, ranches, or any land used for fruit raising or agricultural purposes.
2. I am a farmer. Am I required to made a personal income tax return for 1919?
   Yes; if your total net income for the taxable year was $1,000 or over, unless you were married and living with your husband or wife on the last day of your taxable year, in which case you should file a return in the event your total net income equaled or exceeded $2,000.
3. To what personal exemptions am I entitled?
   If on the last day of your taxable year you were a single person you are entitled to an exemption of $1,000; if you were married and living with your wife or husband, or were the head of a family, you are entitled to an exemption of $2,000. You are also entitled to a further exemption, whether single or married or the head of a family, of $200 for each person (other than husband or wife) dependent upon and receiving his chief support from you, if such dependent person is under 18 years of age, or, regardless of age, if incapable of self-support because mentally or physically defective.

PLANT TREES NOW

These Copious Showers Spell Tree Insurance

For your convenience we give herein our stock list of this date. While many varieties are sold out, you will note the assortment of the best sorts is still fairly complete. Any tree you plant now will grow. Trees are all in first-class shape—for hardiness, good roots and freedom from disease Silva-Bergtholdt foothill-grown trees have no equal. Note prices quoted, likewise the number in each variety and size available for your planting.

STOCK LIST, FEBRUARY 28, 1920

ALMONDS ON ALMOND AND PEACH ROOTS

	Each	10	100
4 to 6 feet	$0.55	$4.75	$40.00
3 to 4 feet	.50	4.25	35.00
2 to 3 feet	.40	3.50	30.00
18 to 24 inches	.30	2.50	20.00

ALMOND ON ALMOND—	6-8	4-6	3-4	2-3	18-24 in.
Drake's	....	....	....	1,852	500
I. X. L.	....	1,266	93	638	1,710
Ne Plus Ultra	....	....	278	2,424	250
Nonpareil	....	1,490	304	739	1,200
Peerless	....	460	10	227	340
Texas Prolific	....	551	156	801	35

ALMOND ON PEACH—	6-8	4-6	3-4	2-3	18-24 in.
Drake's	....	220	485	369	260
I. X. L.	....	79	175	....	250
Ne Plus Ultra	....	842	929	313	120
Nonpareil	....	120	375	468	710
Peerless	....	367	151	138	70
Texas Prolific	....	30	....	....	40

APRICOT ON APRICOT, PEACH AND MYROBOLAN ROOTS

	Each	10	100
4 to 6 feet	$0.65	$5.75	$50.00
3 to 4 feet	.60	5.25	45.00
2 to 3 feet	.45	4.00	35.00
13 to 24 inches	.35	3.00	25.00

APRICOT ON APRICOT—	6-8	4-6	3-4	2-3	18-24 in.
Blenheim	....	76	....	....	....
Hemskirk	....	230	49	143	80
Moorpark	....	....	....	....	40
Newcastle	....	12	53	830	20
Routiers	....	60	....	171	....
Royal	....	20	....	231	159
Tilton	....	87	....	42	....

APRICOT ON PEACH—	6-8	4-6	3-4	2-3	18-24 in.
Hemskirk	....	2	16	143	....
Moorpark	....	....	....	30	....
Newcastle	....	....	82	166	29
Routiers	....	9	94	46	....
Royal	....	2	48	16	30
Tilton	....	....	....	50	....

APRICOT ON MYROBOLAN—	6-8	4-6	3-4	2-3	18-24 in.
Royal	....	34	120	42	....

APPLES

	Each	10	100
6 to 8 feet	$0.70	$6.00	$55.00
4 to 6 feet	.65	5.50	50.00
3 to 4 feet	.55	5.00	45.00
2 to 3 feet	.45	4.00	35.00

APPLES—	6-8	4-6	3-4	2-3	18-24 in.
Alexander	....	....	16	....	....
Arkansas Black	....	5	16	27	....
Baldwin	....	4	....	....	....
Early Harvest	55	20	....	....	....
Gano	....	50	50	....	....
Gravenstein	6	....	....	....	....
Grimes' Golden Pippin	....	50	50	....	....
Jonathan	....	147	335	....	....
King David	10	7	103	13	....
Ortley	17	85	17	....	....
Red Astrachan	32	140	....	84	....
Red June	....	....	33	....	....
Rhode Island Greening	....	119	50	....	....
Rome Beauty	....	59	42	....	....
Spitzenberg	....	112	141	....	....
Wagner	....	18	63	....	....
White Astrachan	119	131	68	5	....
Winesap	23	61	14	....	....
Winter Banana	26	....	30	....	....
Yellow Bellflower	22	26	114	27	....

CRAB APPLES—	6-8	4-6	3-4	2-3	18-24 in.
Hyslop	....	9	25	....	....
Red Siberian	13	8	8	....	....
Transcendent	10	10	38	....	....
Yellow Siberian	....	13	60	....	....

CHERRIES

	Each	10	100
6 to 8 feet	$0.75	$6.50	$55.00
4 to 6 feet	.65	6.00	50.00
3 to 4 feet	.55	5.00	45.00
2 to 3 feet	.45	4.00	35.00
18 to 24 inches	.35	3.00	25.00

CHERRIES ON MAZZARD—	6-8	4-6	3-4	2-3	18-24 in.
Bing	20	....	....	....	150
Black Tartarian	....	25	25	73	156
Burbank	23	10	33	37	....
Early Chapman	277	81	7	241	....
Knight's Early Black	....	53	....	51	23
Lambert	....	230	....	....	....
Rockport	....	69	....	....	....

PEACHES—CLINGSTONE AND FREESTONE

	Each	10	100
4 to 6 feet	$0.70	$6.00	$50.00
3 to 4 feet	.60	5.00	45.00
2 to 3 feet	.50	4.00	35.00
18 to 24 inches	.40	3.50	25.00

PEACHES—CLINGSTONE—	6-8	4-6	3-4	2-3	18-24 in.
Day's Late	....	138	130	204	....
Levy	....	....	....	78	....
McDevitt	....	14	10	....	20
McKevitt	....	44	40	49	....
Phillips	....	7	....	14	17
Tuscan	....	....	5	40	....

PEACHES—FREESTONE—	6-8	4-6	3-4	2-3	18-24 in.
			Each	10	100
Alexander	....	40	30	106	....
Eulatis	....	49	141	319	130
Early Crawford	....	....	3	120	....
Early Elberta	....	....	8	635	260
Elberta	....	204	450	1,450	774
Fay Elberta	....	....	200	54	....
Foster	....	....	....	23	10
Hale's Early	....	34	84	286	....
J. H. Hale	....	111	1,004	362	120
June Elberta	....	300	403	223	140
Lovell	....	79	....	....	195
Mayflower	....	....	79	....	....
Muir	....	....	....	....	169
St. John	....	437	702	761	260
Salway	....	51	124	22	150
Strawberry	....	46	....	....	....
Triumph	....	294	377	140	....

PEARS ON JAPANESE ROOTS

	Each	10	100
6 to 8 feet	$0.70	$6.00	$50.00
4 to 6 feet	.65	5.50	45.00
3 to 4 feet	.50	4.50	40.00
2 to 3 feet	.40	3.50	30.00
18 to 24 inches	.30	2.50	20.00

PEARS ON JAPANESE—	6-8	4-6	3-4	2-3	18-24 in.
Bartlett	775	1,082	229	1,592	836
Beurre Bosc	....	....	30	121	20
Beurre Clairgeau	....	42	40	19	....
Beurre d'Anjou	....	....	....	318	185
Beurre Hardy	....	....	38	8	2
Comice	....	....	292	219	100
Forelle	114	63	....	20	....
Glout Morceau	....	21	142	....	....
Seckel	10	19	22	19	....
Wilder	....	617	8	....	....
Winter Bartlett	....	65	125	....	....
Winter Nelis	....	....	139	201	10

BLACKBERRIES

	Each	10	100	1,000
All varieties	$0.20	$1.50	$10.00	$40.00
Lawton				934
Lucretia Dewberry				500

PHENOMENAL

	Each	10	100	1,000
All varieties	$0.30	$2.50	$20.00	$150.00
Phenomenal				155

QUINCE

	Each	10	100
All sizes	$0.75	$6.00	$50.00

	6-8	4-6	3-4	2-3	18-24 in.
Pineapple	....	250	....	50	....

LOGANBERRIES

	Each	10	100	1,000
All varieties	$0.25	$2.00	$15.00	$100.00
Loganberries				978

SHIPPING PLUMS ON PEACH AND MYROBOLAN ROOTS

	Each	10	100
6 to 8 feet	$0.70	$6.00	$50.00
4 to 6 feet	.65	5.50	45.00
3 to 4 feet	.50	4.50	40.00
2 to 3 feet	.40	3.50	30.00
18 to 24 inches	.35	3.00	25.00

PLUMS ON MYROBOLAN—	6-8	4-6	3-4	2-3	18-24 in.
Green Gage	101	287	58	26	....
Burbank	147	....	....	6	....
California Blue	....	....	....	20	10
Climax	....	....	....	13	....
Damson	....	....	....	10	....
Diamond	158	202	336	249	60
Duarte	110	....	....	30	29
Gaviota	....	161	74	212	....
Grand Duke	235	47	131	144	23
Jefferson	10	....	....	7	....
President	26	....	452	306	30
Satsuma	....	8	....	....	....
Tragedy	20	....	14	45	211
Wickson	....	....	....	40	....
Yellow Egg	30	....	14	....	....

PLUMS ON PEACH—	6-8	4-6	3-4	2-3	18-24 in.
Beauty	35	536	165	332	60
Burbank	....	....	154	750	50
California Blue	380	....	85	289	228
Diamond	33	....	....	287	110
Duarte	400	....	319	269	60
Gaviota	13	73	351	693	200
Gee Whiz	....	....	80	130	....
Grand Duke	563	257	159	140	....
Jefferson	5	113	404	310	....
Kelsey	....	579	73	118	20
President	....	248	510	994	390
Santa Rosa	142	194	....	....	380
Satsuma	20	131	141	73	16
Tragedy	210	118	148	423	80
Wicksou	7	....	....	34	....
Yellow Egg	....	....	71	40	....

PRUNES ON MYROBOLAN, PEACH AND ALMOND ROOTS

	Each	10	100
6 to 8 feet	$0.70	$6.00	$50.00
4 to 6 feet	.65	5.50	45.00
3 to 4 feet	.50	4.50	40.00
2 to 3 feet	.40	3.50	30.00
18 to 24 inches	.30	2.50	20.00

PRUNES ON ALMOND—	6-8	4-6	3-4	2-3	18-24 in.
			Each	10	100
French	....	....	....	1,303	1,670
Imperial	....	....	....	....	100

PRUNES ON PEACH—	6-8	4-6	3-4	2-3	18-24 in.
French	....	321	....	4,557	3,815
Imperial	....	5	86	666	85
Robe de Sargeant	....	....	....	99	170

PRUNES ON MYROBOLAN—	6-8	4-6	3-4	2-3	18-24 in.
French	....	....	....	3,489	....
Imperial	276	....	157	36	86
Robe de Sargeant	....	109	418	253	204
Standard	....	39	22	29	....
Sugar	....	....	....	....	167

NECTARINES

	Each	10
4 to 6 feet	$0.70	$6.00
3 to 4 feet	.65	5.50
2 to 3 feet	.55	5.00

NECTARINES—	6-8	4-6	3-4	2-3	18-24 in.
New White	6	6	11	26	....
Stanwick	....	13	53	48	....

WALNUTS

	Each	10
6 to 8 feet	$2.10	$19.00
4 to 6 feet	1.90	18.50
3 to 4 feet	1.60	14.50
2 to 3 feet	1.45	12.50

WALNUTS—	6-8	4-6	3-4	2-3	18-24 in.
Eureka	5	5	4	12	....
Franz	....	....	16	....	....
Mayette	2	53	129	29	....
Wilson Wonder	3	18	31	130	....

FIGS—COMMERCIAL

	Each	10	100
4 to 5 feet	$0.75	$6.50	$50.00
3 to 4 feet	.65	6.00	45.00
2 to 3 feet	.55	5.00	40.00
1 to 2 feet	.45	4.00	35.00

FIGS—	6-8	4-6	3-4	2-3	18-24 in.
California Black	....	237	....	....	89
Capri	....	42	115	379	280
Adriatic	....	....	....	13	....

OLIVES

	Each	10	100
1 inch up	$1.25	$10.00	$80.00
¾ to 1 inch	1.00	8.00	70.00
⅝ to ¾ inch	.85	7.00	60.00
½ to ⅝ inch	.80	6.50	55.00
⅜ to ½ inch	.65	5.50	45.00

OLIVES ON PICHOLINE—	1 & up	¾-1	⅝-¾	½-⅝	⅜-½
Mission	2,100	415	1,005	1,406	....

ORANGES, LEMONS AND POMELOS

	Each	10	100
1 inch up	$2.50	$20.00	$175.00
¾ to 1 inch	2.00	18.00	160.00
⅝ to ¾ inch	1.85	17.00	150.00
½ to ⅝ inch	1.75	16.00	130.00

ORANGES—	1 & up	¾-1	⅝-¾	½-⅝
Oonshiu	31	30	30	30
Tangerine	25	31	28	29
Valencia Late	46	49	39	....
Washington Navel	55	136	57	25

LEMONS—	1 & up	¾-1	⅝-¾	½-⅝
Eureka	....	7	....	....
Lisbon	22	49	27	58

POMELO—	1 & up	¾-1	⅝-¾	½-⅝
Marsh Seedless	18	45	39	21

CURRANTS

	Each	10	100
All varieties	$0.35	$3.00	$25.00
Cherry			1
Fay's Prolific			652
Perfection			462

GOOSEBERRIES

	Each	10	100
All varieties	$0.30	$2.50	$20.00
Oregon Champion			213

RASPBERRIES

	Each	10	100	1,000
All varieties	$0.25	$2.00	$15.00	$75.00
Cuthbert				30
King				234
St. Regis				90

EUROPEAN GRAPES

	Each	10	100
No. 1 Rooted Vines	$0.25	$1.75	$10.00
Black Ferrera			769
Black Morocco			1,154
Emperor			318
Fountainbleau			447
Malaga			136
Muscat			189
Purple Damascus			176
Rose Peru			1,678
Seedless Sultana			98
Thompson Seedless			368
Tokay			292

SEEDLINGS

	15c Each
Peach	179
Mazzard	353
Myrobolan	1,725
Japanese Pear	8,287
Apple	85

Planting for home or commercial orchard, make your selections today
Immediate shipment will be made on your order

SILVA-BERGTHOLDT CO.

NEWCASTLE **P. O. Box 237** **CALIFORNIA**

When It Comes to a Real "Show-Down"

PATRIOT

Farm Motor Trucks "Go Through"

On paved highways, no truck gives more satisfactory and economical service than the Patriot.

But if you want to see this unusual truck really perform—get right down and pull—send it charging through hub-deep mud, up slippery hills, through clogging sand, over newly plowed ground.

You will be astonished at the willing ease with which the Patriot answers unreasonable demands.

Built for the Farmer

Patriot Trucks were designed to stand up and deliver under the unusually difficult conditions that prevail on the farm. We expect the owner to use his Patriot every working day of the year, fine weather or foul, good roads or bad.

Patriots are easy to run and keep running. Few adjustments are necessary, little attention required.

Ask us to send you the new Patriot Catalog.

HEBB MOTORS COMPANY, Manufacturers
1339 P Street, Lincoln, Nebr.

Revere Model	Lincoln Model	Washington Model
1500 to 2590 lbs. Capacity	3000 to 5000 lbs. Capacity	5000 to 7500 lbs. Capacity

Built for Country Roads
Built for Farm Loads

(31)

Think it over

If the seed you planted in good ground did not produce, would you plant that same kind of seed again?

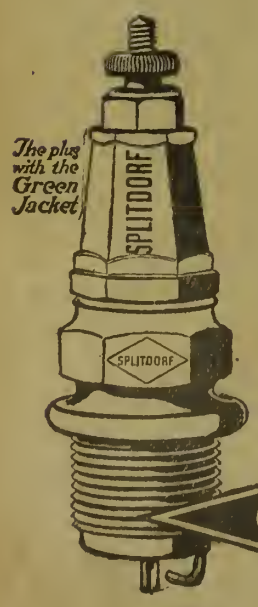
Then why replace a broken porcelain plug with another porcelain plug?

The Splitdorf Spark Plug—break-proof and leak-proof—"The Plug with the Green Jacket"—has no porcelain to break to put it out of commission and make a new plug necessary.

East India Ruby Mica exclusively is used for insulation, and unlike porcelain it never chips, cracks or breaks.

There is a special type Splitdorf Green Jacket Spark Plug best suited for your engine—with the right Splitdorf Plug, once installed, you simply forget spark plug trouble.

Write for booklet that will show you the correct plug for *YOUR* engine.



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93 Warren Street, Newark, N. J.

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Established 1858

More About Nematodes

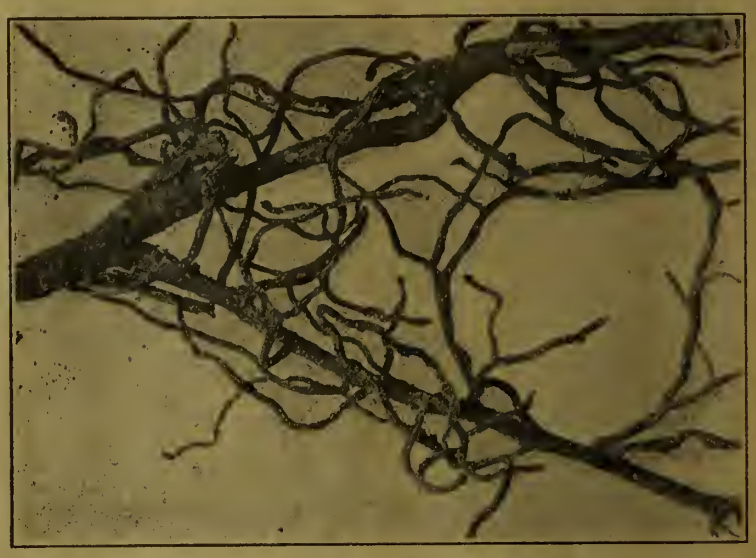
OUR last week's paper, with the warning as to the serious situation confronting California producers because of nematodes infesting much of our soil, was not yet off the press when the following communication from A. H. Bobo, Riverside, was received, giving even more emphatic warning of care needed not to further spread this pest. Mr. Bobo sends photos showing much the same condition illustrated in the engraving in our last issue, but his additional warning is certainly worth heeding.

Mr. Bobo writes:

"I have been watching and trying to find some relief from them for the past two years. Last summer they killed all my squash and pumpkins. Then in October I noticed they had commenced on my carrots, parsnips, salsify and rhubarb. In fact, most all vegetables to some extent, but they were worst at that time on carrots and rhubarb. They began work on a half acre of small white beans. I noticed them first in July, 1919, on 20 rows 310 feet long. I irrigated through redwood flume, and I noticed them first next to flume where beans were just beginning to bloom, and by September their work had reached about 200 feet down each row. Here I practically did not harvest any beans, but from the other 110 feet I received 135 pounds of nice beans. The same way with seven rows of carrots, same length, which I never dug, until January 24, 1920, and the nematodes had fully covered every row. Next to the carrots I had growing Irish potatoes, two rows, which I planted the second day of February, 1919. I plowed them up July 1 and they were all affected except about 50 pounds. Next to the potatoes were two rows of rhubarb planted in February, 1918, which has very few nematodes on it at this writing. These I had bought from a neighbor. They were examined on February 17, 1920, by Prof. Sharp of Riverside and Prof. W. V. Shear of Sacramento, who happened to be in Riverside in the interest of the potato industry. I also had two more rows of rhubarb of the same length which I had bought from a man living near Los Angeles. They had practically died, so I plowed them up the first of January, 1920, and found them badly affected.

"I wish also to state that on February 12 I was in San Bernardino and happened to see a large truck unloading vegetables at a grocery store, and the first thing I noticed was a box of parsnips with enough nematodes on them, if retailed by the bunch, to stock every backyard or garden in San Bernardino. That aroused my ire, and as I had a little time I passed in front of four more grocery stores and found lug after lug of parsnips, carrots and salsify, literally covered and alive with them. Then the next day and every day since that I have been in Riverside I have watched and found the same trucks unloading to nearly all the stores the same kind of stuff.

"I hope this will open the eyes of those who can stop the spread of this dreadful pest and try to find a remedy."



Root Knot on Orange Caused by Nematodes

"Methods of Marketing Vegetables in California" by Stanley S. Rogers is the title of Circular 217 issued by the agricultural experiment station of the University of California. It touches upon practically all methods of handling fresh vegetables; direct to consumer, through stores and hotels, selling in cariots and otherwise. It even touches upon plans for the garden and lists of California gardening crops. The larger vegetable producers will find it of value.

Strawberry Roots Infested With Nematodes

General Motors Trucks

Plenty of Work for a Truck

There is plenty of work on a farm for a motor truck besides just hauling produce, grain or live stock to market. And once you have a truck ready for any job, you will wonder how you ever got along without it.

There is no question about the utility of a dependable motor truck on any farm.

The important thing is to select the dependable truck.

Do not make the mistake of thinking that because you do not need a truck for hard usage every hour of the day, you will save money by buying a cheap truck.

No good farmer thinks of buying a poorly constructed plow or planter simply because he does not use it all season.

When you use a truck, you want the assurance that you are going to get to your destination and back again.

You want a truck that is dependable under all conditions; one that will give satisfactory service and will not be in the repair shop when needed for work.

GMC trucks are reliable, durable and moderate in price. They are made in all capacities from ¾ ton to 5 tons.

If you will tell us your trucking problem, we can help you select the right truck for your service.

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GENERAL MOTORS TRUCK COMPANY

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Pontiac, Michigan

(613)

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914

Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

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Saturday March 6, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THE RAIN

"It isn't raining rain to me; it's raining daffodils"—even cabbage heads. At least it so appeared from the size of the drops as the rains came down this week. And they have reached from far north of Shasta to Mexico, though the extreme North does not yet seem to have struck its natural rainy day gait. The native grasses are now nearly knee high and hay and grains are working overtime. The mountains can still take a bit more snow, but it is going to be a wonderful year.

SUPPORTING THE RAILROADS

Farmers are surely enthusiastic and loyal supporters of transportation. This may not be because of patriotism when the government was in control nor because of love when private interests are in control—perhaps because they don't plan ahead. They dig their potatoes, take them to market, and before the next crop are paying three or four prices and buying them back in two-bit packages while waiting for the next crop. Their wheat goes to market; their flour comes in over the same railroad. Five dollars worth of wool is sent to Boston; it comes back in the form of a suit of clothes, but somewhat reduced in weight, and the same farmer that grew it pays $75 for it—possibly, if he is easy, $100.

Now comes the hay producer to the city and pays the hay speculator $41 per ton—and in addition various commissions, cartages, etc.—for hay which he sold a few months ago for $15, $16 or $17. This shows a warm interest in the welfare of the stockholder of the railway. Many of his dividends are made possible because of this double haul.

To be sure, the drouth came and the farmer's calculations were somewhat upset, but something is likely to come every year, and if it's fair to repeat a former suggestion—"Let's have a head and use it."

HIGH COST OF FARMING

A reviewer of markets recently asserted that "Six years ago today eggs were selling at a slightly higher figure than today," in fact, two cents more, according to market reports given in the California Cultivator. At the same time in 1914 California Club wheat was quoted at $1.52½ per cental; good Eastern corn, $1.70; barley, $1.30; Gyp corn, $1.65. In 1920 wheat, mixed feed, (not California Club by any means), $5.20 up; Gyp, $3.55; corn yellow, $3.38-$343; barley, $3.60.

Yet to be popular today we have to say that the poultryman is a profiteer.

FORM 1040-A

The nightmare will soon be over, except in memory, or ratber, there will be a for-sure nightmare if we do not end the making out of our individual returns prior to March 15. The whole worrysome, exasperating, maddening bunch of questions from "1 Did you make return for 1918?" down to "L. Total net income" has caused a great scratching of the bald spot on top and a wondering as to how many years we will go up for if we fail to get exactly correct all the items under "A," "B," "C" and on down to "H"——"L."

Most of us are now ready to turn over to the department of the interior one-half, or even all, of that "total net income" if the department will only make out our report for us.

ROADS ARE OPEN

Trucking companies, stage lines, and, in fact, all motor users, are appealing for early opening of the roads in some sections of the East. Business men of Albany, New York, recently gathered and discussed the blocked motor traffic situation. Now they are extending their movement to neighboring cities and even urging the state legislature to appropriate sufficient funds to "keep principal highways open to traffic the year around."

California has made no extensive investigations along this line, but out here we have been succeeding very well in so fully occupying the landscape with golden poppies that there is no room for snow banks.

12 DOLLARS A DAY

The appeal to avert impending disaster by less lavish spending comes with little force to most of us; the necessities of the case impel to greater economy. This is true, we believe, of the great majority in towns, and certainly in rural communities. Notwithstanding this, the windows of the larger shops and the crowds at the counters which are not bargain counters, indicate that some are buying and buying heaviiy. This may be explained by the fact that free spenders are securing long wages these days. We know of one job—doubtless there are many others—where bricklayers are being paid $12 for eight hours work. They begin promptly on time; they stop equally as promptly. This has caused many a farmer boy to leave the farm for the longer wages of the city, and is resulting, or will result, in lessened production on the farm. There are today 17 per cent less hired men on farms in the state of New York than there were a year ago, and in addition it may be said that the number of people living on farms of that state is three per cent less than in February 1919. This means that in that one state there are 35,000 fewer men or boys engaged in farming. This is a more rapid movement from the farms than took place in the early part of the war.

When these boys become bricklayers at a dollar and a half an hour they become free buyers of the wheat and other things Dad is still producing on the old ranch. This liberal buying, together with large demands from foreign countries, is going to leave America short on food unless there is less exported or less consumed here.

CHEAP MONEY

The cheapest commodity these days is money—far higher in value in America than in any other section of the world, but still of little value as ordinarily used, that is, considered on the basis of its purchasing power. Its rental, or more correctly its interest, value seems to remain up. In fact, commercial centers report a "hardening" tendency.

Farming, like many industrial and commercial operations, calls for money in excess of that in hand of the farmer or the operator. Hence, credit. And credit is the biggest factor in modern day business. Rural credits have, however, never been on a satisfactory basis and rural development has suffered because of this lack.

For a score of years methods of improving rural credit conditions have been discussed. During Theodore Roosevelt's administration a commission was sent to Europe to investigate. It made its reports and much discussion followed. Still better, action resulted in the establishment of federal farm loan banks. The management of these banks has labored under the embarrassment of having absolutely no American precedent and has fully realized that it was pioneering and in danger of taking a step which might jeopardize the entire movement. Hence, caution has been the word, but notwithstanding this, in the short time these banks have been in operation they have closed 111,131 separate loans and turned over in cash to farm owners $296,386,496. This up to December 31, 1919. Our own Pacific Coast bank, the headquarters for District 11, has actually closed 4,988 loans and turned over to farm owners $15,713,200. One district bank, that at St. Paul, has made loans totaling over $39,000,000.

But these loans proving as beneficial as they are, also proves that there is need for still greater need for cheap money. For here are other figures to be considered in connection with those 100,000 loans already closed:

In addition to that 100,000, there have been approved, but not yet closed, some 20,000 other loans. Also, there have been 73,843 applications, involving $188,735,495, which have been rejected. These rejections, every ono of which probably meant as great need as those which were approved, are still in the market for cheap money. This to say nothing of the great number of farmers who are unable to give the required real estate security, but who could use beneficially to themselves and the country short time money.

A loyal supporter of the federal farm loan bank in San Diego County has taken us somewhat to task because of referring to effort on the part of the Commonwealth Club of San Francisco to gather a fund of information as to means of securing relief for this type of rural credit. We simply call the above facts to his attention and to the attention of others who are desiring larger and more complete rural development. More efficient labor and greater capacity of management must be supplemented by more capital, and at rates as favorable as are extended to those engaged in manufacturing and merchandising.

MUTUAL FIRE INSURANCE

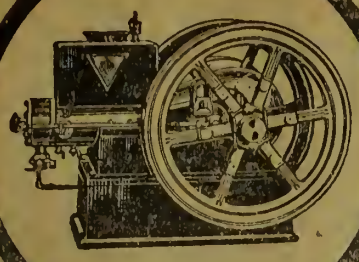
Farmers pay millions of dollars into the hands of large manipulators of the country's capital for protection against fire losses. Unlike life insurance, premiums paid on fire insurance are usually gone forever, that is, of all the buildings, crops or livestock which are insured, only an exceedingly small percentage is destroyed and recompense made by the insuring concern.

This money is transferred from the producing community to the large financial centers. If the farmer wishes it returned to aid him in his operations, a rate of interest, sometimes prohibitive, is charged. The question arises as to the wisdom of the producers of the country uniting and cooperating in protecting each other, and this gives opportunity to remark that that is exactly what is being done by large numbers of progressive producers.

This has been made possible in California by a special law which originally permitted only farmers in one county to unite in such an organization. Now, however, these mutual companies may extend their business beyond the county boundaries and even enter cities. There are certain restrictions, however, on them which do not apply to the larger old line companies. That is, they may not insure business property; they may not place more than $4,500 on property in any one city block. There are also severe restrictions in the matter of risks and in the maximum which they may place on rural property. While these restrictions sometimes prevent as large extension of activities as the directors desire, they are assurance of safety, and under them various mutual associations have sprung up in California, which have become profitable to the members. There are some 19 county mutual fire insurance companies in this state and considerably over 2,000 in the United States.

The largest losses these companies have had in this state in any one year aggregated but little over $100,000, but so far as we have heard every legitimate loss has been paid. The state of Wisconsin has made investigation as to insurance carried in that state by large corporations practically all located outside the boundaries of the state. It was found that four of these companies collected in net premiums $5,344,394 and paid out in losses $1,599,964. All told the stock corporations in that state collected from the people $38,913,017 more than they returned. This in a period of ten years.

If it can be so arranged that this money, less reasonable administrative expense, can be kept in the hands of the farmers and ultimately returned to their pockets, it looks like good business.



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The Viking Pump driven by the reliable Alpha Engine will save you fuel and money every time you use it.

This saving will soon make up the difference in first cost between it and a "cheap outfit" and leave you with a dependable, durable pumping plant that will continue to save you money.

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JOHN H. REED

One of California's finest characters, a lover of trees, and a practical horticulturist, John H. Reed, died at his home in Riverside, February 26. Mr. Reed was the organizer of California's first horticultural club, was tree warden of Riverside for many years, and in every way encouraged the growing of forest and fruit trees. He not only organized horticultural clubs, but long after he was able to participate in fruit growers' meetings and institutes, he attended and encouraged so far as he could discussion and study of best of horticultural methods. To his initiative and effort is due largely the establishment of the citrus experiment station and the state school to be connected with the station, investigation as to decay in fruit shipments, plant breeding problems, etc.

We are indebted to the Riverside Press for the following sketch of his life:

John H. Reed was born in Rootstown township, Portage County, Ohio, in June of 1832, the son of Horace and Lois Reed. After finishing the common schools he attended Holbrook Normal at Lebanon, Ohio, and later he taught mathematics and languages in the same school. In 1858 he married Miss Catharine Morris and together they engaged in educational work for several years at Lebanon and Mansfield, Ohio. Growing deafness incapacitated Mr. Reed for school work and he transferred his attentions to the world of merchandising. Later failing health led him to California and in 1890 he settled in Riverside with his family, buying acreage which he set to orange and lemon trees.

Mr. Reed was truly the father of tree planting in Riverside and the beautiful shade trees lining the streets of the city are his most perfect monument.

VALUE OF FUMIGATION

In February, 1919, some labor trouble arose that halted the fumigation of the six acre orange grove of J. R. Abbot at San Gabriel just as one-half the trees had been treated. The trees are large seedlings a quarter century old and in prime condition. The remaining half was not fumigated until February of the present year. The crop on the six acres is estimated to be not less than 2,400 boxes and Mr. Abbot told the writer that at least two-thirds of the crop would come from the half that was fumigated last year. No precise record of this production can be kept, unfortunately, for the entire crop has been sold on the trees. These trees are large, 16 feet or more high, and the fumigation with liquid gas cost about $2.05 a tree. The crop sold on the trees for $2.50 a box, and if it is found to be at the minimum estimate of 2,400 boxes for the six acres, this will give a gross return of $1,000 an acre.—E. B.

The '49er says= "the genuine GIANT dates back to 1866"

"I remember well when we used black powder for stump blasting and mining. Just after the Civil War the first Giant Powder ever made in the United States was manufactured in a little laboratory in what is now Golden Gate park.

"Out of that beginning has grown The Giant Powder Co., Con., with its chain of great plants and magazine stocks throughout the entire West. And the Giant Farm Powders are being used for stump blasting, boulder blasting, tree planting, etc., by thousands of Western land owners. Giant Powders have always been so popular that some people have thought any ordinary dynamite was Giant Powder, but that is wrong. The only way to get Giant economy and efficiency is to get the genuine Giant Powders made by the originators of the name."

Just tell us "send me your book," and we will mail you our valuable guide to blasting. "Better Farming with Giant Farm Powders."

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STUMPING GIANT FARM POWDERS EUREKA

This Folder Tells You How To Make Your Idle Land Earn Money

This is the day and age when you should make every foot of land produce profits for you. If you have any size tract ranging from 80 to 5,000 acres in the Western States that need development you should send for this book at once. It tells you the way to develop your property through the use of Hydro-Electric plants, gravity irrigation systems, pumping plants, grading, and buildings; in fact, it points out the various essentials that are necessary to make your ranch a producing property.

Now is the time to act, so that you can get a crop from your land next year. It is a certainty that crops will bring good prices next year, so take advantage of this condition and get your land under cultivation now.

Write today, stating location of land and number of acres.

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The largest producing perennial grass in the world for warm countries. Rich in protein, carbohydrate and ash. Splendid feed for all kinds of stock, with no bad effects.

Place your order now for March and April planting. Large orders a SPECIALTY.
Price of Joints: $1 per doz.; $4 per 100; $12 for 500, or $20 per 1000.
Root Plants: $1 per doz.; $5 per 100, or $40 per 1000.

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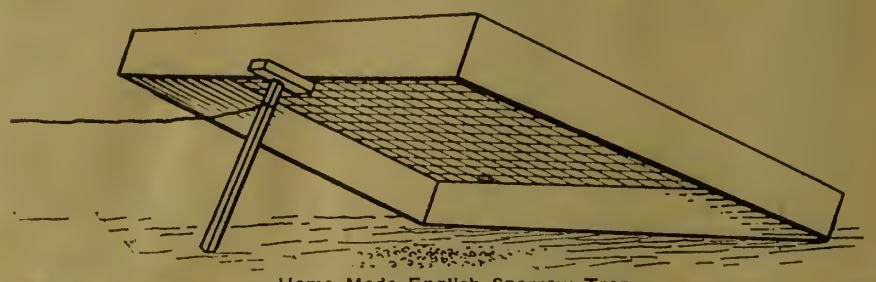
Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Sparrow Pest

Will you please give me a method for getting rid of sparrows? The poisoned grain used for squirrels does not kill them. They eat more grain than my chickens and destroy garden plants. —Subscriber, Paso Robles.

The English sparrow is a serious pest in some sections of California as well as every other state of the Union. It has been characterized as equally as serious a pest as the rat. It not only steals the feed intended for poultry but destroys fruits and buds of flowers of practically all cultivated trees and shrubs. Unfortunately its control is not easy. A general fund of information has been given by the United States department of agriculture, Washington, D. C., in Bulletin No. 383, "How to Destroy English Sparrow" and Bulletin No. 493, "English Sparrow as a Pest." These may be had, if still in print, by dropping a post card to the department. A larger and more complete publication, Bulletin No. 1, "The English Sparrow," was issued many years ago, in fact in 1889, by the division of economic ornithology and mammalogy, United States department of agriculture. Without question this bulletin is out of print by this time. The best method of procedure is first to destroy their nests during the breeding season. Where they have formed the habit of gathering in large numbers on the poultry feeding ground the poultry may be corralled and hundreds of the sparrows may be killed by the use of a shot gun with fine shot. If the grain is scattered in a long narrow line the birds will gather along this line and a gun held very low will sometimes gather in large number of them at a single shot. Another way is to place the bait on a horizontal platform or board in the poultry yard at an elevation such that one with a shot gun may pick off numbers of them at a time. Captured in this way the pest may be made to reduce the H. C. of L. somewhat for they are excellent food. Trapping is also followed successfully by some. A screen frame at least four feet square, preferably much larger, may be arranged as shown in engraving. After a few days of feeding under this screen and the sparrows have learned to gather in large numbers the cord is given a quick pull and the birds are trapped and may then be destroyed. As a rule poisoning is not satisfactory. The lives of fowls and even of members of the family may be endangered. If poison is used wheat is the best. Here is a formula which it is declared will cause the death of the sparrow if from two to six grains are eaten. The capacity of a sparrow's crop is about 30 kernels of wheat. Add ⅛ ounce strychnia sulphate to ¾ of a gill of hot water, boil until dissolved Moisten 1½ teaspoons starch with few drops cold water, add to the poison solution, then heat till the solution thickens. Pour this hot poison starch over one quart of wheat and stir until every kernel is coated. Use the poorer grade of wheat because the kernels are smaller and more easily eaten by the sparrows. Spread this poisoned grain thinly on hard flat surface to dry. When thoroughly dry it may be placed in fruit jars. Washing in very hot water will free these jars of any possibility of poisoning. Spread out a small quantity only at a time because if this poison grain is exposed to moisture it soon loses its virulence. For safety to poultry a heavy rain or the feeding ground thoroughly washed under pressure of hose removes danger. It must be borne in mind that beneficial birds are killed as well as the pest and poisoning should be used only as a last resort.



Home Made English Sparrow Trap

The MOLINE Tractor is Universal

It is THE ONLY FARM POWER-PLANT

Combining

Exclusive Features with Indispensable Results

1. Does all field work, including cultivating, harvesting and belt work	*Means*	No duplication by horses
2. One man completely operates both tractor and all implements	*Means*	A large saving in labor
3. A single seat in the center of all controls of tractor and implement	*Means*	Great ease of operation
4. A single unit of operation—the tractor and implements form but one unit	*Means*	Can back and turn short
5. Operator sees all his work—"Foresight is better than hind sight"	*Means*	Better and faster work
6. Tractive power in front of the work with operator behind the work	*Means*	Power used as horses are used

UTILITY IS NOT SACRIFICED FOR PRICE

The Power of a Correct Principle

The principle of doing all field operations with one man sitting where he can watch his work is correct, or farming has always been done backward, and the operator would always have ridden or led his horses instead of driving them.

The Moline Universal Tractor places the power of nine big horses where the horses stood—is driven just like horses are driven, from the seat of the implement, and hitched up to the implements just like horses are hitched.

NOTE—If desired you can use the "drag behind" or horse drawn implements you now have with the Moline Universal the same as with other types of tractors.

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Sulphur on Citrus Trees

Is the dry dust spraying with lime-sulphur and other chemicals effective on citrus trees?—Subscriber.

I suppose our subscriber wishes to know as to red spider control, and we may say that the dry lime-sulphur treatment has been used to a large extent. We believe the greater number of present day treatments are given with simply the high grade flowers of sulphur alone. See article by Mr. Davis in issue of August 9, 1919, page 144; also article by Prof. Quayle in issue of February 7, 1920, page 198.

Thornless Blackberry

I notice that on my one year old Cory Thornless blackberry vines there is here and there a lateral shoot that is thorny just like the regular thorny stock. Is there any probability that the whole vine will eventually revert back to the old thorny type?—Subscriber.

This is hardly probable. However, we have learned so much within the past few years regarding bud variation that we will be glad to hear from subscribers who have made observations along this particular line.

California Wonder Corn

The result of ten years' selection. Produces six times as much as common corn. First prize winner at San Francisco Land Show. Quick and big returns from a small investment. All seed produced from corn bearing 5 to 12 ears per stalk. Grows 10 to 16 feet in height, producing enormous crops of very rich ensilage. Choice selected seed for sale at reasonable prices, shelled, on the ear and stalks with all the ears on them. Our illustrated booklet, giving full history and details of this wonderful money-maker, sent free on request.

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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Anaheim Disease—Phyloxera

Is the Anaheim disease in grape vines the same as phyloxera?—Subscriber, Los Angeles.

No, these are two entirely different troubles. Phyloxera is a minute insect or plant louse infesting the roots and sapping the vitality of the vine. Some American varieties of vines are practically immune to attacks of the pest, but introduced European varieties are greatly injured and even killed by it. Anaheim disease, a California vine disease, is another question. If any vineyardist can inform us as to just what it is and give a cure for it he will go to the head of the class or have a monument erected in his memory. There have been many bulletins published on this trouble. One of the first of these was Builetin No. 2, "The California Vine Disease," by Newton B. Pierce, issued by the division of vegetable pathology, United States department of agriculture, Washington, D. C. This is a 220 page book. There is no known cure for this disease.

Literature on Pheasants

In addition to information given in answer to query under above head last week: Bulletin No. 1, "Pheasant Raising," issued by state board fish and game commissioners, Sacramento; also Farmers Bulletin No. 197, "Importation of Game Birds and Eggs for Propagation," issued by United States department of agriculture, Washington, D. C.

Tansy Mustard

I am sending under separate cover a weed which seems to be getting a good headway in my alfalfa and I believe it came with the seed. I wish to know if it is harmful and what it is.—Subscriber, Lucerne Valley.

This plant is doubtless Sisymbrium pinnatum, the tansy mustard, a rather common weed, especially in interior valleys, being frequent from the south to the upper ends of the San Joaquin Valley. It is no more harmful than other members of the mustard, nor is it of great feeding value and merely is an undesirable weed.

Pollenizing Corn and Milo

Would like to know if kafir corn or milo will intermix with field corn or popcorn if planted near together. Would it be all right to plant the kafir between a feld of corn and a field of popcorn on a ranch of seven acres?—Subscriber, Puente.

There have been freaks which confounded the scientists and things have happened which "couldn't." However, it is probably a safe proposition to plant a strip of milo or kafir or any of the sorghums between the two varieties of corn. If the strip is wide enough it is probable that the corn and the popcorn would not mix, and, as noted, there should be no effect from close planting of any of the sorghums.

Gasoline for Killing Squirrels

As I have read your paper for a number of years and have never seen anything about using gasoline for killing squirrels, I thought you would like to know about it. We have used it with good success. It can be used the same as carbon bisulphide. We wet a ball of old burlap and put down the hole, then close it up tight. It is so much cheaper than carbon bisulphide and easier to get that I should think there are lots of farmers who would use it if they knew.—A Subscriber, Orange.

Pumping Difficulties

We made a well for a neighbor, ten

FIRST IN FAVOR

IT is significant that Ajax Cord Tires have won such marked popularity among men who give their cars hard usage.

Yet it is most logical, for two special Ajax features—Shoulders of Strength and the Cleated Tread—give Ajax Cord Tires exceptional resistance to wear. Shoulders of Strength brace the tread, and re-inforce it. Those thick sturdy cleats hold—just like the cleats on an athlete's shoes.

Ajax Cord Tires, Ajax Road King (fabric) Tires, Ajax Inner Tubes and Ajax H. Q. (High Quality) Tire Accessories are sold at the nearest Ajax Sales and Service Depot.

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I will ship you any style WITTE—2, 3, 4, 6, 8, 12, 16, 22 or 30 H-P.—Stationary, Portable, Saw Rig—or a Lever Control Drag Saw on short notice. Cuts a third faster. Tell me WHAT you want and WHEN. Latest improvements—lower prices. Anything you want in the Engine line.

KEROSENE ENGINE

SAVE $15 to $500

Catalog FREE

BOSCH Ignition

Write for prices on all styles WITTE, with BOSCH Standard Magneto. It's High-Tension—the only successful ignition for kerosene. Hot spark—sure fire—easy to operate. Lowest priced H. T. Ignition Engine Sold Direct—Big Saving—Quick Service. Full information by return mail. ED. H. WITTE, Pres.

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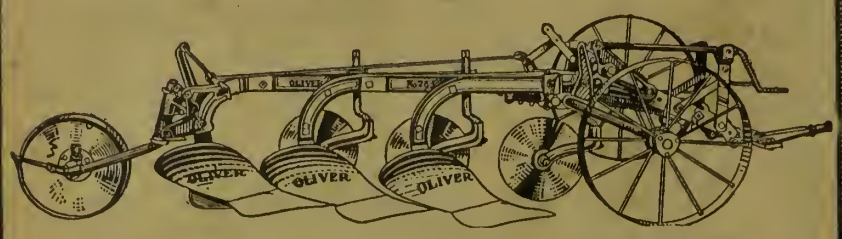
3101 Oakland Ave, Kansas City, Mo. 3101 Empire Bldg. Pittsburgh, Pa.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Oliver's New Orchard and Vineyard Tractor Plow



Three or Four Bottom, 10 Inch Cut—Chilled or Steel.

This remarkable plow marks a progressive step in plow making. It is something new, with radical improvements in design and material.

It is far in advance of any other gang on the market and challenges the admiration of the public.

It provides the necessary adjustability for plowing to and from the row and is innocent of any "fruit picking" levers. It is leverless, low, automatic and happily devised to meet the difficulties of orchard and vineyard plowing in every way.

Beams, Axles and Braces are of heat treated steel for extraordinary strength and rigidity.

Altogether a marvel and already far in the lead. Sooner or later it will be copied, but never improved by its imitators.

Descriptive literature on application.

Oliver Chilled Plow Works

"At Your Service"

Los Angeles San Francisco

When Writing Advertisers, Mention the Cultivator.

inch casing 46 or 48 feet to landing, depth 88 feet. Seemed to be plenty of water sand. Pit dug about 12 feet, put in four inch pump and six horse Fairbanks-Morse Z engine, 32 feet suction pipe. It makes the engine work as hard as it can, lowers the water in well to 23 feet from top of casing, but never pumped much sand and does not get much water. Is there power enough, and would a larger engine give more water? — Subscriber, Kerman.

The data given is not sufficient to determine where the trouble lies. We presume a centrifugal pump is being used and, if so, a good pump should lift 325 gallons per minute with a six-horse engine in good working condition, the total lift and suction being 35 feet, as stated. If the pump is doing this it is all that can be expected with the present power.—J. B. N.

Keeping Seed Potatoes

Will you please tell me how to keep seed potatoes from sprouting too early?—Subscriber, Solvang.

Cold storage at 38 degrees is the best method of keeping the seed, or if stored in cool, dry place and occasionally sprouted the seed may be well preserved.

Tile Drainage

I have just purchased 20 acres which I wish to drain or tile. It is almost level but falls a little to the southwest. The present outlet is a county or district ditch 80 rods from my west line. There is a 14 inch tile line along the roadside from the southwest corner to district ditch, but this tile is only 18 inches deep at my southwest corner and my neighbors tell me all of the fall has been taken up. I think I can get more fall east. Would you advise having it surveyed? What fall or grade should the tile have? Should the main line have more fall than the others? How deep should the tile in my field be to drain the land right? What size tile would you advise? How far apart should the lines of tile be? This is peat land and very soft in places. Will you please give me your very best advice. I will appreciate it very much. —Subscriber, Santa Ana.

We do not fully understand the situation from the statement of our subscriber, but one feature appears plain, the main outlet, or drain, is too near the surface to be of any great value. Eighteen inches depth would not give results from tile draining which would justify the expense. Even on sticky, fairly heavy adobe or clay the drains should be laid at a depth of three feet, and if soil is somewhat sandy, four feet. The shallower the system of draining the closer together the laterals must be laid. In addition the distance apart depends somewhat upon the nature of the soil. In rather a fine close soil the laterals should be 60 or 70 feet apart, while in a sandy soil where the moisture should pass more readily they may be perhaps twice that, providing they are at least three or four feet in depth. The grade or fall of the outlet should be at least one inch to each hundred feet. In the laterals it should be twice as great. The fall, however, depends somewhat upon the size of the tile. The above slope is given for tile at least five inches in diameter. The expense of laying three inch tile is not considered justified because it does not give so efficient service at any time and may choke or cease to be effective in a short time. A suggestion of possible value to our subscriber is to dig a pit or well at one corner of the place near the public outfall or drain, then place power pump in this to lift the drainage and throw it into the outfall. The United States department of agriculture has issued several bulletins and circulars on drainage, draining of irrigated farms, and other topics, and a letter to the department at Washington will secure these. We believe also the agricultural experiment station of the University of California at Berkeley has issued bulletins on drainage of alkali lands. These can also be secured on request to the university.

Hens Eating Feathers

I noticed article in the Cultivator of February 21 about hens eating feathers. I will say that it is a disease and I am going to give you a remedy that will surely cure it, as I have used it for years:

Place three lumps of lime the size of an egg in two quarts of water and with that drop in a quarter of a pound of powdered sulphur and boil gently for an hour. When cool pour off liquid, bottle and cork tight and label, and use a tablespoonful in a quart of drinking water daily for a week, allowing no other water to drink, and the feathers will soon come out again and they will stop eating them. I put ten drops in one quart of the water for incubator chicks and they will not pick one another. Wrap bottle in paper and keep in dark place.—Mrs. A. C. Landon, Watsonville.

VALUABLE KNOWLEDGE GAINED

"Well, Freddie," said his mother, "did you learn anything new at school today?"

"Yes'm," said Freddie.

"What did you learn new?"

"I got on to a new way o' gettin' out o' school for an hour an half, by snuffin' red ink up me nose."

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This Month in the Vegetable Garden in Southern Arizona

By M. E. Bemis

THE gardener has almost as wide a range of seeds that may he planted in March as he has in Fehruary. The list comprises asparagus, heans, heets, carrots, collards, citrons, cucumbers, cress, lettuce, melons, mustard, pumpkins, okra, parsley, parsnips, peanuts, peas, onion sets, pepper seeds, pepper plants, radishes, salsify, spinach, tomato seeds and tomato plants.

Preparation of the ground is even more important than for the early garden, for the reason that the soil dries more quickly, hence it is more necessary to have a fine seed-hed and as much moisture as possible in the ground. There is more danger of the soil haking, hut on the other hand germination should be more rapid. There is not much danger of killing frosts, although it is hy no means certain that there will not he some frosts even as late as April first, hut the element of risk is comparatively small, so small that it does not pay to wait for a later date to plant seeds of tender plants. Tomatoes and cucumhers may he cut down, and the same is true of a number of others that are mentioned in the ahove list, hut as seeds are comparatively inexpensive and the early vegetables are worth so much more than later ones it is well worth the risk to plant early.

March is about as late as one can start an asparagus bed from seed. The Palmetto is the most popular variety and the seed should he planted in rows three feet apart and ahout one inch deep. Roots from this planting will be ready to transplant into the regular asparagus bed the following spring.

Beans are another tender crop, but for the early spring crop they should he planted in rows two to three feet apart. One pound of seed is sufficient to plant 80 feet. The following pole beans are recommended for this section: Kentucky Wonder, Kentucky Wonder Wax. Broad Windsor, and White Seeded Kentucky Wonder. Bush varieties are Stringless Green Pod, Black Wax, and Imperial Golden Wax. Burpee's Bush Lima and the Large Lima are to he recommended. Another hean grown here to some extent is what is known as the Aztec bean. It is claimed that the seed was found in one of the many cliff dwellings in Arizona and improbahle as it seems the seed was planted and grew. The seed resemhles the lima hean in size but is rounder. The pods grow to be more than a foot in length. These are not grown extensively although the quality is fair, rather hetter than the Tepary beans which like the Aztec seems to he peculiarly adapted to the arid climate.

Cucumhers, squash, pumpkins, citrons and melons should be planted in hills four to six feet apart each way. The following varieties of cucumbers are recommended for Southern Arizona: Klondike, Arizona Davis Perfect, Early White Spine, Improved Long Green and Boston Pickling. The Japanese climhing cucumher is grown somewhat as a novelty and is said to have fair quality but has never hecome popular on the market. Golden Huhhard and Fordhook squash are all right for this part of the country, and Mammoth Summer Crookneck and Early White Bush Scallop are fine for early summer varieties.

Cantaloupes are usually raised under field conditions only, although there is no reason why they might not be grown successfully in garden culture. Rocky Ford and Burrells Golden Gem are prohahly the most popular. Kleckley Sweet, Tom Watson and Rattlesnake watermelons are grown more than any other varieties, but the hlack seeded Chilian sells for the highest price on the local markets. Another melon that has come into popular favor to a considerable extent is the Honey Dew. This comes on about the time that cantaloupes are passing and is also shipped to a considerahle extent. Pumpkins are not grown as largely as one would expect, although they produce well and are of good quality. There is a good demand for them on the markets. Besides furnishing the family a few extra they should return a good profit. The Small Sugar, Large Cheese and Japanese Pie are found to do well.

Peanuts are being grown more than formerly and yield splendidly where a good stand is secured. With most growers that have experienced any difficulty ln growing peanuts the failure to get a stand is the chief trouhle. The Virginia Bunch has proved to he the hest adapted for Salt River Valley conditions. In loose soil they may be planted in rows three feet apart and 20 lnches ln the row. Some prefer to plant level or nearly so, gradually drawlng the earth to the plants, thus forming a furrow. Peanuts require considerahle water. They are not difficult to grow when a stand ls secured and production is heavy enough to make the crop pay well.

Salsify may be planted this month, the Mammoth Sandwich Island being the most popular. Tomatoes may he transplanted late in the month or earlier if protected. They may also he planted where they are to remain and later thinned out. Chalk's Early Jewel, Earliana and Stone are favorltes among growers. Last season one grower purchased hy mistake a considerable quantity of seed of a yellow varlety. The yield of these was splendid and the quality very fair, hut the market did not demand a yellow tomato, so that he lost heavily. For the home garden a few plants would he found to be a welcome addition. Pepper seeds may be planted at this time of year where they are to remain, saving the bother of transplanting. They may be planted in rows 2½ to three feet apart and thinned to 18 inches in the row. They require fertile soil and considerable water. The Mexican Chili and the Bell Pepper are popular.

APPLICATION OF MANURES

(Continued from Page 382.)

of this system as compared with other systems of applying manure include the conservation of the plant food values of the manure through its prompt covering and protection from weatherlng; the holding by the hunched manure of soil moisture hetween irrigation periods; the location of the manure in the fibrous root zone or that portion of the soil where normal fihrous roots are most usually found; the position of the manure below active cultivation where lt can remain undisturhed; and other factors which are more purely theoretical and need not he considered at this time.

With the present hlgh prices of organic fertilizers, lncluding manure, and the prospect of still hlgher prices in the immediate future it certalnly behooves everyone concerned to conserve and apply in the most economical method possible all of the manure available for the citrus orchards of Southern Californla.

JUST LIKE IRON

"My dear sir," sald the salesman, courteously, as he handed the customer his package and no change, "you will find that your suit will wear like iron."

And sure enough it did. The man hadn't worn it two months when lt began to look rusty.—Tit-Bits (London).

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Put Dr. Hess Instant Louse Killer in the nests before adding the litter and eggs, then the brood will come off free from vermin. Put it in the dust bath—that's always a good thing to do. All fowls will sift it into the feathers and the lice will be quickly killed. Just as good for animals as for poultry. With one hand stroke the hair the wrong way, with the other sift in Dr. Hess Instant Louse Killer. Especially good for lousy colts and calves right now.

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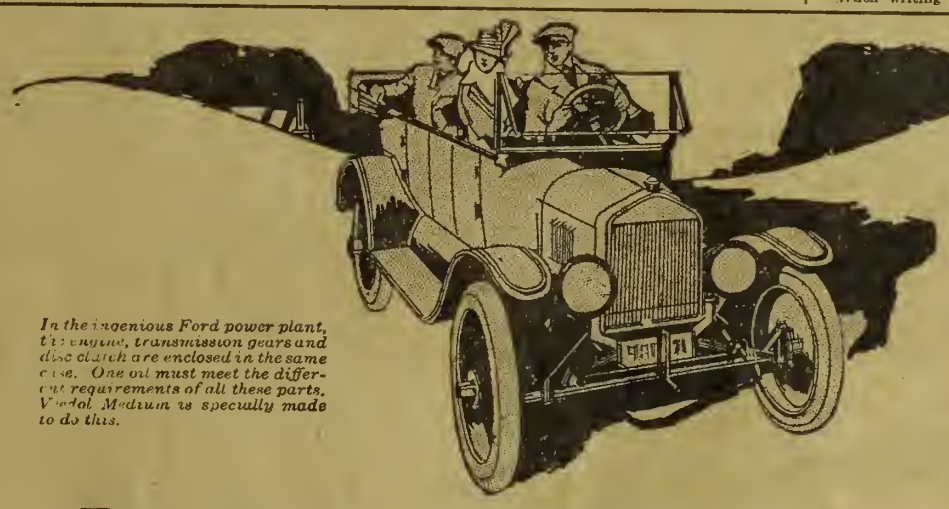

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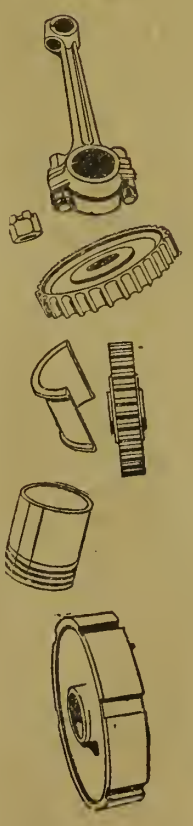

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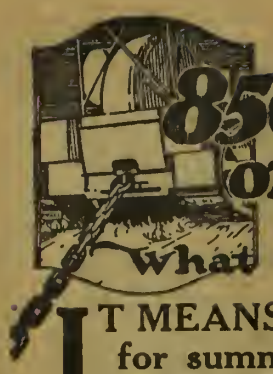

8500 lbs. pull on the draw-bar

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IT MEANS tremendous power available for summer fallowing. It means the saving of the most moisture in your soil. It means rapid plowing of your ground before it dries out.

—it means that in harvest time you have the only power that will pull *any harvester anywhere.*

—it means that in the fall you can plow your land after the first rains come and finish the job before the ground gets too wet to work.

—it means that in other work, such as leveling, subsoiling or chiseling, you have the enormous power necessary to do a big job —economically.

The "Caterpillar" 75 Tractor is the only tractor on the market today that will give you 8500 pounds actual, usable power on the drawbar, at good plowing speed. The "Caterpillar" Tractor is essentially a farm business machine—a tractor that pays for itself by the profits it earns.

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This Month in the Ornamental Garden

Northern California

By A. R. Gould

WITH longer days in sight we shall find this one of the busiest months, as we can plant, propagate, prune and plan for brighter and better gardens. The successful gardener is a dreamer; he sees visions and cultivates that excellent quality so necessary to secure good results—looking ahead. Most of the seedsmen have mailed out their catalogues and there is a wide field for selection, and it is so wide that the garden lover is al ways undecided as to which is the best. The average garden is not large enough to hold them all. Right here we would say that it is the civic duty of all to promote the garden beautiful movement from which each city and the state in general will benefit. California is known the world over for its wonderful climate and flowers, so let us increase the number of gardens and garden cities, which means more of the outdoor life and better and healthier people. Any house without a garden is a blot on the landscape. Get out the tools and prepare for a flower garden this year. Now is the time to sow and plant. We have been encouraged by the rains, which have put the ground into good shape for operations.

Some Old Fashioned Flowers

Of course there are lots of new flowers, or "novelties," as the seedsmen call them, many of which are well worth growing and the extra price asked for seeds or plants, but we continually meet people who are fond of a strictly old fashioned collection of flowers, and if you are anxious to set aside a corner of the garden to enjoy their sweet perfumes, we advise you to plant the following. For the borders make an edging of double white clove pinks. Plants may usually be secured or they are easily raised from seed sown in boxes of sandy soil. They are perennials and after a year or two may be increased by subdivision. Of the same family are the Sweet Williams, which should be planted in groups to be effective. They may be secured in separate colors or mixed. Holborn Glory is a large flowered strain. The columbine is another hardy perennial of considerable value and grows a little taller than either of the two first mentioned. There is now a wide range of delicate shades and the California hybrids of orange and yellow should find a place in this section. The Rocky Mountain type is violet blue and white. Rose Queen is one of the best of recent introduction. Sweet Lavender, without which no old fashioned garden is a reality, is easily grown and is used frequently to border walks or in bold groups. Plants may be secured now from the nurseryman. Among the annuals seeds may be sown of mignonette, Allen's Defiance or Goliath; evening scented stock, Mathiola, Ten Week and Brompton; snapdragons; Shirley poppy; nigella, or Love-in-a-Mist; larkspurs; calendula, or marigold, French and African; sunflowers; sweet peas and zinnias. Others in the perennial class are forget-me-not, or myosotis; primroses; Honesty lupines; heliotrope; pelargoniums and wallflowers. With the balsam, candytuft, violet, pansy and sweet violets we must conclude with the hope that space will be left to add many other subjects from time to time. The arrangement of this garden may be very simple and some prefer one style, some another. However, the old fashioned garden should have its stepping stones and sundial and a place to rest beneath a bower of roses.

Sweet Peas

Those sown last month should now be showing through the ground, and if the birds are troublecome cover with a net or wire screen.

Roses

Planting may continue throughout this month and those plants newly planted should be cut back to the last two or three buds. This will greatly encourage new growth. Roses thrive

The Keynote to Bigger Profits

Spraying is not an expense —properly considered — but an investment that pays for itself over and over again by producing more and better fruit and bigger profits.

But spraying must be done properly—at the right time, in the right way, with the right materials.

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in fairly rich soil. Do not expect fine roses if you plant in poor soil.

Begonias

It is impossible here in these notes to even describe one-half of the varieties of this beautiful flower, as the number now in cultivation would fill many pages, but they are divided into the following types: tuberous rooted, fibrous rooted, winter flowering, and ornamental leaved. The last named are not very hardy and require protection in winter. In summer they may be planted out in a warm sheltered position. They are increased by leaf cuttings placed in sand. The most popular of the fibrous rooted section grown are semperflorens in red and pink shades. These are easily grown and increased by subdivision of the roots or by seed. They grow from six to 12 inches high and may be used for solid groups in the flower beds for the summer display. They should be planted out towards the end of the month in fairly rich soil. The tuberous rooted section has of late years been highly developed and many rare and beautiful forms produced, some tubers costing as much as $125. They range in all the most delicate shades in double and single forms; also a pendulent type much used for hanging baskets. Although it is possible to raise these from seed in a warm greenhouse or small glass frame, for the amateur it is better to secure tubers from the seedsman, who is now booking orders, and the tubers should be started without delay in boxes of soil made up of leaf soil and sand. Place the tubers a few inches apart in the box and cover with glass slightly shaded. Keep the soil slightly moist. After the tubers have started into growth and formed a mass of roots they may be planted in a shady position in the garden to flower. The ground should be richly manured and kept moist.

Climbers to Plant Now

Yellow and white jasmine, cobea scandens, mattress vine, wistaria, bignonia grandiflora, honeysuckle, clematis, solanum jasminoides and passiflora, all make an excellent floral cover for fence, arbor, trellis or house.

Beautiful Trees for Specimens

Cedrus deodara, C. atlantica, C. Libani, Abies pinsapo, A. excelsa, A. concolor, Pinus insignis, P. coulteri, P. cembra, P. excelsa, Araucaria excelsa, A. imbricata, Sequoia sempervirens and gigantea, Lawson cypress—from this choice selection you can plant a tree that will greatly improve your property in years to come.

Southern California

By Ernest Braunton

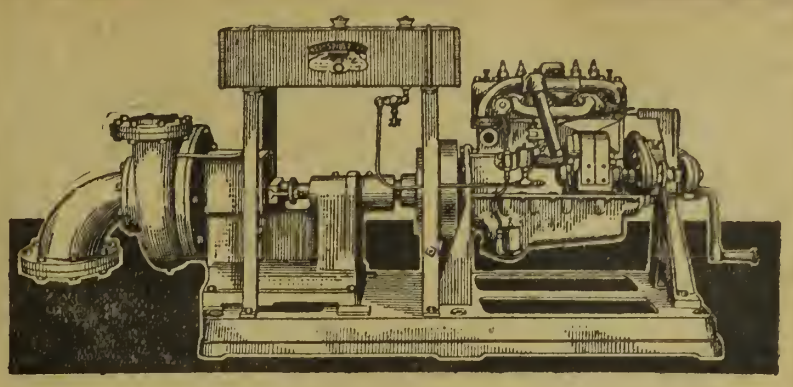
MARCH in California is usually a genuine spring month. Not until then does all dormant life warm into action. If it prove a cool month strictly tropical plants may well be left for April planting, but if continuous warm weather comes the soil temperature will rise to meet any reasonable need and all classes of plants will respond. Therefore there is not a garden activity but may go forward in March. We shall plant and also harvest, propagate, prune, cultivate, irrigate, and fertilize.

During no time of the year will fertilization bring better results. Plant life will be most active, therefore demand most in plant food. If applied earlier, rains may wash much of food value away and cool weather would not allow beneficial bacteria to do their best soil work. But now all life is more redundant than at other seasons and plants respond actively to the stimulus of food.

While of all fertilizers barnyard manure is the best for general use, the more concentrated commercial fertilizers have their greatest value in the spring season. All good gardeners use some nitrate of soda for stimulating sluggish plants, and its effects upon the early rose blossoms is as marked as that upon the onions and lettuce of the vegetable garden.

Seed Sowing

Seeds respond most quickly now, but the same heat that awakens will also kill if the soil is not kept moist near the surface. If one can pass through a sieve of quarter inch or half inch mesh some stable manure



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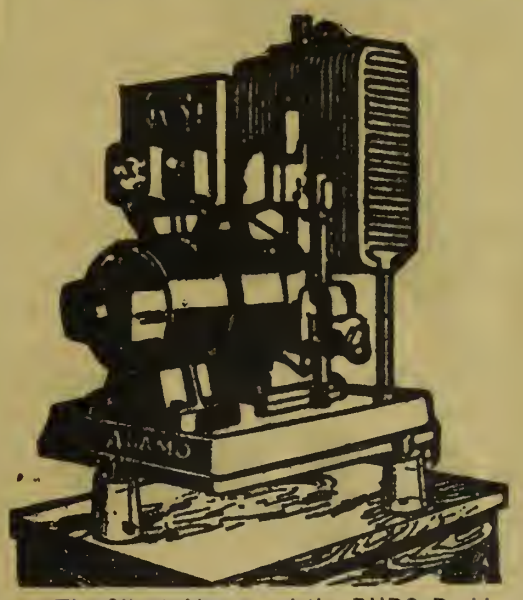

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or decomposed vegetable matter, a light mulch of such material is highly beneficial to seed beds, as it is to all plants as well. Still, one must exercise care in planting too deep. If a mulch is used, do not plant deeply in the soil, for an eighth inch of good mulch will protect seeds as much against drying as will an inch of the average soil.

Summer flowering annuals may be sown in great variety, but except in cool or coastal sections it is too late for sweet peas. If sown now they will flower in the hottest weather and flowers will be small, stems short, and the dark reds, perhaps others, will sunburn.

Aster, balsam, cockscomb, calllopsis, cosmos, larkspur, mourning bride, or scabiosa, nasturtium, pansies, pinks, phlox, salpiglossis, snapdragons, sweet sultan, verbena and zinnia are some of the more common and best for present sowing, but many others are equally in season. Bulbs of begonia, dahlia, gladiolus and tuberose are also timely.

Other Do's and Don'ts

Prune hydrangea, bignonia, bougainvillea and poinsettia now, but don't prune deutzia, lilac, spirea, syringa or weigelia, or you will prune away blossoms. These shrubs should be pruned after flowering for they then make the growth upon which next season's flowers are borne. Vines such as bougainvillea and the trumpet flowers may be cut back to a few long canes with laterals of but two eyes each, as we prune trellised grape vines.

Plant out Shasta dalsy and all sorts of perennial plants clear through the alphabet to and including verbena and violet. Feed roses heavily and some light pruning may be done, but annual blooming climbers such as Banksia, Beauty of Glazenwood, Cherokees and Gold of Ophir will soon blossom and if you prune now you prune away flowers.

Lawn work of all kinds should now be done. Especlally is this a time for making new ones or making over old ones. It is also the time to fertilize for the grass now makes its heaviest growth and therefore needs most food. The main point in new lawns is to have smooth surfaces, and these will never be any smoother than you leave them. Therefore tread over the whole surface for soft spots, and if you find any, tread the soil firmly, adding enough to bring the hollows up to grade. After grass is sown you can never get under it to rectify mistakes of grading.

Southern Arizona

By M. E. Bemis

ALTHOUGH many flowers are in bloom this month in Southern Arizona, such as sweet peas, pansies, violets, and poppies, there are many other kinds of flowers that may be planted now that will add to the beauty of the home grounds. This is the most important month for planting those annual vines which will furnish shade for porches or hide unsightly fences. The list for planting includes all vine seeds, asters, balsams, cockscomb, cosmos, four-o'clocks, helichrysum, cochia, larkspur, marigold, nasturtium, petunia, portulaca, sweet alyssum, verbena and zinnia.

Asters are splendid for bedding and make excellent flowers for cutting. The late flowering varieties of cosmos grow here to a height of five to six feet. Marigolds, if planted at this season of the year, bloom practically all summer. Four-o'clock is an old favorite that does well. Nasturtiums are generally planted in the fall, but may also be planted at this season. Zinnias bloom all summer. Verbenas, although perennials, will bloom the first season.

Of the running vines none makes quicker growth nor furnishes more dense shade that the balsam apple. The follage is attractive and porches may be made beautiful by growing the balsam apple beside it. The blossom is not especially pretty but the yellow and red "apples," with the green follage make the vines very pleasing.

Bulbs and plants that may be put out this month are dahlias, gladiolus, Madeira vines, tuberose, canna, caladium and roses.

This Month in the Vegetable Garden

Southern California

By D. F. Reichard

RAINS—glorious rains—have visited us during the last two weeks. Do not overestimate their benefits. The light rainfall of last year was not enough to soak down to meet the sub-moisture. The rainfall so far this year is insufficient to reach the sub-moisture, let alone to add to the subterranean reserve. Under such conditions this moisture shortage must be overcome either by irrigation during these months while water is plentiful and cheap or by advanced conservation methods.

If a garden plot has been started as suggested in these monthly articles, your ground has already been deeply plowed and worked over and now, after these rains, it should be gone over again by plowing any portion that is not already planted and by clean, careful cultivation of the planted portions. This careful and clean cultivation must continue on through the season if you are to conserve these rains

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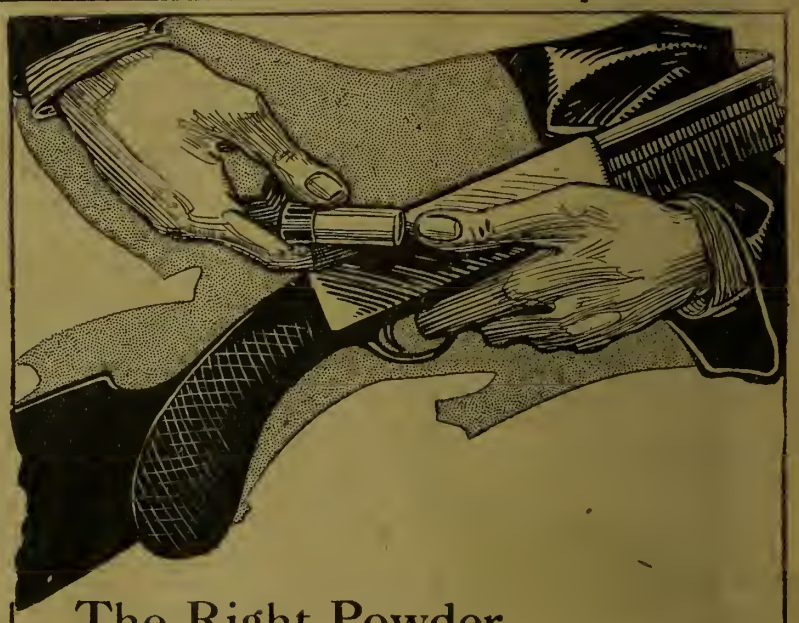

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that are doing as much as they can by coming slowly and soaking in, instead of coming in heavy cloudburst and running off into the ocean.

Those who have been delayed in getting their garden plots under way should have them plowed at once. See that all weeds and grass are well turned under so that it is quickly decayed. This makes fine fertilizer. Then thoroughly pulverize the surface, and after each rain storm, as soon as the ground is in condition, throughout the spring go over the whole plot with a fine toothed cultivator to maintain this fine mulch blanket that keeps the moisture from evaporating.

Now for what to plant. There is still time to set out the perennials, such as artichokes, asparagus, rhubarb, and the berry plants, but the sooner they are in the ground the better. Keep these in rows as much to themselves as possible, so they will not be disturbed when the space for short time crop stuff is being worked. Practically the whole list of vegetables can be put in during March in Southern California. The only exceptions are where plantings are made in cool valleys where heavy late frosts are liable to come.

Watch diligently all growing crops. Attacks from insects and disease may show up at any time now. Especially look out for aphids. Keep some tobacco extract and a sprayer on hand to spray them at first sight. Spray with Bordeaux mixture or lime-sulphur for fungi prevention and arsenic sprays for chewing insect attacks. It is almost too late now to do any considerable pruning because in nearly all cases the sap is rising and your subject is liable to bleed to death.

Northern California

By A. R. Gould

THE recent welcome rains will increase both crops and weeds, the latter being so numerous that they will keep us busy with the wheel cultivator and hoe, which implements are just now the most important for success. All vacant plots should be thoroughly trenched this month and prepared for the season's crops. Again we would advise being liberal with manures, as it is useless to expect crops to be produced on poor soil or to take away year after year and put nothing back. Trench in farmyard manures, decayed leaves, etc., and put your soil in condition to supply plant food. Have your seed order filled this month and get the best your seedsman has.

Beets and Swiss Chard

Sow the following in rows 18 to 20 inches apart: Crosby's Egyptian and Detroit dark red. Thin later to four inches apart in the row. Swiss chard or sea kale beet is an excellent spinach and may be grown under the same cultural methods as applied to beets.

Parsley

Sow seed of the moss curled variety on a small seed bed; later transplant seedlings 12 inches apart in the row or use for bordering the paths in the vegetable garden.

Onions

Continue to plant onion sets three inches apart in the row and thin out the main crop varieties sown previously. Keep the soil well cultivated between the rows.

Peas

Sow for succession Little Marvel, Laxtonian and Melting Sugar. Spray for aphis with nicotine. Put stakes to the tall varieties such as Telephone or stretch wires along for support.

Asparagus

This crop should be well manured and planting completed this month by the first week. Plant strong roots three feet apart.

Tomatoes

Sow seeds of Early Detroit, San Jose Canner and Ponderosa in a warm frame on light soil. Keep the soil moist. Prepare the ground for this crop by deep cultivation, and well rotted manure should be dug in. Avoid planting in ground used for tomatoes the previous year in case there were diseased spores, which would attack this season's crop.

Carrots

Sow for succession Danvers Half Long and French Forcing. Thin out to four inches apart in the rows.

Turnips

Sow Early Snowball and Purple Top, both fine varieties for general use.

Celery

Sow in a frame or box covered with glass, White Plume and Golden Self Blanching. Place in a warm position and keep moist.

Radish

Sow in rows 12 inches apart, Crimson Giant and French Breakfast, in rich soil.

Potatoes

Tubers of Early Rose and British Queen may be placed in flat boxes to sprout. Medium sized potatoes may be cut in two, but see that they have at least two eyes in each. In the meantime heavily trench the ground for this crop with manure.

Lettuce

Continue to sow the varieties Los Angeles and May King, either broadcast in small seed beds or in rows in the plot where they are to remain, in which case sow 18 to 20 inches apart and thin four inches apart in the rows. Sow the seed very thinly.

Strawberries

Keep these well cultivated. They will repay every care given them. At the first sign of red spider or mite, spray the under sides of the leaves, where this pest is usually found, with a fairly strong solution of liquid sulphur, which will be found effective.

PLANTS FOR SALE

Of all the year the present is the most active season for setting out plants in the vegetable garden. Every seed store and plant nursery has on display rapidly diminishing stocks of young plants. A visit to a half dozen dealers disclosed the following on sale, ready for setting in the garden at once: Artichoke, asparagus, cabbage, cauliflower, chard, chives, egg plant, horse radish, kale, lettuce, onion, peppers, rhubarb and tomato. In addition to these were also sorts of berry plants, bulbs, etc., and one dealer called attention to eight named varieties of onion sets he was displaying. Get busy in the vegetable garden.

Fertilize with NITRATE of SODA buy it in sack lots-or carloads from

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The Monarch is made in 5, 6 and 8 foot sizes. We also build the Monarch in a heavier type for tractor work. Ask your home town dealer to show you the Monarch; if he does not carry them, write direct to us for catalogue and prices.

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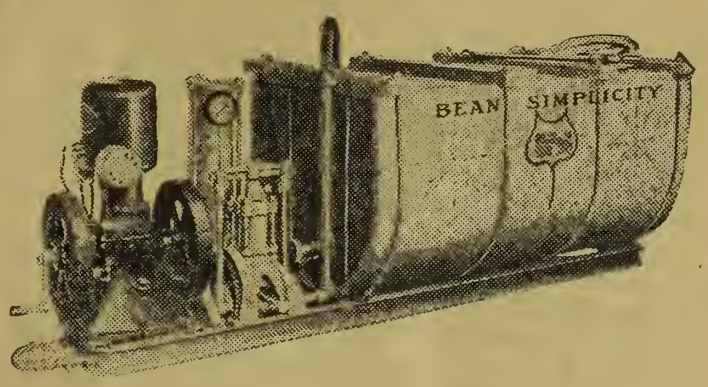

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The same Bean dependability—the same high quality of both materials and workmanship, just as much efficiency, in fact a little more—but a highly simplified product.

Ask for information on these new Simplicity outfits. The one shown above is distinctly a "One-man" outfit for the smaller grower.

It's thoroughly high class in every respect—maintains 200 lbs. pressure and operates one spray gun doing the work of two men. It is low in price. It is described in full in our Catalog 33.

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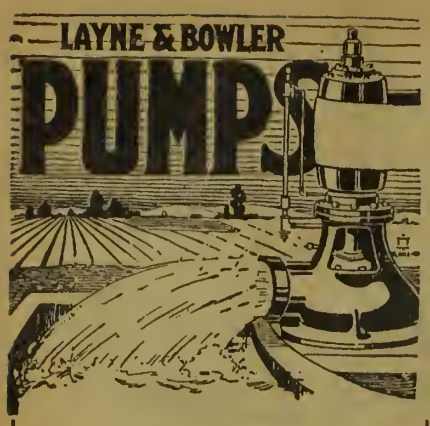

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First Livestock Week a Success

By R. P. Royce

THOSE who had the privilege of attending the full sessions of the first Livestock Week held at the university farm, Davis, February 24-27, were very generally of the opinion that the week, the first of the kind ever held in California, was a decided success and that every effort should be made to make it a permanent event. While the attendance perhaps left considerable to be desired, the weather conditions that have prevailed throughout the state has been such as to slow the enthusiasm of those engaged in livestock production, but during the last day the severe drouth was effectively broken by a drenching rain and every one went home happy.

The idea of setting aside a week wherein could be grouped the interests of the beef cattle men, the dairymen and the swine men was suggested last spring by Professor Gordon H. True, of the animal husbandry department. For several years past there has been a disposition on the part of various livestock organizations to meet and hold sales at the university farm. For the most part such sales and meetings have been highly successful and it occurred to Professor True that inasmuch as the interests of the livestock men often overlapped it would be a fine thing if as many of the associations as possible could be induced to arrange their meetings and sales to come in the same week. The plan met with immediate approval and last week's meetings were the result.

Representative Livestock Men at the Davis Meeting

From left to right, standing: Robert Dunlap, Sacramento; A. D. McCarty, San Francisco; Ben A. Rhoades, Los Angeles; Frank Tomson, editor, Shorthorn in America; Thomas T. Miller, Hollister; E. Lowell, Diablo; Senator Ben F. Rush, Suisun; E. Franklin Colfax, Director of the California State Agricultural Society; J. McDonnel of San Mateo; W. M. Carruthers of Liveoak; W. Edwards of San Francisco, John Troop of Santa Barbara. Seated or kneeling: W. J. Dibblee of San Francisco, Secretary Charles Palne of the State Agricultural Society; C. N. Hawkins, Jr. of Hollister, Professor J. I. Thompson of the University Farm, Davis; C. Harold Hopkins of Woodland, George Dierssen of Sacramento, and W. Chapelle of Willits.—Photo by Mac & Nac.

To what extent the week can be developed in the future will depend upon what steps are taken by the university and the business interests of Davis. Davis is but a small village and the lack of sufficient hotel accommodations makes it necessary for visitors to stop in Sacramento. Such necessity is rather disagreeable and the trip to and from the capital city causes a loss of time and makes the holding of night meetings almost impossible. The situation is keenly appreciated by the university authorities and the townspeople of Davis and it is certain that steps will be taken to solve the problem.

That the idea is full of possibilities there can be not the slightest doubt. The plan is not new; other states have been holdings such meetings for years, indeed, in many of the Eastern states Farmer's Week has become one of the most influential factors in the agricultural activities of the state. While the eastern meetings can be arranged to take care of the majority of interests, it is probable that general meetings will not prove practical in California owing to the specialized lines of production.

In view of the fact that the first two days of the week were featured by sales of Herefords and Shorthorns, the program was arranged to include subjects of intimate concern to the range man and special emphasis was laid on range management and organization. The value of calf clubs was strongly urged and there was evidence that within the coming year a number of calf clubs would be organized and operated along the lines developed by pig clubs.

T. N. Lorenzen of the Shasta national forest explained in detail the methods used in classifying ranges in the national forests. T. J. Jones of the Plumas national forest discussed "Community Range Management" and pointed out the necessity of cooperation among the users of range if the most value is to be derived from the allotments.

Dean Thomas F. Hunt of the college of agriculture discussed the present status of the livestock industry and with an elaborate set of tables and charts pointed out the trend of prices. It was the opinion of Dean Hunt, based on extensive observations and precedent that the return to normal prices will require a number of years and can only come about through greatly increased production.

The afternoon of the first day was occupied with a sale of Hereford bulls and females consigned by members of the Pacific Coast Hereford Cattle Breeders' Association. Twenty-four females were cashed for an average of

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Proper feeding is necessary to insure a heavy milk yield and still keep her in perfect physical condition for the critical time of calving.

The cow shown on the left is the mother of the twins above. She was fed

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Great Western Milling Co. Los Angeles

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$426 and 30 bulls sold for an average of $375.

After the Hereford sale two two year old draft colts were sold. A Shire colt from the university stud fetched $300 and a Percheron consigned by M. Bassett of Hanford, brought $225.

The Wednesday session was opened by C. E. Ratchford of the forest service who presided for Fred H. Bixby, president of the California Cattlemen's Association. H. H. Simpson of the Inyo national forest discussed "Ways and Means for Range Improvement," outlining in detail the plan used by the forest service for determining the class of stock to be used, the carrying capacity and plan of management for best results.

Geo. H. Wilson of the university gave a very interesting talk on "Supplemental Feeding for Range Cattle." Wilson pointed out that the time had come when the range interests of this state must seriously consider providing some sort of feed to carry cows and young things through periods of short feed. Wilson urged a wider development of the water resources of the ranges and exhibited samples of grasses that promise to be of great value in range development. The practicability of silos in range management was suggested.

O. M. Plummer, manager of the Pacific International Livestock Exposition, Portland, told of the part that livestock shows play in the development of the agricultural resources of a state and declared that the results obtained through the holding of an annual show at Portland could not be estimated and urged that every effort be made to assure the holding of such a show at San Francisco.

Wednesday afternoon was given over to the annual spring sale held by the California Shorthorn Breeders Association, a detailed report of which will be found elsewhere in this paper.

Thursday was swine day. Originally it had been planned to hold a sale of Poland China bred sows and gilts but some difficulty developed that prevented getting the necessary number and the sale was therefore called off. During the morning the annual meeting of the California Swine Breeders Association was held. Roy Filcher of Corcoran, who has played an important part in developing the auction plan of selling fat hogs, declared that through that plan of selling the prices paid the San Joaquin raisers have generally ruled higher than the primary Eastern markets, and said that this method of selling is susceptible of extensive development. He pointed out that through the auction sale the producers had learned the kind and quality of pork demanded by the buyer and that better boars and more efficient feeding methods had been stimulated.

J. Francis O'Connor of Santa Rosa, who has made a marked success in the pure bred hog business, gave an interesting account of his experiences in starting a breeding herd. O'Connor took particular pains to urge the importance of starting with the right kind of breeding material. Professor J. I. Thompson of the university farm explained the feed law that is now in operation and showed how to make practical application of the information appearing on the tags attached to mixed feeds. Thompson then discussed in a general way the important factors in preparing a satisfactory ration.

Moving pictures of the winning Poland Chinas at the 1919 National Swine Show were exhibited.

The afternoon session was largely given over to a discussion of contagious abortion in swine. Until quite recently, within the past month as a matter of fact, contagious abortion in swine has not been considered a factor in swine production. The disease has been known for a number of years, but the degree of infection has been so slight that little or no attention has been given it. Early in the year an outbreak was discovered in Missouri and was reported in the Poland China Journal. Almost at the same time the disease made its appearance in California herds and since that time other outbreaks have been reported. Because of the extreme menace of the infection the University of California lost no time in making investigations. Experts from the veterinary department were assigned to the work and for several weeks past have been working night and day to learn something of the trouble. The animal husbandry department undertook to make a survey of the swine herds of California to ascertain the extent of the infection and to date reports from 115 herds indicate that about nine per cent of the herds reporting have had losses from abortion. One breeder reported at the meeting that he had lost 30 litters this season. Other herds report smaller losses. Doctors Hayes and Traum, who have been carrying on the university investigations, and Doctor Haring, chief of the veterinary department, outlined the work accomplished by the institution to date. In the opinion of each the disease may develop into one with most serious consequences to the swine breeding interest of this state. So far there is considerable evidence to indicate that the same organism that causes abortion in cattle, the bacillus of Bang, is responsible for the infection in swine. As a matter of fact the experts have succeeded in isolating an organism found in infected sows, that can not be distinguished from the one known to cause abortion in cattle. Blood tests made from aborting sows have given the same reaction as similar tests used in cattle abortion. The disquieting feature of the disease is the fact that the veterinary profession can offer very little definite information as to how the trouble can be handled. California swine interests are in a fortunate position however in having Dr. Traum who is responsible for first finding the bacillus of Bang in sows, and who is generally recognized as one of the leading abortion experts in the veterinary profession. The university authorities have recognized the importance of the new infection and have announced that no stone will be left unturned that may lead to a successful method of combating the trouble. Plans are being made to carry on extensive experimental investigations and it is expected that the swine growers of this state will cooperate in every way possible to the end that some definite knowledge can be developed.

Following the conference on abortion the California Swine Breeders Association met in annual session and the following officers and directors were elected: A. D. McCarty, San Francisco, president; Roy M. Filcher, Corcoran, vice president; Frank B. Anderson, Sacramento, secretary. The directors are: C. B. Cunningham, Mills; J. Francis O'Connor, Santa Rosa; J. I. Thompson, Davis; M. Bassett, Hanford; J. E. Thorp, Lockeford and Harold Braly, Newbury Park.

The dairy interests held the stage on Friday and one of the largest crowds of the week was present. J. R. Gallagher, president of the Bodega Cow Testing Association, told of the value of testing associations to the individual farmer and the community. Gallagher used his own experience as a case in point. When he first became identified with a testing association he had 99 cows that produced 13,000 pounds of fat a year. By adopting a plan based on the slogan: "Breed, Feed and Weed," he has reduced his herd to 75 cows with an annual production of 19,000 pounds of fat. The labor required has also been reduced.

S. H. Green, secretary of the California Dairy Council, told of the present dairy situation. Greene presented much information regarding the production of dairy products of this state and country as well as the leading foreign dairy nations. Greene declared that the great need was for more educational propaganda not only among the city population but among the dairy producers.

John S. Watson of Dixon, vice president of the Associated Dairymen of California, urged the necessity of cooperation among dairymen and pointed out the many benefits that have resulted from the operations of the existing dairy organizations.

Professor F. W. Woll of the university outlined the plan for the proposed California State Dairy Cow Competition for 1920-1922. Professor Woll said that the plan had progressed far enough to make the holding of the competition a certainty and that it was likely that an extremely attractive prize list could be depended upon. A committee was appointed to assist in formulating the classification.

During the afternoon session a judging demonstration was held by Professors Rubel and Castle. Representative types of the various breeds were used.

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Exclusive Advantages

The De Laval Milker is a distinctly different type of machine, positive and uniform in action. It is faster, more reliable and more sanitary than any other method of milking.

Among the many new and exclusive advantages in its construction are the following:

Udder Pulsator, close to cow's udder—insuring uniform, snappy action of teat-cups.

Pulsation speed cannot be adjusted or tampered with—always uniform and pleasing to the cows.

No pulsator springs, washers or regulating screws—pulsator has only one moving part.

Alternating action at fixed speed—the two front and the two rear teats milked alternately and uniformly.

Self-adjusting teat-cups—fit both large and small teats.

Pulso-Pump—especially designed rotary machine providing the vacuum and the mechanical control of Udder Pulsator.

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The Last Reminder

Second Banner Sale

— OF —

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Big Type Poland Chinas

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Saturday, March 13, 1920

Attractive Blood Lines

Liberator, The Yankee, Liberty Bond, Big Square Jumbo 2d, Giant Jones, Miller's Long Chief, Young Jumbo makes this sale one of recognized merit.

Sale at 12.30 *Lunch at 11.30*

Geo. W. Bell, Tulare, Auctioneer

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Following the demonstration a sale of bulls was held. Prices for the most part ruled conservative but it is certain that much good will result from the distribution of such well bred animals.

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 18, Modesto.
March 25, Guaranty Sale, Sacramento.
April 20, Bonita Stock Farm, Lodi.
April 23-24, Southern California Consignment, Los Angeles.
April 28, W. J. Higdon, Tulare.
April 29, R. C. Sturgeon and others, Tulare.
May 12, Leeman & Kilgore, Dispersal, Ripon.

Shorthorns

April 17, Butte City Ranch, Butte City.

Berkshire Swine

April 17, Butte City Ranch, Butte City.

Poland Chinas

March 13, Haag & Bernstein, Hanford.
April 3, Kings County Pig Club sale, Hanford.
April 24, W. T. Dice and Harrold Waltz, Hanford.

Shetland Ponies

April 17, Butte City Ranch, Butte City.

Shropshire Sheep

April 17, Butte City Ranch, Butte City.

It is reported that there are at least 61,000 head of cattle ready for shipment to Europe as soon as the extreme cold on the Atlantic is somewhat modified. This should be a hint worth thinking over, at least, to livestock breeders of America.

To those interested in Poland Chinas the sale to be held in Hanford, March 13, by W. L. Haag and Son and John M. Bernstein should be attractive. Animals sired by or bred to some of the breed's most popular boars will be included in the sale, which offers excellent opportunity for buyers to secure the blood lines they desire to add to their herds. Their first sale, held last September, attracted buyers from practically all parts of the state and it was considered by many breeders present as one of the highest class offerings ever seen in the state.

Greenwood Farm, Live Oak, reports the following Duroc sales: Fall boar by Johnson's Defender Jr., to Gerald Chalmers, Gridley; fall gilt to Dr. R. S. Christenan, Yuba City; bred sow and gilt to Chester Gregory of Inwood, Shasta County. The sow taken by Mr. Gregory has been one of the best producers in the Greenwood herd, having produced a number that were shown at the last state fair. The gilt is a daughter of Johnson's Defender Jr. Mr. Gregory is a progressive young farmer-breeder who is doing pioneer work in the North.

Thos. F. Caesar & Son, Poland China breeders of Reedley, have just received two bred gilts from Eastern breeders. Both are by Lakeside Timm, a son of Frazier's Timm, and are out of a daughter of Gerstdale Jones. The Caesars are using a son of Kings Buster out of a daughter of Long Giantess.

At the annual meeting of the Pacific Coast Hereford Cattle Breeders' Association, held at the university farm, February 24, the following officers were re-elected: J. H. Cazier, Welis, Nevada, president; H. M. Barngrover, Santa Clara, vice-president, and J. A. Bunting, Mission San Jose, secretary. At the meeting the members of the association passed strong resolutions in favor of a livestock show to be held annually at San Francisco. Several new breeders became members.

California and Nevada Aberdeen-Angus breeders met at the university farm, Davis, during Livestock Week, and formed the California-Nevada Aberdeen-Angus Breeders Association. Wm. H. Smith, Brook Hollow Ranch, Hollister, was elected president; C. N. Langton, Visalia, vice-president, and C. A. Noggle, Lilac Ranch, Escondido, secretary. J. P. Doherty, Western fieldman for the American Aberdeen-Angus Association, assisted in the organization. Doherty, who has recently taken up his work, is greatly impressed with the prospects for Angus cattle in this territory and while in this state was given a number of substantial orders for breeding stock.

Poland China breeders are jubilant over the announcement that C. Harold Hopkins, who is establishing a breeding farm near Davis, will soon lay the foundation for a select herd of the big blacks. J. I. Thompson, now with the university, will manage the new farm. A superior herd of Shorthorns has already been started.

John A. Bunting, owner of the Mission herd of Herefords, Mission San Jose, is now in Arizona for the purpose of selecting a carload of high class Hereford females. Bunting says that the demand for Hereford breeding material of quality is such that he is compelled to increase his herd.

Following a banquet the night after their sale, members of the California Shorthorn Breeders Association elected C. N. Hawkins, Hollister, president; T. S. Glide, Davis, vice-president; D. J. Stollery, secretary. The directors for the current year are: Henry M. Elberg, Woodland; T. Wilson Dibblee, San Francisco; T. T. Miller, Hollister; Gordon H. True, Davis, and Benj. F. Rush, Suisun. The association is considering a plan for engaging a state fieldman.

McCarty and Starkweather, Poland China breeders of Modesto, have purchased from Williams Bros., of Iowa, a gilt sired by The Yankee and out of a Big Fred dam. The new addition to the herd carries the service of Long Boy, a son of Giant Buster.

V. F. Doicini, June Acres Farm, Davis, is reported to have refused a very attractive offer for his herd boar, Choice Wonder 3d. Choice Wonder 3d is by Mahaska Wonder and is a litter mate to the boar that topped the recent Kern sale in Nebraska, selling for $3,600.

C. B. Cunningham, Mills, who closed out his entire herd of Chester Whites during the past season, has given his well known herd boar, Billiken, to E. E. Fulton of Fair Oaks. Cunningham hesitated to part with that famous old sire until he was assured that he would go to a good herd.

Adirondac Wietske Dairy Maid, the great 41 pound cow owned by Bridgford Holstein Co., Patterson, recently dropped a fine heifer calf by the three times grand champion bull King Segis Alcartra Prilly, and has something like 37 pounds butter to her credit in seven days on official test so far, and is milking as high as 120 pounds per day. A three year old daughter of King Pontiac Konigen in the same herd has about 31 pounds butter to her credit in seven days and is still on test.

Announcement has just been made that W. J. Higdon of Tulare will sell his entire herd of Holsteins with the exception of a small herd of heifers not yet in milk. Further details will be forthcoming in due time. The sale is scheduled for April 28.

On April 29 the Holstein breeders in the vicinity of Tulare will hold a consignment sale. Included in the sale will be the major portion of the R. C. Sturgeon herd.

The sale of dairy bulls held at the university farm in connection with the program arranged for "Dairymen's Day" served to distribute a useful lot of well bred Jersey, Holstein, Ayrshire and Guernsey bulls. Jersey bulls sold at prices ranging from $100 to $430. All the Jerseys were taken by members of the Sonoma County Cow Testing Association. A Guernsey bull calf, consigned by Hollow Hill Farm, Colton, fetched the highest price of the sale, selling to George Waddell, Oakland, for $485. Three Holsteins were offered. Two sons of King Korndyke Pontiac, consigned by Fred W. Kiesel of Sacramento, brought $375 and $360, respectively. One of these went to the Weimar Joint Tuberculosis Sanatorium. The young bull from the Toyon Farm Association, Los Altos, brought $285. One Ayrshire, sent to the sale

by the LeBaron Estate Company of Valleyford, brought $100.

In a recent letter from R. K. Walker, manager of the Winsor Ranch, Bonita, he says: "I want to give you the data on the recent sale of Duroc-Jersey bred sows that broke all records for the Duroc breed. On February 5 Ed Kern of Stanton, Nebraska, sold 60 head of sows bred to Great Sensation and his world's grand champion son, Great Orion Sensation, for an average of $1,831 per head. This is a world's record for the breed. In that sale 40 head averaged $2,300 a head, the sale totaling $10,000."

J. H. Crawshaw, Hanford, has purchased from Robinson Bros., Morton, Illinois, a Poland China bred gilt sired by Giant Bob, one of the good sons of the noted Big Bob.

W. A. Young, Lodi, was a purchaser in the Robinson Bros.' sale, securing a gilt sired by Giant Bob for $500. Mr. Young also purchased a daughter of Orange Boy in the Serven & Son sale, Bushnell, Illinois. Orange Boy was the sire of Liberty Boy, grand champion at the 1919 Illinois state fair.

J. P. Walker, who for years has been breeding Duroc-Jerseys on his ranch near Visalia, has recently completed a new farrowing house heated by electricity. Orion Crimson Lady, the sow for which he paid $1,500 in the recent sale held by Diamond Bar Ranch, is expected to farrow, early in March, a litter by Ace of Pathfinders. Another sow, Big Queen, bred to Orion King Jr., grand champion at San Francisco Livestock Show, will also farrow early in March and from these two litters Mr. Walker expects to select his futurity candidates. About 60 head now comprise the herd, of which 14 sows will farrow in March.

On Hillcrest Farm, Caruthers, where the Victory herd of Holsteins is maintained, Lelia Korndyke Hengerveld, a junior three year old heifer, has just completed a test, making 27 pounds of butter in seven days. At the head of the Victory herd is Sir Piebe DeKol Segis Pontiac Count, considered by many as one of the breed's greatest sires. Recent sales include a yearling bull to C. R. Cutten, Goshen.

MOLDY, MUSTY OR MILDEWED HAY

J. G. Jackley of the state department of agriculture gives warning as to the danger in feeding spoiled hay or fodder. He says:

"Horses are especially susceptible to moldy or damaged fodder. Probably all animals, including sheep, cattle, hogs and chickens, are affected harmfully in the order named.

"Chickens exhibit what is termed wry neck as a symptom when they become sick as a result of eating moldy or decomposed food. Horses show paralytic conditions, are unable to stand, with special weakness in the hind quarters. Cattle and sheep appear somewhat similar.

"It is believed that the sheep which died when turned upon cut-over rice fields were probably injured by picking up grain or straw that had become decomposed, moldy, etc., as a result of lying on the moist ground.

"Many hypotheses have been advanced with reference to the losses of sheep referred to. Whether it is a specific fungus that is toxic or whether it is due to the presence of specific bacteria, e. g., B. botulinus, the organism that so frequently causes food poisoning in man, or whether it is due to starvation as advanced by others, is yet a moot question which must eventually be settled. Some believe that chemical substances may be in the chaff or the hulls of the rice grain which does the harm. Others advance the idea that a specific infection exists, as hemorrhagic septicemia. It is probable, however, so far as hemorrhagic septicemia is concerned, that this is more of a secondary trouble than the primary cause of the disease, since this organism may attack any animal when the vitality has been lowered by some other cause. It probably is not sufficiently virulent in itself to bring about the initial infection."

The Guaranty Sale

80--Superb Registered Holsteins--80

at Public Sale, Thursday, March 25, 1920
State Fair Grounds, - Sacramento, Cal.

This is without question the greatest offering of registered Holsteins ever made by Western breeders, and it ranks among the very greatest ever made anywhere.

The difference in values between real top breeding animals and the commoner sorts of all kinds is growing wider rapidly, as evidenced by the wide spread in prices, a fact which should attract the serious consideration of the beginning breeder as well as the breeder already established.

In this offering the committee of selection and the consigning breeders have cooperated to assemble a herd that contains first class individuals throughout, and the buyer in this sale has the benefit of unusually careful selection before the animals are presented in the sale ring for his appraisement.

Following is a partial listing of the females to be offered:

A 35 POUND GRANDDAUGHTER OF KING OF THE PONTIACS, now on yearly test and bred to King Korndyke Pontiac 20th.

A BEAUTIFUL 33 POUND COW that made 30 lbs. as a 4 year old. Will be fresh before sale.

A 33 POUND three quarter sister to Raphaella Johanna Aaggie 3d, the world's record holder for milk in one year under strictly official test. Will be fresh at sale time.

A 33 POUND SECOND CALF, 4 YEAR OLD sister to a 33 pound cow and a 32 pound cow. On yearly test and bred to King Korndyke Pontiac 20th.

A 32 POUND SENIOR 3 YEAR OLD that made over 20,000 lbs. milk and over 750 lbs. butter in one year as a junior 2 year old. Bred to King Korndyke Pontiac 20th.

A 32 POUND COW that has a 30 lb. 4 year old daughter, also in the sale, a 33 lb. 4 year old sister, also in sale, and another 33 lb. sister. Now on yearly test and bred to King Korndyke Pontiac 20th.

A 32 POUND COW that made over 30 lbs. at previous freshening. Now on yearly test and bred to King Korndyke Pontiac 20th.

A 30 POUND daughter of Korndyke Queen De Kol's Prince out of a half sister to Tilly Alcartra. Bred to King Korndyke Pontiac 20th.

A 30 POUND JUNIOR 4 YEAR OLD daughter of a 32 pound cow, bred to Sir Aaggie De Kol Acme 2nd, five of whose seven nearest dams average 1154 lbs. butter in one year.

A 30 POUND daughter of Arcady Pontiac Wayne Hengerveld. Bred to Sir Aaggie De Kol Acme 2nd.

A 30 POUND SENIOR 3 YEAR OLD bred to King Segis Pontiac Jannek.

A 29 POUND great granddaughter of King Segis, still on test and bred to King Segis Pontiac Jannek.

A 28 POUND daughter of King Pontiac Segis Korndyke. Now on strictly official yearly test and bred to the three times grand champion bull King Segis Alcartra Prilly.

A 28 POUND COW of splendid type, bred to Prince Walker Cornucopia, 36 lb. son of Prince Gelsche Walker.

A 28 POUND granddaughter of Johanna De Colantha Champion, bred to King Korndyke Pontiac.

A 27 POUND COW 4 YEAR OLD with 748 lbs. butter from 17854 lbs. milk in one year as a junior 3 year old. Bred to a 34 lb. grandson of a 1200 lb. 3 year old.

A GREAT 27 POUND COW whose sire is out of a half sister to Tilly Alcartra and whose dam is a half sister to the 37 lb. cow Boweda. Bred to Sir Aaggie De Kol Acme 2nd.

A 27 POUND daughter of Arcady Pontiac Wayne Hengerveld, bred to King Segis Pontiac Jannek.

A 27 POUND granddaughter of Colantha Johanna Lad out of a granddaughter of Sir Skylark Ormsby Hengerveld, bred to the $106,000 bull Carnation King Sylvia.

A LARGE NUMBER OF 25 AND 26 POUND COWS of rich breeding, excellent type, some with yearly records, and bred to outstanding bulls.

A 24 POUND 2 YEAR OLD daughter of Sir Veeman Korndyke Pontiac, bred to King Sadie Vale Idyl Segis, a 35 lb. grandson of King Korndyke Sadie Vale and King of the Pontiacs.

A 23 POUND 2 YEAR OLD daughter of Sir Veeman Korndyke Pontiac, bred to King Sadie Vale Idyl Segis.

A 21 POUND 2 YEAR OLD daughter of King Korndyke Sadie Vale 22nd, bred to a 32 lb. son of King Morco Alcartra.

A WONDERFUL LOT OF 2 YEAR OLDS with records up to 21 lbs. butter in 7 days, most of them now on yearly test and bred to the highest class bulls.

A NUMBER OF RICHLY BRED HEIFERS OF SPLENDID TYPE, now bred to drop their first calves, including daughters of Prince Gelsche Walker, King Mead of Riverside, King Korndyke Pontiac 20th, Sir Veeman Korndyke Pontiac, King Pontiac Netherland Segis 3d, a daughter of a 1000 lb. 4 year old granddaughter of Tilly Alcartra, two daughters of Sir Aaggie De Kol Acme.

Bulls of Rich Breeding and Splendid Type

Nine of the best bulls available will be sold in this offering, including:

A SHOW BULL with an average of 934 lbs. butter in one year for five of his 7 nearest dams.

A GREAT YOUNGSTER by a son of a 31 lb. 2 year old, out of a 23 lb. junior 2 year old now making a large yearly record, second dam a 31 lb. cow that made over 30 lbs. as a 4 year old and over 800 lbs. in one year, third dam a 30 lb. cow that made 1129 lbs. butter in one year.

A SON OF KING KORNDYE PONTIAC 20TH out of a 32 lb. 3 year old that made over 20000 lbs. milk and over 750 lbs. butter in one year as a junior 2 year old.

A SON OF KING SEGIS ALCARTRA PRILLY, the three times grand champion bull, out of a 33 lb. daughter of a 37 lb. son of King of the Pontiacs. His first 11 dams average 30.54 lbs. butter in 7 days and he is a wonderful individual.

A HIGH CLASS YOUNG BULL by a son of a 36 lb. 3 year old that made over 1200 lbs. butter in one year, out of a 31 lb. 2 year old granddaughter of Aaggie Cornucopia Johanna Lad.

A SON OF KING PONTIAC NETHERLAND SEGIS 3D out of a 28 lb. cow that has a 25 lb. 3 year old daughter and a 17 lb. 2 year old daughter.

A SON OF PRINCE WALKER CORNUCOPIA, out of a yearly record daughter of an 1117 lb. cow. The dam's record will be completed by sale date.

A SON OF KING KORNDYKE PONTIAC 20TH out of a 26 lb. 4 year old daughter of Prince Gelsche Walker and a 29 lb. daughter of Korndyke Queen De Kol's Prince. A white bull of excellent type and out of a dam that is most promising for a very large record.

A SON OF KING ORMSBY CANARY JOHANNA, who is a 34 lb. son of Sir Pietertje Ormsby Mercedes, out of a 19 lb. junior 3 year old whose dam is a 32 lb. granddaughter of Colantha Johanna Lad. An excellent individual of most popular breeding, the first grandson of Sir Pietertje Ormsby Mercedes ever offered at public sale in California.

CONTRIBUTORS TO SALE:

CARNATION STOCK FARMS, Seattle
A. E. SMITH, Sumas, Wash.
LONGHEATH FARM, Fallon, Nev.
ROSAMAINES RANCHO, Riverside, Calif.
SANTA ANITA RANCHO, Santa Anita,
JAS. J. JEFFRIES, Burbank, Calif.
W. J. HIGDON, Tulare, Calif.
ALEX WHALEY, Tulare, Calif.
R. F. GUERIN, Visalia, Calif.
BRIDGFORD HOLSTEIN CO., Patterson.
TOYON FARM ASSOCIATION, Los Altos.
THE J. S. GIBSON CO., Williams, Calif.
FRED W. KIESEL, Sacramento. Calif.
LEEMAN & KILGORE, Ripon, Calif.
E. D. BARRY, JR., Daggett, Calif.
DR. E. J. WELDON, Sacramento, Calif.
R. C. STURGEON, Tulare, Calif.
R. L. HOLMES, Modesto, Calif.

Catalog free on Request

Management **California Breeders Sales and Pedigree Company**

J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, California

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare

IMPORTANT—Owing to crowded conditions of hotels throughout the country, those planning to attend this sale are urgently requested to make early reservations at the Sacramento hotels. Sale Headquarters will be at Travelers Hotel, Sacramento. Other hotels in the city are Sacramento Hotel, Hotel Clunie, Capital Hotel, Golden Eagle Hotel, Hotel Sutter, Hotel Land, Regis Hotel.

The Modesto Sale

Modesto, March 18, 1920

50 Registered Holsteins 50

This offering contains offerings from eight well known Stanislaus County herds, including a considerable number of A. R. O. cows and daughters of such cows, many of them in calf to some of the best bred bulls in the state. The sale includes:

A 26.19 POUND DAUGHTER of Pontiac Jewel Butter Boy, bred to the three times grand champion King Segis Alcartra Prilly.

A 25.45 POUND GRANDDAUGHTER of Colantha Johanna Lad out of a sister to the 37 pound cow Boweda, bred to King Alcartra Prilly.

A 22 POUND GRANDDAUGHTER of Ignaro De Kol, bred to an 823 pound son of King Segis Alcartra Abbekerk.

A 21 POUND 3 YEAR OLD half sister to the state record 2 year old Belle Faskie De Kol Witkop, bred to Segis Pontiac De Kol Dutch, whose three nearest dams are all 1,000 pound cows.

A 21 POUND 4 YEAR OLD daughter of a 26 pound cow, well along with calf to King Segis Alcartra Abbekerk, proven 30 pound son of the $50,000 bull.

A 16 POUND COW bred to Segis Pontiac De Kol Dutch, whose three nearest dams are all 1,000 pound cows.

A GRANDDAUGHTER OF SEGIS PONTIAC DE KOL BURKE out of a 27.54 pound granddaughter of Hengerveld De Kol, due to calve April 17 to the 41 pound $5,000 bull King Abbekerk Johanna Segis.

TWO A. R. O. HEIFERS bred to the 41 pound bull Sir Johanna De Kol Rag Apple.

A NUMBER OF WELL BRED A. R. O. COWS in calf to a highly bred son of King Mead of Riverside.

THREE GOOD COWS bred to a 31 pound son of El Prado Wayne Colantha.

A CHOICE LOT OF COWS AND HEIFERS in calf to a well bred grandson of Colantha Johanna Lad.

A DAUGHTER OF THE 41 POUND BULL Sir Johanna De Kol Rag Apple.

A GOOD SELECTION of unbred heifers of desirable breeding and individuality.

A Bull Offering of Real Quality

A SON OF KING SEGIS ALCARTRA ABBEKERK out of a dam that made 823.19 pounds butter in one year from 19,439.4 pounds milk in one year. He was a first prize winner at California International and is ready for heavy service.

A SON OF KING SEGIS ALCARTRA PRILLY, the three times grand champion bull out of a 21 pound 2 year old daughter of the 41 pound bull King Valdessa and a 28 pound daughter of a 30 pound bull.

A GOOD SELECTION OF YOUNG BULLS of substantial breeding and good individuality that should interest dairymen.

CATALOG FREE ON REQUEST

Contributors to Sale:

E. E. FREEMAN, Modesto
C. L. MORSE, Modesto
R. L. HOLMES, Modesto
A. M. BIBENS, Modesto
BRIDGFORD HOLSTEIN CO., Patterson
MACOMBER & SON, Modesto
H. E. CORNWELL, Modesto
E. PETERPOSTEN, Hughson

Every animal positively guaranteed to be a breeder; no animal tuberculin tested.

Sale under auspices of

Stanislaus County Holstein Breeders Association

A. M. Bibens, Pres., Modesto. E. M. Morrow, Sec., Modesto.

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YEAST — A concentrate high in PROTEIN and FAT content, sterilized and predigested.

CANE MOLASSES — The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.

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Bargains in Shorthorn Sale

The Shorthorn sale held at Davis, Livestock Week, seemed to suffer more from unfavorable feed conditions than the Hereford sale. The average quality of the Shorthorn offering was of a character that should have received higher appreciation than was actually accorded it, and the condition of the offering was such as to leave little to be desired. Sixty-two head were sold, the females averaging $398 and the bulls $451.

A splendid crowd was in the seats when Frank D. Tomson, editor of The Shorthorn in America, opened the sale with a most impressive talk. Tomson cited the part that the Shorthorn has played in the improvement of the cattle stocks of this country and declared that the trend toward better blood was inevitable and that fact furnished sufficient reason for a large expansion of the industry, but he counseled that those who enter the business take it up with the idea of staying in the business.

The sale developed a dearth of buyers for well bred females and for the better bulls, but there seemed to be a strong demand for bulls around $500 to $700, and many of the bulls that hit around those marks were taken by small range men. One delegation of nearly a dozen range men from the Hat Creek country was on hand and secured a number of the tops.

The top bull was the good red son of True Dale, Pacheco Cumberland, consigned by the Pacheco Cattle Co., Hollister, and sold to A. S. Nichols of Sierraville for $925. Geo. E. Diersen of Sacramento, who has been assembling a select herd during the past year, made a very excellent buy when Clarion, the very attractively bred roan bull from Carruthers Farms, was knocked down on his bid of $800. J. I. Thompson, who is to be associated with the breeding establishment of C. Harold Hopkins, Woodland, made some careful selections. The University of California secured two bulls to be used in an extensive range experiment.

The top female was sold by the university to William Bond of Newark. She was the white daughter of Sultans Mayflower, selling at $825. The top consignment was furnished by the Pacheco Cattle Co., and the second high average was made on the initial consignment of the Blackhawk Ranch. Col. Ben A. Rhoades of Los Angeles cried the sale and was assisted in the ring by Ord L. Leachman of Sacramento.

The complete list of sales follows:

Consignment of Caledonia Farms, West Sacramento

FEMALES

3, Baptoness, Herman Skov, Roseville, $350.
7, Grenada Countess 2d, W. O. Blasingame, Fresno, $400.
4, Countess Archer, Henry Londquist, Hat Creek, $335.
13, Paicines Blossom, Mrs. S. Kohn, San Francisco, $400.
15, Mistress Bessie, Mrs. Kohn, $400.
16, Fondine, A. Saner, Sacramento, $500.
17, King's Memory 13th, Mrs. Kohn, $360.
20, Lavenderess 4th, William Bond, Newark, $400.
26, Champion Junior 5th, University Farm, Davis, $635.
29, Aberdeen Archer, Thomas Dibblee Estate, Santa Barbara, $400.
31, Fortunatus, University Farm, $450.
35, Spicy Champion, W. O. Blasingame, Fresno, $390.
37, Scotch Champion, 3d, J. M. Maxwell, Dixon, $385.
42, W. O. Blasinggame, $310.
44, W. O. Blasingame, $310.
52, W. O. Blasingame, $300.
54, W. B. Hench, Riverdale, $300.
60, A. S. Nichols, Sierraville, $350.
68, W. O. Blasingame, $300.

Consignment of Ormondale Co., Redwood City

FEMALES

5, Ormondale's Viola, Pacheco Cattle Company, Hollister, $425.
10, Ormondale Lassie 2d, Mrs. Kohn, $400.

BULLS

41, Volumina's Goods, Nichols, $510.
44, Ormondale Prince, H. Londquist, $315.
48, Star of Ormondale 2d, V. S. March, Fall River Mills, $325.
61, Ormondale Baron 2d, Gordon Brothers, Grass Valley, $510.
66, Ormondale Archer, R. T. McGurk, Stockton, $360.

Consignment of University Farm, Davis

FEMALES

6, Mayflower Gloster, William Bond, Newark, $825.
14, California Lady Bug 2d, Gordon Brothers, $300.

Consignment of Fairoaks Ranch, Willits

8, Fairoaks Elgitha, H. Londquist, $225.

BULLS

45, Blossom's Prince, M. W. Church, Grass Valley, $240.
53, Roselawn Knight, McKenzie Stover Company, Red Bluff, $435.
62, Golden Viscount, H. Skov, $300.

Consignment of Thomas Miller, Hollister

FEMALES

11, Milmar Marie, Gordon Brothers, $325.
18, Milmar Lass, C. H. Hopkins, Woodland, $325.

BULLS

33, Diamond Gloster, Mark McEnerney, Galt, $435.
43, Milmar Ensign, R. E. Bidwell, $550.
47, Milmar Acklam, Dibblee Estate, $325.
57, Golden Milmar, C. Harold Hopkins, $675.

Consignment of Pacheco Cattle Company, Hollister

BULLS

21, Pacheco Lad 145th, J. F. Dunne, Gilroy, $700.
57, Pacheco Lad 202., Vernon March, $375.
64, Pacheco Cumberland, A. S. Nichols, $925.

Consignment of W. M. Carruthers, Liveoak

22, Clarion, George Dierssen, Sacramento, $800.
50, Live Oak Glory 5th, R. T. McGurk, Stockton, $525.
59, Ruth's Count, E. H. Day, Reno, $425.
63, Signet's Count, W. C. Hannel, Davis, $450.
67, Villager's Duke, E. B. Vann, Grimes, $350.
69, Villager's Stamp, Dibblee Estate, $550.

Consignment of Easton & Ward, Diablo

BULLS

23, Belle's Sultan, White & Terry, Sacramento, $575.
27, White Emblem, H. C. Muddox, Sacramento, $600.
32, Pride's Emblem, G. J. Meister Company, Sacramento, $650.
38, Blackhawk Favorite, White & Terry, Sacramento, $625.

Consignment of H. M. Elberg, Woodland

BULLS

25, Gwendoline's Last, William Bond, $375.
36, Master's Gwendoline, R. E. Granless, Ione, $475.
56, Prince, A. Saner, $380.
58, Ruby's Roanie, McKenzie & Stover, $510.
65, Starlight, Dibblee Estate, $450.

Consignment of T. S. Gilde, Davis

28, Hillcrest Amaranth, McKenzie-Stover Company, $700.

Consignment of Charles A. Trosi, Vinton

BULLS

24, Vinton Lavender, H. Londquist, $350.
34, Sultan's Memory, Opdyke Brothers, Hat Creek, $450.
40, General Foch, W. O. Blasingame, $325.

Consignment of H. L. and E. H. Murphy, Perkins

49, Royal Duke, W. O. Blasingame, $210.

KINGS COUNTY POLAND CHINA BREEDER'S SALE

The ninth semi-annual Poland China sale of the Kings County Poland China Breeders' Association was held in Hanford, Saturday, February 28. Thirty-four animals sold for a total of $2,227.50, some of which were as good as have been seen in any of the sales this year. A number of those sold were young while quite a few lacked proper development, which had its effect upon the general average. The top of the sale was found in Miss Orphan 2nd by Orphan Bob, consigned by W. Bernstein and sold to W. T. Dice, Hanford, for $275. This was one of the best sows seen in any of the winter sales and Mr. Bernstein in selling her at this price had to take quite a loss. H. D. McCune, Lemoore, secured a good sow from the C. A. Vaughn consignment for $210, while B. S. Cole, Hanford, secured an excellent sow by Giant Jones, consigned by Harold S. Waltz for $175. The remainder of the offering sold up to $125, including a number of fall sow pigs which were purchased by the breeders for fall sales. Col. Geo. W. Bell of Tulare, was the auctioneer assisted in the ring by Col. Cy Clark of Modesto.

MEETING OF CALIFORNIA JERSEY BREEDERS' ASSOCIATION

The California Jersey Breeders' Association met at the University Farm, Davis, on Friday, February 27. This was during the dairy part of the program of Stockmen's Week. The meet-

For Cows Only

KOW-KURE

W. Nicholls, Trempealeau, Wis., writes: "I have used KOW-KURE with entire satisfaction. The first box I used saved for me two valuable Guernsey cows which would not breed."

Most barrenness is caused by a weakened condition of the nerves and muscles of the genital organs. In such cases, KOW-KURE is an unfailing remedy, because it acts directly on these organs, giving them the strength to function properly. You take no chances in using KOW-KURE; it has a quarter century of success back of it.

KOW-KURE is equally valuable in preventing or treating Abortion, Retained Afterbirth, Milk Fever, Bunches, Scours, etc. Sold by feed dealers and druggists; 60c and $1.20.

Send for valuable free treatise, *"The Home Cow Doctor."*

Dairy Association Co., Lyndonville, Vt.

Do Away With
BARRENNESS

BICKMORE'S

YOU LOSE MONEY

every time you lay your horses up for sores. Use Bickmore's Gall Cure—cure them while they work! Money back if it fails. At all dealers, 35c, 70c, and $1.40. Also ask for Bickmore's Horse Liniment.

For yourself, always keep handy Bickmore's XYZ Skin Ointment and Bickmore's XYZ Family Liniment. Ask your dealer for them.

GALL CURE

Shorthorn Steers

The Shorthorn steer carlots at the International, Chicago, sold for $25.69 per cwt., the highest average of any breed.

Thos. Johnson, Columbus, O., sold 100 Shorthorn steers last October at the farm for $19 per cwt. They weighed 1,592 lbs. making a gain of 400 lbs. in five months.

It pays to grow Shorthorn beef.

American Shorthorn Breeders Association

Chicago, Ill., 13 Dexter Park Ave.

The Leading Live Stock Auctioneers

Col. Ben A. Rhoades
Harold B. Rhoades

Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References. The leading breeders in the state. Write or wire for dates and terms.

Rhoades & Rhoades
1501-3-5 South Main St.
Los Angeles, Calif.

California Breeders

have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

CALIFORNIA BREEDERS SALES & PEDIGREE CO.,
C. L. HUGHES, Sales Mgr. Sacramento, Cal.

ing was attended by 40 Jersey breeders and they had a most interesting session. The association came out strongly in favor of a statewide dairy cow competition conducted by the University of California and pledged $150 cash to be turned over to the committee in charge, to be used as prize money.

Judge Peter J. Shields of Sacramento was appointed committeeman to represent the California Jersey Breeders' Association on the state dairy cow competition committee. New members were voted into the association, as follows: Major C. F. Tilden, Occidental; Wm. S. Miller of Occidental, Frank Donnell of Petaluma and L. W. Krohn of Arcata.

SHORT FEED DID NOT STOP HEREFORD BUYERS

The two sales of registered beef cattle held at Davis last week furnished the most satisfaction to date that the doctrine of better blood is fast gaining ground in this state. With drouth conditions scarcely equaled in the history of the cattle business in California staring them in the face and pessimistic predictions that no buyers would be on hand, the Pacific Coast Hereford Cattle Breeders' Association claimed the first of the two days set aside for the beef cattle sales and sent through the ring 54 head of bulls and females for satisfactory prices. The 30 bulls averaged $375 and the 24 females registered $426. While the prices do not seem high they were liberal in view of the average quality and condition of the offering. The outstanding feature of this sale as well as the sale of Shorthorns the following day was the evident willingness on the part of range operators to pay for the better things. The day of the $150 bull is over.

The vendue served to furnish the foundation for a number of new herds, the heaviest buyer of the better females being the Napa State Farm, Napa. Manager Duffy was on hand and succeeded in getting many of the best females.

Other heavy buyers were: J. G. Roberts of Madera, J. F. Dunne of Gilroy, R. C. Jacks, Monterey, and Professor Gordon H. True, buying for the Pioneer Plantation of Maui, Hawaii, and the Newhall Land and Farming Co., Santa Maria.

The top female was furnished by the University of Nevada in the four year old cow, Pomona, a granddaughter of McCord, and a heifer calf at foot by Beau Perfection 34th. She was purchased by J. A. Niles of Porterville for $925.

The top bull, and the top of the sale, Prince Patrician, came from the Barngrover consignment and was taken by J. F. Dunne at $975. The Barngrover consignment was one of the top priced lots and was presented in nice condition.

The top consignment of the sale was the lot entered by the University of Nevada.

A feature of the sale was the females sold by Cazier carrying the service of Beau Blanchard 76th, regarded as one of the best young bulls of the breed.

Eighteen buyers absorbed the offering in one of the snappiest sales held in this state in a long time. Col. Ben A. Rhoades was on the block and made many friends by his splendid work. C. L. Hughes of the California Breeders' Sales and Pedigree Co., managed the sale. Frank Van Natta of Indiana represented the American Hereford Association. John A. Bunting and H. M. Barngrover worked the ringside.

The detailed report follows:

Consigned by J. H. Cazier & Sons, Wells, Nevada

FEMALES

1, Catherine and B. C., May, 1911; Napa State Farm, Napa, $725.
2, Battery and B. C., March, 1914; Napa State Farm, $450.
3, Belle and B. C., April, 1914; Napa State Farm, $475.
4, Radium, February, 1914; J. F. Dunne, Gilroy, $400.
5, Honora, June, 1911; Napa State Farm, $525.
6, Bell, May, 1914; J. F. Dunne, $490.

Consigned by University of Nevada, Reno, Nevada

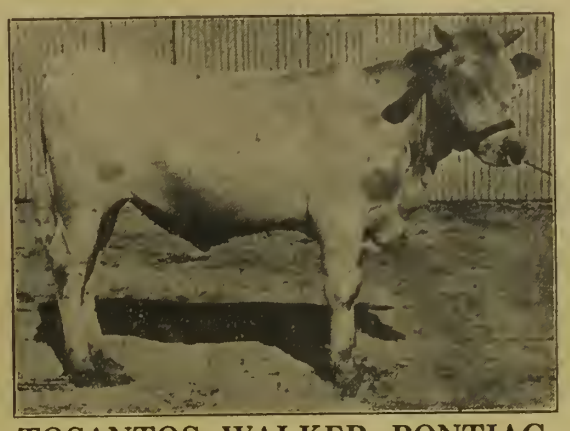
FEMALES

7, Pomona and C. C., November, 1915; J. A. Nile, Porterville, $925.
8, Madera Patricia, September, 1915; Napa State Farm, $625.

BULLS

10, Beau Del Sierra 14th, December, 1918; A. S. Nichols Co., Sierraville, $775.

Our First Consignment
will be in the
GUARANTEE SALE
March 25th



TOSANTOS WALKER PONTIAC
HIS DAM

MISS FILLED KORNDYKE WALKER
Jr. 4 Years, 7 Days, 26.38 Pounds.
HIS SIRE
KING KORNDIKE PONTIAC 20th
TOSANTOS HERD
E. D. BARRY, JR. DAGGETT, CAL.

Prince Walker Cornucopia
The Highest Record Son of Prince Gelsche Walker

His dam ALBA SADIE CORNUCOPIA CREETA has just completed official records of 36.26 pounds butter from 516.7 pounds milk in seven days. Her previous records were as follows:

At seven years—
Milk 338 days 13,849.40
Butter 864.23
At six years—
Butter seven days 24.13
Milk 532.40
At five years—
Butter seven days 23.85

She is a daughter of Sir Sadie Cornucopia, son of the first 30 pound cow, Sadie Vale Concordia.

Over 60 of our best females are bred to PRINCE WALKER CORNUCOPIA, and he will be given the fullest opportunity in this herd. Put one of his young sons at the head of your herd.

Santa Anita Rancho
Anoakia Breeding Farm
Santa Anita, California
Anita M. Baldwin, Owner

Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

BURR FARM

Box 220, Route 2. East 26th and Downey Road, Los Angeles

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

A "365" Day Liniment

YOU ARE SAYING TO YOURSELF—"If I only knew of something to stop that Backache—help my Rheumatism—cure my Neuralgia, I would send and get it at once."

Get It. Relief. Gombault's Caustic Balsam will give you immediate relief. A Marvelous Human Flesh Healer and a never failing remedy for every known pain that can be relieved or cured by external applications. Thousands testify to the wonderful healing and curing powers of this great French Remedy. A Liniment that will soothe, heal and cure your every day pains, wounds and bruises.

Gombault's Caustic Balsam
The Great French Remedy
Will Do It

It Helps Nature to Heal and Cure. Penetrates, acts quickly, yet is perfectly harmless. Kills all Germs and prevents Blood Poison. Nothing so good known as an application for Sores, Wounds, Felons, Exterior Cancers, Burns, Carbuncles and Swellings.

"I had a bad hand with four running sores on it. The more I doctored the worse it got. I used Caustic Balsam and never needed a doctor after that." —Ed. Rosenburg, St. Ansgat, Ia.

Mrs. James McKenzie, Edina, Mo., says: "Just ten applications of Caustic Balsam relieved me of goitre. My husband also cured eczema with it, and we use it for corns, bunions, colds, sore throat and pain in the chest."

A Safe, Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Rheumatism and Stiff Joints. Whenever and wherever a Liniment is needed Caustic Balsam has no Equal.

Dr. Higley, Whitewater, Wis., writes: "I have been using Caustic Balsam for ten years for different ailments. It has never failed me yet."

A liniment that not only heals and cures Human Flesh, but for years the accepted Standard veterinary remedy of the world.

Price, $1.75 per bottle at all Druggists or sent by us express prepaid. Write for Free Booklet and read what others say.

THE LAWRENCE WILLIAMS CO., Cleveland, Ohio

The Poplars----Hampshire Headquarters

Our reserve grand champion sow Wavelet at the big Los Angeles show is the mother of 8 little Wavelets—a flourishing family. We won 1st on boar and 3 sows bred by exhibitor, also 3 other herd prizes. We were in the money on aged boar, twice on junior yearling boar, and once next the top on junior boar pig. All young stock the get of our great boar, The Harvester Again. Write us your wants.

C. J. Gilbert **Lancaster, Cal.**

If you are interested in this very great breed you will find it worth your while to visit the

Ortega-Underhill-Rancho
O. U. R.
Registered Hampshires

Thos. T. Dinsmore, Manager **Santa Barbara, Cal.**

You will find there some of the best blood in the country and a truly great herd in course of construction.

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows.

HARVEY'S CHOICE
Grand Champion Boar
at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair

SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

A. E. Harvey, Manager **Redlands, Cal.**

CLARK, HUNTER & CLARK,
Livestock Auctioneers

915 I Street MODESTO, CALIF.

REGISTERED HOG SALES A SPECIALTY

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Consigned by University of California, Davis

FEMALES

11, University Bright Lass, December, 1917; Napa State Farm, $625.

Consigned by W. D. Duke, Gazelle

FEMALES

13, Veran Alamo and B. C., March, 1915; J. G. Roberts, Madera, $290.
14, Georgie Alamo and C. C., May, 1915; J. G. Roberts, $325.
15, Mrs. Alamo and B. C., March, 1915; J. F. Dunne, $335.
16, Modoc Lady and B. C., April, 1915; J. G. Roberts, $360.
17, Lassen Queen and B. C., April, 1915; L. C. Marshall, Vacaville, $360.

BULLS

18, Panama M., September, 1918; Henry Londquist, Hat Creek, $225.
19, Panama B., September 1918; Newhall Land & Farming Co., Santa Maria, $200.
Panama D., September, 1918; J. F. Dunne, $250.
21, Palo, September, 1918; E. F. Forbes, Marysville, $235.
Panama A., September, 1918; E. F. Forbes, $150.
23, Duke P., September, 1918; E. F. Forbes, $85.
24, Let's Go, September, 1918; E. F. Forbes, $75.
25, George A., September, 1918; Daulton Bros., Madera, $100.

Consigned by John A. Bunting, Mission San Jose

26, Mission Prince, December, 1918; R. C. Jacks, Monterey, $350.

Consigned by W. J. Bemmerly, Woodland, California

FEMALES

27, Sarah Barton, January, 1918; J. F. Dunne, $375.
28, Lady Ranier, February, 1918; R. C. Jacks, $275.
29, Hannah, May, 1918; J. G. Roberts, $200.
30, Kate Alamo, September, 1918; R. C. Jacks, $250.
32, Susie Ray, May, 1918; R. C. Jacks, $325.

BULLS

34, Lytell Cook, February, 1918; E. F. Forbes, $255.
35, Roy S., February, 1919; H. H. North, Williams, $325.

Consigned by H. M. Barngrover, Santa Clara

FEMALES

36, Melisseth, January, 1917; R. C. Jacks, $325.
37, Pocahontas, January, 1918; R. C. Jacks, $450.

BULLS

38, Edgewood 2d, October, 1918; H. H. North, $325.
39, Edgewood 3d, December, 1918; Pioneer Plantation, Lahaima, Maui, T. H., $525.
40, California Prince 2d, September, 1916; Newhall Land and Farming Co., $700.
41, Prince Patrician, November, 1918; J. F. Dunne, $975.
42, Lord Patricia, November, 1918; Pioneer Plantation, $325.
43, Sonoma 5th, April, 1918; A. S. Nichols Co., $675.

Consigned by Chas. Rule, Jenner, Cal.

FEMALES

44, Anita and C. C., February, 1916; J. G. Roberts, $300.
45, Dreamie and B. C., February, 1916; J. G. Roberts, $325.
46, Miss Ginger and B. C., March, 1917; Andrew McBrim, Davis, Cal., $485.

BULLS

47, Sonoma 1st, April, 1918; Newhall Land and Farming Co., $400.
48, Sonoma 9th, May, 1918; H. S. Howard, Orland, $300.
49, Sonoma 8th, April, 1918; Newhall Land and Farming Co., $350.
50, Sonoma Lad 4th, March, 1918; Pioneer Plantation, $300.
51, Sonoma 14th, March, 1919; R. C. Jacks, $350.
52, Sonoma Jr., April, 1918; Daulton Bros., $300.
53, Sonoma Boy, April, 1918; Dr. O. I. Daly, Porterville, $340.
54, Sonoma King 1st, April, 1918; Pioneer Plantation, $535.
55, Beau Warren 2d, May, 1918; Newhall Land and Farming Co., $475.
56, Pete, April, 1918; Greenfield Farms, Porterville, $300.
57, Repeater 198th, October, 1917; Newhall Land and Farming Co., $575.
58, Prince Fairfax, September, 1917; S. J. Wilson, Danville, $400.

INCREASE IN HERDS ON SEMI-OFFICIAL TEST

An increase of 26 per cent on semi-official or long time testing in herds of pure bred dairy cows in California over the previous month is announced in a statement recently issued from the college of agriculture of the state university. The announcement follows:

"During January semi-official or long time testing was commenced in 13 herds of pure bred dairy cows in California. This marks an increase of 26 per cent over the number of herds on long time test the previous month. This increase is not merely seasonal but in testing undertaken for the whole year. Records of production throughout the whole lactation period are coming more and more to be recognized in this state as the best guide in breeding and measure of production value. Of the herds commencing long time testing, nine were Holsteins, three Jerseys and one Milking Shorthorn.

"The total number of pure bred herds in the state carrying on advanced registry testing during January is as follows: 42 Holsteins, 24 Jerseys, seven Guernseys, three Ayrshires, two Milking Shorthorns. Forty-one dairy test supervisors were engaged in the work during the month.

"On account of very high production retests were carried on in seven Holstein herds and one Jersey herd. Of the Holstein retests, four were carried on in herds on yearly tests, involving new animals, and four were called for on animals on seven day tests."

ARIZONA WOOL GROWERS MEET

On Saturday, February 14, the Annual Mid-Winter Meeting of the Arizona Wool Growers Association was held at the Adams Hotel in Phoenix and was well attended, owing to the fact that nearly all the outfits are wintering south this year.

The meeting was called to order by President Hugh Campbell, and the work of the morning consisted chiefly of discussions and adoption of resolutions.

Of particular importance was the discussion of the "Eat More Lamb" campaign now being put on by the National Wool Growers Association. As a result of the "Eat More Lamb" campaign the consumption of lamb in Duluth, Minnesota, was increased from 300 to 1,600 head per day. Results are also showing up well in the South. Some towns in the South that very seldom consumed mutton are now consuming nearly as much mutton as beef. No little credit for this increase is due to the home demonstration agents who have put on demonstrations in cooking the various cuts of mutton in connection with the "Eat More Lamb" campaign.

The enactment of a law requiring manufacturers to label woolen cloth giving exact amounts of the different fabrics contained in the cloth was also discussed.

President Chas. P. Mullen of the Arizona Cattle Growers Association spoke to the association on matters of relative importance to both sheep and cattlemen. It was decided to establish an advisory board representing the Arizona Wool Growers Association in conference with the officials of the forestry service in conjunction with a similar board representing the Arizona Cattle Growers Association.

PROGRESSIVE IMPROVEMENT IN SIRES

"It has long been taken for granted by the best stockmen that only registered males are worth using," says Dr. R. H. Williams, animal husbandman of the university. "It does not matter what kind of livestock one breeds, whether on the farm or range, the foundation of success and profit must be based upon registered sires." Quoting further Dr. Williams says: "No intelligent stockman would consent to discuss the relative merits of grade or scrub and pure bred males any more than question the statement that one and one make two. They haven't time or desire to discuss such an absurd thing, and if they say anything it will be, 'You haven't any right to raise stock of any kind unless you use the best you can get.' We all know that registered males are none too good. If you stay in the business you will and must use registered males. That point is settled for all time and you may as well accept it.

"But there are good and ordinary registered males. The first few crosses may have improved the animals greatly even if ordinary registered males were used. Breeding is a progressive undertaking. With each cross of a registered sire it becomes more and more important to select better males. That is why breeders of registered animals pay such high prices for herd headers, for they know that improvement in registered stock depends upon the kind of sires selected. The same condition obtains in grade animals. Herds, flocks and studs that have been improved by the use of better and better sires must continue to select better males each time or progress is halted. The only short cut that I know of in improving livestock is extreme care in the selection of good sires and surrounding the animals with the best conditions possible for the development of their best characters.

"Many range stockmen claim that they can't afford to pay higher and higher prices for males. That is a great mistake, for they can't afford not to pay higher prices each year for the right kind of males. The important consideration for them is that the animals selected shall be better than those formerly used and this requires a great deal of study and experimentation on their part.

"In order to maintain the present quality of the animals and improve them, more money must be paid for better males. One must use good judgment, however, in selecting better animals, and the best index of the worth of them is the price paid. Sometimes the price is not an accurate index of the merits of males, but this is the exception. Stockmen should be willing to pay more for their sires, for price of good cattle has advanced, in keeping, more or less, with the cost of everything else."

SWINE RATIONS INCLUDING ALFALFA

The object of fattening hogs is not growth so much as fat. Corn is the main dependence in the production of fat in the United States; the only substitutes of any importance are the grain sorghums. Enough alfalfa, shorts, tankage, or other protein feeds are used to balance the ration.

The following swine rations, including alfalfa, are suggested by W. E. Schneider of the Arizona Packing Company and secretary of the Arizona state farm bureau:

Brood sows, dry: (1) Alfalfa pasture alone best during dry season. (2) Alfalfa pasture; one pound of grain daily.

Brood sows with litters: (1) Allow 3.5 pounds of grain per 100 pounds live weight daily, consisting of milo, hegari, barley, corn, feterita 60 parts, bran 10 parts, shorts 10 parts. Alfalfa pasture or hay at will.

Growing pigs: (1) Allow 2.5 pounds of grain per 100 pounds live weight daily, consisting of milo, hegari, barley, corn, feterita 65 parts, shorts 30 parts, tankage five parts. Alfalfa pasture or hay at will.

Fattening hogs: (1) Allow 3.5 pounds of grain per 100 pounds live weight daily, consisting of milo, hegari, barley, corn, feterita. Alfalfa pasture or hay at will.

(2) Allow 3.5 pounds of grain per 100 pounds of live weight daily, consisting of milo, hegari, barley, corn, feterita six parts, shorts one part. Alfalfa pasture or hay at will.

CATTLEMEN'S ASSOCIATION IN LOS ANGELES

The semi-annual convention of the California Cattlemen's Association will be held April 15 and 16 at Los Angeles. Several men of national prominence are expected to speak at the convention, among them Senator John B. Kendrick, president of the American National Livestock Association. Invitations to address the convention have been extended to Franklin K. Lane and Herbert Hoover.

With this convention a membership drive of the association will be launched in Southern California. Arrangements are now being made for a big meeting to be held at some point in the Imperial Valley and another in San Diego County.

BUILD A SILO

If you want to save on feed,
Build a silo.
It will help in time of need;
Build a silo.
Build of concrete if you would;
Build of brick or build of wood;
Build of anything that's good,
But build a silo.

Dairy feeds are soaring high;
Build a silo.
Summer seems a-goin' dry;
Build a silo.
Cows, too, go dry on hay,
Sort of seem to fall away;
They need silage every day,
So build a silo.

Pasturage costs quite a heap;
Build a silo.
Winter feeds are never cheap;
Build a silo.
Build it wide and build it deep,
'Cordin' to the cows you keep,
And for milk you'll never weep,
So build a silo.

That's the burden of my song,
Build a silo.
If you've cows you can't go wrong;
Build a silo.
Milk will flow, and smiles'll come,
With the separator's hum,
And you'll shout, "I'm glad, by gum,
I built a silo."

—Anonymous.

CALCO Grain Bins are rain proof

1918 season and 1920.

So far they have been pretty much alike, haven't they?

Do you remember the early fall rains of 1918?

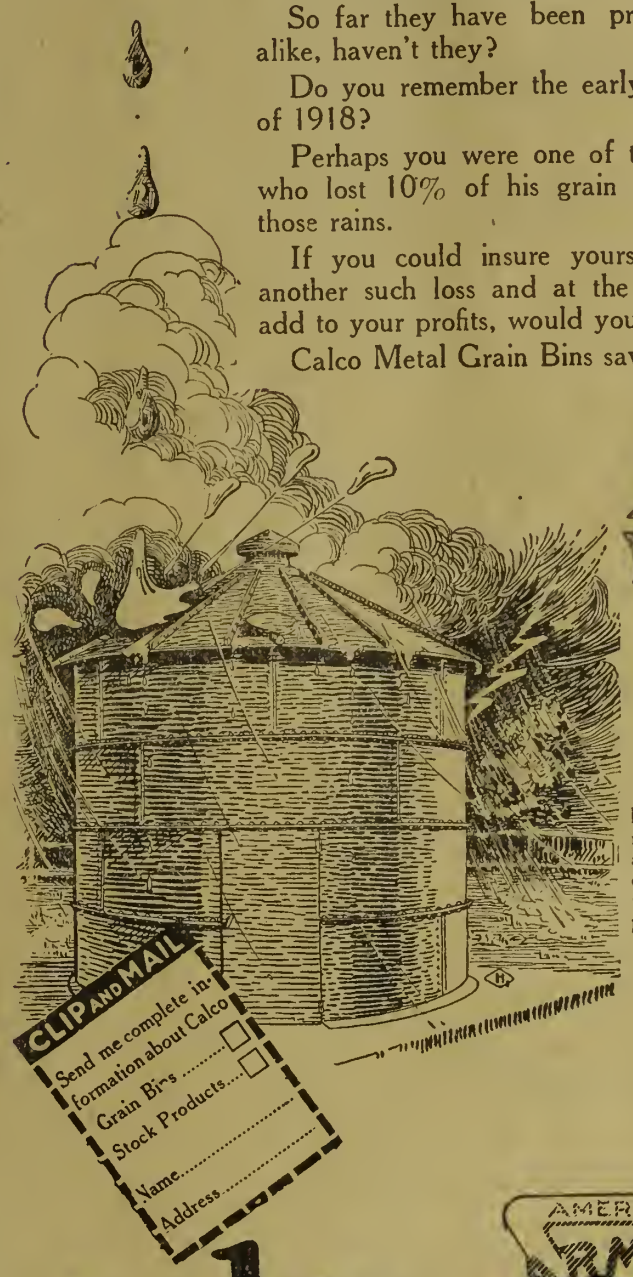
Perhaps you were one of the farmers who lost 10% of his grain because of those rains.

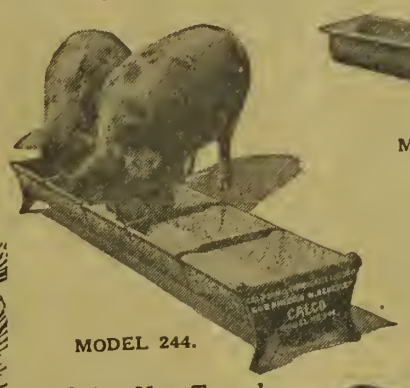
If you could insure yourself against another such loss and at the same time add to your profits, would you do it?

Calco Metal Grain Bins save every bit of grain from rain. They save the cost of sacks. They cut down the labor expense, and save the waste from rats, squirrels, mice and vermin.

Calco Bins are made from rust-proof Armco Iron. They are durable, lasting and easily erected. Their cost is comparatively small.

Remember that their first cost is their only cost. Write today for booklet which gives complete information, descriptions, and comparative costs.

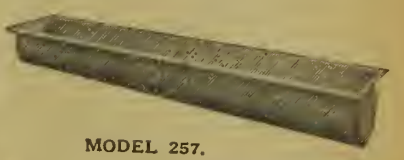




MODEL 244.

Calco Hog Trough

Built for feeding or watering hogs. Made of Armco rust-resisting, Galvanized Iron, they are sanitary, strong, durable and economical. They come in sizes to fit every farm. Write for prices and description.



MODEL 257.

Calco Sheep Trough.

For watering and feeding sheep. Made from Armco Galvanized Iron and is clean, sanitary and durable. Easily moved from place to place. Send for size and price list.

MODEL 258

Calco Self Feeder.

Supplies fresh, clean grain to hogs automatically. It lessens the labor of feeding. It saves the grain from being scattered and wasted and keeps the feed supply clean and sanitary. Prices and sizes upon request.

CALIFORNIA CORRUGATED CULVERT CO.

LOS ANGELES
419 Leroy Street

BERKELEY
408 Parker Street

calco products

5 37% FAT

What does it mean?

SIMPLY this: It costs less to feed Jerseys than any other breed and they produce the richest quality of milk (butter fat average of 5.37%). Jersey Milk churned into butter and cheese bring the highest prices on the market.

Jerseys are the real "cow investment"! They start producing at an earlier age than any other breed and are still great milkers long after other cows have gone dry.

Let us give you some surprising information about Jerseys in our free booklet "Profitable Facts About Jerseys". Write today for it.

The American Jersey Cattle Club 324-C West 23rd St., New York, N. Y.

An Institution for the Benefit of Every Jersey Owner

JEREY

Raise Calves

On AN-FO Calf Meal in water or skim milk. Watch how well they do. The cost is less, the calves are sleeker. No scours. Your feed dealer or Animal Food Co., Oakland supply.

AN-FO BRAND CALF MEAL

Venadera Herd

Register of Merit Jerseys

Senior herd sire Altama Interest sire of 12 cows in Register of Merit. Junior herd sire Jap's Perfection Owl, a line bred Spermfield Owl bull.

Guy H. Miller, Modesto, Cal.

Young Jersey Bulls

For Sale

One at the head of your herd will pay big dividends on his cost. Write to

W. J. Hackett

Modesto Cal.

All My Records

Are made under ordinary dairy conditions The Farmer's Cow is

The Jersey

YOUNG BULLS FOR SALE

C. D. Hayworth

Modesto, Cal.

Jersey Bull

FOR SALE

A fine straight one, bred right, priced right.

S. F. Williams
Chico, Cal.

Member Orland Jersey Cattle Club

Use Shire Horses For Farm Power and Profit

BREED SHIRE HORSES. They are in demand. Good Grade Shires are selling between $200 and $300. Shire Mares prove to be good workers and excellent mothers. They will work steady and at the same time raise profitable colts.

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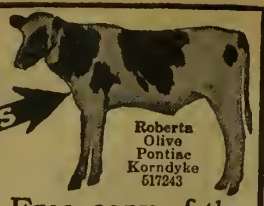

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THE STATE COMMERCIAL FEEDING STUFF LAW

By Professor F. W. Woll

IT is evident from inquiries received by the state university that dairy farmers and stockmen are interested in the state commercial feeding stuff law, which went into effect November 1 last year. The law was enacted by the legislature of 1919 at the urgent request of the various state livestock associations and of others interested in the quality of the feed sold to our farmers, and was approved by the governor on May 16 last year. The provisions of the law, with the rules and regulations for its enforcement, are given in a pamphlet issued last fall by the state board of health, which is charged with its enforcement under the law. This pamphlet also contains definitions of commercial feeding stuffs, information as to the administration of the law, average analysis of cereals and by-products, etc. Copies of the same can be obtained upon application to Bureau of Foods and Drugs, Berkeley, which takes care of the inspections and analytical work connected with the enforcement of the law.

Many samples of commercial feeding stuffs have been received of late by this division or by the writer direct. While always glad to furnish information and advice concerning feeding problems and other subjects within our special field of study, we are unable to comply with requests for making analyses of feeding stuffs and other materials. Neither can the food and drug laboratory undertake such analytical work, as will be seen from the following quotation from the pamphlet referred to above:

"Samples — Manufacturers, agents, dealers and consumers are requested not to forward samples of feeds or other materials to the bureau of foods and drugs, since to do so is a useless expense, as the only samples analyzed are those secured by official inspectors in the open markets of the state.

"The bureau of foods and drugs will not analyze samples for manufacturers for the purpose of making a guarantee. Such an analysis should be made either by a private or commercial chemist."

The guarantees for valuable food components in feeding stuffs which are required by the law refer to total protein, fat, etc., and not to digestible components. Since the digestibility of different concentrated feeds and of feeds of the same character in general does not differ greatly, the relative value of two feeds is approximately indicated by the relation between the contents of the guaranteed components of the feeds. With two samples of wheat bran, for instance, guaranteed to contain, one, say, a minimum of 15 per cent protein, 4 per cent fat and not over 10 per cent fiber, and the other 12 per cent protein, 3.5 per cent fat and less than 12 per cent fiber, the former is the better feed. A rough estimate of how much better it is may be made by comparing the sum of the guarantees for protein and fat in each, making 19 per cent for the former against 15.5 per cent for the latter. The relative value of the two feeds is not represented by these figures, since the carbohydrates, an important group of substances including starch, sugar and similar compounds contained in each, are not included, but the figures given furnish the best means of comparison that can be had in the absence of a complete chemical analysis and data for the digestibility of the two feeds.

At the present high prices for all kinds of feed materials, farmers should note carefully the guarantees under which feeds are sold, and when there is a choice should select the ones that supply the largest amounts of valuable feed components at the lowest cost. A low priced feed, however, is often not the best one to buy; a comparison of the guaranteed composition will suggest which one is actually the cheaper feed. The law offers a buyer protection against fraud and misrepresentation in the sale of commercial feeding stuffs, but it is for him to decide whether he will take advantage of the information thus furnished. The figures for guaranteed composition that manufacturers must give are a most valuable aid in judging the quality and relative economy of different feeding stuffs.

FARM BUREAU MARKETING ASSOCIATION SALES

The California Farm Bureau Marketing Association reports recent public sales of fat hogs:

Tulare, February 10, 556 hogs ranging from $13.10 for one small bunch averaging 295 pounds to $15.10 for those averaging 181 pounds. Two hundred pounds, or thereabouts, proved most attractive.

Visalia, February 11, 500 hogs averaging over $10 for 53 only weighing 118 pounds to $14.95 for those averaging 209 pounds.

Hanford, February 11, 392 hogs, $10.10 to $14.85. Most of the sales were above $14 and the $10 bunch weighed only 74 pounds.

Corcoran, February 13, 135 hogs, $13 to $15.10.

McFarland, February 14, 519 hogs, $12.60 to $15.25.

Turlock, February 17, 249 hogs, $11.90 to $14.90.

Le Grand, February 18, 183 hogs, $10.60 to $14.85.

Fresno, February 20, 281 hogs, $12.95 to $15.10.

DAIRY INSPECTION

Bronte A. Reynolds, editor of the state department of agriculture, gives a summary of the recommendations or line of action adopted at a meeting of inspectors recently held in department rooms at Sacramento:

That greater attention should be given to those factors that directly influence the quality of the product, such as the cleanliness of milking, the use of the small top bucket, proper sterilization, etc.

That the long felt need for a summary and explanation in simple terms of the law concerning dairies; for a summary of the factors of greatest importance in the production of milk and dairy products of good quality; for a summary of the laws and regulations on Babcock testing and like subjects, should be met by the issuance of circulars on these and similar subjects.

That the power lodged in the hands of this department to hold manufacturers responsible for acceptance of milk or other dairy products which are dirty or are produced in an unsanitary dairy should be exercised. Upon discovery by the inspector of dirty products or of unsanitary conditions in a dairy the manufacturers to whom the product might be sold should be notified of these facts. The manufacturers may not then accept the milk from this dairy until the conditions are remedied. By this means the effectiveness of the work of this department should be greatly increased, the necessity of many prosecutions should be avoided, the manufacturers should be aided in securing a better product, and the dairy industry in general should be spared the unwelcome publicity which attends court actions.

That as soon as possible and to the extent found practicable, the work of inspection should be guided by information obtained by an examination of the product. In this way the time spent in the inspection of dairies which are producing a good product would be more profitably and intelligently spent in inspecting dairies which are producing a poor product. Also, by pointing out to the individual dairyman the particular in which his product is deficient, and by supplying him, in the form of the above mentioned circulars or otherwise, information whereby the deficiency can be corrected, it is probable that many inspections may be avoided. Thus it is hoped that a given amount of work can be made productive of much greater results.

It is confidently believed that when these policies are actually in operation great good will result for the whole dairy industry of the state.

EPSOM SALTS FOR CHOLERA

Sulphate of magnesia, or epsom salts, is a specific for stomach and bowel troubles, and for what is called heartburn it is far better than baking soda. Why not a specific for hog cholera? Will someone please try it?—R. R. S.

God made the pure air, but unless we breathe it freely it profiteth us nothing.

Discretion is more to be desired than resuscitation.

—And For Any External Hurt

Besides its well-known value in keeping the udder and teats healthy, Bag Balm is a wonderful healer of any cut, bruise, chap, chafing or wound. An application will immediately relieve the pain and heal the injured tissues.

No dairy barn should be without its package of Bag Balm. It has no equal for the prompt and successful treatment of Caked Bag, Cow Pox, Bunches or any of the congested conditions of the udder and teats that frequently occur at the calving period. An occasional application will prevent soreness and make the cow an easy milker.

Feed dealers, druggists and general stores sell Bag Balm, in 60c packages. Write for our free booklet, "Dairy Wrinkles."

DAIRY ASSOCIATION CO., LYNDONVILLE, VT.

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paid for all Guernseys sold at public auction in 1919. This figure indicates the buyer's high estimation of the value of the breed. Let us tell you WHY Guernseys lead in popular favor.

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3 BULLS	No. 1 born Mar. 1, 1919. Sire, Our Noble Mayflair Hero.	3 BULLS
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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Scurvy

Please tell me what causes scurvy in a young calf four months old. This is the second time this has broken out on this animal. We have fed besides the milk a little Blachford's meal and a little hay and green alfalfa each day. The trouble did not show the first two months while the calf was on milk entirely.—Subscriber, Oceanside.

The trouble is probably caused by a mite that is in the stable, the calf getting it by rubbing the wall or a post that is near. Get a pint of zenoleum or some other good "sheep dip" of your druggist. Put about half a teacup of the medicine in half a bucket of warm water and sponge the calf all over with the solution, soaking the skin well, then put on a blanket until the calf is dry. It will be well to repeat this treatment once or twice four or five days apart. Also prepare some thin whitewash and add some of the sheep dip to it and whitewash the sides of the stable. Sweep the floor clean; sprinkle some of the whitewash on the floor and put in new straw.

Pigs Died

I have two young gilts with their first pigs which I kept in a close pen and fed slop and soaked barley until the pigs were two weeks old, then I turned them out on green feed consisting of barley, alfalfa and some sour clover. The pigs began dying at once. First they became helpless in their hind parts and could not get up; later their tongues would become swollen and they died in about four hours. Can you tell the cause of this disease?—Subscriber, Calipatria.

Cannot say unless it was the exposure to the cold, damp ground. The cold and dampness would cause rheumatism and the muscles would cramp so they would become paralyzed. In the winter it would be best to keep them in a warm, dry place until they are four or five weeks old and then let them out only for a short time in the middle of the day when the sun is shining. It is a wonder that so many young animals do survive in spite of the exposure they are subjected to.

Bloody Milk

I have a cow half Jersey and half Holstein that at times gives bloody milk from one teat. She now has her fourth calf and it is five months old. During this period of milking and also the one before this the milk was bloody for a couple of weeks or more, then it seemed all right for a month or more when it became bloody again. It is not lumpy and appears all right when just beginning to milk but before I am through it is almost pure blood. She is fed alfalfa hay and runs on alfalfa pasture. What can I do for her?—Subscriber, Escalon.

Any one of many different things may cause milk to be bloody, a bruise, a small tumor in the udder, too rich feed, etc. In your case it may have started by an injury that did not heal properly. Milking seems to irritate it and starts the blood. Be very careful when milking and do not pull the teat. Just get the milk by squeezing the teat carefully. Bathing the quarter with cold water will probably help. Get eight ounces of the tincture of iron and give half an ounce in some feed once a day while it lasts. This will put more fibrin in the blood and help the healing.

Prof. J. I. Thompson will soon be general manager of the Hopkins Stock Farm, Yolo County.

The Duroc-Jersey Sale of the Season

Dr. Belknap of San Jose, Cal., will on

MARCH 10

beginning at 12.30 o'clock

sell one of the finest breeders herds on the Coast. Orions, Great Wonder I Am, Colonels, Pathfinders, etc. Some of them mammoth in size. Great boar pigs and the herd Orion boar, a crackerjack. A surprise is in wait for the Duroc fanciers. Catalog will be out in few days; send for your copy.

Auctioneer, Ord L. Leachman

Bruce S. Bennett, Field man for Cal. Cultivator
Ted Cameron, Field man for Pac. Rural Press
T. H. Moore, Field man for Rural World

200 Bred Duroc-Jersey

sows and gilts bred for spring litters. All carefully selected from Glenn County herds. They are the kind that will make a profit on any farm. All are priced at exceedingly low prices. Bargains for car lot buyers. Get busy and write or come and see us immediately as they won't last long at the price.

H. P. Slocum and Son
Willows, California

Breeders of Duroc-Jerseys. The Key Herd of the Pacific Coast.

A-1 Duroc Ranch

Where one of the state's greatest herds of Duroc-Jerseys is maintained. For years our Durocs have proven profitable to farmer and breeder alike. Better place your order now for spring pigs as what we will be able to spare will go quickly. Remember, this is the home of the state's highest priced ($1500) and most valuable Duroc-Jersey sow.

J. P. Walker, RFD 1, Box 40½, Visalia, Cal.

The Greatest Duroc Boar of His Age! Choice Wonder 3d

a winner at the 1919 Iowa State fair, sired by the great boar, Mahaska Wonder, and a litter mate to the first prize junior boar of Iowa, heads our herd. He is the largest, heaviest boned, best footed boar in the state and he is being mated to the sows that have made this herd famous for futurity winners. Get your order in early for his pigs. Prices are most moderate. Satisfaction guaranteed.

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confidence and pride of ownership are found in Duroc-Jerseys sired by Orion's King Gano, and whose pigs are in such heavy demand all over the state. Spring pigs, prospects for fall shows or pigs that will make money on the farm. Write early as orders arriving daily will soon exhaust what I will have for sale.

Donald H. Graham Lancaster, Cal.

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Holsteins of known value, headed by Sir Plebe De Kol Segis Pontiac, a son of King Segis Pontiac Count, acknowledged one of the breed's greatest sires. A young bull from this herd is bound to prove a profitable investment.

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Duroc-Jersey Swine of Highest Quality

Economy Stock Powder
will keep your pigs in condition by acting on the liver, kidneys and blood. Will keep the stomach sweet, expel worms, aid digestion and prevent white scours and thumps.
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We Are Specialists in production of high grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strain of America's choicest Leghorns fill our pens, and my personal attention is given to all details, assured each customer of highest grade stock. All baby chicks guaranteed and only healthy baby chicks shipped; if not satisfactory on arrival your money returned. Catalogue free. F. C. Rhode, Vineburg Hatchery & Poultry Yard,s Vineburg, California.

We Are Now Booking Orders for Eggs. Eggs from our Mammoth Bronze Turkeys, $1, $2, $3 from show stock and 50c utility stock. Eggs from Toulouse Geese, winners at seven shows, $1 each. White Muscovy Duck Eggs, 35c. White Wyandotte Eggs, $3 and $5 a setting. Young unmated pairs, White King Pigeons $2, old mated pairs $3. Pearl Guineas $4 a pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY (Electric), Box 122, Artesia, California.

For Sale—Baby Chicks from my thoroughbred carefully selected flock of S. C. White Leghorns. Orders accepted now for spring delivery, at $15.00 for 100 chicks, $140.00 per 1,000. Every order receives my personal and most careful attention. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Thoroughbred Barred P. Rocks—Egg records 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 5599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

White Leghorns—Breeding Stock, Hatching Eggs. Bred to standard and to lay. At 1919 Oakland Show won 2nd and 4th cock, 4th hen, 4th and 5th pullet, 2nd pen. 178 birds competing. All curves, white plumage, vitality, high egg production. MAHAJO FARM, P. O. Box 597, Sacramento, California.

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Newton Poultry Farm — White Leghorn Baby Chicks from our well known, carefully selected stock. Best strain. Big plant. Order now, any number, and get them when you want them. Los Gatos, California. Dept. 2.

"Watch Us Grow" Baby Chicks. Booking orders now for January and February deliveries. Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

S. C. Buff Leghorn Hatching Eggs—This is your opportunity to secure a start in pure breds at reasonable prices. Price list free. Wrieden Poultry Farm, Dept. C, Calistoga, California.

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Buff Minorcas—Vigorous utility cocks and cockerels from 200-egg hens. Eggs from 200-egg exhibition stock. Circular. Wendell R. Mortimer, 344 Tennyson Ave., Palo Alto, California.

Big, Strong, Vigorous Plymouth White Rock cockerels from excellent stock. March and April hatch. Price $5.00. Only a few left. Geo. E. Dierssen, Box 913, Sacramento, Cal.

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S. C. WHITE LEGHORNS

We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

S. C. White Leghorn Breeding Cockerels—I am now taking orders for young breeding cockerels to be delivered at age of three months and upward. This is the same class of stock that I have entered in the Santa Cruz Egg Laying Contest, and which at present is leading over all others. Also, a few dozen, each week, of extra choice hatching eggs from specially selected two year old hens, mated with vigorous 10 months old cockerels from high laying strain. D. B. Walis, Rural Route 4, Box 88-A, Petaluma, California.

S. C. White Leghorn Hatching Eggs and Chicks. All stock from our own pens of selected high egg producing two year old hens, mated to cockerels having the same blood lines as our 1919-20 prize winners. 500 chix ready March 23. Prices on application. Stock and eggs limited. ALLES-SAN-DRO POULTRY YARDS, 523-D Rosemont Ave., Los Angeles, California. Tel. 53511.

For Sale—Hatching Eggs, Day Old chicks, from Kopps' famous Anconas, the heavy winter layers; they have the vitality and the laying habit and are bred to lay eggs; $3 per 15; $12 per 100. Day old Ancona chicks from my own stock, $20 per 100. S. C. White Leghorn eggs, $2.50 per 100. George Kopp, P. O. Box 819, Los Angeles, California.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

Sly's Single Comb Rhode Island Reds prove their quality by winning at Los Angeles, 2 firsts, 4 seconds, 2 thirds, 2 fourths, 2 fifths, 2 shape specials, 2 color specials, 1 gold special, 3 silver cups. A top notch exhibition and utility strain. Send for Catalogue. A. G. Sly, 1642 E. Middleton Place, Los Angeles.

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For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Buff Orpingtons, Black Minorcas, Anconas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306. San Jose, California.

I Won More First and special prizes on S. C. R. I. Reds at the recent Oakland Show than all other exhibitors combined, 188 Reds competing. Hatching eggs from prize birds for sale. F. M. Lail, 6 Lupton Ave., San Jose, California.

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328 So Spring St., Los Angeles, Cal.

Barred Plymouth Rocks—"Nothing Better in Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Vodden, Los Gatos, California.

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Thoroughbred S. C. White Leghorn Chicks—In 100 and 1000 lots from our Hoganized and Trapnested Stock. Order now for spring delivery. Inventors and Distributors of "Forbros" Separator and Trapnest combined. Write for circular. Forster Brothers, 2918 Otis Street, Berkeley, California.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Baby Chicks — Every week, White and Brown Leghorns, R. I. Reds, Barred Rocks, Anconas. Also Baby Ducks. All strong youngsters. Safe arrival guaranteed. Write for free circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

White Leghorn Baby Chix. Heavy laying. Hoganized stock. May and June delivery. $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

For Sale—Rhode Island Red Baby chicks from our carefully selected matings for size, color and egg production. $20.00 per hundred; also White Leghorns, $17.50 per hundred. Williams' Poultry Place, R. I., Box 563, San Gabriel, California.

For Sale—Eggs from R. I. Reds, trapnested hens, whose pullets have laid from 103 to 136 each the last six months. $5.00 for 15. Other pens $2.50 for 15. Brown Leghorn, $2.50 for 15. C. S. Eichoitz, Pasadena, California.

For Sale—Very gentle Pea fowls. Price $25.00 per pair at 2 years old. $17.50 at 1 year. Will contract to raise for Nov. delivery at $10.00 per pair. Eggs $1.50. Peacocks have full tails at 2 years. A Everett, Moorpark, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seahright, California.

S. C. R. I. Reds—Eggs for hatching, $7.00 per 100, $1.50 for fifteen. Mrs. A. B. Cobb, R. F. D. B, Box 120, Bakersfield, California.

Rhode Island Whites — Hatching Eggs, Chix from best matings possible. Free mating list. Phil. Lehrbach, 1608 N. Ave. 56, Los Angeles.

"Eastman's Bred-to-Lay" trap-nest Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Pit Games, Cocks, Stags, Hens, Eggs. R. H. Crane, Route 3, Santa Rosa.

Single Comb Red Hatching eggs, $2.00 per 15. W. M. Marquam, Bishop, California.

LIVE STOCK

BUTTE CITY RANCH

Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Third sale at the Ranch—all breeds—April 17, 1920. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale—Four well bred mammoth Spanish Jacks 1 to 6 years old, also five Jennets 1 to 6 years. Tennessee ancestors. Price $1200.00 for the lot. A. Everett, Moorpark, California.

For Sale—Three young Toggenburg does. Fresh in April. From heavy milkers. Cheap if taken soon. Chas. W. Young, R. 1, Box 206, Whittier, Cal.

Carruthers Farms—Live Oak, California. Shorthorn cattle and Berkshire swine of quality and select breeding.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

For Sale—Good Jack 6 years old. R. S. Sevdel, Lincoln, California.

RABBITS

The Only Exclusive Rabbit and cavy magazine published in California. One year for 25 one cent stamps. Pacific Rabbit and Cavy Breeders, Eagle Rock, California, Dept. CC. "Tell them your troubles."

A. B. C. of Rabbit Culture, $.25. Value of Rabbit Skins and Tanning, $.25. Self cleaning hutch plans, $.50. Registered Pedigreed, prize winning New Zealands. Freeman's Rabbit Tavern, 1108 Jay, Sacramento, California.

For Sale—Pedigreed New Zealand Red Rabbits, fine breeding does and bucks at $3.50, $4.00, $4.50 each, fine healthy stock. Armstrong's Rabbit Farm, Petaluma, California.

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beechling, 1578 W. 46th Street, Los Angeles.

DUROC-JERSEYS

Special Sale of pure bred Duroc-Jersey weanling pigs (registered). Sired by First Prize Boar of Grand Champion breeding. Marked down in price to advertise our stock. Also a few choice bred and open gilts at slight advance over pork prices. Green Canyon Ranch, Fallbrook, San Diego County, California.

Duroc-Jersey Swine for Sale — Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Duroc-Jerseys—Gilts sired by Orion's King Gano, out of a dandy sow bred to Crimson Col. and Great Model boars. Cal. Orion Cherry King gilts bred to an Orion's King Gano boar. L. R. Hitchcock, Sweet Clover Ranch, Van Nuys, California.

Big Type Durocs, herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Priced Right — Sept. boar pig, Orion Cherry King stock. He will make you money. El Bendito Rancho, Lancaster, California.

SWEETWATER DUROCS

The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K Walker.

Six Bred Duroc Gilts—Champion breeding, big type. Weanlings $15. Fall pigs $20. El Dorado Duroc Association, Placerville, California.

Start Right — Registered Duroc-Jersey weanlings every month in the year—$15 each. Red Rock Ranch, Glen Ellen, California.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Wondergerst, California's leading Poland China sire—big himself, bred big and his pigs show the same qualities. His dam was Giantess Wonder, his sire Big Jones—both big, both winners—a combination of the greatest blood of the breed. Breed big type Polands. Start right by using this blood. Write for special offer. A liberal consignment made to the Tulare Poland China Associated Breeders' sale held Tulare, October 21st. OXBONE Herd Poland Chinas, Tipton, California.

Pathfinder Wonder—Is son of Great Wonder I Am, the largest boar that ever lived, out of a daughter of PATHFINDER. He is one year old and measures 66 inches from his eyes to the root of his tail. We have a fine bunch of yearling gilts of King's Col. and Model Col. breeding that we will breed to him and sell at reasonable prices. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Big Type Poland China Bred Sows and Gilts. Also a few open Gilts sired by A Price. Am booking orders for winter and spring hoars. Address: W. S. Adams, Gridley, California.

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

3 Long, Stretchy Boar Pigs farrowed in July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St. at Third, San Francisco. In charge of Natomas Land Sales.

Bred Gilts—Sired by Mayfield Rookwood 2nd, a Grand Champion Boar, and out of 600-700 lb. Sows, all bred to "ACHIEVER" our English-blood Boar, the Sire that puts more bone and pork-making qualities into his Pigs. Priced reasonable and absolutely guaranteed. Castelview Ranch, Santa Rosa, California.

Grape Wild Farm Berkshires—Guernseys—spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. B. Humphrey, Prop., Escalon, California.

We Can Make Immediate Deliveries on high class Berkshire bred sows, bred gilts and service boars at regular prices. Call or write Lark Meadow Ranch, Geo. A. Stipple, El Monte, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

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WEBSTER, WEBSTER & BLEWETT. Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

FERTILIZERS

The Gypsum You Need — Best agricultural lime, complete fertilizers. H. B. Matthews, 1010 N. Madison, Pasadena.

FARM LANDS FOR SALE

FOR SALE:
A HOME AND RANCH COMBINED.
An extremely well laid out plot of land 220 ft. by 454 ft. with full width city streets on three sides and an alley 30 ft. wide on the fourth, only eight blocks from Santa Barbara Post Office and business center. The land is first class sandy loam and will grow anything. There are 146 full bearing fruit trees, including apples, pears, peaches, nectarines, plums, apricots, oranges, lemons, figs, walnuts, loquats, avocados and berries; a good assortment of the best varieties and planted in perfect order. The place is planned for a first class chicken ranch and is fully equipped for 10,000 to 12,000 head of fowls, including houses of the best construction and all modern, with cement floors, automatic drinking fountains, feed hoppers, brooders and houses, manure shed; feed house with alfalfa cutter motor driven, in fact everything in order for a first class farm. There is a well built house containing three bedrooms, livingroom, diningroom, kitchen and bath, (oak floors) for a home, and a two story, eight room house for working men. Garage for two cars. The fruit from the place will more than pay expenses. This property must be seen to be appreciated. It is offered at the low figure of $12,000 to settle up an estate. Come and see it, or write for fuller particulars and terms to F. H. Lingham, 10 West Anapamu Street, Santa Barbara, California. (Exclusive Agent.)

Stock and Dairy Ranch—500 acres; will sell all or part; one mile from Valley Springs R. R., Calaveras County. Over two thousand cords of wood on the stump, oak and pine. Well fenced and cross fenced; water runs in pasture all year, springs and creek run through the place; 100 acres bottom plow land; Burr Clover, hay and pasture; pumping plant on creek; 4 acres alfalfa, large barn and corrals, garage, blacksmith shop, bunk house, sheds, etc. Pump at house and large storage tank; variety of fruit trees around house. Splendid large house, hot and cold water in kitchen and on back porch, bath. Price $30,000. Can give any terms at 6%. Would consider small City Property or business or small farm 10 to 20 acres in trade. For further particulars apply to owner on place. H. W. HANMAN, Valley Springs, California.

150-Acre Missouri Corn Farm, $9500
Near large city; 100 acres rich level tillage, creek bottom, big producer corn, wheat, timothy, clover, alfalfa, general crops; wire-fenced pasture, home-use wood, fruit. House set in blue grass lawn, large barns, stock sheds, hog, corn houses. For quick sale owner will throw in 3 good cows, 2 heifers, steer, 3 calves, 5 hogs, lot fodder, etc., $9500 gets all, $3000 down, easy terms. Details page 85 Strout's Spring Catalog Bargains 33 states; copy free. STROUT FARM AGENCY, 831 A. G. N. Y. Life Bldg., Kansas City, Mo.

For Sale—60 acre ranch A-1 soil suitable for vines, trees or cotton, all leveled and checked for irrigation. 33 acres Alfalfa, 12 Barley, 10 acres Pima Cotton, about 2 acres in fine family orchard all bearing, 3 acres Eucalyptus timber, 2 fine wells, abundance of water, about 3,000 feet cement pipe, 2 small houses, good barn and dairy barn, separator house, tank house, numerous hog houses, water piped to all yards. Two miles from modern high school. Electric power also lighting. Place well stocked, will sell with or without stock. If interested write H. H. Fowler, owner, Wasco, Kern Co., California.

For Sale—112 acres cultivated farm land south of Red Bluff, Tehama Co., Cal. Adapted to alfalfa, beans, cotton, grains and fruits. Irrigation water $2.00 per acre. New house never occupied, schools, telephone, rural delivery. Price $200 per acre. $7500 cash, balance long time. 6% int. Courtesy to agents. E. S. Kinney, care Union Oil Co., Brea, California.

FOR SALE AND EXCHANGE
10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.
FOR SALE
Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

For Sale—20 acres APPLE and PEAR Land; 5 acres planted to Bartlett Pears, 15 acres in grain. Located about 1½ miles from town in a proven pear and apple district. Price $4250.00. Mortgage of $1270.00 due Feb. 1, 1921. Jos. A. Haubrich, Tehachapi, California.

For Sale—Finest Cattle Ranch in California. Drough does not affect it. Great abundance of water for irrigation, 2,500 acres delta land 45 miles from Sacramento. 2,000 head of Cattle now pasturing on the land. $125.00 per acre. F. N. Chaplin, 631 Argonaut Hotel, San Francisco.

For Sale—A 100 acre ranch; 45 acres in alfalfa, rest in grain and pasture. Young orchard and fair buildings. Good place for dairy. Price $13,000. Communicate with or see owner. R. B. Box 119, Bakersfield, California. Paul Durisch.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

Five Acre Poultry farm covered with bearing Almond Trees, Chicken houses for 500 laying hens, 2 room cabin, electric pumping plant, all new in Tehama County, 3 miles to shipping point, $2,500. Terms. Box 6, California Cultivator.

Lake County Land for Sale—Bearing pear and prune orchards, dairy and stock farms. Alfalfa and grain land and other properties. Address Joe Hyman, Lakeport, Lake County, California.

Alfalfa Ranch—For rent. 70 acres gravity water and pumping plant. Will take share or cash rent. Address P. Herlick, Helendale, Cal.

If Interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

California Farms—Near Sacramento for sale, terms. Write for list. E. R. WAITE, Shawnee, Oklahoma.

If You Want to sell or exchange your property write me. John J. Black, 116 St., Chippewa Falls, Wis.

FARM LANDS FOR SALE

FOR SALE
One hundred and sixty acres at $75.00 an acre, four and half miles northwest of McFarland. Hog fenced all around and cross fences, 80 acres in alfalfa, 40 acres in barley, 20 acres in pasture, one acre in family orchard and the remainder under cultivation. Two pumping plants and 1200 feet of irrigating cement pipe, good house of six rooms and bath, plastered; one four room tank house, one big horse barn, cement cellar, blacksmith shop and garage. First class improvements for dairy, cow barn for 60 cows; cement floor, good dairy house and outerbuildings for calves and pigs. Shade trees also, horses and implements can be bought also if wanted. For information address owner, P. Granettoni, Route A. Box 98, McFarland, California.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

MACHINERY

USED RANCH MATERIAL
WE SELL FOR LESS, SEE US.
WHY PAY MORE?
SURFACE IRRIGATING PIPE
We're closing out ranch tools, will specialize in tanks, windmills, pumps, cylinders, irrigating pipe.
SPECIAL BARGAINS
Plows, $5 to $12; 3-4 gang disc plows, 4 gang Stockton, $28; new corn planter, $45; bone grinder, $8; double disc harrow, $48; mowers, $48; potato planter, $65; walking potato digger, subsoilers, hillside plow, 10 in., $12; 4 row beet planter, $30; 2 row bean cultivator, $35; cable, plow discs.
WINDMILLS
8, 10, 12 FT. SIZES
USED REDWOOD TANKS, ALL SIZES
NEW, USED GALV. TANKS, ALL SIZES
New 1000 gal., $42.75. 2000 gal., $56.75.
PUMPS
Plunger, Centrifugal pumps. Fine No. 3 AMES double acting, deep well plunger pump, cost $1000 for $350; 4-in. horiz. centrifugal pump, $69.00; 6-in. $125 Duplex boost pump, $80; new double geared windmill and power pumps, $28.50; diaphram pump, $28; double acting Rotary, $35; 2½ in. blower, $9; 4-in. blower, $12.50; Pomona single acting pump, $87.50; 8-in. new double acting draw valve cylinder, $150. Have you anything in our line for sale? Material guaranteed as represented or money back. Demmitt Co., office upstairs, 120 N. Main, Los Angeles.

Bean Threshing Machine, "American"—26x26, 8 H. P. International Gas Engine mounted on heavy truck with iron wheels, belts all complete, outfit nearly new; worked about 50 hrs. Price $750.00. Will take a team of two mules and harness in part payment, or will trade same for land. A. Bayliss, Anaheim, California.

For Sale: Sandusky Tractor and P. & O. 3 Disc Plow. Used for one season. Have quit farming and will sell these implements at right discount. Inquire, Alberhill Coal and Clay Company, 604 Pacific Electric Bldg., Los Angeles.

For Sale—One Trundaar Tractor and one Trundaar Junior Tractor. Both have been thoroughly overhauled and are in perfect condition. A bargain. Wm. Gregory & Sons, 602 N. Main St., Los Angeles.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale or Trade—Fageol Tractor in good condition, extra large rims and screens. Can be seen at Driftwood Ranch, Walnut and Sixth Ave., Arcadia. Horace M. Dobbins, Dodworth Bldg., Pasadena.

For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

Agency Discontinued—New floor sample S.25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros. Co., Carpinteria, California.

Samson Tractor in good condition for sale or trade. Apply to Mel. Harding, East Telegraph Road. Phone 9132, Santa Paula, California.

MISCELLANEOUS

Learn Auto and Tractor Business—Operating and repairing all makes thoroughly taught. Positions while learning. Special tuition rates in classes now forming. Write for circular. Automobile Engineering Co., 742 S. Olive St., Los Angeles.

7,000 FEET IRRIGATING PIPE
3,500 ft. 3-in., 2,000 ft. 4-in., 300 ft. 7-in., 500 ft. 9-in., 500 ft. 10-in.; price right. Don't wait month and cuss us because its gone. Demmitt Co., Office 120 N. Main, Los Angeles.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Red Leaf Tobacco — Homespun aged in bulk. Chewing or Smoking, 6 pounds $3.30; 10 pounds $5.00. Postpaid. Murphy Company, Martin, Tennessee. Reference, People's Bank.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale Cheap—Five 10,000 and nine 5,000 gallon redwood tanks. Apply OLD HERMITAGE VINEYARD, 1623 No. Main, Los Angeles.

For Sale—Nitrogen Bacteria for Legumes, 50c per acre guaranteed. William Brunner, Holtville, California.

Kodak Finishing Exclusively. The Kodak Shop, 15 So. California St., Stockton, California.

DUCKS

For Sale—Fawn and pencil India Runner duck eggs, all heavy laying strains, also Pekin eggs. Mrs. Geo. Page, Danville, California.

White Muscovy Ducklings, week old, hen hatched. Free circular. Caldwell Farm, Box 274-E, Los Angeles, California.

TREES

Washington Navel, Valencia, Marsh Grapefruit, Eureka and Libson Lemon trees. Sour stocks. One year old buds. We used "Supply Company" buds only. Nurseries Riverside, Puente. Frank A. Tetley & Son, 405 Eighth Street, Riverside.

100,000 Florida Sour Orange Seed Bed Trees; 100,000 Sweet Orange Seed Bed Trees. Valencias, Grapefruit, Kadota Figs, Olives, Umbrella trees. Southland Nurseries, 1941 East Colorado Street, Pasadena, Phone Colorado 6352.

Nursery Stock. Apples, pears, peaches, cherries, prunes, plums, berries, etc. OURS IS MAIL ORDER SYSTEM. IT SAVES YOU MONEY. Write us now for Planters' list. 20 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale—Apples, Pears, Cherries, Plums, Almonds, Quinces. All first-class home-grown trees at very responsable prices. Also full assortment of berry plants. Orange County Nursery Co., Anaheim, California.

Apple, Peach, Bartlett Pear on Japan root, Plum, and other varieties of Fruit Trees of dependable varieties and good quality. Los Nietos Valley Nursery, Downey, California.

For Sale — Seed Bed Stock, sour and sweet. Budded Valencias, navels, lemons. Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena, California.

For Sale—Scions, Eureka and Placentia Perfection from choice grafted orchards. The WALNUT NURSERY, W. A. Litten, Prop., Whittier, California. Phone Home 6294.

Avocado Trees—Mathers' Avocado Nursery. Home of Field Grown Trees. P. O. Box 585, Pasadena. Nursery Phone Colorado 6044.

"Capri" Figs for sale, mammoth crop now ready for delivery, 25 cents each. Chris. Westgard, Pioneer Orchard, Brawley, California.

For Sale—3,000 select orange trees. Also 3,000 lemon trees; first class trees; 20,000 seedbed stock. A. R. Rideout, Whittier.

Walnuts—Send in your orders now for grafted and budded walnuts. 1921 delivery. J. G. Grundel's Walnut Nursery, Oakdale, California.

For Sale—Eureka Walnut Grafting Wood, 6 cents foot. A. C. Kuhn, Route B, Box 351, San Jose.

Place Your Orders Now for all kinds of Citrus Stocks. Butler's Morningside Nursery, Lamanda Park, California.

Citrus Seed Bed Stock — Budded citrus trees. L. A. Tuttle, R. 2, Box 404, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; Inspection Invited.

Rooted Olive Cuttings (Mission). Write for prices. Kavan Nurseries, San Bernardino, California.

For Sale—4 Year Old Manzanillo and Mission olive trees. E. E. Barnes, Highland, California.

Tulare Co.—Washington Navel, Valencia trees, 2 year buds, a fine lot of trees. A. G. Ogilvie, Orange Cove, California.

10,000 Registered Eureka Lemons. L. A. Tuttle, R. 2, Box 404, Pasadena.

CATTLE

For Sale—One of the best bred registered Holstein bulls in California. McAlister & Son of Chino, breeders. His dam at two years old made nearly 21 lbs. butter in 7 days and at three years 31.48 lbs. The dam and grand dam of his sire averaged over 35 lbs. butter in 7 days. He was three years old last Dec. Is half black and white. Price $500.00. A. Everett, Moorpark, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome. Information cheerfully given. T. T. Miller, Hollister, California.

For Sale—Twenty head Guernseys, twelve registered, eight milking, producing one and one-half pounds fat a day. Milk test six. Route B, Box 116, Modesto, California.

Registered and Grade Dairy Cows and Heifers on time notes. When winter is over in the East Europe will take all. Geo. R. Mokel Cow Co,. Lock Box 1137, Los Angeles.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

High Class Salesman—Familiar with Hay and Dairy trade in Southern California. Apply Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

For Sale—Registered Holsteins, milkers, calves and bull. D. C. Stanion, Kerman, Fresno County, California.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

GEESE

McNeely's Mammoth Geese. Fine stock, ready to ship at the old price of $5.00 each for as many as you want. First come first served so order early. Chas. McNeely, Alpaugh, California.

HOGS

For Sale—70 head of high grade brood sows due to farrow in March and April. Wm. Harlan Smith, R. D. C. Box 258, Hanford, California.

SALESMEN WANTED

Men With Spare Time—Ranchers especially, can find excellent renumerative proposition, salary guarantee, working for an old reliable California company. Turn your spare time into cash. Write J. H. Yetter, 115 North Broadway, Los Angeles.

SEEDS AND PLANTS

Cotton Seed For Sale—Mebane and Durango seed, ginned from our crops, grown West Side San Joaquin Valley, which gave generous production, grading excellent staple and color. Quantity limited. Shipped in new sacks weighing approximately fifty-five pounds. If ordering less than ton state number of sacks wanted. Should plant approximately twenty pounds per acre. Prices: seven one-half cents per pound; in lots of ten tons or more to one consignee, seven cents per pound. All quotations f. o. b. Southern Pacific Westhaven. Boston Land Company, Westhaven, Fresno County.

Kaffir Corn (Schrock) Bird-Proof. A sweet, dwarf, sorghum corn, entirely immune from ravages of birds. Has been tested in California thoroughly and is the only sure-crop Kaffir or Maize. Possesses all the qualities of any good Kaffir and is relished by all stock, pigs and poultry. Also valuable for green fodder or silo and if desired can be cut back several times during growing season. Price, 20 cents per lb.; 25 lbs., for $4.00; 50 lbs., $7.50; 100 lbs., $14.00. Postage paid on less than 25 lbs. C. E. Howland, Fallbrook, Cal.

Tomato Seed, save 100 per cent on New Improved Stone, San Jose Canner, postpaid $3.00 pound. Send Money Order, or 20 cents ounce, stamps accepted. Order today, supply limited. Dana Walden, Dept. 25, Wholesale Terminal Bldg., Los Angeles, California.

For Sale—A limited supply of Mountain grown strawberry plants at $1.20 per hundred, postpaid. Varieties, Excelsior, Banner A-1, Ettersberg No. 80 and Brandywine. B. Bryan, Camp Baldy, California.

For Sale—Tomato Seed, New Stone (Improved), Livingston's Favorite; 40 cents per oz., $4.00 per pound each. Postpaid any quantity. All these varieties are the very best select stock. Patton Seed Co., South Pasadena, California.

Rhodes Grass—Is making Imperial Valley famous and will make any other section famous, if it is planted, especially if the soil is hard or alkali. Write Imperial Valley Seed House for Literature. El Centro, California.

Strawberry Plants—Americus everbearing. Strong, healthy plants. Do well in California. $2.50 per 100, $5.00 per 250. Postpaid. Catalogue free. F. I. Moffet, Eliensburg, Washington.

Seeds—Alfalfa Seed 40c f. o. b. San Francisco. All varieties Vegetable and Flower Seed. Write for special prices. Bay Counties Seed Co., San Francisco, California.

Grow Your Own Melons. Secure a package of seed, 25 cents. The world's finest musk melon "Casad's Special." Roland C. Casad, Covina, California.

Cory Thornless Mammoth Blackberry. Get strong rooted plants from Cory Ranch, 6, $1.50; 12, $3.00. Postpaid. G. S. Wills, Jamestown, California.

For Sale — Giant Himalaya Blackberry Tip plants from bearing vines. Immediate delivery. Sylvan Grove Farm, R. D. 1, Box 147, Santa Cruz, California.

Rhubarb Roots—1 year old roots, $3.00 per hundred; 50c per dozen. Two year old roots $1.00 per dozen. Currier Bulb Company, Santa Cruz, California.

Cory Thornless Mammoth Blackberry—Write for price list on plants. Wm. Mortenson, Rt. A, Box 209, Lodi, California.

Berry Plants — Ettersburg Strawberries, Blackberries, Dewberries and Raspberries. M. J. MONIZ, Berry Specialist, Sebastopol, California.

To Get Acquainted—I will mail you for $1.00 two each Cory's Thornless, Bishops Tree and Crandall blackberries. Bishop's Nursery, Highland.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc. Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

Write amount and kinds of seed wanted. Four kinds of alfalfa, 25c and up; free samples. Box 501, Fowler, California.

Stock Beet Seed—Any variety. Write for prices. Aurora Seed Mill, grower, Stockton, California.

Dahlia Novelties—Superb collection. Write for catalog. Dietzel's Dahlia Garden, Oakland, California.

Burbank Thornless Blackberry Plants—6 for $1.00; 15 for $2.00, postpaid. Wm. Glas, Madera, California.

Burbank Thornless Blackberry Plants—8 for $1.00. Well rooted tips. Postpaid. Variety Farm, Clovis, California.

For Sale—"British Queen" Seed Potatoes, 4 cents per lb. Martin Bohn, R. F. D. 4, Box 107, Petaluma, California.

For Sale — California Wonder Corn for seed. Doubles yield. Send for circular. James McKee, Riverside, California.

WANTED

Wanted—By San Francisco firm, competent salesman to sell a well known brand of semi-solid buttermilk through California, with headquarters at San Francisco. State salary expected and experience with this class of merchandise. Answer Box "D," California Cultivator, 112 Market Street, San Francisco, California.

Wanted—High-Class Salesman—Familiar with Hay and Dairy trade in Southern California, Apply Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles.

Man With Years of Experience desires position on ranch as cook; steady; best references. Oscar George, Bellflower.

Wanted—A deep well boring outfit. L. George, Hollister, San Benito Co., General Delivery.

Wanted—To buy cattle, 75 or 100 steers preferred; will take good stock cattle. Address P. Herlick, Helendale, California.

Wanted—Strawberry plants. Give kind, quantity and price. Crystal Springs Nurseries, Bothell, Wash.

Wanted—2 peafowl hens. Address Todos Santos Ranch, Daggett, California.

GOVERNMENT LAND

100,000,000 Acres FREE Gov't Land—Send for free booklet telling how to obtain all necessary information about acquiring these lands. Address The Homeseeker, Dept. M, Los Angeles, California.

Why Shouldn't He Smile?

A little ingenuity and he has been relieved of those killing, monotonous tasks so common on the farm.

One G-E Motor

is being used to drive a feed cutter, a grinder, and a pump.

The electric way is the modern way, the proven economical way.

The General Electric Company manufactures all sizes of motors for farm use. Information will be gladly furnished by your lighting company, or our nearest office.

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Los Angeles, California. C.C.1-27.
Send me full particulars.

Grower of .....
Tonnage .....
Signed .....
Address .....
City State

When Writing Advertisers, Mention the Cultivator.

Cheaper Money, More Money for the Farmer

PERHAPS our readers have noted in scanning market, or rather financial review, pages of the city press that money commands one price in one center, or rather, in one calling, and another price in another. "Six per cent in industrial centers and eight per cent in agricultural centers" indicates about the difference between the prices money is commanding from the merchant or the industrialist and from the farmer. "Why?"

And the answer to this, which might be easy and seem reasonable to some, would require considerable space to give. But the question calls attention to an interesting fact which is the only reason for mentioning it at this time.

We have received the following letter in which it will be seen that we are taken to task for calling attention in a recent issue to investigations undertaken by the Commonwealth Club of San Francisco. It is possible there may be selfish effort on the part of some members of the Commonwealth Club in seeking the information desired. Neither would we discuss that, though we do not believe such to be the case. But there is one outstanding fact in agricultural practice of this country—the farmers must have cheaper money. This need has been met to a very limited extent by the federal farm loan.

The federal farm loan is one of the finest pieces of financing this country has yet undertaken; it has enabled far larger agricultural operations and doubtless resulted in greater food production during the last few years. It has its limitations, and the law making it possible has its faults as is shown by the fact that its best friends are today working for revision. For instance, it is felt that a mistake has been made in limiting the amount that can be borrowed under this law to $10,000, and the proposed revision would raise this limit to $25,000. Other features will be corrected and every step possible taken to make the federal farm loan a still greater aid to agriculture, but as it is it has always had the heartiest commendation of the California Cultivator as evidenced by hundreds of references and articles touching upon its methods and advantages.

The reference to the effort of the Commonwealth Club was not intended in any sense to be a criticism of the federal farm loan. However, we are rather glad it was so taken by one of the farm loan's warmest admirers who lives in San Diego County. We say we are glad, for the reason that it has brought from him a defense. The writer is W. A. Van Loon, secretary treasurer of farm loan association at Ramona, San Diego County.

By W. A. Van Loon

In the last issue of the California Cultivator, printed February 21, was an article, presumably written by yourself, entitled "Investigating Federal Farm Loans," and purporting to outline the activities of the Commonwealth Club of California in endeavoring to find ways and means for providing farmers with long time loans at a low interest rate and preferably on the amortization plan.

I cannot recall having read anything in years that aroused my interest and curiousity as did that article. It gave me a peculiar shock that fairly benumbed me for a time and spurred me to write you about the subject mentioned in that article.

The California Cultivator has commanded my respect for years because of its vigorous and intelligent interest in rural problems of all sorts. The Commonwealth Club of California has been long regarded as a powerful and useful organization seeking out benefits for the classes and masses; so it will be in no spirit of criticism or censure that I shall speak in the paragraphs following this sentence.

That the Commonwealth Club of California should start an investigation to determine the most feasible, or best, or most practicable way to have a federal farm loan system established, and should mail out printed questionnaires broadcast to ranchers to get expressions from them on the subject, and that a great paper like the California Cultivator, which circulates almost entirely among ranchers, should take the time and space to give a detailed statement of this move, will, under the present circumstances, always be to me "a dark and bloody mystery," inasmuch as we now have in full operation an intensely active, robust and aggressive federal farm loan system, which is placing on eligible ranches tens of millions of dollars every month and has been doing so for more than 30 months; and one of the states to be best served and most greatly benefited by the making of these federal farm loans is the very home state of the California Cultivator and the Commonwealth Club of California.

It will surely be a source of amusement to many, many ranchers when the questionnaire from the Commonwealth Club, which apparently has been sent out, gets into their hands, for there is no possibility but that if any considerable number has gone out they will come into the hands of ranchers whose ranch loan affairs have been beautifully settled by a long time federal farm loan on the amortization plan.

This action on the part of the Commonwealth Club strikingly resembles the experience of a San Diego County friend of mine some two years ago. He was much interested in mutual fire insurance and finally wrote to an old acquaintance in Orange County, where a County Mutual Fire Insurance Company was in operation, and asked him to send information as to how to proceed to organize a mutual company in San Diego County; and the Orange County acquaintance flashed back a letter to him saying: "Place your insurance in the San Diego County Mutual which is organized, thriving, and doing a prosperous business." So many ranchers could send a similar reply back to the Commonwealth Club and with the questionnaire unfilled.

Judging then from the actions of the

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Commonwealth Club, and from the article in the Cultivator, there are abundant reasons for feeling certain that both have somehow missed having knowledge of the great and beneficent movement that has now spread into almost every community in the United States and practically covers tbe state of California; and I shall, now present in the briefest way a few facts about this subject which I trust will throw some light uopn it.

The federal farm loan act became a law July 17, 1916. Early in 1917 the entire United States was divided into 12 federal land bank districts. The 11th district comprises the states of California, Nevada, Utah and Arizona, and the federal land bank for this district is located in Berkeley. The making of federal farm loans began in the summer of 1917 and has continued in ever increasing volume since that time. The Berkeley bank alone has received and acted upon 20,000 applications for these loans and has advanced to ranchers (mostly in California) over $16,000,000. The entire loans made throughout the United States now exceed $350,000,000, and the actual business is only just getting nicely under way.

Loans are made only through associations and the money is supplied by the federal land bank of the district. The membership in a national farm loan association may consist of borrowers from a single community or from an entire county. I myself am a borrower under this system, having had a loan allowed early in the summer of 1917; and I have also been the secretary-treasurer of an association ever since loans began to be made.

Federal farm loans are made on long time only, and the time is not less than five nor more than 35 years, and the borrower sets the time in most cases. During the first eight months the system was in operation the interest rate was five per cent, but when the sale of liberty bonds began to interfere with the sale of federal farm loan bonds the rate was increased to 5½ per cent, which is the present rate. That you may get an idea of the workings of an association I may tell you tbat I have had loans allowed for members of my association in excess of $400,000 to the present.

Kindly let me suggest that instead of the Commonwealth Club sending out the questionnaires you have described, that the club appoint a strong committee of its ablest members and have them cross the bay to Berkeley and hold a conference with the executive committee of the federal land bank of Berkeley. They will receive a tremendously cordial welecome from President Joyce, Secretary Ellis, Treasurer Evans and Registrar Cassidy. These men have been intensely on the job for 30 months and can throw a world of light on the matter that the Commonwealth Club is taking such a laudable interest in.

The whole federal farm loan system in this state will surely welcome the active cooperation and endorsement of the California Cultivator and the Commonwealth Club. or any other vital, moving force willing to assist in making still more successful this great movement for better farm finances.

Under the federal farm loan act, as now in operation, loans are made to the ranchers, actually at cost—that is, after the necessary running expenses are met any surplus goes back in dividends to the stockholders, which are the various national farm loan associations and their members, the borrowers. The federal land bank of Berkeley is already paying a six per cent dividend on all association stock, and most of the other 11 land banks are doing the same.

Federal farm loan bonds, based on the farm mortgages, are issued by the several federal land banks, and these bonds are speedily absorbed by the investing public, and the proceeds supply funds for additional federal farm loans.

I wish you would make such use of this letter as may in your good judgment seem fair and proper. I am mailing a copy to the Commonwealth Club, and another copy to the federal land bank of Berkeley. Believing also that there should be certain literature on your desk in connection with this subject, I am taking the liberty of mailing to you in a separate envelope the following: Circular No. 1 of this association; also one copy of the federal farm loan act; also the farm loan primer; also a copy of circular No. 7, entitled "Killing Off the Mortgages," giving information as to how amortization applies to federal farm loans.

And now, assuring you of my best personal regards, and also assuring you that in my estimation the Cultivator is a power for good in California, and trusting that things said in this letter will be read and received in the same kindly spirit in which it has been written, and trusting also that your own active support may be given to the present federal farm loan system as now in operation, I am, sincerely and truly yours, W. A. Van Loon.

COTTON IN EGYPT

Cotton growers will be interested in an extract from a letter recently received by Director Taylor from Dr. Forbes telling of cotton conditions in Egypt. Dr. Forbes was for over 20 years dean of the college of agriculture of the University of Arizona and is now carrying on studies with cotton and other crops in Egypt with the Societe Sultanienne D'Agriculture. Quoting from the letter which was written January 11, Dr. Forbes says:

"The cotton game is fully as exciting here as in Arizona, I think. Fully good fair Sakkelarides has sold recently for $1.15 a pound and Pilion for $1.20 per pound. These prices quoted are in Egyptian dollars, which normally are worth about the same as our own. Egyptian currency, however, is influenced by the value of the British pound, which in December was as low as $3.89 (U. S.) dollars as against $4.87 normal. In proportion, therefore, $1.15 Egyptian for cotton would amount to about 92 cents in United States currency.

"This is an unhealthy condition, of course, and surely must mean disaster in due time for someone in tbe line of buyers of cotton and its products. Next year's crop (1920) is now being sold by growers at 90 cents a pound (Egyptian) and the price is rising. This, of course, means that in the judgment of brokers they will sell for more than this next November. With an average crop of about 400 pounds an acre, and with labor costs far less than in Arizona, you can imagine that the fellaheen of Egypt are very comfortably well off just now and with pleasant anticipations of continued prosperity.

"The purchaser of cotton fabrics has no such feeling, however. Here in Cairo common long cloth is now 75 cents a meter, Turkish toweling $3.25 a meter and cotton voile $1.50 a meter. Articles of food, however, are much more moderate in price."

Place Your Order NOW for Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or steamer, January, 1920.

C. HENRY SMITH, General Agent
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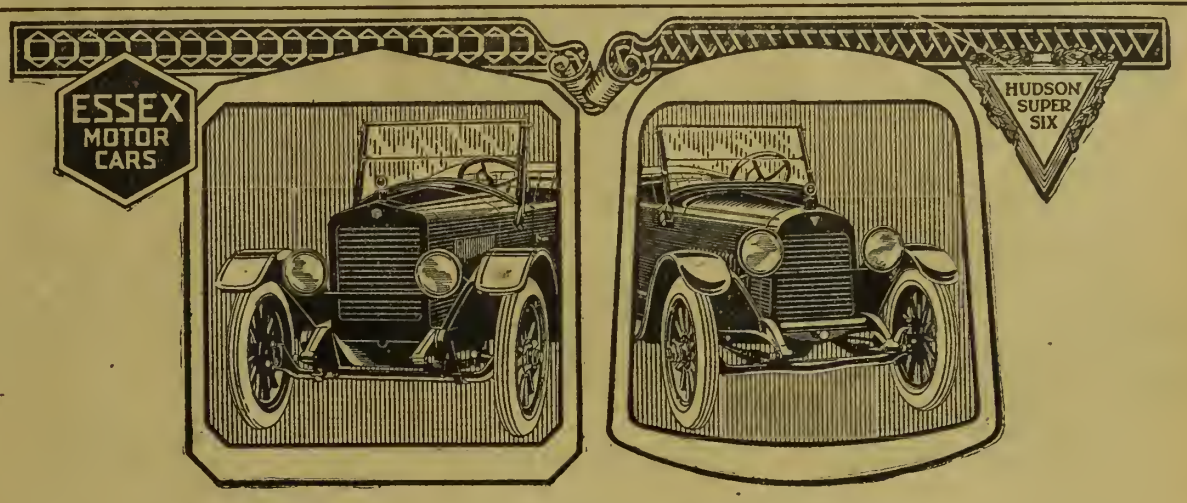

Only Essex Shares Hudson's Qualities

They Show Why Essex Went 3037 Miles in 50 Hours

A critical public has judged the Essex.

In the year past it set a world's sales record.

More than $35,000,000 was paid for 22,000 Essex cars now in service.

That shows how men wanted what Essex offered.

Now Essex proves the accuracy of motordom's judgment.

Let the official tests speak:

On the Cincinnati Speedway a stock chassis Essex made a new world mark of 3037 miles in 50 hours, under observation of the American Automobile Association.

With other trials the same Essex ran a total of 5870 miles in 94 hours, 22 minutes driving time, averaging over a mile a minute.

Both Have This Motor Heat Control

Still another Essex phæton holds the world's 24-hour road mark of 1061 miles.

The Essex and Hudson are of course totally different types.

But note the advantages Essex shares with Hudson.

For instance, the radiator shutters by which efficient operating heat is maintained in coldest weather. They mean everything to satisfactory winter driving. Closed, they keep the heat in.

No unsightly hood covers are needed. They give summer efficiency to gasoline. They end hard starting. And in warm weather, opened, they give the maximum cooling.

The Performance Leaders in Every Community

The Essex, of course, does not cost as much as the Hudson, and though it is admittedly the runner-up in performance, it can never be all the Super-Six is.

In speed—in acceleration—in hill-climbing—in endurance—no stock car ever matched Hudson's famous records.

In every community you will find the two cars most noted for performance are the Hudson Super-Six and Essex.

Demand for both is so large that only by placing your order ahead can you insure delivery when you want it.

Essex Motors, Detroit, Michigan

(142)

Heider

15 to 20% Fewer Parts
More Power for the Pull

Heider Friction Drive does away with clutch, transmission gears and bevel gears. All three units are in one. With fewer parts to run, more power is put into drawbar pull or belt work. Steady, flexible power under perfect control.

No Gears to Strip

No transmission gears means no gear stripping. Fewer parts—less wear—longer tractor life. Seven speeds forward and reverse for tractor and belt work, all with one motor speed and one lever. Easiest to operate.

12 Years Actual Field Work

2 Sizes: 12-20, 9-16

Send for catalog. See what Heider users say. You do not have to take "demonstration" of one or two days as proof. Catalog also describes famous Rock Island CTX Tractor Plow, and one-man Tractor Disc.

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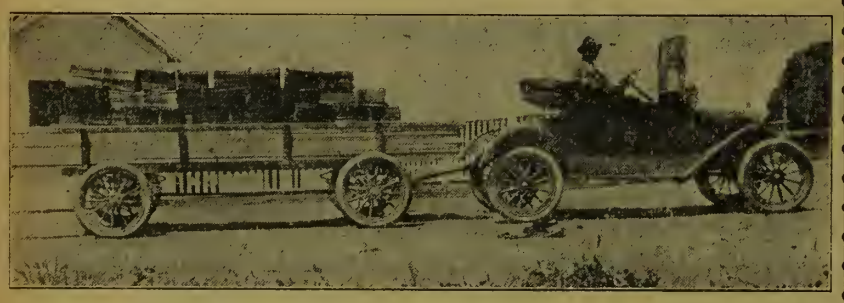

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Write direct for specifications and prices

Pacific Auto Trailer Co.

1601 E. 12th St. Oakland, California

Los Angeles Markets

Los Angeles, March 3, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 61½ cents.

Dairy Exchange prices last week on extras:

Feb.	25	26	27	28	Mar. 1	2
'20 ...	65½	66½	65	65	62	61½

CHEESE

Brokers' prices:

California, lb., 29, price to retail merchants, 29@31.

EGGS

Fresh extras, Produce Exchange closing price, 38 dozen; case count Produce Exchange closing price 35 dozen; pullets, Produce Exchange closing price 35 dozen.

Dairy Exchange prices last week on extras:

Feb.	25	26	27	28	Mar. 1	2
'20	38	38	38	38	38	38

POULTRY

Price to producers: Hens, lt., 35; heavy, 37; colored over 4 lbs., 38; broilers, 40-44; fryers, 40; roasters, 38; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47.

Belgian hares, 3 to 3½ lbs., live, 20.

LIVE STOCK

Los Angeles, Mar. 2 — Weighed and delivered off cars without food or water: Hogs (hard-grain fed), 125 to 150 lbs., 14.50; 150 to 175 lbs., 15.00; 175 to 225 lbs., 15.50.

Cattle (on foot, gross weight): Steers, good, 11.50@12.00; medium, 11.00@11.50; heifers, good, 9.50@10.00; fair, 9.00@9.50; bulls and stags, 6.00@6.50; calves, 125 to 150 lbs., 12.50; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, March 2, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Market stronger. New stock: Stockton, Burbanks, special brands, 5.75@6.00; fancy, 5.25. Idahos, Russets, 5.50@5.60; bakers, 6.00. Local stock, lugs boxes, 1.75@1.80; local White Rose, mostly 5.75@6.00.

Sweet potatoes: Market strong. Lugs, 1.40@1.65; cwt. mostly 4.25@4.50; best, 5.00.

Onions: Demand and movement slow, market weak. Homegrown and Stockton: White Globes, per cwt., 6.75@7.00. Yellows and Browns, 5.00@5.50 per cwt.; lugs 1.75; per lb., 6@7. Garlic, lb., 40@45.

VEGETABLES

These are the actual prices obtained March 2, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.25@1.75.

Beans, green, lb., best, 15@17; other 8@9.

Beets: Doz., 40@55; lb., 4@5; sk., 3.00@3.50.

Brussels Sprouts: Per lb., 10@13, poorer low as 7; best shipping stock, 15@17.

Cabbage: Market steady. Per lb., 3@3½; per cr., mostly 2.00@2.25; some best, 2.75@3.50; poorer, 1.75@2.00 crate; sacks, mostly 3.00@3.50. Red cabbage: 5 per lb.

Carrots: Doz., 35@45; lb., 1½@2; sk., best, 1.30@1.75.

Cauliflower: Market stronger, supplies scarce. Local stock: per dozen, best 1.00@1.25; others low as 85; field crates, mostly 2.00@2.50; others low as 1.85.

Celery: Local and Northern: per dozen bunches, 1.60@1.75; poorer low as 60; crates, 5.00@6.00; fancy shipping stock, 8.00.

Cucumbers: Hothouse, 1.00@3.50 bx.

Eggplant: Florida and hothouse, 25 per lb., local, scarce, 14@17.

Peas: Local, lb., best, 9@12; others, 5@8.

Lettuce: Local Stock: Market slightly stronger. Per dozen, 25@35; crates 65@1.00.

Peppers: Local stock: Bells, mostly 22@25; poorer, 15@17. Chilis, best, 15@25 per lb. Floridas: Bells, 30@40 per lb., Chilis, 30@45.

Parsley: Doz., 25@35.

Parsnips: Lugs, 80@1.25; sacks, 2.60@3.50; per dozen, 40@50.

Rhubarb: Local stock, bx., 1.50@2.25.

Spinach: Doz., 20@35.

Squash: Hubbard, cwt., 4.50@5.00; lb., 4½@5½.

Tomatoes: Mexicans: crates, best, 2.00@2.25; lugs, repacked, 2.00@2.50; originals, 1.75@1.85; poorer, 25 and up; per lb., poor condition, 4.

Turnips: Per dozen, 50@60; per sack, 3.25@4.00.

FRUITS

These are the actual prices obtained March 2, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Bellefleurs, loose, 3@5 per lb.; White Pearmans, 2.25@2.65; 4@6 per lb.; Yellow Newtown Pippins, 4-tier, 2.00@2.25; 3½-tier, 2.35@2.50; 4@6½ per lb.; Winesaps, 3.00@4.00; 5@7 per lb.; Delicious, fancy, 3.50@4.00; 5@7 per lb.; Hoovers, fancy, 2.25@2.50; Romes, 2.50@3.25. per box, 3.00@4.00. Local, 2.00@3.00 per box.

Bananas, 8@8½; Red, 9.

Pears: Winter Nells 6½@7½ lb.; bx., 3.00@3.50.

Grapefruit: California and Arizona: per box, 3.00@4.00, mostly 3.25@3.50. Local, 2.00@3.00 per box.

Lemons: Market stronger. San Fernando Valley stock: fancy packed, 5.25@5.50; loose, 3.50@4.75; juice, 2.50. Local stock: packed, 2.50@3.00; loose, 2.00@2.50 box; 2@3 per lb.

Oranges: Navels, 3.75@5.25 box; best brands, bx., 5.75@6.50; Local stock: packed, 3.50@4.25; large sizes low as 2.00@3.00. Tangerines, lb., 8@9.

HONEY

Demand and movement good, market steady. Carloads f. o. b., usual terms, per lb.; white orange blossom, mostly 19; white sage 19@20; extra light amber sage 18½; light amber sage, supplies cleaned up; light amber alfalfa, 16½. Beeswax, local lots, 40@43.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6: Limas, 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

HAY

Rains all over the South prevented a further rise but vastly heavier rains are needed to effect any decline.

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	27.00@30.00
Barley	26.00@30.00
Alfalfa	28.00@32.00
Barley Straw	10.00@13.00

GRAIN AND FEEDS

Price bid local grain exchange, March 2.

Barley, 3.35@3.40.
Corn, Yellow, 3.13¾@3.30.
Egyptian, 3.40.
Eastern Kafir, 2.51¼.
Wheat, mixed feed, 4.70@4.85.
Milo, 2.90@2.95; Eastern, 2.40@2.56¼.

San Francisco Markets

San Francisco, March 2, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras 61

Feb.	24	25	26	27	28	Mar. 1
'20	..	64	64	64½	63	61
'19	..	55	57	57½	58	....

Rcts. week ending March 1, 3,788 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	27@28
Cal. Flats	28½@31
Cal. Y. A.	35

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	46
Prime firsts	43
Extra, pullets	40½
Undersized	37½

Feb.	24	25	26	27	28	Mar. 1
'20	..	44	45	45½	45½	46
'19	..	41	41½	41½	42	..

Rcts. wk. ending Mar. 1, 450,640 dozen.

POULTRY

Wholesale prices are:

Leghorn, 41@43; small, 41@43; large, 41@43; roosters, young, 43@45; old, 23@25; broilers, 45@50; fryers, 50@54; turkeys live, 42@43; dressed, 51@52.

Ducks, Indian Runner, 25@27; Pekin, 33@35; geese, 30@32; Squabs, 70@75.

Belgian hares, live, 20@23; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company are:

Cattle—Grass steers, No. 1, weighing 1000 to 1200 lbs., 12@13½; do 1200 to 1400 lbs., 11½@12; do, second quality, 9½@10½; thin, 8@9.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4½@5.

Calves—Light weight, 12½@13; medium, 11@11½; heavy, 9@9½.

Hogs—Weighing 100 to 150 lbs., 15; 150 to 225 lbs., 15½; 225 to 300 lbs., 15; 300 to 400 lbs., 14.

Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle—Good steers, 1000 to 1100 lbs., 11½@12; top steers, 1100 to 1200 lbs., 11@11½; good heifers, 1000 lbs. and over, 9@9½; No. 2 cows, 1000 lbs. and over, 8@8½; canner cows, 5@6; good bulls, 6@6½.

Calves—Light, 13@14.

Hogs—Top packer, hard and well finished; 100 to 150 lbs., 15; 150 to 225 lbs., 15½; 225 to 300 lbs., 14½; over 300 lbs., 14; under 100 lbs., 14.

Sheep: Ewes, 9@9½. Wethers, 11@12. Yearlings, 13@13½. Milk Lambs, 14@15.

POTATOES

Wholesale selling price:

Per 100 lbs.: Rivers, fancy, 4.75@5.00; choice, 4.50@4.75; Idaho Gems, 4.50@5.00; sweet, 4½@5 per lb.

ONIONS

Wholesale selling price:

Onions: Fancy brown, 4.50@4.75; choice, 1.25@4.50; yellow, 5.00@5.25; white, 5.00@5.25. Garlic, China, 14@15; other, 30@35.

VEGETABLES

Wholesale selling price:

Artichokes, No. 1, 90@1.00; No. 2, 65@80; No. 3, 40@55.

Asparagus: lb., 25@35.

Beans: So., 13; Hothouse, 35 lb.

Brussels Sprouts: lb., 8@9.

Carrots: sk., 1.00@1.35.

Cauliflower, doz., 1.25@1.45.

Cabbage, doz., 40@50; lb., 2½@3.
Celery, doz. bunches, 45@50; cr., 5.00@7.00.
Eggplant, lb., 15@20.
Lettuce: cr. 1.50@1.65; Imp., 1.65@1.90.
Peppers, Bell, lb., 20@25; Fla., 25@30.
Peas: lb., 10@12½.
Radish, 7@9 doz. bunches.
Tomatoes: Southern, 1.25@2.00.
Spinach, lb., 2½@5.

DECIDUOUS FRUITS

Apples: Bellflowers, 1.25@1.50; Newtown Pippins, old stock, 1.25@1.50; California storage, 4-tier, 2.00@2.25; Oregon, 2.00@2.50; Spitzenberg, choice, 1.75@2.25; fancy, 2.50@3.00; Baldwins, 1.75@2.50; Winesaps, fancy, 3.75@4.00.
Bananas: lbs., 8@10.
Pears: bx., 1.50@4.00.
Pineapples: doz., 3.00@5.00.

HONEY

Extracted jobbing prices: Water white and white, 18 and 20 per lb.; light amber, 16@18; amber, 14@16½; comb, 25@28 for white and water white and 20@22½ for light amber.

RICE

The California market remains quiet, with few sales. Spot fancy is available at $12 and futures at from 10 cents to 25 cents higher.

BEANS

Jobbing price per cwt.: Small white, $6.50; large white, 6.00@6.50; cranberry, 7.00@7.25; red Mexican, 8.50; pink, 6.75@7.00; California Bayo, 9.25@9.75; blackeye, 7.00@7.50; red kidney, 12.00@13.00; lima, 13.25@13.50; Garvanza, 9.50@10.50; Kotenashis (in bond), 5.35.
Dried Peas—California, 5.25@5.40 per cental for green, recleaned.

HAY

Under date of February 28, Scott-Magner & Miller says:

Receipts past week, 1,596 tons. Much has been used for double compressing on government shipments. This with better local trade and heavy country demand (many cars having been reshipped after arrival in this city to country points), has made a market condition never before known in this business. Owing especially to the heavy country demand, prices have reacher figures never known to the trade heretofore. Even at these abnormal prices, heavy trading seems to continue as feeders must have hay to maintain their stock, there being practically no grass available. Government was in the market during the week for 2,000 tons of hay, most of which was awarded to San Francisco bidders at exceptional prices. Large quantities of alfalfa have been moved from Nevada to this state with the natural result that prices in that state have also become much stronger as the stocks on hand there decrease. The lack of rain in any quantity is proving a most serious matter throughout the state, both as to crops and power; the water table throughout the state being lower than ever known before.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses are to be added according to conditions:

Fancy Wheat Hay (light 5 wire bales) .....38.00@41.00
No. 1 Wheat or Wheat and Oat Hay .....35.00@38.00
No. 2 Wheat or Wheat and Oat Hay .....33.00@35.00
Choice Tame Oat Hay .....37.00@40.00
Other Tame Oat Hay .....33.00@37.00
Wild Oat Hay .....Nominal
Barley Hay .....Nominal
Alfalfa Hay .....32.00@37.00
Stock Hay .....29.00@32.00
No. 1 Barley Straw, per bale.. .70@ 1.00

Citrus Markets

Los Angeles, March 3, 1920.

Navels continue in keen demand. Large offs are not chosen as quickly as smaller sizes but even for them fair prices are maintained. F. o. b. prices, where made, will vary all the way from $3.50 for large stuff up to $5.75 for 150's and 176's with smaller sizes the favorite.

With the influenza abating somewhat and enormous number of foreign lemons afloat and early arrival expected the lemon market is somewhat easier. However, some auction sales are made around the $6 and $7 prices.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 8,431 cars; lemons, 1,951; total, 10,385. To same date last season: Oranges, 8,316; lemons, 2,334; total, 10,650. From Central California this season: Oranges, 3,557; lemons, 235; total, 3,792. To same date last season: Oranges, 2,230; lemons, 234; total, 2,464. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

February 25

New York: 9 or. Nav. 4.55-6.10. Tange. halves, 3.95.
Boston: 2 cars. Nav. 4.65-7.55, lem. 4.20-6.30.

February 26

New York: 8 or., 3 lem. Nav. 4.55-7.40, lem. 5.85-6.75.
Boston: 3 or., 5 lem. Nav. 5.75-7.45, lem. 3.30-5.65.
Pittsburgh: 3 or., 1 lem. Nav. 5.25-7.15, lem. 5.45-5.80.

February 27

New York: 7 or., 1 lem. Nav. 4.30-6.90, lem. 6.50-6.65.
Boston: 4 or., 1 lem. Nav. 5.00-6.95, lem. 3.35-4.85.
Cleveland: 4 or. Nav. 5.30-7.10.
St. Louis: 3 or., 1 lem. Nav. 5.15-6.30, lem. 5.45-5.70.

March 2

New York: 9 or., 5 lem. Nav. 4.40-7.05, Tange. 3.35, Bloods, halves, 2.95.
Boston: 1 or., 1 lem. Nav. 6.55, lem, 5.05-5.95.
Philadelphia: 2 or., 1 lem. Nav. 3.65-4.95, lem. 3.35-5.45.
Pittsburgh: 1 or., 2 lem. Nav. 3.65, lem. 1.65-4.40.

Additional Liners

TURKEYS

For Sale—Turkey Eggs, Mammoth Bronze and Wild Domestic, crosses; raise more poults, introduce wild blood into your flock. Get hardy, vigorous poults. With each order we send you formula for raising close to 90% of those you hatch and special feeding instructions. Will be worth many dollars to all turkey raisers to know the real way. Pamphlet tells you all. The WILD & DOMESTIC Turkey Home, R. D. Box 26 A, Hemet, California.

Giant Bronze Turkey Eggs for hatching from the famous Gold Nugget strain. Range raised, insuring strong poults. Phone city agent Lincoln 333. Mrs. A. H. Alken, R. F. D. 13, box 315. Los Angeles.

Thoroughbred Mammoth Bronze Cockerels and Tom Turkeys. Also Bronze and Mammoth Bronze Eggs. April and May delivery. Robinson Turkey Ranch, San Dimas, California. Covina Phone 902.

Mammoth Bronze Turkey Eggs and Toms —"Gold Nugget" strain Toms, $15.00. Order for March delivery now. Carrie Andrews, Hemet, California.

BOSTROM IMPROVED

Shipping weight 15 lbs. **Price $22.50**

Has TELESCOPE with magnifying glasses which enable you to sea cross on Target quarter of a mile. Pays for itself on the first job of

IRRIGATING, DITCHING, TILE DRAINING, TERRACING, etc.

Best Investment any land owner aver made with Twanty-Two Dollars and Fifty Cents. Simple, accurate, durable and completa with full instructions. Used and andorsad by Agricultural Schools, County Demonstration Agents, and farmers from Atlantic to Pacific, and you will endorse it too, after using it—if not your money back.

Write for description of Level and TELESCOPE, details of money back guarantee; also name and address of our distributor in your section.

BOSTROM-BRADY MANUFACTURING CO.
89 Stonewall Street, ATLANTA, GA.

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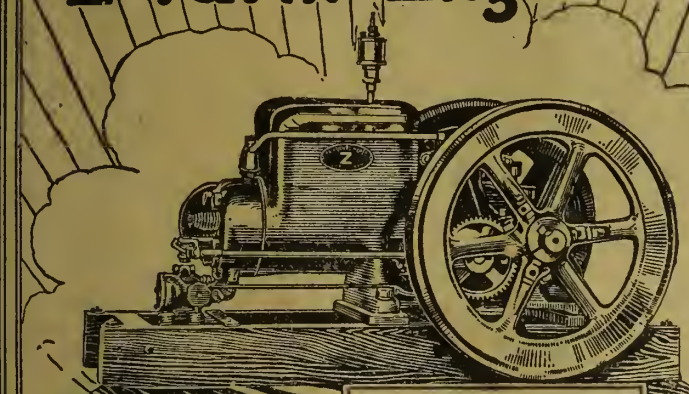
INSYDE TYRES

--genuine inner armor for auto tires. Double mileage; prevent punctures and blowouts. Easily applied without tools. Agents wanted. Details free

American Accessories Company Dept. 90 Cincinnati, Ohio

Fairbanks-Morse "Z" Farm Engines



OVER a quarter-million modern farmers know and use the best engine. Surely in their wise choice there is a message that vitally concerns you, also.

Such widespread acceptence of the Fairbanks-Morse "Z" Engine was not achieved by claims alone. Nor by the high repute of the house which manufactures this phenomenal farm engine. Over $15,000,000 was paid by farmers for "Z" Engines because of *Quality* which makes for service—and *performance*—and *surplus power*—and *enduring farm engine dependability.*

Magneto ignition service from more than 200 Bosch Service Stations. And thousands of "Z" dealers furnish Fairbanks-Morse service to every engine buyer. See your dealer today.

FAIRBANKS-MORSE QUALITY F M 100%

Prices: 1½ H. P. $75.00, 3 H. P. $125.00, 6 H. P. $200.00. All F. O. B. Factory.

FAIRBANKS, MORSE & CO
MANUFACTURERS CHICAGO

$345 Off

THE

BEARCAT

Wormdrive—Dust Proof
Orchard and Farm Tractor

SPECIFICATIONS:

H. P.—10 on drawbar. 20 on belt pulley.
NORMAL DRAWBAR PULL—3,200 lbs.
TOTAL LENGTH—118 inches.
TOTAL WIDTH—63 inches.
TOTAL HEIGHT—52 inches.
WEIGHT—4,200 lbs.
MOTOR—Galloway—4-cyl., 4¼ in. bore, and 5½ in stroke. High duty. Slow speed.
SPEED OF MOTOR—900 R.P.M.
MOTOR BEARINGS—Very Large. All are bronze backed, babbitt lined.
GOVERNOR—Galloway. Enclosed fly ball running in oil and on ball bearings.
FUEL—Distillate, Kerosene or Gasoline.
CARBURETOR—Holley, 1¼ inch.
FUEL TANKS—One 15-gal. and one auxiliary tank of one gallon capacity.
AIR CLEANER—Bennett dry air.
RADIATOR—Perfex, 8-gal. capacity.
WATER PUMP—Centrifugal, 450 R. P.M.
COOLING FAN—Oakes. High duty.
IGNITION—Dixie high tension—impulse starter.
CLUTCH—Borg and Beek, dry plate.
TRANSMISSION — Enclosed sliding gear, three speeds forward, one reverse; gears high-speed steel.
SPEED—Low, 1½ M.P.H. Int., 2¾ to 3 M.P.H. High, 6 M.P.H.
REAR AXLE—Full floating worm drive.
DRIVE WHEELS—Height 40 in. Face 10 in.
BEARINGS — Rear axle, Timken throughout. Transmission, Hyatt high duty. Front axle, Timken.
BELT PULLEY—8 in. diameter, 8 in. face, 900 R.P.M.
SUSPENSION—Three-point, mounted on spring in front to take all shocks.
WHEEL BASE—78 in.
TURNING RADIUS—10½ feet.
DRAWBAR—Special design for California; very wide; roller hitch can be used if desired.
STEERING GEAR—Gemmer irreversible, with 18 in. hand wheel. Spark and throttle control levers directly under wheel.
DRIVER'S SEAT—Situated on right of tractor; very convenient position for watching tools and work.

Be your own dealer and save the profit that would go to him

Do not overlook this opportunity to get one of these tractors adapted especially to California conditions for

$1500.00 Net

Write, Phone or Call Today for Further Particulars

W. J. Burt Motor Car Co.

Pico and Hope Sts. Los Angeles

Holland in America

By Ernest Braunton

PLANTSMEN in the United States have always been puzzled in the growing of bulbs and plants usually imported from Holland and Belgium. Of course, labor costs less in the latter countries and this has been a strong factor in discouraging American production. But soil and climatic conditions also enter and the Dutch seem to have the best of it. The climate "over there" is damp, what we could call coastal, and of all states touching the big oceans, California has the driest climate during summer. So it was generally accepted that ours was the least fitted to compete with Holland in plant and bulb production.

But some courageous soul noted the splendid development of Dutch bulbs about Santa Cruz and there began a series of experiments that has expanded the trial gardens into thousands of acres where fine bulbs and truly marvelous flowers are grown, especially of narcissi; flowers not surpassed in size, color and substance. Plants of heath, camellias, etc., did not thrive to the same extent. So when large capital was seeking opportunity along these lines in California it went to the far north, the San Francisco—Santa Cruz section was scarcely more considered than the Los Angeles district, thtough the latter had duced good freesia, calla, and a few other bulbs.

But the far north has not proven altogether ideal, and now it has been determlned that peatlands or the coastland benches next above the peatlands, are ideal for many plants plants heretofore imported. These importations are no longer possible, for quarantine regulation No. 37 bars out all finished products, or those ready for planting in the garden. It encourages home development of such stock and will allow seeds and scions of new, rare or highly desirable plants to enter to be grown and multiplied here.

In the Santa Cruz section, not far from San Francisco, and in the peatland district of Los Angeles, lying largely in Orange County, there are springing up fields of ornamental plants of sorts heretofore never grown in California, some of them on a large scale.

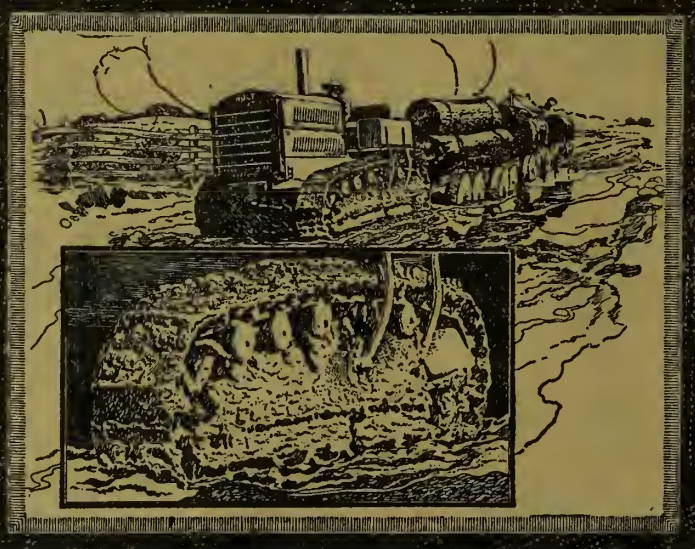
One man of 30 years' experience in handling imported plants each year has just received a shipment from Japan of 30,000 dormant roots of aspidistra lurida, an ornamental foliage pot plant always in heavy demand. It took the Japanese shipper a full month to assemble such a large order of one sort, drawing upon all parts of the islands. The cargo laid down in California cost $8,000 and there were but 74 boxes of a size easily handled by one man. A special permit from the United States government was necessary for their entrance.

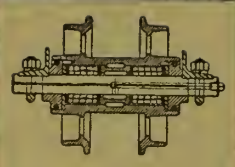
The plants will be grown both in lath houses and in the open fields, in a soil that is decidedly peat and nothing else. It is as black as the darkest night and as fine as corn meal. It has been cropped and weathered for 40 years and is therefore decomposed peat. Its value is far in excess of that of raw peat in that the latter is not decomposed and therefore its plant food is not available. The decay of raw peat is slow and it is not readily nitrified. Those seeking the use or purchase of such lands will do well to acquire those in use for many years, that have been plowed deeply, pulverized and weathered. The writer lately saw a field that had been cropped with cereals for a quarter century and the surface was as black and fine as soil could be. Part of the field was plowed very deep and turned up two or three inches of pure compressed tules and tule roots that was nearly as "indigestible" to the soil as an equal amount of cork. It must be manifest to all with any considerable amount of experience in that line that such material will not become a true soil in several years and it must become partially decomposed before its value as a humifying soil amendment can be recognized. But the peatlands of California that have undergone years of preparation will in the next few years doubtless give us plant gardens that would make a Dutchman homesick for his native land.

PORTLAND CEMENT

Preliminary estimates compiled by the United States geological survey indicate that the production and shipments of Portland cement in 1919 increased 13 and 21 per cent, respectively, over those in 1918, and that the stocks decreased 52 per cent, so that at the end of 1919 less than 5,000,000 barrels of Portland cement was in stock at the mills. The Portland cement industry was set back considerably in 1918 when war restrictions reduced the shipments from the 90,703,474 barrels shipped in 1917 to 70,915,508 barrels, but it is now regaining its lost ground. Early in 1919 the business was even poorer than in 1918, and practically all the increase reported was made during the latter part of 1919, so that 1920 started with favorable prospects for the cement industry. During 1919 the shipments from some mills were limited by the lack of freight cars. The increase in the value of the cement shipped in 1919 over that shipped in 1918 was about 28 per cent.

HYATT
ROLLER BEARINGS





Cross Sectional View of a Track Roller in Creeper Type Tractors Showing Application of Hyatt Roller Bearings.

In this position the hollow spiral roller construction of Hyatt Roller Bearings provides many distinct advantages.

Only a bearing of the Hyatt type can stand up and give permanent performance under the gruelling conditions of track roller operation.

It is because of these many peculiar advantages that Hyatt Roller Bearings are just as permanent as the shafts upon which they operate.

The Hardest Service in the World

Forcing their way through mud, muck, sand or water —going over all obstructions and supporting the tremendous weight and pull of this giant tractor and its load, the track wheels of the "creeper" type tractor endure the hardest service in the world.

And, at the point of severest wear in these track wheels, Hyatt Bearings are installed.

Ten years ago, Hyatts were first used in this application. Many of these old machines are still in operation, and in them Hyatt Bearings have given ten years of constantly dependable, permanent service.

Ten years' use under the most severe working conditions known in the tractor industry, without ever requiring adjustment.

There can be no greater proof that Hyatt Bearings should be in your tractor, truck, thresher, grain binder, plow, windmill and other farm machinery.

HYATT ROLLER BEARING COMPANY
Tractor Bearings Division, Chicago
Motor Bearings Div., Detroit Industrial Bearings Div., New York City

Legal Queries

Louis R. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Road on Half Section Lines

Is one obliged to give a road on half section lines? This land is just being settled and there are very few permanent roads established.—Subscriber, Lucerne Valley.

The only provision in the federal laws is that a right of way for the construction of highways over public lands not reserved for public uses is granted. The courts in construing this statute have held: where a settler has entered public lands, he has a vested right to the whole of the land entered and upon obtaining patent becomes vested with full ownership which relates back to the time of the original entry. In case any roads were provided along the half section lines, such would have to be reserved at the time of entry. The county supervisors of course may order roads to be opened, but in such cases they are required to pay compensation to the owner of the property over which the road is opened.

Mortgage on Wyoming Property

Owner of property in Wyoming and California died prior to the war, leaving two sons who were taken for overseas service. There was a mortgage upon the Wyoming property, but the administrator handling it refused to pay the mortgage and has given no account of his part of the estate. The administrator of the California property has paid a portion upon this mortgage. What can be done to assist the heirs?—Subscriber, Chino.

It would seem that the federal moratorium act would apply as invoked upon the Wyoming property, in which case the property could not be taken for at least six months after discharge from service. The property here could be sold under order of the court and the mortgage upon the Eastern property paid, leaving it clear. These are all of course, mere suggestions which more careful examination of the facts might alter.

BEET SUGAR INDUSTRY

(Continued from Page 377.)

tries millions of bushels of wheat, grain, corn, cotton seed, etc., which are rich in plant food, such as nitrogen, potash, phosphoric acid, and are importing millions of tons of sugar, which does not contain one ounce of plant food.

Some years ago one of the professors of the University of Gottingen, in Germany, lecturing to his students on agricultural economics, stated that for every million bushels of wheat they purchased from America there was 1,575,000 pounds of plant food, which at that time represented 25 per cent of the price they paid for the wheat.

The United States today has only 99 factories in operation. I stated before that we were producing 23 per cent of what we consume. If we would produce what we consume it would require about 400 more factories, which would mean that we would have 500 factories in operation.

If we compare the total area of Europe with that of the United States, we find that the United States has an area of 2,970,000 square miles, not including Alaska, while Europe has an area of 3,850,000 square miles, or is approximately one-fourth larger than the United States.

If our beet sugar industry were developed in ratio to the areas, we would have approximately 930 factories in operation, or nearly ten times more than we have today.

The mere fact that we are sending over $400,000,000 out of the country for a product which we could produce ourselves does not signify so much until we begin to analyze how this money would have been distributed among our own people had we produced this sugar ourselves.

Supposing this sugar was made from beets, say containing 15 per cent sugar, at 12 tons of beets per acre, while the factory would have an extraction of 83 per cent. Then for every ton of sugar we require eight tons of beets, or a total of 16,800,000 tons of beets produced on 1,400,000 acres of land. This would mean that the sugar companies would pay the farmers $168,000,000 for beets; the farmer pay his laborers for preparing the soil, planting, cultivating and harvesting his crop, $90,000,000; while the farmer would have about 4,000,000 tons of beet tops left on his land after the crop was removed, which represents a valuable cattle food after it has been properly siloed. This would feed and fatten some 2,000,000 steers for 120 days.

The factories would be paying, during a campaign of approximately 100 days, $20,000,000 worth of labor in the factory for producing sugar from beets, $13,000,000 worth of coal, $20,000,000. to the railroad company and $47,700,000 for miscellaneous items such as coke, lime rock, bags, maintenance and repairs.

If these factories would have pulp drying plants such as all modern factories have, they would produce 840,000 tons of dried pulp, which is also a very valuable cattle feed and would represent a value of approximately $27,000,000. In order to produce this 840,000 tons of dried pulp the sugar company would spend in the neighborhood of $3,000,000 worth of labor. Approximately $113,000,000 is paid out for direct labor. If we consider the turnover of this amount alone, we get figures that would astonish us.

It is the money put in circulation by the sugar companies and farmers for labor and materials that pays for harbors, highways, schools, churches, and supports our universities and makes it possible to further develop our lands, railroads and allied industries.

VALUE OF MANURE

In an address before the El Modena, Orange County, farm bureau center, Dr. S. S. Twombly of Fullerton discussed stable manures and referred to tests made of a large quantity bought by one orchard owner in that county during the last 12 months. From the analyses made of these manures Dr. Twombly finds:

"Laboratory analysis showed an average as follows: Forty-four per cent water, 880 pounds per ton; 15 per cent organic matter, 30 pounds (including shavings and straw); 40 per cent waste; 800 pounds actual dirt and lifeless material; six-tenths of one per cent nitrogen, 12 pounds per ton.

"Valuing nitrogen at 25 cents per pound would bring the average nitrogen content of average manures to $3 per ton.

"Dairy manures, generally heavy and green: Fifty-six per cent water, 1,120 pounds per ton; 24 per cent organic matter, 480 pounds per ton; 18 per cent waste, 360 pounds per ton; seven-tenths of one per cent nitrogen, 14 pounds per ton.

"Inasmuch as the general farm practice in the citrus grove is to irrigate and cultivate heavily, both factors involving the loss of nitrogen and organic matter in the soil, we must pay special attention to returning these elements to our soils by judicious manuring and cover cropping.

"Considerable loss of nitrogen through ammonification from the manure pile as it accumulates may be averted by the use of acid phosphate, working it into the pile. This absorbs large quantities of the ammonium before it escapes."

IN FRANCE

"The American sugar industry hardly realizes in what a pitiable condition the French industry is at this time," writes the editor of Sugar. "Stories to the effect that only 51 factories have been operating during the past season do not seem to convey a true conception of the situation as it actually exists. But when it is stated that, for instance, in 1901-2 the production of refined sugar was 1,052,000 metric tons, in 1912-13 877,600 tons, and in 1918-19 only 110,000 tons, or almost exactly ten per cent of the 1902 production, then we begin to realize what the war has done to the French beet sugar industry.

"One hundred and fifty sugar factories in France are either in ruins or their machinery has been depleted to such an extent as to make active working in the next two years out of the question. In addition, the fields have been showered with a rain of shells, many of which failed to explode and buried themselves deep in the ground, invisible to the eye of the tiller of the soil.

"Last spring several beet sugar factories made attempts to arrange with farmers to raise a new crop of beets on the shell destroyed area. A number of deplorable accidents resulted when the plows struck the unexploded shells and blew the farmer with his team to pieces. Now an order has gone out that no more plowing or tilling is to take place on the former battlefields until the military authorities have gone over the ground foot by foot with delicate magnetic instruments, mounted on rubber tired wheels, which will indicate the position of shells buried underneath the surface. This means a delay of several years, for it will take at least two years to carry out this new program of 'Safety First.'

"This, it is needless to say, is one of the factors which the American sugar industry has not considered seriously enough during the past year. It means that France will be, for three or four years longer, a heavy purchaser of foreign sugars, instead of being able to export some of its own, or at least satisfy its home demand.

"Fortunately, the sucrose content of the beets does not seem to have suffered very greatly. The percentage still runs at 11.53 for the present year and 12.54 for the past year, as compared with 13, which was the highest percentage ever reached in France during the year 1912-13."

PUT IN A CORK

Pat went to a druggist to get an empty bottle. Selecting one that answered his purpose, he asked: "How much?"

"Well," said the clerk, "if you want the empty bottle it'll be five cents, but if you want something put in it we won't charge anything for the bottle."

"Sure, that's fair enough," observed Pat. "Put in a cork."

"Thankful! What have I to be thankful for? I can't pay my bills."

"Then, man alive, be thankful you aren't one of your creditors."—Boston Transcript.

A Quality Combination

THE **International 8-16 Kerosene Tractor** is a tractor of character and personality. The first note of appeal is the graceful, trim design, the general compactness and the good balance of the tractor, with just the right distribution of weight on the front trucks and drive wheels. The next thing that strikes you is the absence of exposed working parts; everything is enclosed as protection against the grinding action of dust and dirt.

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Brooding With Sunshine

By Jean A. Koethen

THIS little story of my own experience will not interest the poultryman who broods a thousand chicks or more at once, but it may help some farm woman who has little money and no equipment. A good many poultrymen are finding out that chicks, after the first critical four days, need less heat than they had supposed. Only this morning I received a letter from a poultryman of 45 years' experience (Think of that, you novices, who think you can learn it all in a year!) saying: "I don't know it all yet. After spending years of time and hundreds of dollars learning to brood with artificial heat, I discarded it all for fireless brooders, and it may be interesting to you to know that I have done my own hatching and raised 100 per cent." This man began his chick raising with their mothers, culled in the henhouse, then culled again in the incubators, then, he says, "I just came Luther Burbank on it, so that those that went into the brooders all lived, and that was in lots of two and three thousand chicks. Fireless brooders, open front brooder houses, skimmed, scalded milk, sprouted oats, watercress, wild turnip, commercial chick feed and dry mash, and R. I. Red pullets have laid in four months to a day. They had exercise in plenty. Did I force them?"

My story about 35 chicks will seem very tame to this man, but very few farm women raise their chicks by the thousand, and if they did the principle is the same—plenty of heat at first, fresh air, sunshine, exercise, room to grow in, absolute cleanliness, simple fare and sufficient, just plain common sense, that is all—but they all lived and grew like weeds, and even those that seemed a trifle runty at first blossomed out into fine, thrifty prospective layers. Chicks treated in this way do not have leg weakness nor do they stand around and droop. They are too busy, perhaps.

They came from the incubator Monday, the 26th of January, just three and a half weeks ago. My outdoor brooder went to the junk heap years ago. Like Mr. Severance, I found I could do better. No hen was available and so I had prepared two boxes for the reception of my brood. The one shown in the picture, which was to be my brooder coop, is a common grocery box, 18 inches by 24 by 27, which I bought for 25 cents. A smaller box, 10 by 10 by 16, with a door cut in one side, was my brooder. A soft nest of straw covered the bottom and was drawn well up into the corners and the hover was just a piece of old comfort, with the cloth carefully removed. The importance of this precaution I fully realized when I came out one morning and found the huskiest chick in the bunch strangled by a raveling. The regular Philo brooder quilt is made of cotton batting and cheesecloth, all clean and new, but if one has an old comfort it can be made to answer the purpose nicely. It should be large enough to rest on the chicks' backs in the middle, while the edges hang well over the sides of the box.

The ventilation of these little brooders is always a problem. I have found that when the chicks are first put in the best way of providing air is to turn back one corner a tiny bit. After the first week leaving a small opening at the door answers better, for the chicks will climb out over the top if there is any opening. I find a piece of brick slightly smaller than the door makes a very good way of closing it, and the little crack around it gives the chicks what air they need. When the Philo brooder is used the quilt is tacked to a frame made to fit so loosely that the air comes in around it, and the frame rests on a cleat. It is quite a job to fix one of these quilt frames neatly. That is why I used the old comfort.

The chicks were put in the brooder box about noon and were left there to rest quietly till about 4 o'clock, when they came out into the coop and picked up bits of sand and grit and a few of the steel cut oats I had scattered over the sand. Then they were gently pushed back into the box and left till morning.

I ought to explain here that my plan aimed at the use of sunshine to the utmost. Our place is on a rather steep southern slope, and the garage in which I brood the chicks opens toward the south. When its westerly door is thrown back it catches the first rays of the morning sun, and it was against this door that I set the coop the first thing in the morning. Before the sun was in sight I set a jug of hot water in the coop, but as soon as the sun was well up in the sky, its heat, reflected from the door and caught also by the back of the coop, gave abundant warmth. Those first days I kept a large pane of glass over the front of the coop. When the sun had passed so far to the south that its rays no longer entered the coop directly, I drew it back into the garage and faced it south, so that it caught the sun until nearly four o'clock.

Hunting for Worms

These three weeks old Reds are scratching for worms in the freshly turned earth. When their crops are full they rest a little, then begin again on grass or bran.

In Loco Parentis

The woman who undertakes to mother a brood in a fireless brooder has her work cut out for a few days. Notice the hen hovered brood. The chicks venture out a little, then slip back under her wings. When they are all warm and comfy, out they go again. Her clucking calls them back to warm up, and so it goes all day. Those first three days I put myself in place of the hen, letting the chicks out for a little while to eat, then pushing them gently back into the brooder and leaving them there a while to rest. When the sun was hot I could leave them out longer, and in early morning and late afternoon I found my jug of hot water saved me a lot of trouble. I still give them their jug dark mornings, and today, the first really rainy day since they were hatched, they have had it all day. For some reason I never succeeded in teaching this brood to go in to their

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brooder to warm up. This I think was because the coop was smaller than it should have been and I was obliged to take the brooder out during the day.

After three or four days, as the weather was warm, I added my third piece of equipment, a little run, three feet square and about 12 inches high, made of shakes on three sides and wire on the fourth and covered with wire. This run was used either inside the garage or outside, according to the time of day, and its wire front let in all the sunshine. When the coop stood before the door in the morning the run in front of it was almost as warm as the coop itself. If the afternoon was cool I put a board over the wire and kept out all the wind. My aim, and my only aim, has been to keep the chicks comfortable. One can always tell by their looks and the sounds they make whether they are comfortable. If they are not, warm them up, if you have to put them to bed every hour or fill every jug and jar in the house with hot water.

Sleeping Room Essential

At first the chicks were put in their brooder at 4 o'clock, but as they grew they demanded to stay up a little later, and I tried to please them. Often I put them in at 4 o'clock and let them out again to fill their crops before finally tucking them away for the night. By the end of the first week they had outgrown their first brooder, and I gave them one a little larger. Before the end of the third week they were using both boxes. I have aimed to give them room to lie down. When chicks are so crowded that they must stand they cannot rest. One can always tell by putting the hand into the brooder after the chicks have gone to sleep whether they are resting comfortably. Every day the brooders are hosed out and dried in the sun and clean nest litter supplied.

Diet of Worms

It is not my purpose here to discuss chick rations, except to say that mine have been fed very simply on rolled and steel cut oats the first week, then commercial chick feed, bran, milo and Egyptian corn and cracked corn as soon as they would eat it, greens and worms. It has been a standing grievance with me for some time that my hens would not eat worms, and I resolved to train this brood to eat their natural food. When they were a week old I began throwing a few worms now and then in to their run, mainly to give them exercise. At the end of two weeks when they were let out of their small run for a while daily, I began spading a little several times a day and letting them help themselves to the worms which are unusually plentiful this year. This, I must confess, has been as much fun for me as for them, and I am in constant amazement at the avidity with which a chick will put a three inch worm out of sight. I am forced to attribute their unusual growth and vigor to this daily ration of earthworms as much as to the interest and exercise involved. Today, wet as it is, I have filled them up twice, not because I wished to dig worms in the rain, but because the wretches demanded it, spoiled babies that they are.

Leg Weakness

Chickens raised in lamp heated brooder with bottom heat grew well, but one night lamps were not turned down and chicks not divided so that I found steam coming out of the ventilators and chicks panting for breath. None were dead and I put in dry floors and gradually cooled them off. They soon seemed all right and began to preen their feathers. That was last Wednesday night and they have seemed to be all right until today, four of them have developed leg weakness. I fed rolled oats and hard boiled egg ground with shell for first three or four days then a good scratch food and bran with some beef scrap and green feed (alfalfa and lettuce). Is it the fault of the brooder entirely or the result of the overheating? I have raised a great many on that feed and never had leg weakness. On account of bad weather they have been confined to the brooder house on a cement flood well sanded—Subscriber, Harper.

What your chicks need is more bone making material and more exercise on the ground. Exercise on any kind of floors isn't quite the same as getting out on Mother Earth's lap. The overheating may have hastened leg weakness, but close confinement has had as much influence. Don't think of giving them up. Just add five per cent bone meal to their mash and get them out where they can run. It would be better to make the mash half bran and half feed meal, with ten per cent beef scrap and five per cent bone meal. Most poultrymen prefer overhead heat to what you call "floor heat," arguing that it is on their backs the chicks need it most. Now that yours are a month old, they can soon be trained to do without artificial heat. Notice in last week's Cultivator how Cornele G. Ross weans his at three weeks.

Vent Gleet

You have answered some very perplexing questions, and now I am going to ask you for some information on a case that I have never seen or heard of in all of my many years of experience with hens. R. I. R. hens, which had vent gleet have developed canker around the vent, with the worst odor I ever smelled. It does not seem to bother the hens any, that is, they eat well and look in the pink of condition. As to their laying, I cannot say.—Subscriber, Hughson.

Vent gleet in its virulent form is a difficult disease to cure. Lewis Wright, the veteran poultry expert, recommends the following treatment: "Isolate all affected birds. Give 30 grains Epsom salts and twice a day inject first a four per cent solution of cocaine, and immediately afterward a solution of nitrate of silver, four grains to the ounce. The fifth day commence a small copaiba capsule daily, and inject acetate of lead, I drachm to the pint. Feed rather low meanwhile and dust any sore places outside with iodoform or aristol. If not well after two or three weeks, we would kill the bird, as the disease is not quite free from danger; for if the operator should touch his eyes accidentally before he has cleansed his hands, the result might be a most violent inflammation."

Inflammatory Rheumatism

Have a hen with red swollen legs and also her comb and under her bill is swollen. She appears to be healthy otherwise. What kind of a sickness do you call that, and what can be done for it?—Subscriber, Orange.

This looks like genuine rheumatism, and of the inflammatory variety. At the university farm I understand they paint the inflamed surfaces in such cases with tincture of iodine. Use a small paint brush or the tip of a feather and paint very lightly once a day for several days. Keep the bird in a dry sunny place and give a rather bulky ration, i. e., a ration containing a large amount of bran and greens.

Soft Shelled Eggs

This afternoon I noticed one of my Leghorn hens drop white of an egg enclosed in a soft shell and after walking about 20 feet farther, drop a perfect yolk. Can you tell me what caused this? Also please advise your price of the book, Poultry for Profit?—Subscriber, Sacramento.

Laying soft-shelled eggs is some-

Poultry Queries

Conducted by J. A. Koethen

Poultrymen Who Trapnest

Under the heading "Let the Buyer Beware," in your issue of January 31, 1920, you agreed to send names of some people whom you know trapnest White Leghorn chickens. I will appreciate it very much if you will send me such a list. What you said in your article is only too true.—Subscriber, San Francisco.

I have mailed you the names requested. It is not a long list, but I fancy it will be longer another year. Poultrymen are beginning to realize that pedigree counts tremendously. The Hogan system and other methods of picking out the hens that ought to lay or those that have laid heavily do not tell us what hens have laid the most eggs, and that is what we must know if we are going to breed a heavy laying strain.

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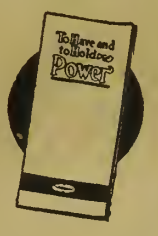

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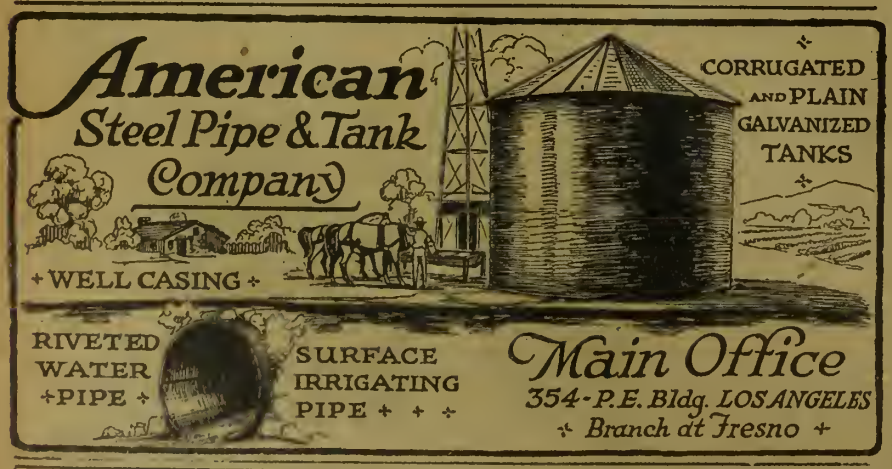

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times due to lack of shell material in the ration, sometimes to fright or excitement and sometimes to overfeeding. From the fact that this hen dropped both the soft-shelled white and also the yolk, it looks as if there must have been some unusual excitement. In that case a few small doses of Epsom salts and care not to have the bird excited should be sufficient to prevent a repetition of the accident. Keep her away from the rest of the flock a few days and feed lightly, making sure that she has all the green feed she will consume. The price of "Poultry for Profit" is $1.00 postpaid.

Rheumatism or Tuberculosis

Can you tell me what to do for my chickens mostly White Wyandottes, pullets and cockerels? They become very lame in one leg, in some instances lose the use of the leg entirely. They seem to retain their appetites but grow thin. They have mixed grain, greens, "Surelay" for mash. I also give them "semi-solid" three times a week. They are housed in clean quarters and run during the day in the orchard. They also have alfalfa to eat. Please tell me what is the trouble?—Subscriber, Corning.

How many hens are affected, and is there any swelling in the joints or redness or soreness on the outside? These external symptoms usually indicate rheumatism, due to exposure or dampness in house or run. If there is merely lameness without any apparent inflammation, with good appetite and loss of weight, I should suspect tuberculosis. If, on killing one of the birds, you find liver, spleen and intestines studded with white cheesy nodules of various sizes, you have reason for concern. Tuberculosis can be positively diagnosed only by a microscopic examination or by the tuberculin test, but these yellowish cheesy nodules are found in nearly every case. In some other liver diseases there are white spots or blotches on the liver. In tuberculosis the spots are raised nodules. If you find such spots, kill every affected bird, and if possible, move the rest to clean soil. If you do not find them, you are justified in concluding the disease is rheumatism, which can be cured only by removing the cause and keeping the birds in dry, well ventilated houses on well drained ground.

Don't expect great success in hatching and raising chicks unless you have some experience, or at least an observing eye and a willingness to do as those who have been successful.

Nature teaches us that fowls should have a wide range and that a farm is the best place for them.

Having movable, separate nest boxes makes it easier to clean them as well as the house.

It is almost impossible to give laying hens which are confined too much exercise.

HENS HELP BOYS IN COLLEGE

New honors are due "Biddy," the barnyard fowl, since 225 of her have pooled their efforts and are helping put three Connecticut boys through agricultural college. The hens, which now reside not far from the college, are doing a mighty good job, for the boys know how to care for them. In fact, the boys' interest in college, and hens as well, goes back to their membership in the Goshen Poultry Club, one of two organizations that engaged in a contest intended to show what intelligent care can do in raising poultry.

It was a Marathon race, so to speak, that lasted over a year, the finish taking place last October. And it was a race for real money, $1,000 being the prize. Strangely enough, both sides won. A net profit of $1,000 from each group of hens in a period of one year was the goal set for each club, and both groups cleared considerably more than that amount. Eleven boys living near Goshen (including the three now tending their flocks while going to college) constituted one club, and the other, known as the West Hartford Poultry Club, was composed of boys living near Hartford. The unique contest was suggested by the state club leader of Connecticut, who had the cooperation of the poultry extension specialist of the agricultural college.

In a sense each club was racing against time to see if its hens, which aggregated approximately 400, could be made to produce $1,000 profit in a year. Naturally also there was rivalry between the two clubs to see which would make the biggest showing. Both clubs held monthly meetings at which each boy reported regarding his flock the number of hens, the number of eggs laid, the amount of scratch feed and dry mash used. More than one boy received kindly but pointed criticism of his methods when reports showed poor egg production. At the close of the club year the West Hartford club had made a profit of $3.92 a hen, while the Goshen club did even better, with a profit of $4 a bird. Thus each club surpassed its goal by a wide margin.

Inspired by this success, the three Goshen boys have gone to college, taking their hens with them. The birds, all of which were raised last summer by club members, have been true to their trust, laying eggs more prized than the golden variety laid by the legendary goose.

Bran is a good regulator for poultry of all ages.

Purchase well matured pullets rather than hens.

THE ONLY DIFFERENCE

A crabby millionaire as he climbed out of his limousine was approached by a newsboy. "No, I don't want any paper. Get out," he snarled. "Well, keep your shirt on, boss," replied the newsboy. "The only difference between you and me is that you are making your second million and I am still working on my first."

Life is made up of two currents—the events and opportunities moving toward us, and the thoughts and impulses that we send out toward others.

POULTRYMAN'S CALENDAR—MARCH, RAISING THE CHICKS

On commercial poultry ranches hatching will be finished by the end of March. On many it is practically over by the first. The poultryman who buys his chicks gets them in February if he can. In March the growing chick has the right of way. The baby chick's first requirement is warmth. The growing chick's first requirement is room to grow in; its second, and many experts would place this first, is proper food.

Thin out the brooder chicks and give them all more room by the end of the third week. Get them out onto the ground if possible. Green range makes up for many defects in feeding.

A good growing mash for Leghorn chicks consists of 2 parts fine wheat bran, 1 part middlings or low grade flour, 1 part corn meal, 1 part beef scrap, ¼ part oil cake meal. With this is fed a scratch ration consisting of 2 parts fine cracked corn, 2 parts sifted cracked wheat, 1 part hulled oats, 1 part cracked Milo or Egyptian corn.

For Rocks and Reds, when weight is desired, a successful breeder uses this mash after six weeks: 400 pounds corn meal; 200 pounds ground barley, 480 pounds bran, 160 pounds meat, 10 pounds salt.

Keep a vigilant watch this month for mites and lice. Dusting the chicks with any good louse powder will rid them of lice; painting their coops with kerosene and crude carbolic acid (1 part acid to 4 or 5 of kerosene) will keep mites away.

Household Department

SONG OF THE POPPIES

We come when Spring is young and fresh
And winds are sweet and mellow,
O're rain-drenched fields of tender green
We march in suits of yellow,
A fairy horde of merry men,
Our golden helmets gleaming,
Bright as the stars in midnight sky
Across the heavens streaming.

Our manual of arms was taught
By genii of the wildwood,
Our laughing faces caught the mirth
From heart of merry childhood,
Our banners bright from joyland came.
The work of fairy fingers,
Weaving with color from the sun
Whose glory in them lingers.

This is the song we poppies sing
All through the bright spring weather;
Out in the sunshime come with us,
We'll dance and play together,
And cover you with gleaming dust
From rarest of all metals,
From out our saucy, laughing hearts,
And from our burnished petals.
—Sarah Pulver McLean.

"FINE KID, THAT!"

WANT any groceries, M'am? I'm from Bumps. I calls for your order and delivers them the same morning. We've got good stuff. Best in town.

I looked up from my task of unpacking dishes into the dark eyes of an undersized, towzle headed boy.

"Why, yes, I do want some groceries. And if you give good service and your prices are right you may consider me a regular customer."

After I had given my order and turned to my unfinished dishes, the boy still stood in the doorway awkwardly pulling at his cap. Finally he blurted out, "Fine kid, that!" and I realized he was taking inventory of my little daughter, as she sat propped up in her buggy by the window.

"We think she's nice," I returned pleasantly. And right then and there, just like any other flattered mother, I decided he was a lad of discrimination and Bumps must be a good groceryman.

"What is your name, boy? We must become acquainted if I am to do business with your firm," I added.

"I reckon you might as well call me Ignuts! Everyone else does, and the name seems to fit."

"Why, what a funny name. Surely you were not christened Ignuts?"

"Christened," he repeated slowly, then laughed as my meaning dawned on him. "Kids like me don't get no water doused on them."

So my acquaintance began with Ignuts, an acquaintance that in the course of its development alternately confirmed and disproved all theories of heredity and environment, until the tragic end opened my blinded eyes.

We had just taken possession of our little summer bungalow, a cheaply built affair of picturesque coziness, but lacking the solidity of a regular domicile. It was early in the season and as yet we were the only ones on the hill to take advantage of the wonderful fresh air and glorious scenery of that delightful summer resort on the mountain side. At present my nearest neighbor (a regular resident of the place) lived some little distance across the gulch, so baby and I were rather isolated and a little lonely at times. But in a few weeks my husband would be with us and the cottages around us would fill up.

Bright and early the following morning, my grocery boy put in his appearance. "Well, Mrs. Elbe, what can I do for you today?" was his greeting on this and every succeeding morning thereafter.

"You may return this bag of onions first thing, Ignuts. It was apples I wanted. You should write your orders more carefully."

"Oh, the order was down all right, Mrs. Elbe. I got the things mixed up with that woman's across the gulch. She jumped on me about it. You know that woman's an awful pill," he continued confidingly, "regular jawer. Don't wonder her old man's full as a goat all the time. Gee! but she was sure givin' that poor gink some goin' over this morning. I stood on the porch and listened. She said you——"

"But, Ignuts," I interrupted, "you should not listen to what is not intended for you to hear and certainly should not repeat it."

"Oh, that's all right, Mrs. Elbe," he responded cheerfully. "You don't just understand. Fine kid, that!" and he ventured, smiling, to the foot of the buggy and baby put out her little hands with an answering smile.

My troubles with Ignuts and his inability to get an order straight almost drove me frantic. Some days he seemed to be in a trance for all the interest he manifested in his work, and his big, dark eyes had a curious far-away expression that looked unnatural and almost menacing. But for the most part he was just an irresponsible, cheery boy.

One morning, after I had been unusually tried with his carelessness, I lost all patience. "Ignuts," I questioned sharply, "why don't you use your brains? You are too stupid for words! You don't know enough to be even a good grocery boy."

"Yes'm," he answered unperturbed, "old Bumps says I have no salesmanship and Mrs. Bumps says I have no sense. I guess I'm no good for nothin'. I don't like the grocery business anyway."

"Well, what would you like?" I asked, crossly.

"Oh, a job as a landscape gardener wouldn't be bad. I could make a swell park. I'm mightly fond of flowers. I never misses a chance to snitch one. You know that rose I give you yesterday? I copped it off old man Mason's bush. Some rose, that. The old guy had been watching it for weeks, but I beat him to it."

"You don't mean to tell me you stole that rose from Mr. Mason's bush?" I gasped. This was going much too far.

"Now, that's all right, Mrs. Elbe. How'd kids like me ever have roses if they didn't swipe 'em? Don't you worry," he continued soothingly, "you just don't understand—that's all."

I felt baffled. Some way all my arguments with Ignuts ended in that way—I did not understand. What did he mean? Well, one thing I understood perfectly. The Masons had called the evening before and there on my center table in all its glory blossomed Mr. Mason's cherished rose. It was a rare variety and he must have recognized it.

I ventured to inquire of my neighbor across the gulch regarding Ignuts' parentage and learned that his father was serving a life sentence for killing his mother in a drunken brawl. My neighbor also volunteered the information that the boy himself was utterly incorrigible, that he should have been sent to the reform school long ago. He fought every boy in town, would not study and his deeds of theft did not end with flowers.

It certainly was hard to reconcile his ingenuous face and manner with all the crimes of which circumstantial evidence had proved him guilty. He had told me his mother was dead and his father had a job with the state. And when I pressed the question as to the nature of the job, he had scratched his head and beamingly answered in a burst of inspiration that it was making roads, fine roads for automobiles, built of rock and sand and things. I could not believe the lad was all bad. His attempt to shield a worthless father showed some filial instinct as well as pride.

One morning he lingered, as usual, recounting a fight in which he had received a bad looking eye. "Well, Ignuts," I said reprovingly, "I hope you did not leave any ugly marks like that on the other boy."

"No," he flashed back, "I didn't! But I'd sure busted his bean for him if my heart hadn't gone dead on me. A fellow like me has just got to fight," he added apologetically. "Of course, you bein' a lady, you don't understand."

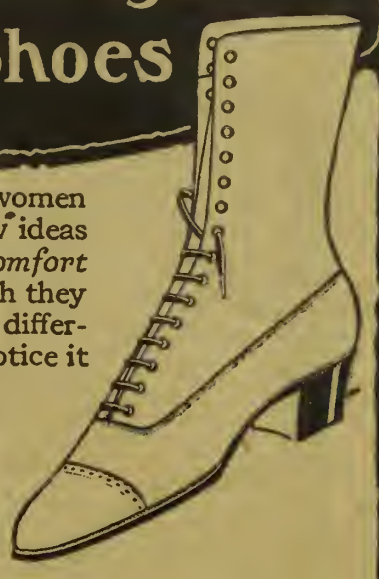
"No, I am beginning to think I don't, Ignuts," I said hopelessly. "You are hard to understand."

"Oh, that's all right, Mrs. Elbe!" and he walked over to baby with his customary "Fine kid, that!" and put down his rumpled hair for her to pull. I noticed his affectionate patting of that particular lock as he replaced his shabby cap—as though he still felt the touch of baby fingers and revelled in the sensation. But I also noticed later that baby's ring was gone. I certainly did not understand!

One evening we were surprised by the unexpected appearance of my husband. The next morning when Ignuts came to take my order I had an unusually long list of complaints. "Now do try and get things straight today,

Easy on Your Feet and Stylish

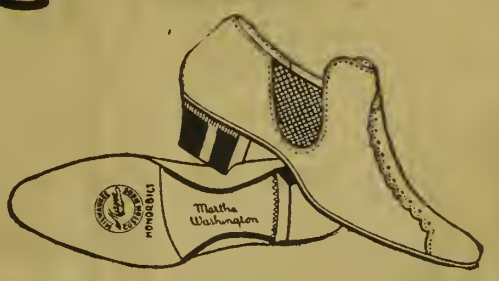
Mayer Martha Washington Shoes



THESE fine shoes for women will give you some new ideas about comfort and style. *Comfort* was the original idea on which they were built—and they feel so different on your feet that you notice it the moment you try them on. It's much more than ordinary shoe comfort.

AND Martha Washington Shoes give you comfort without a sacrifice of style. All the latest styles are included in this line—high and low cut, lace and button. You will notice they have an excellence of detail that gives them the stamp of quality. They wear as well as they look and feel. Martha Washington Shoes are built on honor!

BEWARE of imitations. The genuine have the Martha Washington name and Mayer Trade Mark on the shoe. If your dealer doesn't handle them, write us.



This shoe has been widely imitated. Look for the name and trade-mark on the sole or label in the top.

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HONORBILT

F. Mayer Boot & Shoe Co.
Milwaukee, Wis.

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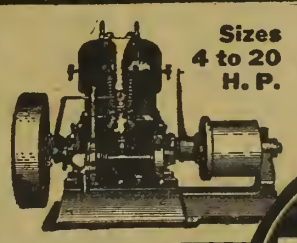

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8 h.p. Weighs 325 lbs.
15 h.p. Weighs 780 lbs.
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319

Never in the world were there doughnuts like Calumet doughnuts. In no others will you find that toothsome, tender goodness. It's the same with all bakings.

CALUMET
Baking Powder

Makes Most Palatable and Sweetest of Foods

Never anything but the very best—light, flaky and wholesome—because this 30-year favorite of leaveners is absolutely pure in the can—pure in the baking. Contains only such ingredients as have been officially approved by United States Food Authorities.

Made in the world's largest, cleanest, most modern Baking Powder Factory.

You save when you buy it—moderate in price. You save when you use it—has more than the ordinary leavening strength—therefore you use less. You save materials it is used with—never fails. Order today. Improve the quality of your bakings. Reduce baking costs.

Calumet Doughnuts

½ Cup sugar, 1 Egg, 3 Level teaspoons shortening, 1 Level teaspoon salt, ¾ Cup milk or water, 2½ Level teaspoons Calumet Baking Powder, 2½ Level cups flour. Lemon and mace flavor.

How to make them—Cream sugar and shortening together, add well beaten egg, then add milk. Next mix in flour and baking powder well sifted together. Work dough as little as possible. Turn out on well floured board and roll out quarter inch thick; cut with doughnut cutter and fry in boiling hot fat.

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Handsomely illustrated in colors. Most complete and dependable recipe book ever issued. Hundreds of helps in reducing household expense. Scores of selected recipes. Better ways of making better foods. Send slip found in can of Calumet and three 2-cent stamps to help cover cost of packing and mailing. Calumet Baking Powder Co., 4100-4124 Fillmore Street, Chicago, Ill.

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The *"Fisherman"* has quaintly, yet truly been called the modern advocate of robustness. Upon every bottle of

Scott's Emulsion

the *"Fisherman"* is a guarantee of purity and goodness unsurpassed. Those who use *Scott's* regularly, more often than not realize pure blood, a sound body—robustness.

Scott & Bowne, Bloomfield, N. J. 19-45

Try Ki-moids for Indigestion

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Ignuts," I cautioned, "for I am to have company tonight for dinner. And be sure and return this bag of cornmeal and bring me sugar instead."

He was in one of his moods of preoccupation and made no reply. My husband, mistaking his silence for rudeness, spoke up angrily. "What's the matter with you, boy! Can't you answer when you are spoken to? Now get out of here and see that you get that order straight this time."

The child started as though he was struck. The unexpectedness of the attack flashed back the curtain of his soul and what I saw in that boy's eyes made me shudder. There it was, the unmistakable heritage of a murderous, drunken father and a dissolute mother. The mother side of me yearned over him and I resolved to see him when he returned to deliver the things and make amends for my husband's harshness. But he left them on the back porch some hours later, without knocking, and I missed my opportunity. When I got ready to make my cake about noon I discovered the sugar was the same sack of corn meal I had returned. It was provoking but I felt I must shield the boy from harsh criticism, so decided to slip across the gulch to my neighbor and borrow some sugar before my husband returned from the village.

I pushed the buggy where lay my sleeping baby into the bedroom, fixed the fire and hurried out. As I scrambled down the steep path and rounded the curve that hid our little bungalow behind a clump of scrub oak, I was thinking over the fate of a most ingratiating little black dog that had taken up his abode with us recently. Despite his cold reception and repeated driving out, he insisted on remaining and making himself perfectly at home. In time his devotion to the baby and the delight with which he hailed his masters' appearance succeeded in winning him a place in our hearts. But he killed the neighbors' chickens, dug up their lawns, fought every dog in the block and was an inveterate thief. Finally, when he buried his sharp little teeth in the leg of a policeman who was poking his nose around our back alley in pursuance of duty, his doom was sealed. In vain I pleaded and protested.

"We cannot allow sympathy to override good judgment," had been the stern decree. So in the interest of humanity and public property poor little Fido was shot and I shed many tears in giving him up to the cause of justice. My husband's unfeeling (or so I felt it) attitude that morning regarding Ignuts and his repeated warning, "Don't allow your sympathy to overrule your judgment," left me both resentful and uneasy. A dog was one thing, but a boy——? Well, time would prove him.

As I picked up my sugar and tore myself away from my loquacious neighbor, I glanced across the gulch. Smoke, in a great cloud, was pouring out of the roof of our bungalow and a thin tongue of flame shot up like a living thing. And my baby was locked up in there asleep! I ran like a mad thing down the hill, stumbling, falling, screaming, across the gulch, and in my anguish and horror it came to me—this was the work of that half crazed, infuriated boy! . . . Could I make it? When I reached the turn in the road I saw only a blazing pile of boards where once our bungalow had stod. My last hope left me. I covered my eyes to shut out the maddening sight and screamed to heaven, "My baby! My baby!"

Then something struck on my ear like the sound of a frightened animal and I realized it was the hoarse voice of a child crying, "Mis' Elbe, I've got the baby! I've got the baby!" And from around the bunch of scrub oak Ignuts came tottering towards me. I clasped my precious to my breast and the boy fell forward on his face. His heart had "gone dead."

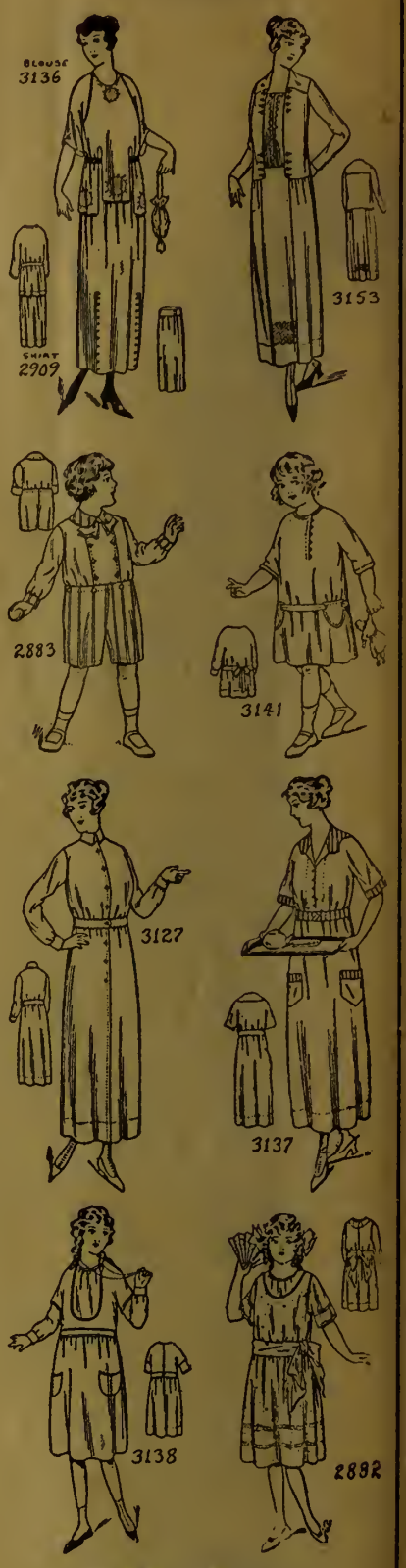
What pangs of remorse I suffered as I saw that little heap of lifeless humanity at my feet. Later, when the doctor had succeeded in coaxing the fluttering spark of life into flame and Ignuts opened his eyes, he gave me a smile of content.

"I knew enough to get the baby, didn't I, Mis' Elbe?" he whispered weakly.

"Oh, Ignuts," I cried, gathering the dirty little form in my arms, "you are the smartest, bravest boy in the whole world!"

"I was bringing the sugar—I was

The Cultivator Patterns



BE SURE TO SEND SIZE

3136-2909. A Smart Afternoon Costume. Blouse 3136 cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. Skirt 2909 cut in 7 sizes: 22, 24, 26, 28, 30, 32, and 34 inches waist measure. For a medium size: 5¾ yards of 32 inch material will be required to make the entire costume. The skirt measures about 1⅝ yards at the foot. Two separate patterns, 10 cents for each pattern.

2883. Boys' Suit. Cut in 5 sizes: 2, 3, 4, 5 and 6 years. Size 4 requires 2⅛ yards of 44 inch material. Price, 10 cents.

3127. A Splendid Work Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 7 yards of 27 inch material. The width of the skirt at lower edge is 2 yards. Price, 10 cents.

3136. Girl's Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. Size 10 will require 1¾ yards of 27 inch material for the guimpe, and 3⅝ yards for the dress. Price, 10 cents.

3153. Ladies' Dress. Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 will require 6⅛ yards of 44 inch material. The width of skirt at lower edge, with plaits extended, is 2½ yards. Price, 10 cents.

3141. A Simple Dress. Cut in 4sizes: 2, 4, 6 and 8 years, and will require 2¾ yards of 27 inch material for a 4 year size. Price, 10 cents.

3137. A Practical Apron Dress. Cut in 4 sizes: Small, 32-34; Medium, 44-46; Large, 40-42 and Extra Large, 44-46 inches bust measure. For a Medium size 4⅞ yards of 36 inch material will be required. Price, 10 cents.

2862. Girl's Dress. Cut in 5 sizes: 4, 6, 8, 10 and 12 years. Size 8 requires 1¾ yards of 27 inch for the guimpe, and 2⅞ yards for the dress. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest Chicago styles, all patterns orders are filled in Chicago. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

awful scared you'd scold and I was goin' to run—then I heard the baby cry. I busted the kitchen window—I couldn't reach the others—it was all afire in there—and—and—oh, it was awful!" he moaned brokenly.

"Well, don't think about it any more, Dear. Just shut your eyes and go to sleep." I saw his lips moving faintly as the drooping eyelids closed, and bending down, heard him say, "Fine kid, that!"

Ignuts has a new name. It was not given him—he earned it. Neither was he "doused with water" at the christening. He won his name in a baptism of fire and the name is Son. He may realize his ambition to be a landscape gardener, for he truly has a wonderful gift of designing and the soul of an artist. And I had thought him half witted because he was not a good grocery boy! I have discovered his real heritage—a sensitive spirit, a loving heart, a quick temper. Just a scrappy, affectionate, easily crushed bit of humanity like all the other boy bits of humanity in our homes. Truly, had I but one prayer to make, it would be thus: "Oh, Lord, teach me to understand."—Farmer's Wife.

NEW WAYS OF USING ORANGES

From the new booklet of recipes issued by the California Fruit Growers Exchange we give some of the newer things:

Griddle Cakes

Two cups flour, 1 tablespoon baking powder, 1 teaspoon salt, 3 tablespoons sugar, 1½ cups milk, 1 egg, 3 tablespoons melted butter, orange marmalade.

Mix and sift dry ingredients; add beaten egg and milk; beat thoroughly and add butter. Drop, by large spoonfuls, on a hot griddle that has been rubbed over with a piece of raw turnip, which will prevent cakes from sticking without the use of butter or grease. When griddle cake is puffed, full of bubbles and cooked on edges, turn and cook on other side. Spread cakes with orange marmalade; roll up like jelly rolls; sprinkle with sugar and serve at once.

Bran Muffins

One-half cup flour, ½ teaspoon salt, 1 cup bran, ¾ cup orange juice, ½ teaspoon soda, 1½ tablespoons molasses, 2 tablespoons melted butter.

Sift flour and salt; add bran, orange juice (in which soda has been dissolved and stirred until it begins to froth), molasses and melted butter. Beat vigorously and pour quickly into hot, buttered gem pans, and bake in a hot oven.

Marmalade French Toast

Two eggs, ½ teaspoon salt, 1 tablespoon sugar, 1 cup milk, 6 slices bread 1/3 inch thick, Sunkist orange marmalade.

Beat eggs; add salt, sugar and milk. Spread bread with Sunkist orange marmalade; put slices together in pairs; soak in egg and milk mixture until softened and cook on a hot, buttered griddle until delicately browned; turn and brown on other side and serve for breakfast or lunch.

Orange Toast

One teaspoon cornstarch, 1 tablespoon cold water, juice 1 orange, ¼ cup orange pulp, few grains salt, sugar, cinnamon.

Mix cornstarch and cold water; add orange juice and boil, stirring constantly for five minutes. Add orange pulp and salt, pour over buttered toast and sprinkle with sugar and cinnamon.

For Breakfast

Remove sections from a large orange and a small grapefruit, free from membrane and arrange alternately around a mound of sugar.

Baked Orange for a Cold

Cut a slice not quite through for a lid, across the top of an orange. With a sharp French knife remove the core, put in a teaspoon each of orange syrup and lime juice; bake until heated through; place a cream peppermint candy in the center and serve.

Graham Muffins

One-half cup flour, ½ teaspoon salt, 2 tablespoons sugar, ¾ cup graham flour, grated rind ½ orange, ⅞ cup orange juice, ½ teaspoon soda, 2 tablespoons shortening.

Sift flour, salt and pepper; add graham flour, grated rind of Sunkist orange, Sunkist orange juice (in which soda is dissolved and stirred until it begins to get frothy), and melted shortening. Beat well and pour quickly into hot, buttered muffin pans and bake.

HOUSEHOLD QUERIES

Mutton Tallow for Shortening

What should I mix with mutton tallow to make a good cooking compound?—Subscriber, Kingsburg.

We presume our subscriber wants to prepare mutton tallow for shortening in large amounts to keep for some time. Have any of the Cultivator housekeepers had experience that they will pass on to the rest of us?

To Clean Brick Fireplace

I have just learned how to restore the natural surface to a brick fireplace which was scored and marred by workmen in laying. The rough and mortar flecked spots were rubbed off carefully with another bit of brick. Then a cloth dipped in a half and half mixture of distillate and linseed oil was rubbed over the surface. This apparently removed all scratches, smudges and stains and left the brick surface in perfect condition.—J. J.

BOY SCOUTS WILL MEET IN NEW YORK

The annual meeting of the national council of the Boy Scouts of America will be held in Hotel Pennsylvania, New York City, on March 25 and 26.

This will be followed by a monster Boy Scout rally to be held March 27. At this rally from five to ten thousand boys will give a scout demonstration.

Major General Leonard Wood has definitely agreed to be one of the speakers and other strong men will contribute to the solution of the present day problems of America through the proper education of its boyhood and young men.

Each local Boy Scout council is entitled to one national council member and an additional member for each thousand boys under its jurisdiction.

It is expected that at the tenth annual meeting the half million scouts and their leaders will be as fully represented as possible. There are about 475 members. The last annual meeting was attended by 116 members of the national council.

THIS WEEK'S PATTERNS

A good pattern for a separate blouse of georgette or voile is pictured in 3136. Plain colors are most used, matching or contrasting with suit or separate skirt. A bag such as shown here, to match hat is a feature of the dainty spring costumes. Simple bags like this one and exceddingly elaborate ones, padded on one side like a muff or a chair cushion are seen in many windows. They are made of taffeta or other silk of same material as the hat and are trimmed with same ribbon-made flowers, etc. Some are so elaborate as to be rather absurd, but it is a charming idea and in the hands of the woman of good taste leads to most attractive results.

The dainty child's dress 3140 shows the charm of the quaint and simple style. The loop buttonholes and quick stitching used to outline neck, sleeves and pockets may be of black or of a pretty contrasting shade.—R. P. D.

TO REMOVE STAINS

I have been reading with interest your recipes and suggestions in your household department contributed by subscribers. I respectfully submit the following that may be of value to someone:

Saturate grass stains thoroughly with kerosene, then wash as usual.

Rub sewing machine oil stains with lard; let stand for several days, then wash with cold water and soap.

Soak ink stains in sour milk.

Wash iodine stains with alcohol, then rinse in soapy water.

Soak iron rust stains thoroughly with lemon juice; sprinkle with salt and bleach for several hours in the sun.

Glycerine will remove peach stains if applied two or three times.—A Subscriber, Fallbrook.

When Buying a Piano Get Satisfaction Not a "Bargain"

Some people are induced by misleading advertisements and shady selling methods to buy a Piano at a "special" price, thinking they are getting a bargain. In the end they find they really paid a high price because the instrument was so inferior that it gave out completely in a few months requiring the purchase of a new good Piano.

It takes good materials, honest workmanship and expert knowledge to make good Pianos—and these cost money. You can't get something for nothing—Pianos are no exception to this universal rule.

But how are you to judge the quality of a Piano? Very few people know about scale design, plate construction, actions, felts, veneers and varnish work. After all, does not your permanent satisfaction lie in the selection of a reliable Piano House—one who is known to carry good dependable makes, who stands back of them, whose prices are fair and represent full value for the money expended?

We invite you to call at any of our stores—or write us asking for illustrated catalogs and prices.

Dealers in Steinway and Other Pianos, Pianola and Duo Art Pianos, Aeolian Player Pianos, Player Rolls, Etc.

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Kearny and Sutter Streets, San Francisco
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325 E. Main Street, Stockton
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The Wonderful Attractions of BRITISH COLUMBIA

Few countries possess all the conditions for happy, prosperous living as does British Columbia. The varieties of climate and soil offer inducements for almost every branch of agriculture. Whether in the warm interior valleys, the rich grazing table lands or the fruitful lowlands of the Coast or Vancouver Island, the advantages offered for

Dairying, Fruit Growing and Stock Raising

are such as must appeal to those who wish to improve their circumstances and at the same time live in a country of delightful climate, magnificent scenery, varied resources, progressive people and abundance of opportunity for development. British Columbia—the playground of America—is already famous for the production of its orchards, fields and dairies. Now, is the time to **Learn about this wonderful Province** and share in its possibilities. It's industrial life—mining, lumbering, fishing, manufacturing, transportation—assures a ready market at good prices for all the farmer can produce. Schools, churches, railways, roads, telephones, all the conveniences of an old land await you in this new Province of Opportunity and Success. For illustrated literature, maps, etc., write Department of Immigration, Ottawa, Can., or

Gilbert Roche,
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Canadian Government Agent

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California Cultivator

Costs Only $1.00 Yearly

If baby chicks could tell you what they want—

They wouldn't hesitate to speak right out in meetin'. They would demand, first of all, *clean* feed. For, nothing is good enough for a baby chick that is not clean enough for a human baby. Then—they would ask for a feed that is uniform, properly granulated and proportioned for their delicate digestive organs. They would show you why they require a balanced ration—just as your grown hens do.

To make a long speech short—they would ask for Sperry Baby Chick Feed. For this balanced ration supplies all the food values that Nature intended a growing chick to have. It is made from prime, clean grains—*kept clean* throughout its entire process of manufacture.

After all, the amount of feed eaten by a baby chick during the baby chick period is so small that the slight difference in cost between poor feed and Sperry Baby Chick Feed means nothing—especially when you realize that the saving of a very few chicks more than makes up for it.

Remember, too, that Sperry Baby Chick Feed is *absolutely gritless*. There's a worthwhile saving there—because all you need do is to add about 5 per cent fine shell and grit when using.

Our booklet, "Makes Hens Happy" devotes quite a bit of space to this all-important question of feeding baby chicks. We'll gladly send a copy on request. Simply cut out the coupon and mail today—it's free!

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MAR 16 1920

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — March 13, 1920 — No. 11

Impossible by Arithmetic---Possible by Common Sense

By C. B. Messenger

IF the feed for producing a dollar's worth of eggs costs $1.05, how long will it take a poultryman to acquire great wealth?

This problem has caused many a poultryman to tickle his ear with his pencil and dig up all the old 'rithmetic rules he learned in school to figure it out. And some of the old catch problems of school days, often not solved until after school, were no harder than this problem of mature years, but the poultryman has had to stay in at recess and after school to do it—and he is now performing a miracle.

It has been simply a case of cooperation, not cooperation in cornering or holding up the market, but cooperation in buying more efficient and well balanced feeds, cooperation in culling or cutting out the boarders, cooperation in delivering to the market more economically and regularly, cooperation in shipping to the best markets in the United States—more than all, cooperation in standardization.

When a little white hen consumes 70 or 75 pounds of feed in 12 months she has got to be kept pretty busy to pay her board, and standardization alone has enabled cooperating producers and marketers to command from four to eight cents above general market for their product. This increased price has saved the day.

At the same time it has required service that has cost a large part of the increase. But the American consumer demands a first class product, and once the brands have been established by the associated poultrymen they will increase in value and secure still greater return. The long headed business managers of the poultrymen have learned that certain markets have certain requirements, and without trying to force their own ideas on those particular markets they are meeting the conditions and standardizing according to their requirements.

Recently an entire trainload of California eggs was sent to New York markets. Every egg on the train was a white egg and if branded "Extra" came up to the 20- to 26-ounce standard. And not withstanding the fact that some of the eggs were brought into the packing house fresh from the ranch on the day of shipment every egg in every car was candled by an expert. The dealer in New York has learned that these California brands cover eggs which are absolutely dependable. That reputation is what is securing four, five, six or more cents per dozen over the market for the day.

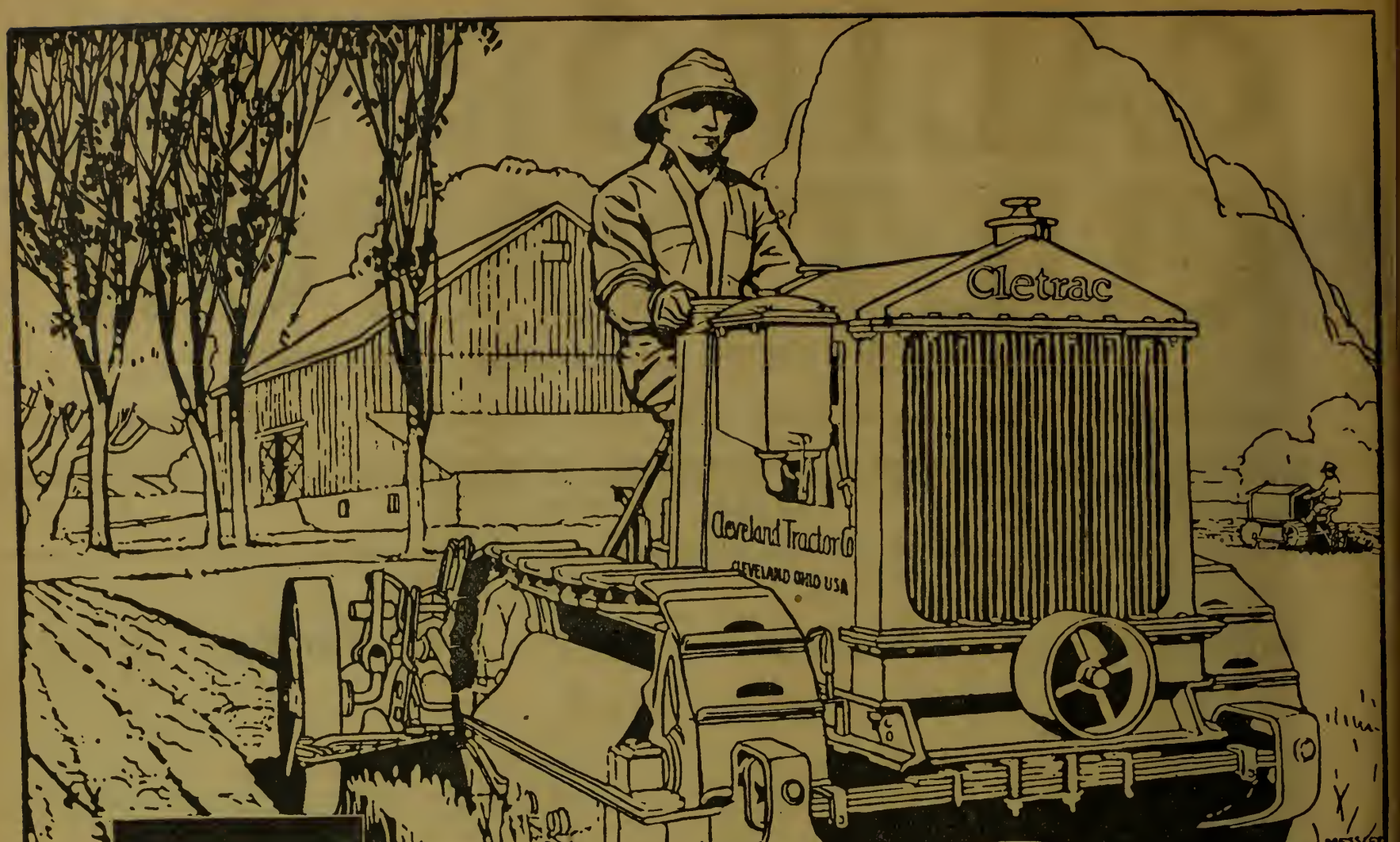
Notwithstanding this reputation the management is still not content to allow its product to stand simply on reputation, but has adopted the slogan: "The standard cannot be too high; next year's eggs and every year's thereafter will be of still higher grade." With this association's method of handling there is no such thing as "case counts." Every egg that goes out is candled and guaranteed.

While New York and many markets prefer the white egg there are others which have strong preference for the tinted or the brown egg, and these requirements are catered to, and hence proper distribution is a big factor in these satisfactory prices.

These trainloads which go from Northern California, together with some six or eight cars, 400 cases to the car, weekly from Los Angeles to Eastern markets, is one reason for the local market being stabilized as well as it has been during the past few months.

Every producer has had the advantage of the work and achievement of these cooperators, and yet not one-third of the production of the state is represented in the cooperative associations. This is an injustice to those who are bearing the expense of stabilizing the market and it should be ended by a greater number of the producers getting into line.

There are two great associations in California; The Poultry Producers of Southern California, Inc., and the Poultry Producers of Central California, Inc. There are 525 producers now members of the Southern California association; the Central California association is still larger. The—(Continued on Page 457.)



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California Cultivator

Vol. LIV, No. 11. Los Angeles, March 13, 1920 One Dollar Yearly

The Boom in Walnuts

By A. F. Clarke

THERE is something very like a real walnut boom on in California, or, more accurately speaking, there would be if trees were available. As a matter of fact walnut trees are so scarce that a few nights ago 254 trees which had been planted less than a week before were pulled up and toted off by a distinctly new class of larcenist. This was out at Perris, where alfalfa seems likely to divide its kingdom with fruit and nut trees—if the trees aren't stolen.

I had a most interesting chat the other day with Dennard C. Wylie of the field department of the California Walnut Growers Association. Mr. Wylie, who is one of the best posted walnut men in the state, puts in his time with the walnut growers south of the Tehachapi, advising them as to cultural methods, grafting, pruning, irrigation, fertilization and the like. He says he learns a lot more from the growers than they learn from him; but maybe that's because he's young and modest.

"Walnut planting this season seems to be a question of available nursery stock," said Mr. Wylie. "It is estimated that the planting in Southern California alone will exceed 5,000 acres, and the northern planting will add quite materially to this figure. Budded walnut trees have established a new top price in California, due to the tree shortage and the unprecedented demand. As high as $3.50 a tree has been paid for walnut trees the past month that would ordinarily sell from 50 cents to $1.50 each, and many are unable to get trees.

"The reason for this tree shortage as I see it is due to the exceptional prices that have ruled the past two years and which seem likely to prevail for a number of years more. Ten years ago soft shells No. 1 sold for 11½ cents a pound. The price fixed this year for No. 1 soft shells by the California association was 31½ cents a pound, and the production in the state was 50,000,000 pounds last year as compared with 18,700,000 pounds in 1909. Due to the war the importation of walnuts the past two years has dropped materially from normal figures. No figures are available on 1919 importations, but the 1918 importations were 21,248,000 pounds as compared with 40,416,000 pounds in 1917. The total consumption in the United States in 1918 was 62,722,928 pounds. This is a drop of nearly 8,000,000 pounds from 1917, due to the lessened importations.

"The general uncertainty caused by war conditions and the fact that many young men who might have aided in planting and grafting walnuts were fighting in France handicapped production of nursery stock. It will be three years before production catches up with demand.

"The northern black walnut stock (Juglans hindsii) is absolutely the best stock for grafting. It produces a sturdier tree than the southern black and stands variations of heat and moisture better. It is now recognized that a good root is the first essential of a walnut tree.

"Owing to the great demand for walnut trees this season there has been a considerable sale of seedlings. Practically all the well known varieties in Southern California are variations of the Santa Barbara soft shell. Some produce a fine grade of nuts and the trees are vigorous growers. In other trees the nuts are small and have no meats or inferior meats.

New Variety Promising

"For years experiments have been carried on to find a variety of walnuts that would be immune to blight, and several new varieties of the Santa Barbara soft shell type have been widely heralded as blight resistant. Of these new varieties the Ehrhardt seems worthy of propagation, though a longer series of tests would be necessary to determine its ultimate value. The Ehrhardt is similar in size and general characteristics to the Placentia Perfection, which has come to be regarded as the standard soft shell of Southern California. Plantings made alongside the Placentia Perfection show much less blight than on the latter."

Asked if he would plant the new variety to the exclusion of the favorite Placentia Perfection, Mr. Wylie replied:

"I believe that I would interplant

(Continued on Page 430.)

Citrus Planting for 1920-21

By Ernest Braunton

RECENT investigation among the heavier growers and shippers of citrus trees shows that the present season's supply is far short of the demand in all leading varieties. Aside from our own planting and needs Texas called for at least 50,000 pomelos more than were shipped to that state from California.

Reviewing the present season's orders and those booked for 1921 delivery it is evident that Navels are strongest in demand with Valencias a close second and lemons a good third. Aside from these the demands for others (in California) are light and in order of importance are: Pomelo, Dancy tangerine, Ruby Blood, St. Michael, with a few of many others. Shipments to outside points are not large with the exception of pomelos to Texas, one firm now shipping to that state 20,000 pomelo trees and 1,000 of all other varieties combined. A few citrous trees are each year sent to South Africa, South America, Italy, China, Japan, Java, India and other remote sections of the world.

Growing the Tree

The best growers now use selected seeds only. They are run through a screen that allows all small sizes to drop through, and these are discarded as being of inferior vitality and will not therefore produce a vigorous plant. Twice as many seeds are planted as the number of plants needed. About ten per cent or less do not grow and about 40 per cent of the seedlings are discarded as not up to the high standard set by our leading nurserymen. This eliminates inferior stock and "seconds." The seedlings are grown for two years before budding so they may size up and be cleaned up to a point where they may be budded high.

The demand at present is for trees budded from six to ten inches above the ground. This protects them against gum disease and rooting above the bud. It has often occurred that low budded trees deeply planted have rooted above the bud and nearly brought ruin to the orchardist. After the bud has grown the stock top is cut away and the little "adopted child" or bud growth carefully tied to a stake tall enough to train it to the proper height, and all these buds are taken from certified trees or those selected because of their heavy yield of high grade fruit.

As the little tree grows it is further tied to the stake to secure a straight, trained stem, and this is cut off at a height of 33 inches. This gives nine inches for the distribution of the leaders and a clear trunk below of 24 inches. These leaders should be well distributed in this nine inch zone, both up and down as well as around this portion of the stem. If all leaders spread from the same point like the rib braces of an umbrella it is a very poor tree and new leaders should be encouraged and one-half the first lot cut away.

Choosing the Tree

When the trees are dug the balls of soil should bear a proper relation to the size of the tree. Standard weights and sizes deemed best are: 35 pound ball for trees one-half to five-eighths of an inch stem caliper or diameter; 40 pounds from that size up to three-fourths and 50 to 60 pounds for those on up to one inch diameter. Large trees for resets in young orchards, two or three years old, should have balls of from 100 to 150 pounds weight. The writer has seen four year old orange trees removed from the nursery row with 200 pounds of soil each and not one died and at the end of several years these were as large and vigorous as those originally planted as yearlings.

When buying trees do not scruple to pay freight, if necessary, on balls of proper size. A considerable part of the root system must go with the tree or loss by death or poor trees will result. If distance makes such shipments practically prohibitory it is better to ship with bare roots carefully packed in sphagnum moss. Buy by caliper below rather than above the bud. If the tree has not a good basic trunk and root system it will never give satisfaction; yet a poor bud will never make a good tree, no matter what support is given it, so choose your trees with care. A spring bud but two feet high on a good root is rather to be chosen than a much larger tree on a less vigorous foundation trunk and root system. To be short, do not reject a tree because of small caliper; carefully note what it is growing from.

Do not buy trees direct from the field if you can avoid it. The best dealers "cure" their trees. They are placed in lath houses for a week to ten days to recover from shock of cut roots and changed conditions. At the end of that time those with cracked balls, insufficient or injured roots will manifest their injuries and be removed from the lot. This insures a 100 per cent orchard growth.

All good nurserymen, as before stated, bud from wood taken only from trees of known and approved fruit production and each tree's offspring is kept by itself. If you buy a hundred trees these may all come from one parent tree. In case of a thousand or more they may have been from several selected trees. The dealer will ship them marked so the orchard may be planted in blocks of one common source and will give you the registered numbers of the parents. In years to come you will be able to note if any difference is apparent in the crop and trace its source.

Interesting Records

The proportion of bare root trees to balled trees shipped by one dealer was checked and it was found that those sent into Ventura County, for example, was the proportion that would hold good, approximately, for all shipments. The record was 250 bare root trees to 30,000 balled trees. As to age of trees, at least 50 per cent were yearlings, 40-45 per cent two year olds and the remaining five to ten per cent were three year olds for resetting in young orchards where previous year's plantings had died.

Talking with experienced orchardists and nurserymen brings to light the unanimous opinion that we still are planting too close. The range should be from 24 by 24 to 30 by 30 feet, according to variety, but never less, and on the square method only. Navels and lemons should be 24 by 24 and Valencias 30 by 30 feet. In all hard or stiff soils holes should be "shot" or dynamited, and some advocate this treatment in all soils. In clays or soils that will run together again sand or light soil in small amounts should be thrown in the holes to be washed down into the cracks to keep these from cementing shut by a puddling process which will surely take place.

Agricultural News Notes of the Pacific Coast

Northern California

A new $250,000 cannery is soon to be built at Sacramento.

The rice mill at Colusa sent out 27 carloads of rice last week.

Indications are for a big almond crop in the Sacramento Valley.

The last livery stable in Willows, Glenn County, closed its doors on March 1.

James Mills of Hamilton City has been elected president of the Western Berkshire Congress.

Some damage is reported to blossoms in unsmudged almond orchards in Sacramento Valley.

The California Pear Growers Association is making plans to establish a number of drying plants to take care of windfall fruit.

The second week of August has been decided on as the time for holding the Eden Township Farm Products Show in Alameda County.

Farmers interested in the formation of the Williams irrigation district in Colusa County are going ahead with their organization plans.

An Alameda County sheep man has just made sale of 2,400 ewes to a rancher at Flagstaff, Arizona. The price reported was $20 a head.

Livermore, Alameda County, reports Japanese winery men trying to make arrangements to ship discarded winery plants from this state to Japan.

The California Farm Bureau Federation at its recent meeting in Berkeley resolved to give its moral support to the Milk Producers Association.

The supervisors of Sacramento County are planning the construction of a bridge across the Sacramento River a half mile below Courtland.

The Sutter County farm bureau has arranged for a series of community auction sales this month where stock, implements and any other article may be offered.

California olive packers met at San Francisco March 4 with representatives of the state board of health to consider the poisoning cases reported from the East.

The El Dorado County chamber of commerce sent a delegation to the irrigation and water conference called by the Sacramento Valley Development Association.

Tbe farm bureau of El Dorado is today, March 13, holding its annual market day sale and auction. Livestock, household goods, farmlng equipment of all kinds will be disposed of.

Tbousands of tons of rice straw, formerly allowed to go to waste, will be baled by the Western Rice Straw Growers, Inc. There is a rapidly growing demand for rice straw, principally by packing corporations.

Representatives of water users, chambers of commerce, the railroad commission and the water commission met last week in San Francisco to determine plans for irrigation and water power control for the coming dry season.

Several poultry farms in Alameda County are belng handled under the supervision of R. B. Easson, poultry extension specialist of the University of California. These farms bclong to Ralph Melnbcrger, Castro Valley; F. Eckland, Castro Valley; S. McCabe, Castro Vallcy; Gus Jobnson, Orcbard Avenue; M. Bargman, Livermore.

Central California

Fresno is beginning preparation for celebration of 1920 Raisin Day.

A federal grain grader has been installed at Stockton. Ben R. McGee is in charge.

Work is soon to begin on the new plant of the California Prune and Apricot Growers at Visalia.

Fig growers of Fresno met recently to consider putting thehir product under state standardization.

A fruit drying plant is being erected on the property of the American Fruit Growers at Lodi, San Joaquin County.

Robert H. Frazier of Modesto will take charge of the 1920 state wool pool of the California Farm Bureau Federation.

The California Associated Raisin Company has filed brief in the federal investigation at Washington on the price of raisins.

Evaporation or dehydration plants will be built at Dinuba, Kingsburg, Clovis, Watsonville, Lodi and other Central California points.

San Joaquin cotton experiments have been so successful that it is anticipated the coming season's plantings will be much heavier.

A consignment of 2,000 baby chicks was received last week by the Tulare Cooperative Poultry Association for distribution among members.

The newly completed plant of the California Central Creamery at Los Banos, Merced County, will put out 9,000,000 pounds of dry milk annually.

The drouth is even affecting the salmon catch. Monterey fishermen say that the decreased flow of fresh water into the bay is keeping away the salmon.

Stanislaus County Holstein owners have formed an association with A. M. Bibens, president; H. E. Cornwell, vice-president; E. M. Morrow, secretary-treasurer.

The minimum price on Pima cotton has been set by one company at 60 cents a pound, with the company making a half promise that price may go to 80 cents or $1.

Tulare County water users recently met at Exeter and planned for greatly increased membership in the irrigation association. The work is being assisted by the farm bureau.

Contracts have been let for the planting of 1,300 acre vineyard near Porterville, Tulare County. There will be 33 complete pumping plants installed to supply the water.

Experiments with 55 different varieties of wheat, barley, rye and oats are being conducted by the University of California experiment station on the C. W. Gates ranch in the old Tulare Lake bottom.

A deputy horticultural commissioner of Tulare County reports 931 tests of oranges during the past shipping season. The tests began November 3 and were made as long as there was any question as to ripeness and sugar content of the fruit.

The temporary organization of the Turlock branch of tbe Oriental Exclusion League has been made permanent. Officers have been electcd: President, Arthur G. Crowell; first vicc-prcsident, Frank McVey; second vice-president, Nellie H. Niland; thlrd vice-president, Paul Carlson; sccretary, L. C. Martyn; treasurer, D. J. Walton.

Southern California

A cooperative cannery is being erected at Riverside.

Rlverside has shipped out 1,000 carloads of citrus fruit the present season.

Dates have been fixed for the Southern California Fair at Riverside, October 13-19.

The Riverside County Beekeepers Association has decided to affiliate with the county farm bureau.

The California Lima Bean Growers Association reports many orders received since prices were lowered.

Hemet, Riverside County, papers announce establishment of a big turkey farm to be stocked with 4,000 birds.

The California Cattlemen's Association will launch a membership drive in Imperial Valley and San Diego County.

Experimental plantings of cotton and flax will be made at the state hospital at Patton, San Bernardino County.

It is announced that the United States health service has purchased the Arrowhead Springs property, San Bernardino County.

R. B. Nebelung has been appointed farm adviser of Riverside County to fill the place left vacant by resignation of R. N. Wilson.

Over 30,000 trees have been planted on burned areas of the San Dlmas watershed, Los Angeles County, and plantlng will continue.

At the recent annual meeting of the Riverside Beekeepers Association R. Powell was elected president; C. Kendie, vice-president; Lester Bamberger, secretary-treasurer.

Riverside County growers will have an opportunity to listen to lectures from a cotton expert of the U. S. bureau of plant industry, now stationed at Fresno.

A convention will be held at Los Angeles, April 1-3, of the League of the Southwest. The principal subject of discussion will be the improvement of the Colorado River basin.

The strike of Mexican orange and lemon pickers at Corona is over. A pumber of white men were secured to take the pickers' places and another lot of Mexicans brought in from El Paso.

The second annual exhibit of the Imperial Valley Poultry Association was held at El Centro the first week in March. Birds were exhibited from all over the valley and many from Los Angeles.

The semi-annual convention of the California Cattlemen's Association will be held in Los Angeles, April 15-16. Senator Kendrick, president of the American National Livestock Association, will be one of the speakers.

A meeting was held recently in El Centro, Imperial County, of representatives of the farm bureaus of the six southern counties of the state. Exclusion of Asiatics and farm bureau marketing were the prlncipal toplcs discussed.

The project has been started to divert water from the San Gabriel Canyon through a branch of tho Little Dalton to Puddlngstonc Falls. A big dam will bo constructed. Water consumcrs in the district supplied by the San Gabrlel watershed are protesting.

The Coast and General

Many sales of citrus land near Yuma, Arizona, are reported.

Heavy lumber shipments are being made from the Columbia River.

A new strawberry cannery is promised for Mt. Vernon, Washington.

Arizona is plowing and preparing seed bed for its biggest cotton crop.

Chandler, Arizona, claims 30,000 head of fine lettuce in its backyard gardens.

American buyers are reported to be making heavy contracts for Argentine hides.

The Cascade national forest, Oregon, has granted permission to graze 17,722 head of stock.

The dairymen's association of Skagit, Washington, is erecting a $400,000 milk handling plant.

The Tillamook County, Oregon, Cheese Makers Association recently held its annual meeting at Tillamook.

Now comes a serum for combating "olive poison." This is the same serum used for treating forage poisoning of horses.

Farmers of Bogle, Oregon, recently beld a progressive clearing bee on several farms. The idea will be further carried out.

The farm bureaus of Island, San Juan and Snohomish Counties, Washington, are combining in purchase of stumping powder.

An irrigation dlstrict has been formed at Yakima, Washington. It will include 40,000 acres in the Wenas, Selah and Moxee Valleys.

The Wasco County, Oregon, Poultry Association will conduct six poultry schools of two days duration at various centers in the county.

The California Automobile Association sends out warning to employers that it is illegal to permit boys under 18 to drive trucks or delivery wagons.

The Mutual Creamery Company of Eugene, Oregon, will erect a new $100,000 plant for condensing milk, making cheese and butter and other products.

A fund of $100,000 is to be spent in changing a brewery at Vancouver into a cold storage plant. It will have a capacity of 300 carloads with 30 ton ice plant capacity.

The marketing department of the Jackson County, Oregon, farm bureau shipped out 60 carloads of livestock last year and made large purchases of fertilizers for orchardist members.

The Utah-Idaho Sugar Company is planning to operate all three of its factories in the Yakima Valley of Washington this season. The company is putting in large acreage on the Yaklma Indian reservation.

Attorney General Fowler of Nevada has rendered decision that the law passed by the state legislature in 1919 provlding for organization of farm bureaus under state and county cooperation, is unconstitutional. The matter will immediately be taken to tbc supreme court.

The Utah-Idaho Sugar Company, which operates tbree factorles in the Yakima Valley of Washington, has announced a flat price of $12 per ton for sugar beets this season. Yakima growers have contended that they cannot raise beets at a profit for loss than $15 per ton, and tho company will undertake a campaign to sign up new acreage for that which is withdrawn

Water Supply Studies in Southern California

By W. A. Johnstone, State Water Commissioner

ELEVEN modern stream gauging stations have just been completed on the mountain streams feeding the Santa Ana River. This marks a long step in the progress of a scientific and thorough study of the water resources of the state and is being carried on through a cooperative agreement between the state water commission, the counties of San Bernardino, Riverside and Orange and the United States geologic survey, United States forest service, and the United States weather bureau, and is an extension of the study being maintained on the mountain watershed of Los Angeles County where 15 stations of the same kind have been placed, covering all the principal mountain streams from Pacoima Canyon near San Fernando to the San Antonio Canyon on the east line of the county. The purpose of the study is to obtain dependable records of the rainfall on the mountain watershed and of the water discharged by the mountain streams on the plains and at salient points in the course of the larger streams or rivers. The collection of this data requires that it shall be gathered by expert engineers and observers so that when collected it will be regarded as dependable in every way, and to be so the records must be continuous and unbroken and extend over as long a period of years as possible. Most of the records now available are fragmentary and incomplete. Under this study, maintained through the foresight of the supervisors of the three counties and the active cooperation of state and federal officers, there will be collected data that will be of the greatest value in the future development of Southern California. Water is the very essence of life with us and the supply available must be conserved in every possible way and put to the fullest use if we are to extend the growth of this section to its greatest possibilities. Irrigation, power, storage, spreading and flood control projects must be based upon such data and the longer the records are spread in time the more valuable they become. They must also cover all of the variations of seasons and cycles so that wet and dry periods may be anticipated and provision made to meet such conditions when anticipated.

We have arrived at the time when we must turn to mountain storage where possible and practicable and to underground storage in other situations. The underground supply of water held in the gravels of underlying basins has become an extremely important part of our water resources, and the increasing draft upon these reserves makes it yearly more apparent that we must do all that is possible to get the flood waters into the upper detrital cones which exist at the outlets of the mountain streams and not let them rush off in flood times to the ocean, destroying valuable property in their progress. Such percolating waters travel underground very slowly and become an available supply for the rapidly increasing number of pumping plants now in operation during the summer months.

All spreading and other storage systems must be designed to meet the stress of maximum flood conditions, and hydraulic engineers are entirely dependent upon rainfall and runoff data in making their plans and estimates. The same thing applies to flood control, highway and bridge construction as well as the protection of our coastal harbors from silt infiltration.

It is proposed to extend these studies to include a thorough ground water survey, and when this is done the records obtained will be unusually complete.

The study now under way on the Santa Ana is modelled after one that has been in effect in Los Angeles County for the past three years, and much credit is due to the Los Angeles County board in joining in the initiation of a method that combines into one effort all the federal, state and county machinery usually employed in such work so that all useless duplication of effort is avoided and funds are made available to carry on the work in the most scientific and permanent way.

The stream gauging stations are built of solid reenforced concrete and are expected to withstand any floods or storms that may ever occur. They are equipped with the latest type of self recording instruments and will give an accurate gauging height record of the flow of the stream by hours, days and months.

The rainfall gauges are of two types, the common United States standard gauge used and furnished by the weather bureau and the new Marvin self recording gauge which records the intensity of the rainfall as well as the quantity and tells when the rain fell and how rapid the precipitation. Six of these instruments are now installed between Wilson's Peak and Mount San Bernardino. Eighty-nine official gauging stations have been installed, mostly on the mountain watersheds, by the weather bureau under the direction of Dr. Ford A. Carpenter, until recently meterologist in charge of the Los Angeles office. These are inspected each year and daily records maintained, and it is confidently expected that from the use of these instruments a far better understanding of the rainfall on the mountain watershed and the laws which control it will be learned than we have at present.

The greatest credit is due Captain F. H. Fowler, district engineer of the forest service; H. D. McGlashen, district engineer of the United States geological survey and his assistant, F. C. Ebert, engineer for Southern California, Dr. Carpenter and the supervisors of the four counties for the excellent work done by them in making such cooperation possible and practicable.

The Richness of California's Valleys is Made Possible by the Waters of the Hillsides

Control of Mealybugs and Other Pests

By Harry S. Smith, Office of Pest Control, California, Department of Agriculture

THE citrus grower has had one continuous fight since the days of the Mission Fathers, or at least since the days when citrus culture became a commercial factor with the orchards planted near the Old Missions. The first serious jolt given to the industry was in the early eighties when the white scale almost eradicated thousands of acres of citrus orchards. The natural enemy of that pest was found and the industry saved. Other natural friends of the grower and enemies of these pests have since been found and will continue to be found. At present the growers are observing with much interest the work of natural enemies to the citrus mealybug, a pest almost as serious as was the white scale, and far more serious than is the white scale problem of today. Accounts and many illustrations of this pest and the work of its natural enemy, the cryptolaemus, have appeared in the columns of former Cultivators. We are glad to add to the information regarding the mealybug fight by making quotations from Harry S. Smith's address before the recent citrus institute.—Edit.

* * *

The problem of mealybug control has long held a prominent place in the minds of the citrus growers of California and has been the subject of a great deal of experimental work by federal, state and county entomologists, as well as the growers themselves. The citrus feeding mealybugs, of which there are several species, have been found extremely difficult to control by means ordinarily successful against other citrus pests, i. e., spraying and fumigation, and it has been this resistance to artificial treatment, rather than the extent of territory infested, which has placed them in the forefront as pests of citrus.

This resistance to spraying and fumigation has also had another effect in that it has been a strong argument for an attempt to control the pest by the use of natural enemies. For several years desultory efforts have been put forth to introduce new natural enemies of mealybugs into California from foreign countries, in the vague hope that some one of them might prove effective, as the vedalia did against the cottony cushion scale. The introduction of the so-called mealybug destroyer, Cryptolaemus mon-

(Continued on Page 428.)

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California	210	New York	329
Delaware	55	Ohio	239
Georgia	90	Oklahoma	69
Illinois	570	Oregon	42
Indiana	280	Pennsylvania	491
Kansas	69	Texas	59
Maryland	95	Utah	84
Massachusetts	31	Virginia	91
Michigan	169	Washington	161
Minnesota	79	West Virginia	87
Mississippi	38	Wisconsin	132

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The Fertilizer Situation

By A. E. Barnes, Secretary of Fruit Growers Supply Company at Citrus Institute

CONDITIONS governing the supply and affecting the cost of fertilizing materials in Southern California today are world wide. In providing for our future requirements of fertilizing materials, we must not only take into consideration the supply and demand of our own country, but must to an even greater extent give heed to the supreme efforts of Europe to establish once more her agricultural lands on a pre-war basis of production.

In considering the fertilizer situation as it affects our supply in Southern California, we will consider first, the matter of potash, second, phosphoric acid, and third, nitrogen.

Potash

Several years ago while high grade potash was still plentiful and at a fairly reasonable price, citrus fruit growers of California discontinued the heavy application of this material. This reduction in the use of potash was directly due to results obtained at the citrus experiment station at Riverside, which indicated that citrus growers were obtaining but little benefit from heavy applications of potash. Many agriculturists throughout the United States are now reaching the same conclusion, and it was recently stated in Philadelphia that the farmers of Pennsylvania can get along with at least one-third of the amount of potash formerly used and that heavy applications of past years were largely the result of propaganda by interests having potash for sale.

Phosphoric Acid

Our greatest supply of organic phosphoric acid is derived from bones. India has for years been the main source of supply for the world; Argentina is now producing a comparatively large quantity. Transportation difficulties have seriously interfered with deliveries and the increasing demand for bone charcoal for the refining of sugar has created a serious shortage, so that where but a few years ago we paid $32 per ton for bone meal, raw bone is now bringing as high as $70 per ton San Francisco. On January 1 of this year we paid about $60 per ton for bone meal while London paid $82.79 per ton for Calcutta raw bone.

Superphosphate is largely a question of mining, labor, transportation and a sufficient supply of sulphuric acid. Roughly speaking, it requires about one ton sulphuric acid to acidulate one ton phosphate rock. During the period of the war, practically the entire supply of sulphuric acid was used by the government in the manufacture of munitions. Every effort was made to meet this demand so that during the period of the war the manufacturing output was increased to the extent of 2,000 tons per year; but we now have no surplus. The increasing development of the oil industry requires additional amounts of sulphuric acid for the refining of oil. Japan shut off on account of transportation difficulties from her supply of South Sea Island phosphate rock has turned to the Pacific Coast for her supply of superphosphate with the result that this material at the present time is exceedingly scarce.

Nitrogen

During the period of the war the high cost of nitrogen was generally understood, practically all high grade materials being consumed in the manufacture of munitions and the nations of the world were bending their efforts to find ways and means of developing new sources of supply. The signing of the armistice found all the great nations in position to produce more than double the amount manufactured prior to the war.

At that time practically all heavy trading in fertilizers ceased and all dealers looked for a decline in prices. During the following months but few contracts were placed. The factors which led all fertilizer dealers to expect lower prices were fundamentally sound, based on all previous experience. England and Scotland before the war exported a large tonnage of sulphate of ammonia and had doubled their output; also the United States had more than doubled its manufacturing capacity of sulphate of ammonia. In 1914 the United States produced 183,000 tons, in 1919—450,000 tons. Stocks of nitrate of soda in Chile were above normal, and the number of cattle in South American countries, particularly the Argentine, had increased to a figure never before reached. The kill during the war was restricted on account of inability to remove the beef, all vessels being diverted to shorter hauls from ports nearer the seat of war. Fertilizer dealers therefore expected a heavy kill of cattle in South America which would furnish an increased amount of organic fertilizer, the natural market for which would be our Atlantic seaboard states, such as Georgia and the Carolinas, each of which states uses about 1,000,000 tons of fertilizing materials annually. The entire state of California uses only about 32,000 tons of fertilizer per year. The agricultural college of Georgia is now advising farmers to increase their use of fertilizing materials.

Had the South American blood and tankage come to the United States as expected it would have released a corresponding amount in the large meat packing centers of the Middle West. however, it was all contracted for delivery in Europe.

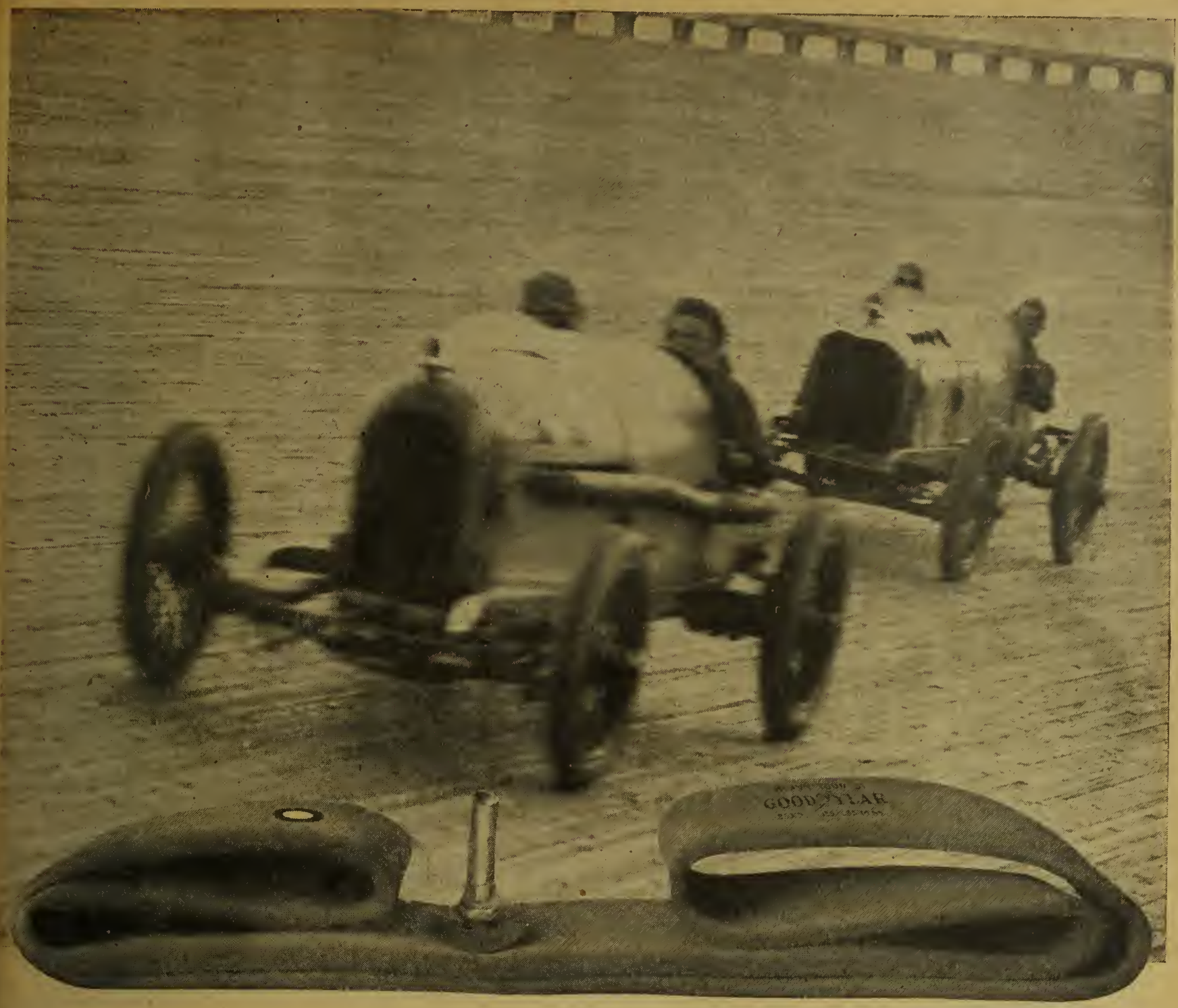
The first movement of sulphate of ammonia in the United States following the signing of the armistice was to our ports for exportation. England and Scotland are consuming their immense supplies at home. England before the war consumed about 80,000 tons of sulphate of ammonia annually; she used 269,000 tons last year. Japan came into the United States market for 100,000 tons for export to that country. About this time the steel strike curtailed the output and the coal strike entirely suspended manufacture in the United States.

In the production of air nitrogen Norway leads the world. To convey some idea of the magnitude of their operation, Norway consumes in the manufacture of air nitrogen from 300,000 to 350,000 horsepower, at one factory alone the blowers deliver 1,000 million gallons of air every 24 hours, and the combined maximum capacity of their different units is one barrel of calcium nitrate every sixth of a second.

We have no accurate information as to exactly what has taken place in Germany, but we do know that during the war, shut off from all outside source of supply, that country was able to produce sufficient nitrogen to meet her heavy requirements for the manufacture of munitions. Last year Germany appropriated an amount equal to $70,000,000 for additions to her nitrogen plants. The United States during the war erected at Muscle Shoals, Alabama, an air nitrogen plant at a cost of $70,000,000. This plant covers three square miles of land. No statement has yet been issued as to the tonnage that can be produced at this plant when operated for the production of nitrogen for fertilizing purposes. The act of congress, under which this operation was created, made the product available only for military purposes. Recently Secretary of War Baker has, through Representative Kahn, asked for an appropriation of $12,000,000 to put this plant in condition for the production of fertilizing materials.

The nitrate of soda producers of Chile fully realize the menace to their market for nitrate of soda and have recently perfected new methods for refining their product which should materially reduce the cost and produce a much purer product than has heretofore been shipped.

Of nitrate of soda France and Belgium within the last two months have purchased up to 500,000 tons in Chile. This makes a total of about one and one-half million tons booked for European countries. This demand for fertilizing materials by these countries is unprecedented and to the writer is one of the brightest spots in the world's effort toward a correct economic readjustment.



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During the American racing season of 1919, every important race of fifty miles or more, on speedway and road, was won on Goodyear Cord Tires.

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GOODYEAR

HEAVY TOURIST TUBES

The Hawaiian Islands, which each year consume nearly three times the amount of fertilizer used in the state of California, are now dominating the supply of organics from San Francisco north. We cannot compete with prices being paid by the Hawaiian sugar plantations where price is given small consideration where certain goods are required.

Organic fertilizers are today selling at higher prices in all parts of the United States than in California. If this were not the case we might draw a percentage of the blood and tankage from Chicago, the bulk of which is now being manufactured into stock food and the balance shipped to the southern and eastern states. Persons in close touch with the situation estimate that as high as 66 per cent of the blood and tankage produced in the Middle West is being manufactured into stock food. The manufacturers of poultry food are consuming a very heavy tonnage of fish tankage at a price of from $10 to $20 per ton above the prevailing prices for fertilizing purposes.

So acute is the demand for nitrogenous fertilizers in all parts of the world that at the present time the great nations are applying the best chemical talent they possess to the task of reconverting their heavy supplies of munitions into fertilizers to make for production that which they created for destruction. This condition is unique in the history of the world and looks like the fulfillment of the old Bible prophecy "And they shall beat their swords into plow shares and their spears into pruning hooks."

To sum up the situation briefly the accumulation of a surplus of fertilizing materials during the year of 1920 can hardly be expected nor can we expect any lowering of present prices. The large nitrate plant at Muscle Shoals will probably not produce in quantity until 1921. By the summer of 1921 we should begin to experience a heavier supply and a gradual decline in the cost of fertilizing materials.

CONTROL OF MEALYBUGS AND OTHER PESTS

(Continued from Page 425.)

trouzieri, a ladybird found in Australia by Koebele, was at first hailed as a solution of the problem, but this ladybird, like so many such introductions, after the fire "flare-up" seemed to die out, excepting in a few favored locations along the coast, particularly in San Diego County.

In recent years an important introduction was made by the state insectary from Sicily, the so-called Sicilian mealybug parasite, Tanaomastix abnormis. This little parasite has thrived wonderfully and now occurs in practically every locality where the citrus mealybug is found. It has done a great amount of good, but it, too, like cryptolaemus, has been unable to keep the mealybug in complete subjection.

There also occurs in California a number of native parasitic and predaceous insects which feed on mealybugs, the more important of these being the brown lacewing and the hyperaspis, a little black ladybird with red markings. These native natural enemies too, like the introduced species just referred to, at times accomplish much good work, but generally speaking cannot be depended upon, because there are always certain seasons during which their work is not in evidence and it is during these off years that the mealybug becomes a scourge to the grower of citrus fruits.

Now these off years are due largely to scarcity of natural enemies and this scarcity of natural enemies is due to certain biological facts which it is necessary to mention in order to make plain the method to be pursued in bringing about control by the use of parasites.

In the first place the natural enemies of the mealybugs are confined in diet almost exclusively to mealybugs, and their increase in an orchard is entirely dependent uopn the degree of mealybug infestation. Now let us take a given orchard in which there occurs a heavy mealybug infestation and in which there is also a stock of natural enemies, and see what happens. The natural enemies, having available a liberal food supply, increase rapidly, their progeny requiring more and more mealybug food, until by their great numbers they have reduced the mealybug to a condition of scarcity. We then have a condition in the orchard where there are large numbers of natural enemies and a small amount of mealybugs for food. This means starvation for the beneficial insects, with the ultimate result that they die out from the grove. Thus freed from their natural enemies, the remaining mealybugs have an opportunity to again increase unmolested and soon reach numbers dangerous to the grove. Under certain conditions and in certain localities the natural enemies will in time again put in an appearance and reduce the infestation, but this always happens after a great deal of damage has been done.

Now it has always seemed logical that this continual recurrence of periods in which the mealybugs were abundant on account of a scarcity of beneficial insects could be avoided by maintaining a reserve supply of these natural enemies, which could be drawn upon at the proper time, but the stumbling block has always been the maintaining artificially of a sufficient supply of mealybugs upon which to rear the reserve of natural enemies. The problem was solved by the office of pest control of the state department of agriculture through the development of the potato sprout method of rearing mealybugs for food for the beneficial insects. This method, which consists briefly in sprouting large quantities of potatoes in trays and stocking these sprouts with mealybugs, into which the beneficial insects are later introduced for rearing, has enabled us to maintain at all times a supply of certain of the beneficial insects found best adapted to the work. With such a reserve supply on hand it has been possible to bring badly infested orchards to a commercially clean condition and to prevent disastrous outbreaks of mealybugs in orchards where they occur but where they have not yet become serious. This has been repeatedly demonstrated under orchard conditions, particularly in Ventura County, where the work was first undertaken and where the mealybug has been especially severe. For many years the mealybug had been the most feared pest of citrus fruits in the county, and a large amount of money was spent in an attempt to bring it under control. In 1916 a branch insectary was established in Southern California with the object in view of attempting the control of the pest by this method. In the following year the horticultural commissioner of Ventura County succeeded in raising a fund locally for the purpose of building an insectary at Santa Paula with the same object in view. These two insectaries have cooperated in the work, with the result that the mealybug is now under complete control in that locality and is no longer feared as a pest. This same program is being carried out in San Diego County and will soon be under way in the Whittier district of Los Angeles and Orange Counties, with every prospect of success.

Experimental work on the citrophilus mealybug in San Bernardino County encourages the belief that this pest, too, can be controlled by the use of the natural enemies, and for this purpose a branch insectary has been erected at Uplands from funds furnished by the county. This insectary is now in operation and it is hoped and believed that success will attend this effort also.

The methods used in growing the natural enemies of mealybugs are in general very simple, but a good deal of painstaking care is essential, as well as a thorough understanding of the habits of the insects. We use standardized trays made to fit our cages. In these trays a supply of potatoes known to be free from tuber moth, are placed. These trays are then put in a dark room, preferably a basement, where conditions are conducive to the sprouting of the potatoes. In two or three weeks a healthy growth of sprouts is produced, after which these sprouts are stocked with mealybugs. After the mealybugs have gone through a generation and the sprouts are completely covered with the insects, the trays are placed in cheese cloth covered cages and the natural enemies, either the ladybird cryptolaemus or the Silician parasite are introduced. These at once begin to feed and to lay their eggs and within a month to six weeks their progeny

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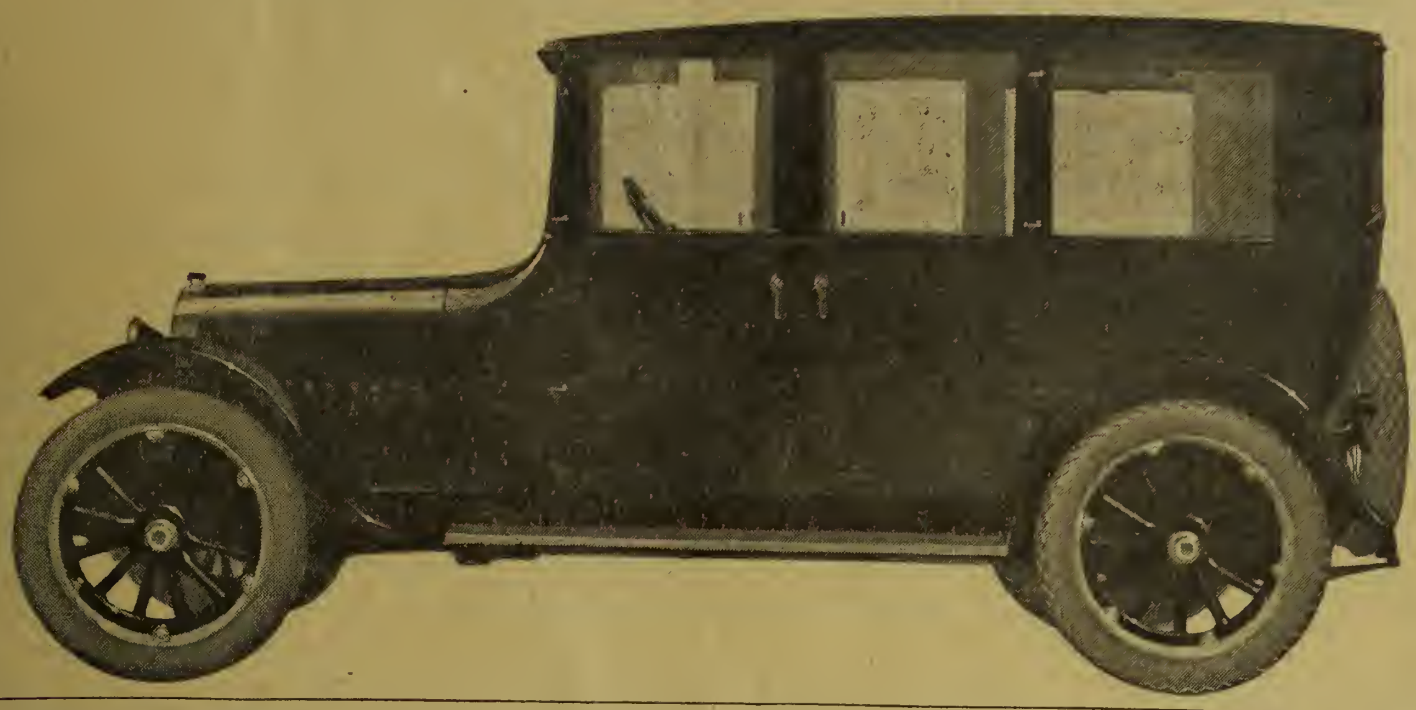

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may be removed and placed in the infested orchards in large numbers. The material thus reared in the insectaries is frequently augmented by collections from orchards where the mealybugs have been cleaned up and the natural enemies are starving for lack of host material. As a general rule orchard colonizations are made in person by a representative from the insectary, but sometimes the beneficial insects are shipped to their destination by mail or express when it is inconvenient to do otherwwise.

As to the future of this work against the mealybugs, it must be remembered that it will not take care of itself. Any slackening of effort will mean a quick return to the old condition of a bad outbreak every few seasons, since it is only by maintaining a strong reserve supply of natural enemies that the pest can be kept in subjection. It is probable that the state office of pest control will always support one or more insectaries in Southern California for the purpose of having on hand such a reserve supply of beneficial insects. It is also probable that many of our larger growers will build insectaries of their own for this purpose, as has been done with success by the Limoneira Ranch at Santa Paula, or that local citrus growers associations will club together for the maintenance of insectaries for their communities, such as the one now being contemplated by several associations in the vicinity of Whittier. There will always be the danger, however, that the mealybug having been cleaned up in a certain district, interest in maintaining a local insectary will wane, with the probable outcome that a sudden outbreak will catch them unawares. The state insectaries will prove useful in such contingencies, and it is also necessary that a certain amount of experimental work be carried on by the state, having as its object the improvement of methods and the trying out of new importations.

The office of pest control is devoting every energy to the solution of these problems, knowing as it does that millions of dollars annually would be saved by a successful outcome of the work now being carried on. However, we can only advise the growers to continue to use the old reliable fumigating tent in the case of these other pests until a method has been worked out in the laboratory and successfully demonstrated on a large scale in the orchard, as was done with the mealybug.

THE BOOM IN WALNUTS

(Continued from Page 423.)

the two varieties, spacing 30 feet apart with rows 60 feet apart. In ten years each alternate tree in the rows would have to be cut out to make a uniform spacing of 60 feet, which is now the recognized spacing for old bearing walnut trees. Leaving the rows 60 feet apart gives room for intercropping, which can safely be practiced for five or six years. Beans are the best intercrop since they do not rob the soil, particularly when the bean straw is put back into the land. They improve the land and require about the same amount of water as the trees. The locality will determine the best variety of beans to plant."

Not All Land Good Walnut Land

Mr. Wylie warned against the danger of walnut planting in untried localities. He said that while it is true that the walnut is grown successfully in many of the interior valleys of California the coastal region is still the region for assured results. The San Joaquin Valley has seen large plantings the past four or five years and in Southern California the walnut is thriving as far inland as Hemet in Riverside County, which has a high summer temperature and a lower winter temperature than Santa Barbara and Orange Counties. Mr. Wylie declared that the walnut is sensitive to alkali and high water tables and that tests should be made before any large planting in new territory is made. The citrus experiment station at Riverside, under the direction of Dr. Bachelor, the well known walnut authority, is making exhaustive tests with a view to finding varieties adapted to inland temperature and localities.

Different Varieties for North and South

I asked Mr. Wylie why it is that the French varieties, like the Franquette and Mayette, were planted only in the north, and why the Placentia Perfection was not planted north of Santa Barbara County.

"Climatic conditions are largely responsible for this condition," he replied. "The north has a shorter growing season, and the French varieties mature quicker than walnuts of the Santa Barbara soft shell type. The long growing season in the south is required to produce the Placentia Perfection. And while the Franquette and Mayette are very fine nuts they do not produce the tonnage that the Placentia does."

New Planting

Mr. Wylie said that some of the largest new plantings in the state are in Santa Barbara and Ventura Counties. The Simi Valley and the region above Santa Susanna Pass in Santa Barbara County and at Camarillo in Ventura County are making large plantings. Considerable new planting is being done at Hemet and Perris in Riverside County and the Chino acreage in San Bernardino County is being extended. There has been a lot of planting done in the San Fernando Valley and some around Pomona in Los Angeles County and some in the lower Riverside district. More would have been done had the trees been available.

It is a rather curious fact that in Orange County, where walnut growing has reached its highest development, many hundred acres of beautiful wainut groves have been cut down the past three to five years. This is not because the walnut has not been profitable, but because the Valencia orange finds in Orange County a singularly congenial habitat, as evidenced by the market reports on Chapman's Old Mission brand and other well known Orange County Valencia packs. But even if one admits that Valencias are more profitable, he can only feel a keen sense of regret at seeing fine producing walnut groves of from a dozen to 20 years of age ruthlessly removed to make room for oranges.

Cooperation Success Keynote

Any review of the walnut situation in California would be incomplete without due credit being given to the Walnut Growers Association. In a state where cooperative marketing has reached its highest development the California Walnut Growers Association stands pre-eminent in the service it has rendered to the growers who compose the organization. Not only has the association developed and stabilized the walnut market, advertised the product under the well known Diamond brand and reduced packing to such an exact science that one is absolutely sure in buying Diamond brand nuts that he is getting fully meated nuts; but the association is also rendering invaluable service to the 80 per cent of California growers who compose the organization in the field. Field workers like Mr. Wylie, who is quoted above, cover the entire field, advising growers as to cultural methods, irrigation and other production details. And the cost for all this to the grower is infinitesimal as compared with benefits received. It is not too much to say that the association has been the one great determining factor in making walnut culture the great industry that it is in California today.

APPLE MEN TO MEET

For the purpose of establishing a more uniform system of inspection, greater cooperation, and a clearer understanding between apple growers, packers and shippers in the enforcement of the Standard Apple Act of 1917, the director of agriculture has appointed a committee to meet at Watsonville on March 18-19, 1920. The committee consists of representative apple growers from the Pajaro Valley Sonoma County, Napa, San Bernardino, Los Angeles and San Diego Counties, also horticultural commissioners from the various apple producing counties.

Some of the most important questions to be considered are: Adoption of a certificate of inspection similar to the one employed by United States bureau of markets; car inspection versus packing house inspection; how long is the packer responsible for his product after fruit has been packed?; adoption of uniform procedure in prosecuting violators, and uniform methods of condemnation or other disposal of fruit packed in violation of the law.

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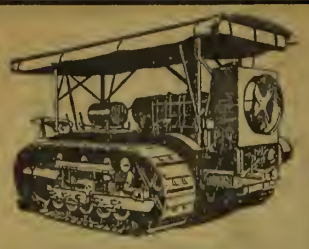

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COOPERATIVE CANNING

Developments of the past week have practically assured the establishment of a new unit of the California Co-operative Canneries at Modesto and the organization of an association of the peach growers of that district to be known as the Stanislaus Growers Association. There has been considerable interest shown in that district during the progress of the active campaign in the Santa Clara Valley, and as a result representatives of the Co-operative Canneries—Dallas H. Gray, a grower of the Hanford district, and Harold T. Johnson, an apricot grower of the Santa Clara Valley—have been spending some time in Modesto assisting local growers in the work of organization. A few days ago a representative committee of growers, including T. K. Beard, J. W. Murphy, W. H. Frazine, M. S. Amerine and L. W. Pitts, visited the big plant of the Cooperative Canneries in San Jose, interviewed members of the Santa Clara Valley Growers Association and thoroughly investigated all of the different phases of the business.

On Wednesday evening, February 25, a mass meeting of growers was held at Modesto, attended by over 100 representative peach growers, and as a result an organization was formed and the erection of a cannery at that point decided upon. It is expected that not less than 2,000 tons of cling peaches will be in the new association in addition to apricots, pears and other canning fruits, and it is planned to build a cannery at a cost of approximately $150,000, which will be very similar to the plant now being built at Visalia.

The organization work at Visalia has now been completed and construction on the new cannery will be started within a few days. This is a remarkable victory for the cause of co-operative canneries, as the results have been achieved in the face of the most bitter opposition. The results of the season of 1919 at the big cooperative plant at San Jose, where the average prices returned to cling peach growers ranged as high as $137 a ton, and the further reports from the canneries in Southern California, which have now completed their fifth successful season of operation, are most encouraging.

BERRY PLANT SHORTAGE

"No logan" is the slogan of the dealer when he is asked about berry plants. There has never been such a shortage of loganberry plants known. The price went up to $100 a thousand and then the supply gave out. The last plants to reach Los Angeles came from Portland, Oregon, and the grower receiving these is unable to plant the number contemplated and many others have the same complaint. There also are no Brandywine strawberries to be had and a general shortage and late receipts are reported by all. The growers now planting would have completed the work a month ago had the stock been available. But all are jubilant over the late rain, which was of inestimable benefit to the berry grower.

PLANTING STRAWBERRIES

In the warmer sections of the state strawberry planting commences in January and continues as long as the weather remains reasonably cool. This year planting was late, largely dependent on rains. Strawberry plants are hard to establish in hot weather but so long as rains continue there is no limit to the season.

One of the most important features of the work is to do the fertilizing before the plants are set; strawberries are not easily fed when they are growing. Light doses of nitrate of soda may be given, but heavy doses will provoke a foliage growth. One unusually successful grower put 100 tons of fine cow manure, fresh from the corral, on an acre, with splendid results. He also put a like amount on three acres with good results. In some of his crops the returns were as high as $2,700 an acre, but of course the season's prices largely govern the monetary returns. Such heavy fertilizing, however, insures a good crop for four years after application and planting. The one thing most necessary to strawberries is humus, of which they need an enormous supply.

In planting practice varies much as to distances. We find many growers planting rows on ridges three feet apart with irrigation furrows between and plants 12 or 14 inches apart in rows. But the successful grower mentioned planted on the level, in rows 20 inches apart and plants ten or 12 inches apart, generally the latter. He claimed he could irrigate and pick most advantageously with rows so spaced. Set out in February one will get a crop from May to July. Of late years some growers on a small scale have juggled with the water supply, withholding it to enforce a rest of the plants and then giving a copious supply, yielding a crop out of the normal season. In favored localities this has brought winter berries. One grower reports setting out plants in November and getting a limited crop the last of March and a good crop on to July 15. But winter berries, so-called, are wholly dependent upon control of water supply.—E. B.

THE SPRAY GUN

The Australians don't like the spray gun. The Agricultural Gazette of New South Wales refers to the possible utility of the spray gun and that it has been under consideration for some time at the Glen Innis experiment farm. It was "imported from America." After giving more or less extended reference to the experiments as they were tried, the conclusion was reached:

"The gun was not considered satisfactory. Its great advantage would be in acting as a long distance nozzle so that high trees could be sprayed without the use of excessively long and cumbersome rods or towers; but the highest tree in the test block was 12 feet, and, while this was quite the limit to which the gun would throw a spray, trees of equal height can be sprayed with rods of moderate and not unwieldly length. Again, the work done by the gun appeared to be faulty near the tops of the 11 to 12 foot trees, while one cannot spray downwards onto the tops of the trees with a gun from the ground as one can with an angle nozzle on a rod. The operator also found the gun far more tiring to use than the rod and nozzles.

"The day on which the test was carried out was almost calm, but even so the operator with the gun could not avoid the spray, and on a fairly windy day on which the gun was previously used he was literally soaked with spray. It would be impracticable, therefore, to appiy caustic sprays, such as lime-sulphur, except in very calm weather. With an angle nozzle on the end of even a fairly short rod, the operator can avoid the spray to a great extent."

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E-B Osborne Hay Tools Save It

Every farmer who has a crop of hay wants tools that finish the job in record time. That's why E-B Osborne hay tools are universally appreciated and bought. They do quicker, more thorough work all the way through.

The name Osborne has long stood high in the estimation of American farmers. Coupled with the E-B trademark it insures an unsurpassed standard of excellence and service.

The E-B Osborne mower does its work efficiently, no matter how heavy the crop. It has many special festures which you should investigate, such as internal gear drive, eccentric for realigning cutter-bar, extra long knife head and guides, full strength one-piece frame.

Any E-B dealer will show you this mower as well as the other implements pictured here. Ask him about E-B Service on deliveries, both of machines and parts. It is of real importance to every farmer who uses haying tools.

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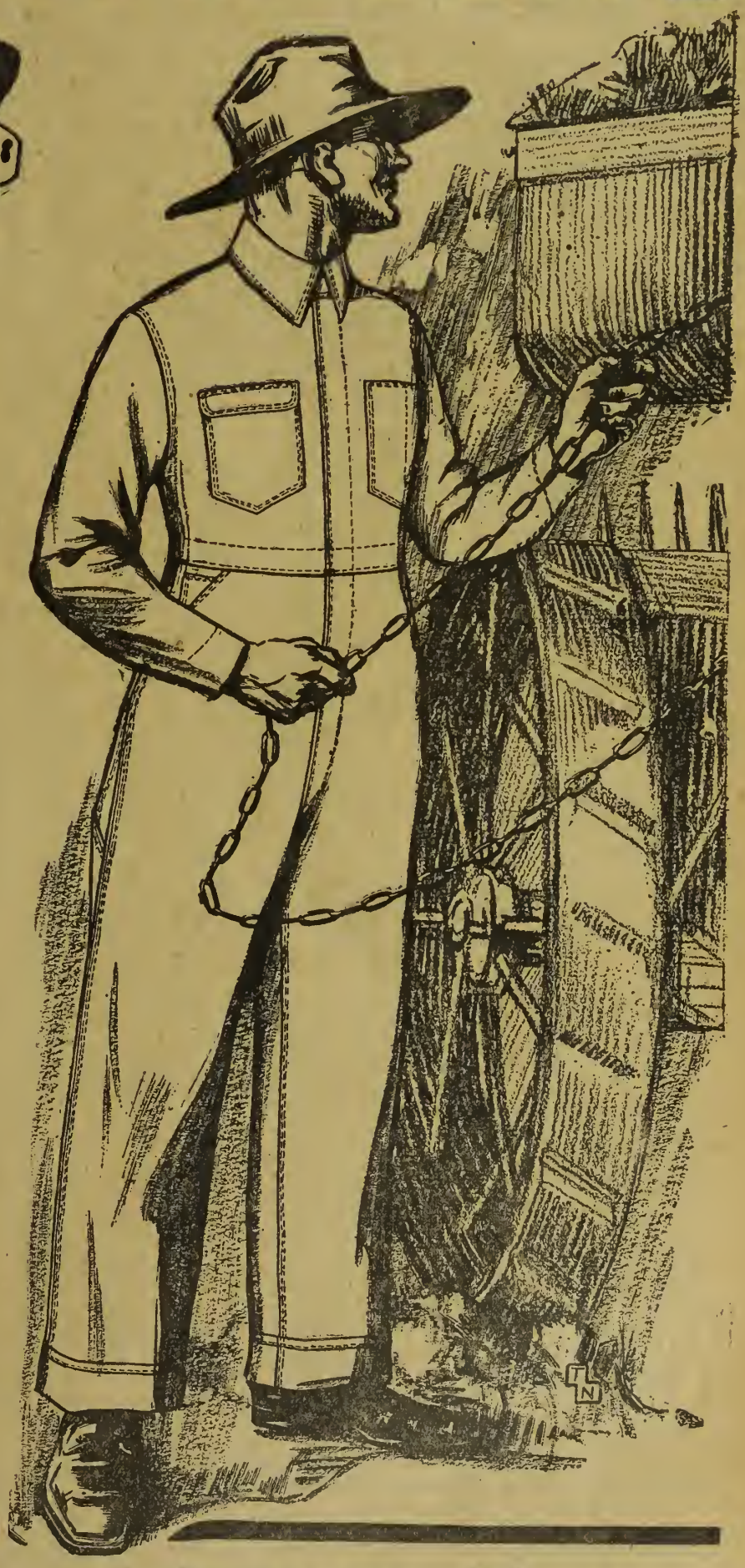

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Anywhere—on any farm—at the chores, in the field, summer or winter, Finck's "Pig's Nose" Combination Suits are the most practical work garments you can buy.

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You can get these long wearing Finck's "Pig's Nose" Combination Suits in khaki, blue, hickory stripe or white. They cost less in the long run.

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and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914

Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday March 13, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

ON AGAIN

The income tax is off again, or will be before midnight of next Monday. On Tuesday morning it will be on again, will be, at least, if we are wise. Of all the maddening things resulting from the war this income tax "return" is a bit the worst. The only one entitled to grin in making out these reports is the man who keeps books and knows, and knows he knows.

STATE RAIN

Monday saw the beginning of a wonderfully fine rain. It came down the coast in a good old time coast storm way. The precipitation at Eureka was .86, Red Bluff 1.12, Sacramento .72, San Francisco .94, Fresno, .64, San Luis Obispo .88, Santa Barbara .55, Los Angeles .66. All citrus sections of the southern part of the state received from three-fourths of an inch to one and one-half. The Sierra Nevada and Sierra Madre are glistening white and apparently the snowfall has been heavy.

DEPRECIATION ON TREES

Orchardists are generaliy making deduction from gross income to cover not only depreciation on buildings but depreciation on trees and perennial crops. This depreciation ranges from two to ten per cent or even more according to the particular crop. On walnut trees, for instance, it is two per cent, which allows for 50 year productive life of the tree. Depreciation on citrus groves is considered greater, some growers maintaining that three to four per cent is just. The Navel is considered hardly as long lived a tree as the Valencia.

COLD IN FLORIDA

A recent blizzard covered practically all of the eastern side of the United States. Even southern Florida got some nipping blasts. The bureau of crop estimates reports the minimum temperatures on March 2 as 28 degrees at Sanford and 27 at Miami. Sanford is well north of the middle of the state and inland some distance from the Atlantic, but Miami is well toward the southern extremity. The vegetable crops of the entire Atlantic side of the state were destroyed or greatly injured. The Gulf coast has not suffered so severely.

BIG BUSINESS

The farmer sometimes inclines to regard his own as one of the lesser industries. There is so much made of the great aggregations of capital brought under one man's direction in handling steel, oil, etc., that farming takes second place. But, as a matter of fact, the value of farm properties is greater than that of all manufacturing establishments, railways, mines and quarries of the United States combined. The greater portion of the wealth which financed our own war and of the billions loaned to Europe was originally dug out of the soil of the American farm.

BUY TREES

Many an orchardist would have planted orchard trees this year had he been able to secure them. Some even went so far as to make all plans for the new orchard only to learn that not another tree was to be had. These orchardists have already turned to the nurseryman and made contracts for next year's delivery. As it takes two or three years to produce a good nursery tree, it is possible that another year's shortage may affect some planters who are not forehanded enough to plan ahead. There will be no dependable trees which can be had for a low price for the next year. The wise planter will be making his contracts early.

GROW BOB-CATS

Walt Mason, or Cicero, or somebody once said that the best way to reach a man's heart was through his stomach. So far as we know, this has never been denied. Some equally as wise have suggested that the way to his pocketbook was through his vanity, and we believe that therein is a stronger pull. This thought is suggested by a letter from a subscriber who lives up in the San Diego County mountains. He remarks that while he can secure only $7 for a good cowhide —and adds, "It must be a mighty good one to bring that amount"—he can sell a good bob-cat skin for $8.50. Perhaps our dairymen should cease producing milk and cowhides and go to growing bob-cats.

BUD SELECTION

Big folks are doing big things along many lines in this state. One of the latest moves, which means much to the state's future, is that of the largest nurserymen in the state—in the world—uniting in order to secure through bud and stock selection the foundation for nursery trees which will mean a greater production of finer fruit. A story of this movement was planned for the present issue of the California Cultivator, one of its features to be photographs of some of the men most responsible for the advancement of the movement, but one photograph did not arrive in time, that of the manager to be, L. B. Scott, at present with the United States department of agriculture. In fact, it has just reached us as we are going to press and is now in the making for next week's issue.

Review of the efforts at bud selection, and especially of the scope of this organization, will have much of interest for the readers of next week's paper.

BUILD A SILO

Twist or turn as we will and develop water from every possible source, this will be a dry summer. Presumably there will be less alfalfa and although the recent rains have assured many a hay field, there will still be a shortage of grain hay. Millions of California livestock, while not actually hungry, may not put on as plentiful streaks of fat as the consumer desires.

But the situation may be helped very materially by planting more soiling crops and more sorghums or other large grasses for pasturage and for silage. We predict there will be a greater building of silos than any preceding year.

It is none too early to have plans taking definite shape. Let it be a pit in the ground; let it be built of brick, of concrete, of wood or of iron; but let it be something to hold feed to take the place of $40 hay. Even some of the weeds make excellent silage. First alfalfa cutting with a liberal sprinkling of foxtail has been declared one of our best silage crops.

POWER WANTED

Dealers in "white coal" and growers of food, together with a number of manufacturers or users of electricity, are consulting as to best method of securing greatest good from the reduced service made necessary by the drouth. It seems to us that the country's best welfare is secured by giving the farmers first chance. The practice has thus far been, however, to restrict irrigation, where it depends upon electricity, to hours in which large industries of the cities were not using the current. This may be to the profit of the companies delivering the electricity, but it is not to the best interests of the state at large.

The state railroad commission has issued the following statement:

"State and federal agencies are united in an endeavor to make all available water perform the highest duty and produce the greatest beneficial returns from the standpoint of the welfare of the state as a whole.

"Among the water conservations outlined in the statement are:

"Farmers should defer putting new land under cultivation this year.

"All flowing wells should be immediately tapped.

"Night irrigation should be practiced in order to reduce the peak power load and prevent waste of water.

"Long lived crops should be given special care.

"Irrigators of rice lands which have become fouled or partly fouled should rest these lands for the present season."

DUST with Nico-Sulphur

APHIS

RED SPIDER

Save your citrus crop from the ravages of red spider and aphis — dust with Nico-Sulphur, the new discovery that will revolutionize the work of pest control.

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CAPRIFIGS

The J. C. Forkner Fig Gardens, Fresno, has a good supply of mamme and profichi caprifigs for this season. Mamme crop for colonizing caprifig trees ready the latter part of March. Profichi crop ready the first week in June. Orders given prompt attention. Address or see
I. J. CONDIT, 312 Cory Bldg., Fresno

Strawberry Plants

Americus everbearing, $2.50 per 100; $5.00 per 250, postpaid. Catalog free. Our nursery is licensed and our plants inspected.
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SEEDS Collection High-Grade Flower Seeds, Asters, Begonia, Gloxinia, Oxalis, 25 Choice Bulbs, Post Paid. 10c
Old Homestead Nursery, Round Pond, Maine

Dehydration

WHAT is dehydration? We asked Dr. Clements of the agricultural department of the Los Angeles chamber of commerce this question and he answered:

"Dehydration means the reduction of organic materials to a desiccated condition without alteration of cellular structure or chemical change. In other words, the elimination of the greater part of the water content."

In addition, Dr. Clements said:

"Two years ago, while under stress of war, the British government made some interesting and very successful tests in the dehydration of berries and other highly colored fruits and vegetables in an atmosphere of nitrogen, but the process was far too expensive to be utilized in general manufacture. The object of the British government at that time was to overcome the enormous cost of $3,000 per car Los Angeles to Port Sarnia—recognizing that one carload of dehydrated berries would be the equivalent of 20 carloads of the fresh iced material, the strawberries having been frozen in barrels and kept so until ready for preserving. I might add that the expense through dehydration in nitrogen was much greater than the $3,000 under icing.

"The necessity for this neutral atmosphere is due to the coloring matter of all fruits and vegetables being iron and iron salts, and to the instability of their chemical formation and susceptibility to oxygen and ozone. In any dehydration, either electrical or otherwise, in which there is vibration or artificial wind drafts, the excess of oxygen, and a still more deleterious product—ozone—results in the bianching of the product.

"The International people seem to have stumbled upon this one principle accidentally—the use of carbonic acid gas, being a by-product of simple combustion in the creation of heat within the dehydration plant itself, carbonic acid gas being so much heavier than the normal atmosphere, forces it to the top of the container and excludes any possibility of ozone or excess of oxygen. Another item of interest is the embodiment of the humidor principal, which has been accepted, lock, stock and barrel, by the United States government in the kiln drying of all woods necessary to the airplane. The humid atmosphere moistening the superstructure or envelope of the material to be dehydrated stimulates capillary attraction, making release of retained moisture even, and a uniform product results.

"This makes a very complicated problem and places dehydration directly in the hands of the chemist and biologist."

The broom corn factory at Lindsay, Tulare County, is being operated on corn sent in from other sections, but it is expected that several hundred acres will be planted locally this year, some of it interset in orange groves.

Five hundred acres of cotton is to be planted by a large cotton seed manufacturing concern at El Mirador, Tulare County.

BRISCOE

There are many features about the new 1920 Briscoe that make it a thoroughbred farm machine. Its exceptional light weight combined with its sturdiness means certain economy and low upkeep cost. Its world-famous unit power plant means dependability when road conditions call for unusual power performance.

"Before you decide Take a Briscoe ride"

You will find the Briscoe a utility car too—a car just right for farm use and one the whole family will thoroughly enjoy. There's a Briscoe dealer near you who will show you and prove the Briscoe. Write us for his name and address, and new Briscoe catalog, which accurately describes the Briscoe and illustrates the many exclusive features.

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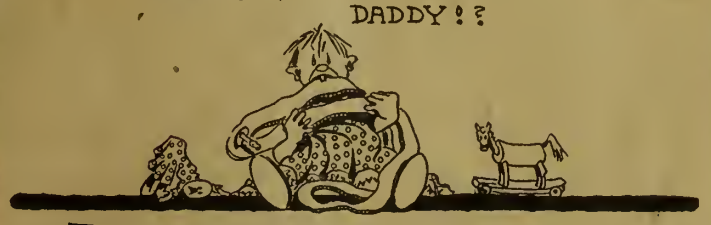
The LEADER OF LIGHT WEIGHT CARS

"SOME MILES"



BABY HAS A NEW TOOTH,
AND ANOTHER ONE IS COMING,
SHE CUTS HER TEETH ON "HORSE SHOE TIRES"
BUT IT DON'T KEEP THEM FROM RUNNING!
Smith

For a long hard run-use Horse Shoe Tires

GRANT SIX

FOR a number of years the Grant Six has been one of the most popular cars selling to farmers, because it has always been remarkably good value at a reasonable price.

This year's car is by all odds the finest Grant Six that has ever been built. The high radiator and hood with aluminum molding give a new touch of distinction and with the long, low body lines, make a decidedly handsome and stylish car.

The famous Grant Six overhead valve engine has been steadily refined and improved until it is one of the most flexible and responsive motors ever put into a car. It has power and speed beyond what most men will dare to use.

The Grant Six is an ideal car for farm use because of its remarkable spring suspension. The rear springs are underslung and 56½ inches long—the longest springs ever used in a car of 116 inch wheel base. When the rear seat is filled the springs are flat so that the full spring action is obtained and the car travels over rough, bumpy roads with utmost comfort.

This model exceeds in wheel base and in size any former Grant Six.

In buying the Grant Six you get a car you can be proud of, a car that will satisfy you completely—a powerful, roomy, speedy, comfortable car of unusually fine appearance.

Write for new illustrated catalogue and name of Grant Six dealer in your community.

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Shoot Infallible or "E. C."

"Hercules Smokeless Shotgun Powders helped me fill this bag. You can bet your boots they're the powders for me from now on.

"Why don't you try 'em and get some real sport! I tell you it gives you a heap o' confidence when you know your shells are loaded with

HERCULES
Smokeless Shotgun
POWDERS
INFALLIBLE "E.C."

These powders can be bought, ready loaded, in the fourteen standard brands of shells listed at the right *and your favorite is one of the fourteen.*

The next time you buy loaded shells look at the top wad or on the end of the shell box for the name Infallible or "E. C."

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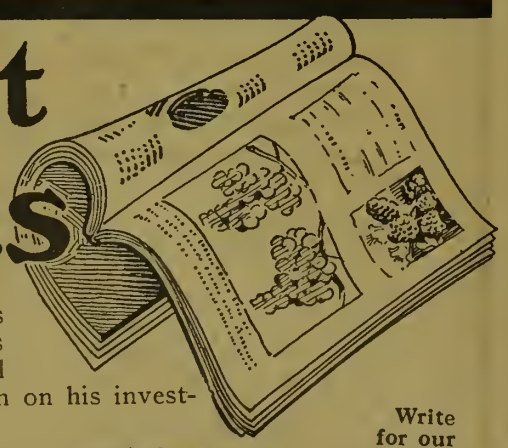
-fruit TREES



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The demand for all kinds of fruit has been good and prices high.

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We can still furnish a limited quantity of trees in some varieties.

Let us know your requirements.

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California Cultivator
Costs Only $1.00 Yearly

Lawn Making

By Ernest Braunton

As one cannot well get into the soil after a lawn is made it should be well stirred, aerated and fertilized as a preliminary, and March is the best month for the work. No soil can be too deeply worked or given too much airing; therefore turn it up deeply and let it lay for a few days or a week. Then do the same thing over again and in the doing work in barnyardyard manure, if available. Nothing less than a four inch coating should be given, and before the lawn is ready for planting this should be spaded or forked into the soil several times. At first two spadings do not break up the lumps, but allow air to get into the soil. But two more turnings of the soil should be given and in both these the soil should be pulverized as finely as possible. With soil given such preparation we have the foundation for a lawn that cannot well be made better.

Though preliminary work is hardest in heavy soils, blue grass grows better, larger of blade and darker of color than in lighter soils. I have known an experienced lawn maker haul in adobe to cover a sandy tract, four inches deep, after heavily fertilizing and stirring the light soil beneath.

Danger to the future lawn lurks in dairy manure. Nearly all dairies are situated in lowlands where Bermuda grass is prevalent, and if you wish a Bermuda grass, may good luck go with you. If you wish to escape this pest, however, keep your fertilizer well wetted for some time, turning over occasionally. All seeds that do not sprout in the manure will grow in the soil. Fertilizer works turn out a special lawn fertilizer, or to supplement animal manures raw bone meal evenly scattered over the surface and well worked in is a good grass food and also is available for some time as its decay is not rapid.

Smoothing and Sowing

We will presume your soil is now ready to be smoothed for sowing. Be sure that it is properly settled, no soft spots. If these are suspected tread over the surface with the feet close together, to search these places out. On large lawns rollers are used but these do not find the soft soil pockets as do the feet. Rake the low spots full of soil and tread them firmly. The surface must be raked over to pulverize it finely and get a smooth plane. You cannot do this after the grass is sown; as you leave the surface so will it always remain, except it may settle unevenly. It never will improve in smoothness.

After soil surface is prepared, walk upon it no more. Put boards at the back end of the area and begin sowing, coming forward by alternating the two boards or two sets of boards until you have sown the lawn without putting a foot on it. Sow on a windless day or in early morn before the zephyrs blow if you are using blue grass seed, but if you sow clover the seed is heavy enough so it will not blow about. In mixed lawns sow the two kinds of seeds separately. Before sowing grass seed sprinkle the surface lightly and the seeds will stick to the damp soil, lessening the danger of congestion in case light breezes come.

Before you begin your retreat with the boards rake the seed lightly into the surface, very lightly, or you will pull the seed-laden soil about and have a patchy crop. The cover should also be scattered on each section as soon as sown. The best material for this is an inch of finely sifted manure. Shavings from planning mills are often used but are by no means as good or of equal food value. Beware of redwood shavings, and all shavings are best wetted and leached a few days before using, giving them an abundance of water. Great care must be taken with the first and subsequent waterings given before the grass is up as the cover and the seeds are easily driven about and too much water in a place will float both and your grass will come up in patches. As soon as weeds are large enough to pull, go after them, using one board to kneel on and another to keep your toes from digging up the soil. As

Eureka Lemon Demonstration Tree Grown by J. P. Englehart

This tree is composed of three growing buds of the three different types of wood found in the Eureka lemon tree, namely fruiting wood, sucker wood and white wood, which produces leaves mostly and very little fruit. Note the great distance the sap travels in both the latter kinds of wood, before it forms leaves and fruit. These poor wood branches are both supported artificially. Note also how the good fruit bud makes a vigorous growth and dominates the whole tree. Nature makes a distinct effort to reproduce the tree by giving dominance to the fruit growth. Conserve the species and make poor wood recessive by not permitting it to reproduce itself—all these messages for pruners are read in this tree.

soon as the young grass is high enough to catch the mower, cut it. But tread very flatfooted when you do so as not to cover the smooth surface with ugly heel marks or torn spots.

If you can roll it before mowing there is less danger of injury. Roll with a light pressure at first and then with a heavier one. One pound of blue grass seed will cover 200 square feet or an area of ten by 20 feet. One pound of clover is enough for an area of one-half more, or 300 square feet. Sow late in March or early in April. If these directions are followed closely a high class lawn is assured.

GARDEN IRRIGATION

Everything in a vegetable garden should be planted in rows, for this arrangement makes easier every operation from seedtime to harvest. In the average home garden the runs of water are seldom too long, but in the commercial field they should never extend beyond 200 feet or the end nearest the supply will get too much and the outer end not enough.

The distance between rows will of course be governed by the kind of crop and the method of cultivation, irrigation being a secondary consideration. If no draft animals are used the rows may be closer together, saving land and water and obtaining a heavier crop per acre. If both land and water are cheaper and more abundant than labor, have the rows far apart and use a horse or horses for cultivation. The steeper the land the shorter should rows be for irrigation, and the smaller the stream used.

Keen judgment is required to determine how often water should be applied for many factors enter, but as a fundamental principle irrigate as little as possible and yet attain maximum results. Nearly all truck crops on flat or level lands are irrigated too much by the amateur grower, especially during the cooler months, for water in the soil lowers its temperature and retards growth by reducing heat and excluding air. It is about the first of May in the average vegetable garden, in normal years, that one should begin to consider irrigation a serious matter. Before that time on well conditioned soil there is enough moisture to germinate seeds and keep the young plants growing, and so long as they grow vigorously do not irrigate but do not allow them to suffer for need of water. Of all garden crops strawberries need most frequent irrigations; in some soils it is necessary every three days during the bearing season.—E. B.

ASPARAGUS CULTURE

Planting may be done any time from the first of the year to April, but early planting is best. A deep sandy loam is preferable if a choice may be had, but any fairly free soil will do. Many growers set the plants in rows four feet apart, and where land is cheap and plenty of it available some plant at six feet, while the home garden is set at three feet. The furrows should be 12 inches deep and the plants set on the bottom, a foot apart. Cover with an inch or two of soil and on top of this put three inches of good stable manure mixed with soil. This is all that is usually done the first season in the field, but the gardener gradually adds soil until the furrows are filled.

Use one year old roots and never allow plants to suffer for water. If planted about January 1 a crop may be picked April 1. Continue cutting until sprouts are too thin for good eating and then allow tops to grow until fall though a spray with powdered sulphur in August is a wise precaution to guard against mildew, rust or red spider. In November cut all stalks and burn them.

Fertilizer may be applied at any time and nothing surpasses in value stable manure. It is generally agreed that February is the best time to fertilize. Salt is used in the row at the rate of one ton to the acre. Kainit to half that amount has also brought good results. A well made asparagus bed or field will yield well for a quarter century if one remembers the plants are gross feeders and applies plenty of plant food.—E. B.

WOMAN SUFFRAGE IN BELGIUM

The Belgian chamber of deputies has passed a bill granting communal suffrage to all citizens, including women. Voting at elections is compulsory.

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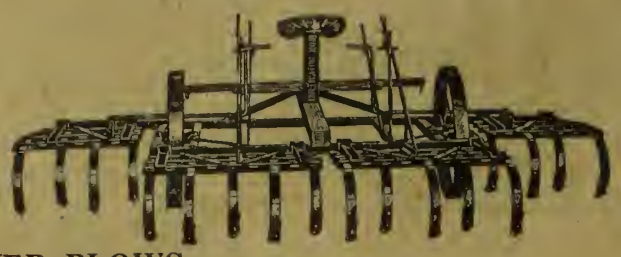

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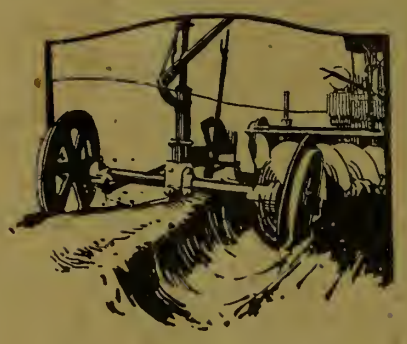

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Use of Explosives

The use of explosives in agricultural practice is becoming more general and we are glad to say that we can secure for inquirers answers to problems which may come up by those who are expert in doing blasting whether for removal of stumps, lifting of hardpan, ditching or other work.

Cut Worms

What can be done to control cut worms in garden?—Subscriber, Acton.

Here is method of procedure given by Mr. de Ong in the California Cultivator of May 24, 1919: "Fat, greasy, naked caterpillars which feed on the stalks of young tender plants. These worms work at night and through the day are found buried an inch or two in the ground just at the base of the last plant fed upon. By scraping away the soil the worm can usually be found and killed. Poisoned bran bait is most effective when they are abundant. For small areas mix four pounds of wheat bran, three ounces of white arsenic, one pint of strong molasses and about three quarts of water or enough to form a crumbly mass. This bait may be scattered around the plants where the cut worms have been feeding or, better still, broadcasted over the plot before planting. Dried lumps of the bait should be gathered and destroyed as this is dangerous to poultry and other animals. Fresh green alfalfa dipped in a solution of arsenic, one ounce to five gallons of water, has given good results when scattered about the garden after night. Finely sliced raw potato dipped in the powdered arsenic is also of value."

Abbreviation in Market Report

Will you please tell me what @ means between two prices in the market reports?—Subscriber, Posey.

Webster's International dictionary says: "@, at or to; as silk @ $2 per yard; flour per bbl. $8.00@$10.50." It is simply an abbreviation which saves an extra letter and a little space in the market reports.

Pruning Olives

What month would you advise pruning olives and what is the latest date at which it should be done? Trees are seven years old and bore a good 1919 crop.—P. K., Hemet.

Pruning may be done at any time after fruit is picked until the new growth starts or even after the new crop is setting, though the latter practice should be avoided if possible.

Spraying Apples

I have about 25 apple trees that were very wormy last year. What would you advise? If spraying is best, when and how many times should it be done? The trees are in good condition, but a few of them have borers.—Subscriber, Gridley.

The best treatment for the borers is to kill by inserting wire and then keeping trunks of the trees covered with a repellant or surface which prevents further inroads. As to spraying for the codling moth we quote from the issue of December 13, 1919: "The best spray is an arsenate, formula for which was given in the spray special of the Cultivator of August 9. It should be applied when the petals are falling from the blossoms, again about ten days later, and again about three weeks later. The number of sprayings and the time of application varies, however, in different sections, but we heard one Los Angeles County grower assert that his apple trees, sprayed as above indicated, gave absolutely 100 per cent worm free fruit."

Spring and Summer Pruning of Apricot Trees

By C. C. Miller

WITHIN a short time now the bloom will be over and the apricot trees will start their vigorous new growth. The general custom has been to allow all the spring and summer growth to continue unchecked and in the winter time put the tree in shape with one operation. In this article the writer will endeavor to give reasons why this practice should be modified to the extent of going through the trees during spring and summer and in a simple manner checking the excessive and useless growth.

While working with trees we should bear in mind that a tree is a living, breathing, sensitive being and is influenced by every outside operation or climatic condition that reaches it, and if the fruit wood low down and in the

center of tho tree is to develop properly for next year it must have room; it must have some direct sunlight and proper air circulation. Nature's way is tho best way, but man has through many generations of cultivation selected the best tree and the best fruit and changed the natural habits of the apricot tree and compelled it to perform as it could not in its native jungle and survive; for this reason and to just that extent we should care for it and correct its eccentricities. To allow a highly selected fruit tree to grow without intelligent care and without correcting its abnormal habits of growth means an early ruin to a valuable tree.

Water and cultivation, fertilization and pruning will this year have a direct influence on next year's crop. Without sufficient water the developing fruit wood suffers first and if shut off from proper amounts of sunlight the fruit buds are not strongly developed. Again, what grower has not gone through an orchard after a light crop followed by excessive wood growth and found valuable fruit wood dead and dried up in the center of the tree? It must be conceded that it will take several years to replace this loss. Besides much tree energy is wasted at pruning time when the excessive sucker growth is taken off.

Just how much excessive sucker growth is detrimental to the fruit bearing activities of the tree has not been settled. The sucker commands its share of crude sap when there is a shortage and sheds its leaves last. This it seems would tend to indicate that the innate inclination of the apricot tree was to reach out and produce new wood growth. Pruning methods should aim to discourage wood growth and stimulate fruit bearing. Some water is drawn from the green fruit to help supply the leaves on a hot day when there is an insufficient water supply. When the fruit is ripening it holds its moisture at the expense of the new wood growth and if the shortage becomes serious the tree may not be able to retain all its leaves. Again in this case the long sucker growths are the last to lose their leaves, indicating that they command their share of the crude sap at the expense of the rest of the tree.

Now supposing that there is a partial defoliation at fruiting time, caused by an insufficient supply of crude sap. After the fruit is picked the suckers recover first and send out new leaf whorls near their points. In other words, they command what sap there is and the hard fruiting wood must wait until a normal condition is again reached before receiving sufficient stimulus to send out new leaves. Many times the hard wood does not send out new leaves and in consequence the fruit buds for the coming year are not properly developed. The same number of blossoms may appear in the spring, but my contention is that without an adequate supply of stored up food from the preceding year the tree is not able to give the young fruit buds the initial boost, so to speak. Not having a good start they are more susceptible to fungus attacks and will not cling to the tree so well under adverse climatic conditions. If useless suckers are removed in the spring before they are a foot long by simply jerking them out clean, the tree may be kept more nearly within its own bounds, roots and tops in balance, as the dry fruiting season approaches. Then at this time when there is the greatest need for an abundant sap supply the roots will be more nearly able to furnish it.

The center of the tree must be kept open to admit some direct sunlight during the day and free circulation of air. The upflowing crude sap, water and the necessary mineral matters in solution has no food value for the tree until it has been elaborated in the leaf, added to and changed in the sunlight. Without proper air circulation the leaves cannot absorb the needed gasses from the air, and without some sunlight the leaves cannot perform their proper functions. The leaves are the tree's food factories, and the power that runs these factories is the energy from the sun. The intelligence that controls the work is the living protoplasm within the green cell. Sunlight controlled by this protoplasm transforms this mixture of carbon dioxide and water and mineral matters into starch and other plant foods, which is redistributed through the inner bark to all parts of the plant where needed. In the fall much of the food is stored and from it the tree derives its energy to put out its blossoms and first leaves and more than likely contributes very materially to the first stage of the fruit growth. Thus we see that if a tree should become defoliated about the middle of the summer this defoliation may have a direct bearing on next year's crop.

It is a known fact and has been demonstrated in experiments with peach trees, whose growth habits are very similar to the apricot, that fruit buds which have had a strong healthy development throughout the year will better resist frost after opening and are much more liable to cling to the tree under adverse climatic conditions. There is a wide field for our university and experiment stations to determine how far we can influence production in unfavorable seasons by building up and conditioning the tree. In the past our pruning methods have been entirely too severe and wasteful of the tree's energy. We must try to conserve that energy and turn it into fruit bearing. We must find some method suitable to different orchards in different localities to hold the tree within reasonable limits and not sacrifice so much wood growth.

A system of checking and controlling new wood growth in one orchard may not necessarily apply to another orchard near by, because of differences in soil and moisture and location. Unless headed back severely old trees do not sucker so badly as younger ones. The safest practice is for the grower to take a row, or a few trees in a block, and try to work out a system peculiarly applicable to his own need. On these trees practice taking off the suckers which are growing down, and on the points of the limbs jerk out all vigorous shoots except one or two which are to be left to continue in the direction of the limb. Remove the suckers in the center of the tree which are liable to crowd fruit wood, but if there is no fruit wood nip off the point of the sucker and it will harden and then throw out branches. Later on in the summer this practice may be repeated and the new wood which was left to extend old branches may be tipped or shortened in to stop their long growth. If this practice is worked out to fit the needs of each individual grower there will be little work to be done in winter pruning.

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Anti-Alien Ownership

TULARE County has felt the need of protecting Tulare County lands and keeping them for American owners. The sales being made to aliens under the pretext of "guardianship" were regarded as violation of California state law. Hence the matter was carried before the courts in a case tried by Judges Wallace and Allen. From judgment rendered and signed by both judges the following review and quotations are made:

"On December 6, 1919, an order was entered in this court requiring Joe Nishida, guardian of said minors, to show cause why his letters of guardianship should not be revoked for his failure and neglect to file an inventory of his wards' estate. In response to this order he appeared in court January 5 and a hearing was had."

The opinion then recites that in the petition of Nishida, to be appointed guardian of the estates of said minors, it is averred that the minors have an estate of 30 acres valued at $8,000; that guardianship papers were issued to Nishida; that Nishida failed to file inventory of estates of his wards and continues: "He reports his possession as guardian of 30 acres of land purchased on behalf of said minors by Marangu Watanabe, the father of one, and Yasue Hiruma the mother of the other on April 28, 1917, under an executory contract.

"It provides that the party of the first part agrees to sell to parties of the second part and the parties of the second part agree to buy in the name of and for the use of said minors in joint tenancy and the survivors of them, the said real property for the sum of $82,000. The contract contains this provision: upon full payment being made, a grant deed shall be executed and delivered to said minors."

The opinion further recites that a total of $8,188.87 has been paid by Nishida on the contract for this land. He has procured no order of the court authorizing him to sell or to purchase or to mortgage or to procure a loan or advance from the Associated Raisin Company. Figures produced in court show that he has received loans on crops of $1,280.

The opinion further recites that contract for the purchase of the real property is very peculiar. It provides that these infants under the age of two years shall have immediate possession of the realty. The parents agree to buy said real property and to pay for it and to pay all taxes and assessments on it. They also agree at all times during the life of the contract to take good and farmer-like care of said property and the vines growing thereon. Notwithstanding this covenant the guardian of his own volition has taken charge of the property, proceeded to develop it and farm it for said minors and made several contracts without any authority from the court.

"It seems to me that this contract was entered into to evade the alien land law which forbids aliens ineligible to citizenship to acquire, possess, enjoy, transmit and inherit real property or any interest therein in this state.

"The manner in which the property has been handled tends to confirm the view that the real purpose of the contract was to effect an evasion of the alien land law. Although it appears that upon final payment the title shall go to the minors, still the parents under their agreement that at all times during the life of the contract they must take good and farmer-like care of said property and the vines growing thereon, gives them the right to occupy it for that purpose even to the exclusion of the guardian. So far as the contract requires any affirmative action on the part of the minors as taking and holding possession of said property on their giving consent to improve the property beyond what is necessary to keep it in good condition or to permit any of the income to be used in payment of the purchase price, the agreement is void under section 33 of the civil code, nor could they prior to the age of eighteen years accept the provisions of a contract made for their benefit relating to real property or any interest therein.

"Section 1773 of the civil code provides that every guardian must return to the court a verified inventory of the estate of his ward within three months after his appointment. He must annually thereafter and at such other times as directed by the court, render a verified account of the estate of his ward. He has done neither of these acts. In addition to these delinquencies he has entered into contracts regarding the property of his wards, made extensive purchases of personal property, borrowed money on the crop produced, invested large sums in planting the property to grapes without having procured any order of court and has also without authority of law used part of the money arising from the sale of the crops to make payments on the purchase price of the real estate. In the contract of purchase, the parties of the second part, Masagi Watanabe and Yasue Hiruma, agree to purchase the land and to pay the whole purchase price therefor. There is no provision in the agreement that any part of the purchase price shall be paid from moneys derived from any sales of any crops produced upon the premises.

"It does not appear that said guardian has offered any legitimate excuse for his failure to comply with the provisions of the law in these many matters and especially for his failure to file an inventory as required and an order will be entered that his letters of guardianship be revoked and that he be removed from the office of guardian of the estates of said minors. An application for the appointment of some other person as guardian in his stead will be considered by the court if reasonably made."

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CANE BERRIES

All berry plants should be in the ground now or in the very near future, so that we are not so much concerned with what or how to plant as with subsequent treatment. It may be as well to remark in passing, however, that thornless berries will probably supplant the older thorny varieties and it is up to some plant breeder to remove the thorns from the better sorts, as the Crandall blackberry and the Cuthbert raspberry. The call has been strong this season for Corey's Thornless, said to be really a thornless Mammoth. The claim is made that pickers will not clean thorny vines as they will the thornless and thus many of the finest berries on the former are lost to the grower.

In Central and Northern California many plantations are not irrigated at all, especially those planted on lowlands. The soil is plowed deeply and thoroughly worked and fertilized before planting and no water is given. During summer cultivation is kept up and hoeing is done to kill the weeds in the rows. In the south irrigation is sometimes frequent and heavy. To show the range in practice, a large shipper at Sebastopol, Sonoma County, with sandy loam soil, moist cool summers and a daily coastal breeze, does not irrigate at all. At San Gabriel, Los Angeles County, on higher ground, with heavy soil, an experienced grower will irrigate every three weeks the first season, to induce heavy cane production, and on older plantings once a month. In fruiting season a weekly irrigation is sometimes practiced.

Supports and Pruning

The runners or trailers like Logan, Mammoth, Himalaya, Corey and Black Cap are trellised. The simplest trellis, in use by one of the most extensive growers, is two wires on posts ten or 12 feet apart and at two and three feet, respectively, above the ground Others place five foot posts with two wires at three and four feet, with a T cross piece to carry four wires. The latter is the most elaborate we have seen on an acreage scale. One commercial grower stretches a single wire for Loganberries, about 18 inches above the ground; still another prunes rather short and ties tips to stakes and these latter were the heaviest croppers to be found.

Raspberries of the Cuthbert type are cut back in autumn to three feet and generally given some support to prevent winds from blowing them over. A single wire a foot above the ground will prove sufficient. Black Cap raspberries of the Cumberland type are favorites with some and with these all old canes should be removed as soon as fruiting season is over. The

younger canes sometimes produce a fall crop and bear next season. Tip pinching is closely practiced by some growers for Black Caps run out too long and produce little fruit. This treatment will prove sufficient pruning, some beginning the pinching on the new growth down near the ground, to make plants bushy. With Loganberries two methods are followed and both bring success. One is to prune to six feet in January. Another is to cut to same length just after fruiting, allow the laterals to grow as they will and cut to one foot in January. This gives a heavy producing plant. With the Mammoth and the more rampant class of vines, cut away all the weaker canes and allow five or six strong ones to remain at ten feet, tying these securely to the trellis. This work may be done at any time from November to February.—E. B.

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GUARD AGAINST SUNBURN

Protection of the young orchard against sunburn is often put off until too late. Young trees should be protected by whitewashing or other means, as soon as they are planted. Older trees should be protected as early in the season as possible. A coat of whitewash is one of the best methods of protection if applied early.

Formula for Whitewash

Quicklime (unslaked lime), 5 pounds; salt, ½ pound; sulphur, ½ pound; water, about 5 gallons.

Slake the lime with hot water, adding the salt and sulphur while it is slaking. When the lime is thoroughly slaked, add water to make about five gallons of whitewash. As lime varies in quality more or less, it is not possible to state the exact amount of water to use, but growers who have used the above proportions have had good results. Try this out first in a small way, and if the proportions seem about right use it on both young and old trees to prevent sunburn. Most bad luck in the use of whitewash comes from making the wash too thick. It should flow freely when used and not be white until after it dries.

Evil Results of Sunburn

Injury from sunburn causes a gumming on the affected part which affords a desirable place for a small beetle to deposit eggs. The larvae, or grubs, which hatch from these eggs are the flatheaded apple tree borer, or sun-borers, and cause the death of many trees.

MORE SEED POTATOES NEEDED

There is a large and persistent demand for good seed potatoes, but practically no supply at this time. The stock to be obtained, to say the best about it, is indifferent and much of it is even unfit for use. Complaints are numerous and rejections of shipments common. In a season of shortage of seed potatoes like the present almost anything will be shipped by many dealers to fill their orders. Nearly all of the California certified seed potato stock was sold before it was harvested. Only the highest praise has been received for this inspected seed and California should produce a much larger supply. It should not be necessary for California to import every year large quantities of seed potatoes, as the greater part of this imported stock is of inferior quality. Everyone growing potatoes for seed purposes, even if only for his own use, should have his fields inspected, as a number of diseases may be present which are seriously injuring his crop without his knowledge. Information regarding the inspection work will be gladly furnished by the state department of agriculture at Sacramento.

KEEPIN FIT

The United States Public Health Service, 228 First St., N. W., Washington, D. C., offers to distribute free its pamphlet, "Keeping Fit," which has to do with the proper care of one's body, athletics and muscular development. All it costs subscribers of the Cultivator is a postcard with name and address written plainly.

OF COURSE

"What makes the new baby at your house cry so much, Tommy?"

"It don't cry so very much," was the indignant reply of Tommy, "and anyway, if all your teeth were out, and your hair off, and your legs so weak you couldn't stand on them, I guess you'd feel like crying too."

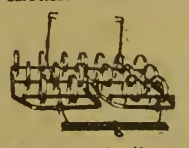
Roderick Lean

For A Perfect Job of Discing

WHEN your discing is finished, what will the verdict be? Can you say--"well sir, there's a real job of discing"--or must you look at work half done?

AUTOMATIC ENGINE DISC
Built in 8, 9 and 10 ft. sizes. An automatic, leverless double disc specially built for tractor use only. Gangs are automatically angled by draft of the tractor without stopping or dismounting.

"NEW CENTURY" ENGINE DISC
Furnished in 5, 6, 7 and 8 ft. sizes for use with lighter tractors. Built extra strong for power use. Operated from tractor seat by two levers within convenient reach. Adjustable hitch suits any standard light tractor.



Spring Tooth Harrow
Has heavy, one-piece angle steel frame with extra runner plates to prevent wear, long spring teeth of special steel, and special adjustable tooth fastening device. Good clearance and light draft.

Steel Lever Spike Harrow
The first steel spike tooth harrow ever built, and the best known and most widely imitated. Every ounce of special steel. Every section surrounded by strong channel steel frame, braced at two corners and center. Cannot twist.

The Roderick Lean New Century Single Disc Harrow gets down deep and does the work right. It pulls easily at an even depth, slicing and pulverizing each clod, stirring and mixing each foot of ground ***for a perfect job of discing.***

This famous farm tool is backed by twenty years' experience in disc harrow building. Built for light draft, yet strong enough for the toughest discing. Notice the special center pressure adjustment operated by foot lever as pictured above. This makes easy the cutting out of dead furrows, ditches and working over hard, uneven ground.

Built in all sizes from 4 to 10 feet, with 16 or 18 inch round discs.

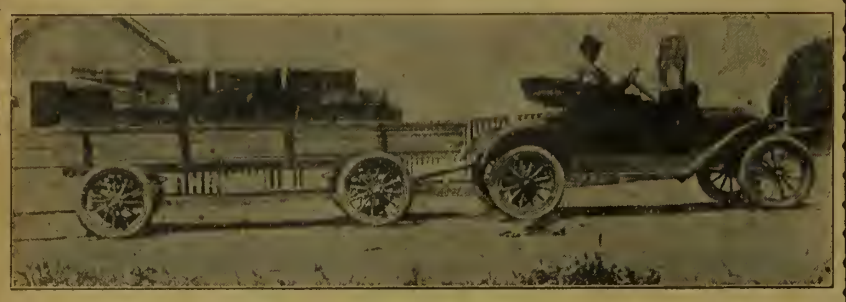
Your dealer will show you this disc. See him, or write direct for complete information.

Roderick Lean Mfg. Co.
Mansfield, Ohio
Builders of the most varied line of harrows in the world, including a complete line of spike and spring tooth harrows.
General Agents:
H. C. Shaw Co.
Stockton, Cal.
B. Hayman Co., Inc.
Los Angeles, Cal.

Pacific Auto Trailer Co.

Manufacturers

Trailers from 700 to 7000 lbs. Capacity



Our trailers are
designed ---right
made ---right
and sold ---right
to Y-O-U

We cut the H.C.L. by eliminating all middle men

Write direct for specifications and prices

Pacific Auto Trailer Co.

1601 E. 12th St. Oakland, California

There will be a Serious

Water Shortage

This Summer

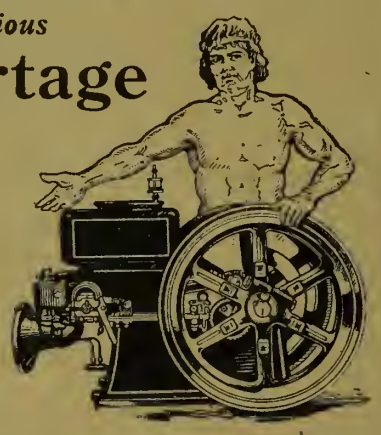
No More Distillate
Electric Power Short

Buy a

HERCULES

KEROSENE ENGINE

and Play Safe



Built in Six Sizes
1½ to 12 h. p.

(Write for Catalogue)

DEALERS—*Some Unoccupied Territory*

SMITH-BOOTH-USHER-CO

SAN FRANCISCO — TAFT — LOS ANGELES

Seedlings

50000 Myrobolan
60000 Almonds
20000 Peach

Suitable for lining out in nursery and budding this season

Wire or Write for Prices

FANCHER CREEK NURSERIES

FRESNO, CALIFORNIA

SAVE THE FERTILITY

The value of green manure for improving fertility is explained in a recent interview with S. P. Clark, extension agronomist of Arizona agricultural college, who is conducting field work with farmers of that state. Mr. Clark states that systematic crop rotation and diversified farming are absolutely necessary to permanent cotton production in any region, however fertile the soil may have been in the beginning. The South with its cheap negro labor was able to produce cotton year after year at an apparent profit, but the soil became in many places almost completely exhausted. The crisis for them came with the boll weevil and they were then forced to adopt a rotation system. Now these same farmers are producing greater incomes than before the boll weevil came.

In producing 500 pounds of short staple lint cotton, the plant removes from the soil the following elements: Lint, 1.70 pounds nitrogen, 0.50 pounds phosphorus, 2.30 pounds potash; seeds and stems, 34.10 pounds nitrogen, 13.85 pounds phosphorus, 12.75 pounds potash; leaves and bolls, 63.95 pounds nitrogen, 24.35 pounds phosphorus, 44.95 pounds potash.

For long staple cotton in Arizona the stems and leaves would undoubtedly yield a higher amount of these fertilizing elements.

From this table it will be noted that practically two-thirds of the plant food elements removed from the soil by the plant are in the leaves, stems and bolls or in the part of the plant that has very little commercial value. It is the practice with a great many cotton farmers to rake up and burn the cotton stalks in order to get them out of the way. It is true that a field cleared of all trash can be worked much easier. But very few farmers realize the value they are losing in plant food elements where they burn cotton stalks. In order to maintain fertility the more organic matter in the form of cotton stalks, straw, spoiled hay and barnyard manure that can be returned to the soil the better.

If plant growth is burned organic matter will have to be supplied by crop rotation in which some legume plant is included and used for green manure. It is necessary to plow under the entire legume plant in order to increase the fertility of the soil. A legume plant secures from the air approximately two-thirds of its nitrogen and one-third from the soil. This proportion will vary somewhat, depending upon the soil.

Where a soil is very rich in organic matter and nitrogen, a legume will secure almost its entire supply of nitrogen from the soil. Where a soil is very poor in nitrogen, the legume will enrich the soil in this respect.

The harvested crop of hay retains about two-thirds of the nitrogen content of the plant, and one-third is retained in the roots. When the crop is harvested and sold off the ranch, the soil gains very little in fertility except from the stems, leaves and stubble that may be left on the field.

One hundred eighty thousand eucalyptus trees are to be set out within the next 30 days near Ontario, San Bernardino County, to counteract the damage occasioned in wind swept areas. The trees have been grown by tbe Chaffey Union high school and the American Beet Sugar Company at a total cost of some $3,600, and are contributed gratis to the farmers in the windswept district who wish to cooperate with the farm bureau in caring for the trees that might be planted adjacent to their property.

A bill has been introduced in the New York legislature to abolish the state farms and markets council, the offices of commissioner of agriculture and of commissioner of foods and markets, and substitute a commissioner of agriculture and markets, to be appointed by the governor at $15,000 a year.

The farmers of Junction City, Oregon, and locality are planning to establish a cooperative warehouse similar to the one that has been operated successfully for the past two or three years by the Grangers Eugene Warehouse Association. It is planned to raise $20,000 for the project.

Pays For His Land With One Crop of Cotton!

Thomas L. Jones, of Calipatria, Northern Imperial Valley, bought 60 acres from this association for $7300. His returns from one crop of cotton were $8550. Net profit, after paying for the land, $1250.

It is not at all unusual for newcomers to pay for Imperial Valley farms the first year, and then continue to make enormous profits, or rent their land for $20 to $50 per acre cash. You can do as well on the marvelously-productive silt lands, with never-failing irrigation water, now offered for only

$90 to $175 per Acre

(On Easy Terms)

This is positively the last big tract of Imperial Valley lands to be subdivided. You must act quickly to share in this great opportunity. Investors realize that THIS IS THE BEST VALUE IN FARM LANDS TO BE HAD IN AMERICA TODAY, and that these lands soon will double—even quadruple—in value.

Enormous Profits From Every Crop

Our lands, including the practically-frostless belt near Niland, are unequalled for Pima cotton, grapefruit, winter vegetables, grapes, cantaloupes, grain, alfalfa, dairying, hog-raising, turkeys, chickens.

Thousands of farmers, who make their homes in the valley, the year 'round, are GROWING RICH. Investigate at once. Fortune positively awaits you in the NILAND-CALIPATRIA DISTRICT, NORTHERN IMPERIAL VALLEY. Ask us to prove it. Send for literature and complete information.

General Sales Agents
Herbert L. Cornish Co.
1010 Van Nuys Bldg.
Los Angeles, Cal.

General Manager
H. H. Clark
In charge of Valley Office
Calipatria Cal.

General Agents for Los Angeles City and County
Janss Inv. Co.
Metropolitan Bld.
Los Angeles, Cal.

Imperial Valley Farm Lands Association, Owners

Thank You

This is the first advertisement we have written this season, and it is only to express appreciation to California planters for calling on us for more than a million fruit trees without solicitation nor advertising.

We value very greatly the confidence extended to us and only regret that we could not serve all who offered us their accounts.

California Nurserymen are taking a great progressive step in the newly formed Nurseryman's Bud Selection Association of California. This association has for its aim the elimination of inferior varieties and strains of all commercial deciduous fruits, and the breeding up by selection of California's most profitable varieties. A thoroughly efficient corps of pomologists will begin this important work this season, so that the buds used this coming summer will be selected only from parent trees showing superior bearing propensities. After several year's work we will be able to establish "pedigrees" for California fruits quite as clearly as is done in purebred livestock.

Prof., L. B. Scott pomologist of U. S. Dept. of Agriculture has been released from his work at Washington to undertake the general management of this new work in California.

Nearly ninty per cent. of the deciduous nursery stock grown in California is now represented in the membership of The Nurseryman's Bud Selection Association. The few nurserymen who have not joined should do so for the good of the future of California Horticulture and Viticulture.

We have the unqualified endorsement of all interests concerned in the future of the fruit industry of the country. Nurserymen who have not yet joined this movement should communicate with Max Crow, Gilroy, Calif., Secretary-Treasurer; or J. E. Bergtholdt, Newcastle, Calif., Acting President.

Fruit growers of this banner fruit district of the world deserve the best that can be produced in nursery stock, and the Nurserymen of California are going to give it to them.

Kirkman Nurseries **Fresno, Cal.**

More Profit From Your Live Stock

IT'S mostly a matter of *digestion* and *health*. Your horses will do more work, your cows give more milk, your pigs grow faster if you give them

Pratts Animal Regulator

It makes their feed go to work, increases the health of your stock, and that means more profit to you. Used by farmers and veterinarians the world over because it pays them. Always sold with this guarantee:

"Your Money Back If YOU Are Not Satisfied"

Sold by 60,000 dealers. There's one near you.

A-3

Write for Pratts New Live Stock Book—Free

PRATT FOOD COMPANY

Philadelphia Chicago Toronto

Makers of Pratts Poultry Regulator, Hog Tonic, Cow Remedy, Dip and Disinfectant, Veterinary Remedies.

Pratts

Better service is assured by the advertiser if when writing you mention the California Cultivator.

To Our Friends, the Dairymen

By R. P. Royce

In the March 5 number of the Dairy and Stock Ranch, appears the following artlcle:

* * *

CULTIVATOR PUBLISHES IT

The "California Cultivator" of Los Angeles carries in a recent lssue the advertisement of "Hebe" with its specious, misleading argument ln favor of that misbegotten "milk" product of the Carnation people of Washlngton.

We are surprised that the "California Cultivator" has touched this advertisement.

"Hebe" is not milk. It is a menace to the legitimate milk industry.

The dairy industry of California will not recognlze "Hebe" as a milk product. The dairy industry will fight it at every turn.

The "Californla Cultivator" expects some of its circulation and some of its advertising to come from dairy people. The "California Cultivator" must know it if it reads its own advertising that "Hebe" is an emulsified mixture of skim milk and cocoanut fat. The "Callfornia Cultivator" must know that the dairy industry will not quietly stand by and see such a hybrid product introduced and sold. The dairy industry is against "oleo" and it places "Hebe" in the same class.

On the page opposite to the one on which "Hebe" is extolled in the "Cultivator" there is a big advertisement from Swift & Co., in which the packers are extolled by Robert J. Kleburg of Texas. The matter is respectfully referred to the California Cattlemen's Association.

Farm papers are supposed to cater to farmers; to defend the interests of farmers; to help try to get a square deal for farmers.

It is no part of the function of farm papers to help spread packer polson and to enlarge on the glories of milk substltutes.

* * *

The Californla Cultlvator feels that no apology need be offered the dalry interests of Callfornia for any pollcy it has followed in the past. This paper has persistently and consistently malntained a friendly attltude toward every movement that it felt would in any way advance the interests and welfare of those engaged in the dairy business, and we can assure our readers that such a policy will be carefully maintalned in the future according as we see the light.

In regard to the matter referred to above we beg leave to say that when the schedule for the advertlsing in question was offered, the writer addressed a letter to Mr. Henderson, president of the Associated Dalrymen of California, inquiring if he knew of any objection to the acceptance of the schedule, provided the copy was honest in fact. The reply from Mr. Henderson follows:

California Cultivator,
210 Ochsner Building,
Sacramento, California.
Gentlemen:

In reply to your letter of December 22, will say that the legislation concerning the Hebe question prohibited all manufacturers of "Hebe" from selling their product in this state unless it was stamped and marked, designating just what it was. As I understood it, the law requires them to advertise it as a substitute for milk. It is my opinion that the dairy interests would not object to your paper taking their ad, provided the advertising copy was honest in fact and made no claims that the product was the equal of milk, but that it was a substitute for milk, and suitable for cooking purposes. If the advertisement set out those facts, I can see no reason why the dairy interests should object to the advertlsing.

Yours very truly,
J. M. Henderson, Jr.

It was felt, by the writer, that Mr. Henderson, being the president of the Associated Dairymen, was in a position to judge accurately the sentiment of the interests he represented. Accordingly the schedule was accepted.

The first indication that came to our attention that the editor of "Dairy and Stock Ranch" had donned his war paint and was on the trall of a paper that carried the copy in question came when he pald his respects to the "Holstein-Friesian World," the leading exponent of that breed. We were struck at the time by the unfair manner in which said respects were pald. Only portions of the copy were quoted which left much to be inferred and imagined. A contemprary was next lambasted, and then our turn came, along with the Holstein-Friesian Regis-ter, which is published by the secretary of the Holstein-Friesian Association.

Now let us examine the facts ln the case: The editor of Dalry and Stock Ranch, standing us in the corner, says: "Hebe is not milk. * * * The California Cultivator must know if it reads its own advertising that Hebe ls an emulsified mixture of skim mllk and cocoanut fat." In this connection, we may say that the very fact that the copy dlstinctly says the product is "labeled with the utmost frankness as to its contents and uses. It is advertised as lt is labeled—honestly and frankly—'A Compound of Evaporated Skimmed Milk and Vegetable Fat,' for cooking and baking." and further: "In the production of every 100 pounds of Hebe 210 pounds of skimmed mllk are used, and 7.8 pounds of cocoanut fat" absolves this paper from any charge that we seek to assist in foistlng across a spurious product. All that we can do is insist that advertisIng that appears in our columns is honest. If such advertising is honest we can not govern the questlon as to whether or not our readers will or wlll not buy. This question of honesty ln advertlsing naturally brings to mlnd the fact that in the February 20 number of "Dairy

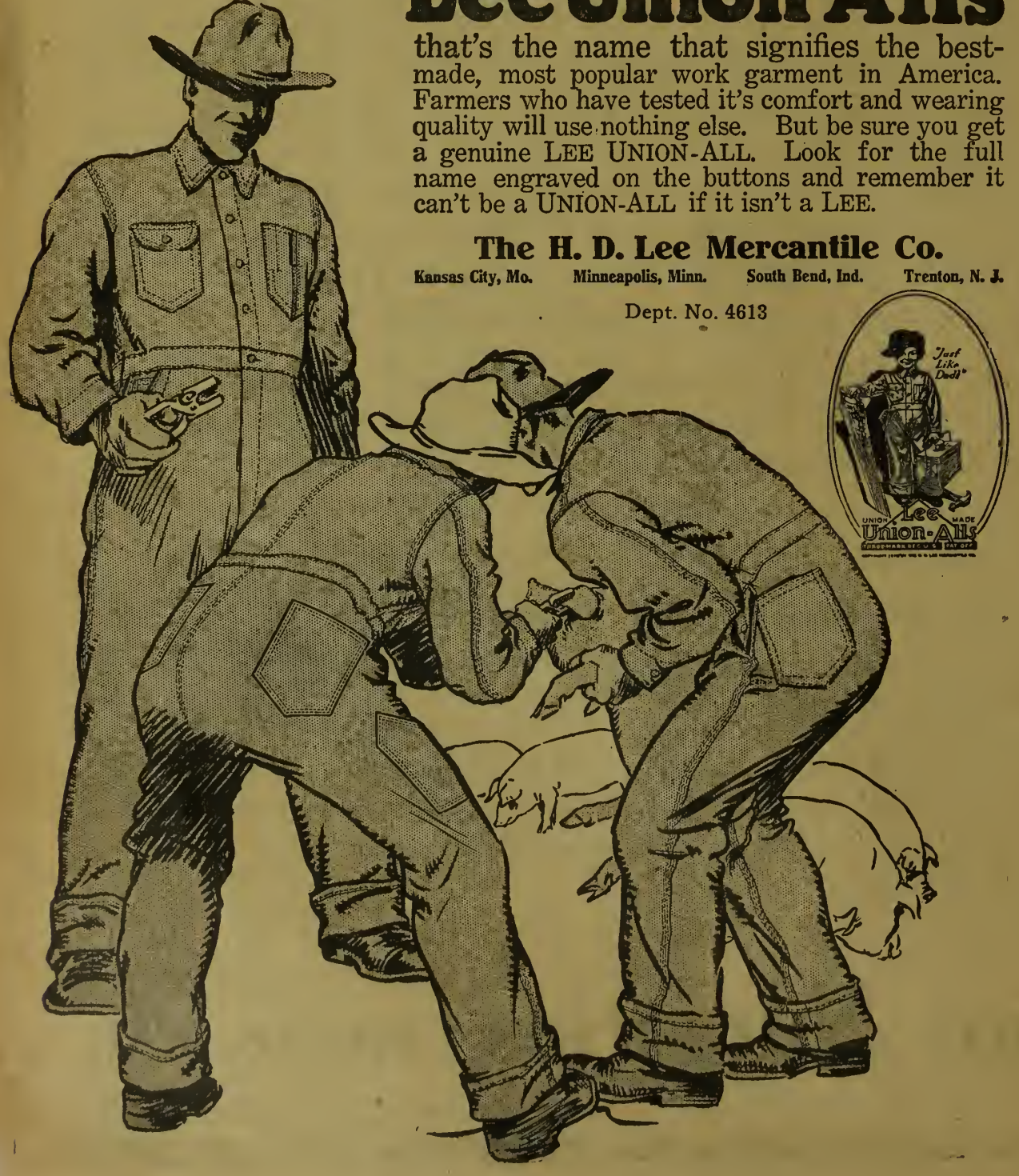
Lee Union-Alls

that's the name that signifies the best-made, most popular work garment in America. Farmers who have tested it's comfort and wearing quality will use nothing else. But be sure you get a genuine LEE UNION-ALL. Look for the full name engraved on the buttons and remember it can't be a UNION-ALL if it isn't a LEE.

The H. D. Lee Mercantile Co.

Kansas City, Mo. Minneapolis, Minn. South Bend, Ind. Trenton, N. J.

Dept. No. 4613



Don't Forget

The Modesto Sale

50

REGISTERED HOLSTEINS

50

A. M. Bibens Ranch
Modesto, Cal.

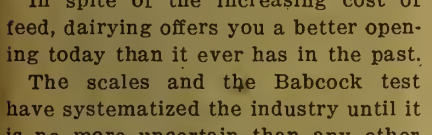
Thursday, March 18, 1920

High record cows, and daughters and sons of high record cows and richly bred sires.

Sale under auspices of

Stanislaus County Holstein Breeders Association

A. M. Bibens, Pres., Modesto.
E. M. Morrow., Sec., Modesto.
Sales Manager,
C. L. Hughes, Sacramento



Stock the Farm with Purebred Holstein Cattle

In spite of the increasing cost of feed, dairying offers you a better opening today than it ever has in the past.

The scales and the Babcock test have systematized the industry until it is no more uncertain than any other business. Even city business men are awakening to its opportunities. Every year it becomes clearer that with large-yield cows, the cost of milk and butter production can be brought down to a point that makes dairying profitable. Have you ever figured out what your farm would be worth to you, if stocked with pure bred Holsteins?

Send for Free Illustrated Booklets

THE HOLSTEIN-FRIESIAN ASSOCIATION
120 Hudson Street
Brattleboro, Vermont.

Quality Holsteins

Our herd is headed by a grandson of the world's greatest dairy cow, Tilly Alcartra,

Sir Aaggie Korndyke Alcartra

whose dam and sire's dam average:
Butter, one year..... 1096.58
Milk, one year.....27316.60
Females and bulls from A. R. O. dams for sale
All animals guaranteed

Leeman & Kilgore, Ripon, Calif.

Brighton Farm Herds

Registered Shorthorns
and
Berkshires---Both Sexes

H. L. & E. H. Murphy

Perkins, Cal.

Build YOUR OWN SILO SAVE HALF

FREIGHT PREPAID. Stronger, safer, better than Silos costing three times our price. 25, 50, 75 and 95 ton sizes at the lowest prices ever made on reliable silos. Our patented construction makes expensive foundations unnecessary. Makes perfect ensilage. Storm Proof. Easily, quickly erected. Strongly endorsed by thousands of users. TERMS IF DESIRED
Write for free illustrated catalog.
JONES SILO CO. 341 Coch Bldg., Kansas City, Mo.

and Stock Ranch" appeared an advertisement with the bold headlines:

"BETTER THAN MILK"

The product advertised was a calf feed, and we wish to submit that there is no preparation for feeding calves that is "better than milk!"

We hold no brief for any product advertised in this paper. We care nothing about the product in question. It may or may not be good. But as long as the advertisement is honest, fair-minded dairymen will not object. We take it that possible competition with dairy produce forms the basis for the extreme feeling expressed by "Dairy and Stock Ranch." If that is the case, and inasmuch as the manufacturers of the product is based on a supply of milk, all that is necessary for the dairymen to do to shut off competition from such a product is to refuse to sell their whole or skim to the manufacturers.

Dairymen must realize by now, if the editor of Dairy and Stock Ranch does not, that they need fear no competition from any manufactured product. The buying public will continue to express preference for the genuine. Dairy interests should furthermore adopt a broader view than many of the leaders entertain. The big problem that confronts the dairy interests of today is not to wage a continued warfare for increased prices for their products, but rather to maintain maximum production through improved methods of dairy management. There are not enough dairy products to go round now. Dairying is not increasing as it should and it will not increase until the industry is made more profitable. But profits will not be reached through increased prices (the consuming public is in no mood to stand for added living costs), but added profits will come through cheapening the cost of production, through the use of well bred bulls, better methods of feeding, and better distribution, such as is afforded by the dairy associations.

The position taken by "Dairy and Stock Ranch" is just as untenable as though the pork producers objected to the use of butter fat for cooking in place of pure leaf lard, or if the beef producers declared war on all papers carrying the advertisement of the National Dairy Council in which the comparative food values of a quart of milk or pound of cheese to a pound of tenderloin steak is made to the detriment of the meat.

As regards the fling taken at this paper because of an advertisement of Swift & Co., and his respectful reference of the fact to the California Cattleman's Association, the innuendo of the editor of "Dairy and Stock Ranch" is uncalled for. Practically every leading farm, livestock and dairy paper in the United States, including "Hoard's Dairyman," from which Editor Scott quoted at length in his outburst against the Cultivator, has carried the Swift advertising.

The Cultivator has only the friendliest feelings toward the dairymen of California and toward "Dairy and Stock Ranch," but we do object to the unfair methods of the editor of that paper.

CATTLEMEN'S DATES CHANGED

Owing to influenza restrictions on public meetings it has been necessary to rearrange the schedule of meetings in the membership campaign of the California Cattlemen's Association. The new schedule is as follows:

March 13, Merced County Cattlemen's Association at Merced.

March 13, Hat Creek Association at Hat Creek, Shasta County.

March 13, Madera County Cattlemen's Association at Oakhurst.

March 20, Tahoe Livestock Association at Nevada City.

March 20, Santa Barbara County Association at Santa Ynez.

March 27, Ventura County Association at Ventura.

April 15, 16, 17, Semi-annual convention at Los Angeles.

April 24, Alameda County Association at Livermore.

May 1, Coarsegold.

CATTLEMEN TO MEET

The semi-annual convention of the California Cattlemen's Association will open in Los Angeles on April 15. A big barbecue has been arranged by the cattlemen for April 17 as the closing event of the convention. Plans are under way to have sales of pure bred cattle in conjunction with the convention.

Our First Consignment
will be in the
GUARANTEE SALE
March 25th

TOSANTOS WALKER PONTIAC
HIS DAM

MISS FILLED KORNDYKE WALKER
Jr. 4 Years, 7 Days, 26.38 Pounds.
HIS SIRE
KING KORNDIKE PONTIAC 20th
TOSANTOS HERD
E. D. BARRY, JR. DAGGETT, CAL.

Sunnyside Farm

where Holsteins and big type Poland Chinas are bred and developed to the highest point of efficiency. A few breeding animals with true characteristics can now be spared. Let us hear at once if you want this kind.

R. F. Guerin Visalia, Cal.

"FEEDFINE" FEEDS

are scientifically compounded in proper proportions for dairy and all livestock feeding, of the following ingredients with the most economical results always in view.

YEAST — A concentrate high in PROTEIN and FAT content, sterilized and predigested.

CANE MOLASSES — The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.

ALFALFA MEAL — Gives body to the ration and supplies the mineral matter which is absolutely essential to all animals.

The greatest known combination for health, strength and productiveness.

YEAST, CANE MOLASSES and ALFALFA

Mason By-Products Co.

No. 2 Pine Street
SAN FRANCISCO

Factory:
Sausalito, Cal.

The Consumption of Beef

At the recent Western Royal Livestock Show at Spokane, Washington, Frank D. Tomson of the American Shorthorn Breeders Association urged the necessity of a campaign in the interests of beef. Mr. Tomson called attention to the activity of the dairy interests in exploiting the products of the dairy. He congratulated the dairy interests upon their enterprise in appealing to the tastes and the economy of the consumers in the interests of dairy products. Mr. Tomson said:

"The Wool Growers Association recently began an 'Eat More Lamb' campaign with very remarkable results. The literature which this association has produced is of a very high and instructive order and of very great value in every household. The results have exceeded the expectations of the sheep producers. In one instance the consumption of lamb, following an active campaign in the Duluth, Minnesota, district, resulted in an increase of lamb consumption from 300 to 1,600 per cent per week. This very fact should cause a careful study, on the part of the beef people, of the possibilities of increasing beef consumption, by wise and energetic campaigning.

"There is menace in the display advertisements of quack doctors and patent medicine dispensers advising against the eating of meat. These scareheads often read: 'Stop Eating Meat,' 'Cut Out the Meat,' 'Meat is Ruining Your Kidneys,' etc., etc. Let beef producers not deceive themselves. These appeals have diverted many millions of dollars from beef consumption but they have not contributed, in the least, to the better health and vigor of those who have been weaned away from the eating of beef.

"What we need is a real campaign of education, employing the assistance of skilled culinary artists that will gain the confidence of the housewives and replace on the menus of tables in this country more frequently the delicate and healthful morsels of beef.

"How often have we observed in the various publications, where a column is conducted in the interests of table economy that numerous substitutes are offered for beef by some so-called expert and this has been so effective that in many towns the attention has been so centered on other food commodities and the so-called cheaper cuts of beef that occasionally round steak, porterhouse and sirloin have sold at the same price, over the same counter. The emphasis has been placed on the high cost of porterhouse and sirloin and forced the call for the round and other cheap cuts with the result as stated, that porterhouse and sirloin have been frequently overlooked, it being assumed that they were out of reach as far as expense was concerned. This merely illustrates that by an intense and persistent campaign, or 'propaganda' if you please, the buying public can be diverted from its choice, although its choice does not involve the greatest expense.

"No doubt such an effort would be welcomed by the consumers and the beef producers would earn the lasting gratitude of the consumers. If such a campaign is undertaken and conducted wisely, we would have no need of looking elsewhere for a market for beef products."

Mr. Tomson said that he had no doubt that the packing interests were agreeable to bearing a generous share of the expense involved and that he believed, further, that the various beef cattle associations would stand an equitable amount. The ease with which a campaign of this sort could be put on renders a longer delay unnecessary and unwarranted.

A resolution was unanimously adopted by the convention, endorsing this suggestion.

MICHELIN
30X3½
The small car is moderately priced because it is a small car—not because poor materials are used in its construction. Maintain its efficiency and economy by using Michelin Tires.
Small size Michelins are made of the same quality materials, by the same careful workmen, in the same modern factory that have made Michelin Ring-shaped Tubes and other Michelin products famous.
Michelin Tire Company, Milltown, N. J.
Other factories: Clermont-Ferrand, France; London, England; Turin, Italy.
Dealers in all parts of the world

NEW MEMBER OF CULTIVATOR STAFF

It is with a great deal of satisfaction that the announcement is made that J. P. Bennett is now a member of the Cultivator's staff. Mr. Bennett is not unknown to a number of livestock breeders of this state. At the 1919 state fair he represented one of the national breed associations. Bennett is a thorough livestock man. He was born and raised on a good Missouri stock farm and his practical experience has been supplemented by courses in the college of agriculture of the University of Missouri. During the past eight or nine years he has been actively engaged in the pure bred hog and cattle business and with his brother has been among the more successful exhibitors at many of the Eastern shows. Bennett has served on the board of directors of two record associations and has officiated as judge at the following shows of importance: Oklahoma state fair, 1916; Nebraska, Kansas and Montana state fairs, 1917; Kansas state fair, Tri-State fair, Memphis, and the International Livestock Exposition, Chicago, 1918. For the past year Mr. Bennett has been engaged in livestock newspaper work in Missouri. He therefore brings to this paper a rich fund of experience and backed by definite accomplishments.

Mr. Bennett will take over the livestock field work and his services are at the disposal of any of our readers.

Bruce S. Bennett (the two Bennetts are not related) resigns about April 1 to take up field work for the Western Berkshire Congress.

The headquarters of J. P. Bennett will be 210 Ochsner Building, Sacramento.

NOTHING NEW

Preserving feed by means of a silo is not new.

Since the days ensilage was stored in a hole in the ground, many types of silos have been used.

All of them have been more or less successful; all of them have had their particular advantages and disadvantages. By carefully noting and correcting these faults without sacrificing the advantages, the Santa Fe Lumber Company, has produced the "Simplex" Silo.

OLD ROMAN PIT SILO

The staves of the "Simplex" are run from Clear Oregon Pine (Douglas Fir) IN ONE PIECE LENGTHS THE HEIGHT OF THE SILO. They do not require splicing, and with heavy tongues and deep grooves, absolutely prevent leakage. The one length staves are a distinctive "Simplex" feature.

The Crissell Tangent Top keeps the "Simplex" in a true circle. It is the only self-adjusting silo brace that has proved its worth by actual performance. It requires no adjustment after the silo has been erected, no matter how much it may be necessary to lossen or tighten the hoops. The Crissell Tangent Top is obtained only on "Simplex" Silos.

It is no longer necessary to point out the necessity of a silo to the man who has stock to feed. The question with him is the kind of silo to buy. The "Simplex" Silo is the result of many years of experience and investigation regarding the needs of the California rancher. Its features were particularly designed to meet those needs. Naturally the "Simplex" Silos must be right.

Your request for more detailed information will receive prompt reply. Mail us the coupon now.

The Doctrine of "Any Old Time"

is a dangerous principle to follow particularly in regard to silage. Corn intended for ensilage should be "put away" when it is in the glaze.

The following table shows why:

Yield per acre	Tasseled July 30	Silked Aug. 9	Milk Aug. 21	Glazed Sept. 7	Ripe Sept. 23
Gross weight	18,045	25,745	32,600	32,295	28,460
Water in crop	16,426	22,666	27,987	25,093	20,542
Dry matter	2,619	3,078	4,643	7,202	7,918
Ash	139.9	201.3	232.2	302.5	364.2
Crude protein	239.8	436.8	478.7	643.9	677.8
Fiber	514.2	872.9	1,262	2,755.9	1,734
N. F. E.	653.9	1,399.3	2,441.3	3,239.8	4,827.6
Crude fat	72.2	167.8	228.9	260	314.3

With a Papec Ensilage Cutter you can make your own silage when the corn is just right, and later refill your silo as the silage settles utilizing what would otherwise be wasted space.

The Papec requires less power to elevate the silage—as a one piece solid semi-steel frame—six fans on the cutting wheel instead of three or four—operates as low as 4 H. P. gasoline engine.

Owning your own silo is not an expensive matter. In fact there is no piece of farm machinery yielding bigger returns on the investment than a Papec Ensilage Cutter.

With Silage at $15.00 a ton you can put a Papec on your farm and it will pay for itself.

SANTA FE LUMBER COMPANY,
16 California St., Dept. A, San Francisco, California.

Please send me folder describing Simplex Silos; also information about Papec Ensilage Cutters.

Name .....

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"Simplex Silos Scientifically Correct"

Santa Fe Lumber Co.

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Economy Stock Powder

will keep your pigs in condition by acting on the liver, kidneys and blood. Will keep the stomach sweet, expel worms, aid digestion and prevent white scours and thumps.

Send for a free sample and our booklet "Economize Your Farm."

Economy Hog and Cattle Powder Co

1016 Hearst Building San Francisco

Have all Breeds of Registered

Draft Stallions and Mammoth Jacks

Shorthorn and Hereford Bulls

Registered and Unregistered.

All Animals Sold Under Guarantee.

Merritt-Bowers Co., TULARE, CALIF.

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

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Cattlemen's Association Notes

Reports from various sections of Northern California to the California Cattlemen's Association indicate that many districts are still suffering greatly from the drouth. The recent rains have been too slight in those districts to relieve the situation. The Sacramento Valley especially requires immediate and heavy rains both for ranges and crops. Strong north winds quickly dried up what little rain fell recently.

The situation for which the association has been preparing is virtually at hand. Cattlemen who up to now merely have been discussing the possible necessity of shipping cattle out of the state are taking definite steps towards that end. Cattlemen who gathered at Davis for the breed sales stated that they would have to ship unless very heavy and continuous rains fell within a few days.

A definite proposal regarding rates has been submitted by the association to the railroads and immediate approval is expected.

The association has suggested to cattlemen that, as far as possible, they ship only steers and endeavor to keep their female stock on such feed as they may have. It is felt that California range cattle are superior in many ways to the cattle of other states and that it would be a great loss if breeding stock left the state permanently.

Further advices received by the association from Texas confirm previous telegrams which said that that state has ample pasture to offer at rates varying from 50 cents to $1 per head per month.

A meeting f cattlemen held at Livermore appointed a committee to make an immediate report on rates, shipping conditions, pasture available, etc. As soon as this committee reports a representative will be sent to make definite contracts for pasturing a large number of cattle. The Livermore producers plan to join in making up carload lots and sharing pasture. David J. Stollery, secretary of the California Cattlemen's Association, speaking of the situation said:

"The entire strength of the California Cattlemen's Association will be placed in support of such movements as that at Livermore. The association, however, will not countenance or support the actions of certain men who are going through the state taking advantage of the drouth situation and buying up cattle at low prices to ship them to Texas under the favorable conditions which the association has created for the benefit of the cattlemen themselves. Cattlemen who can possibly do so are urged, if shipment becomes necessary, to hold to their cattle and make those shipments themselves, combining where necessary to make up train load lots. The association's efforts to relieve the drouth situation should not, and if we can prevent them will not, be used merely for the benefit of men who are willing to take advantage of the cattlemen's needs. We are backing the industry and not a few speculators."

RULES FOR 1920 POLAND CHINA FUTURITIES

Rules governing the Poland China futurity shows for 1920 are now ready for distribution and may be obtained by writing to W. M. McFadden, Secretary, The American Poland China Record Association, 609 Transportation Building, Chicago, Illinois.

The Poland China futurity show, with the $1,020 in cash prizes that it offers at each state fair that is willing to cooperate in putting one on, has become so well known and so popular that but little comment is needed at this time in regard to the show itself.

The 24 state fairs at which the American Poland China Record conducted futurity shows in 1919 covered a spread of territory from Florida on the southwest to Washington in the northwest and from South Carolina to California.

The big money offered and the large number of ribbons for each class, together with the general idea of closing the show to those who fail to nominate early in the spring, has made the futurity show idea very popular, and it is thought that the number of these state futurity shows will be increased this year by the addition of several new ones.

Do not forget that herd nominations should be mailed to the secretary of the American Poland China Record by March 15.

They All Go to the State Farm

A group of Hereford females purchased by Manager Duffy for the Napa State Farm.

To Head a Great Herd

Pacheco Cumberland, the top bull of the Davis sale, sold by Pacheco Cattle Company, Hollister, to A. S. Nichols Company, Sierraville, for $925.

A conference of stockmen will be held today, March 13, at Montague, Siskiyou County, to consider formation of an inter-county organization to market cattle. It is expected that stockmen of Lassen, Siskiyou and Modoc Counties will be joined in this organization by stockmen on the Oregon border.

80-Outstanding Holsteins-80

The Guaranty Sale

State Fair Grounds, Sacramento, Cal.

Thursday, March 25, 1920

Some of the Great Females in Sale

A 35 POUND GRANDDAUGHTER OF KING OF THE PONTIACS, now on yearly test and bred to King Korndyke Pontiac 20th.

A BEAUTIFUL 33 POUND COW that made 30 lbs. as a 4 year old. Will be fresh before sale.

A 33 POUND three quarter sister to Raphaella Johanna Aaggie 3d, the world's record holder for milk in one year under strictly official test. Will be fresh at sale time.

A 33 POUND SECOND CALF, 4 YEAR OLD sister to a 33 pound cow and a 32 pound cow. On yearly test and bred to King Korndyke Pontiac 20th.

A 32 POUND SENIOR 3 YEAR OLD that made over 20,000 lbs. milk and over 750 ibs. butter in one year as a junior 2 year old. Bred to King Korndyke Pontiac 20th.

A 32 POUND COW that has a 30 lb. 4 year old daughter, also in the sale, a 33 lb. 4 year old sister, also in sale, and another 33 lb. sister. Now on yearly test and bred to King Korndyke Pontiac 20th.

A 32 POUND COW that made over 30 lbs. at previous freshening. Now on yearly test and bred to King Korndyke Pontiac 20th.

A 30 POUND daughter of Korndyke Queen De Kol's Prince out of a half sister to Tilly Alcartra. Bred to King Korndyke Pontiac 20th.

A 30 POUND JUNIOR 4 YEAR OLD daughter of a 32 pound cow, bred to Sir Aaggie De Kol Acme 2nd, five of whose seven nearest dams average 1154 lbs. butter in one year.

A 30 POUND daughter of Arcady Pontiac Wayne Hengerveld. Bred to Sir Aaggie De Kol Acme 2nd.

A 30 POUND SENIOR 3 YEAR OLD bred to King Segis Pontiac Jannek.

A 29 POUND great granddaughter of King Segis, still on test and bred to King Segis Pontiac Jannek.

A 28 POUND daughter of King Pontiac Segis Korndyke. Now on strictiy official yearly test and bred to the three times grand champion bull King Segis Alcartra Prilly.

A 28 POUND COW of splendid type, bred to Prince Walker Cornucopia, 36 lb. son of Prince Gelsche Walker.

A 28 POUND granddaughter of Johanna De Colantha Champion, bred to King Korndyke Pontiac.

A 27 POUND COW 4 YEAR OLD with 748 lbs. butter from 17854 lbs. milk in one year as a junior 3 year old. Bred to a 34 lb. grandson of a 1200 lb. 3 year old.

A GREAT 27 POUND COW whose sire is out of a half sister to Tilly Alcartra and whose dam is a half sister to the 37 lb. cow Boweda. Bred to Sir Aaggie De Kol Acme 2nd.

A 27 POUND daughter of Arcady Pontiac Wayne Hengerveld, bred to King Segis Pontiac Jannek.

A 27 POUND granddaughter of Colantha Johanna Lad out of a granddaughter of Sir Skylark Ormsby Hengerveld, bred to the $106,000 bull Carnation King Sylvia.

A LARGE NUMBER OF 25 AND 26 POUND COWS of rich breeding, excellent type, some with yearly records, and bred to outstanding bulls.

A 24 POUND 2 YEAR OLD daughter of Sir Veeman Korndyke Pontiac, bred to King Sadie Vale Idyl Segis, a 35 lb. grandson of King Korndyke Sadie Vale and King of the Pontiacs.

A 23 POUND 2 YEAR OLD daughter of Sir Veeman Korndyke Pontiac, bred to King Sadie Vale Idyl Segis.

A 21 POUND 2 YEAR OLD daughter of King Korndyke Sadie Vale 22nd, bred to a 32 lb. son of King Morco Alcartra.

A WONDERFUL LOT OF 2 YEAR OLDS with records up to 21 lbs. butter in 7 days, most of them now on yearly test and bred to the highest class bulls.

A NUMBER OF RICHLY BRED HEIFERS OF SPLENDID TYPE, now bred to drop their first calves, including daughters of Prince Gelsche Walker, King Mead of Riverside, King Korndyke Pontiac 20th, Sir Veeman Korndyke Pontiac, King Pontiac Netherland Segis 3d, a daughter of a 1000 lb. 4 year old granddaughter of Tilly Alcartra, two daughters of Sir Aaggie De Kol Acme.

You will need to secure a copy of the sale catalog to realize fully the wonderful breeding represented in this sensational offering. Write for a copy today to the sale management.

Holstein history will be made in this sale

The progress and development of the Holstein-Friesian breed has no parallel in Pacific Coast agriculture, and in this offering the contributing breeders have permitted animals to go out of their herds that establish a new mark in quality of public sale offerings in the west.

A golden opportunity for the beginning breeder

Because the breeding of purebred registered Holsteins is founded upon the everlasting foundation of economical production of human food, the business is one worthy of the keenest minds, with positive large financial returns as a reward for good management, and proper investment of capital.
opportunity to sit at one sale ringside and have so many io invest his time and money in registered Holsteins will do well. The demand today is for QUALITY, and the man about tbest foundation breeding animals that is permitted by available to consider that fact. It pays in this age to buy the very
capital and the scope of the breeding plan. for QUALITY. Never before have Pacific Coast buyers had an This offering is essentially one that will meet the demand ndividuals of the Black and White breed of the character of these pass before them for public appraisement. It is an opportunity that holds the very greatest possibilities for the buyer who is determined to own the best.

A brief summary of the animals listed

At the left of this page is a brief list of some of the high class females to be sold. Outside of the eleven 30-35 pound cows, and some of those with records between 27 and 29 pounds butter in 7 days, the list gives no adequate idea of the wonderful lot of young cows in the sale with records from 20 to 25 pounds butter in 7 days, many with good yearly records, nor the really wonderful list of 2 year olds with excellent records and rich backing.
Neither does the list set forth some of the wonderful family groups, such as the 32 pound cow Winifred Hotaling 3d, her 30 pound 4 year old daughter and 33 pound 4 year old sister. Only a detailed list of the entire catalog can reveal the richness of this offering.

Individuality of the offering

A very high degree of approved breed type is characteristic of the animals in this sale. This is only one of the several ways in which this group excels any previous sale herd in the west.

The females are bred to outstanding bulls

Not only are the females to be sold of great desirability and value because of their own high records, their splendid type, and the richness of their breeding, but they are made vastly more promising investment as breeding animals because of the outstanding quality of the bulls to which they are bred. Twenty reference sires appear in the catalog of this sale, and the list embraces a very large percentage of the really top notch sires now in service in the west.

The calves from these matings will be valuable

In many an instance the calves dropped by cows in this sale will be worth more than the dams will sell for, and that statement is made with full realization that the value of many of the cows runs well up into four figures. Practically every one of these calves will be by a herd sire that some good breeder is developing and backing with his best efforts, another fact that may well be taken into consideration by the prospective buyer.

Bulls of good type and rich inheritance

There promise to be some real bull bargains in this sale. An unusual feature of the offering as a whole is the fact that most of the dams have not yet reached mature age and the chances for very substantial increases over present records are good and will put dollars into the pockets of those who are fortunate enough to buy in this sale. The following is a brief outline of the bull offering:

A SHOW BULL with an average of 934 lbs. butter in one year for five of his 7 nearest dams.

A GREAT YOUNGSTER by a son of a 31 lb. 2 year old, out of a 23 lb. junior 2 year old now making a large yearly record, second dam a 31 lb. cow that made over 30 lbs. as a 4 year old and over 800 lbs. in one year, third dam a 30 lb. cow that made 1129 lbs. butter in one year.

A SON OF KING KORNDYE PONTIAC 20TH out of a 32 lb. 3 year old that made over 20000 lbs. milk and over 750 lbs. butter in one year as a junior 2 year old.

A SON OF KING SEGIS ALCARTRA PRILLY, the three times grand champion bull, out of a 33 lb. daughter of a 37 lb. son of King of the Pontiacs. His first 11 dams average 30.54 lbs. butter in 7 days and he is a wonderful individual.

A HIGH CLASS YOUNG BULL by a son of a 36 lb. 3 year old that made over 1200 lbs. butter in one year, out of a 31 lb. 2 year old granddaughter of Aaggie Cornucopia Johanna Lad.

A SON OF KING PONTIAC NETHERLAND SEGIS 3D out of a 28 lb. cow that has a 25 lb. 3 year old daughter and a 17 lb. 2 year old daughter.

A SON OF PRINCE WALKER CORNUCOPIA, out of a yearly record daughter of an 1117 lb. cow. The dam's record will be completed by sale date.

A SON OF KING KORNDYKE PONTIAC 20TH out of a 26 lb. 4 year old daughter of Prince Gelsche Walker and a 29 lb. daughter of Korndyke Queen De Kol's Prince. A white bull of excellent type and out of a dam that is most promising for a very large record.

A SON OF KING ORMSBY CANARY JOHANNA, who is a 34 lb. son of Sir Pietertje Ormsby Mercedes, out of a 19 lb. junior 3 year old whose dam is a 32 lb. granddaughter of Colantha Johanna Lad. An excellent individual of most popular breeding, the first grandson of Sir Pietertje Ormsby Mercedes ever offered at public sale in California.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to 60 day retest by the buyer

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J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, California
Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare

IMPORTANT—Owing to crowded condition of hotels throughout the country, those planning to attend this sale are urgently requested to make early reservations at the Sacramento hotels. Sale Headquarters will be at Travelers Hotel, Sacramento. Other hotels in the city are Sacramento Hotel, Hotel Clunie, Capital Hotel, Golden Eagle Hotel, Hotel Sutter, Hotel Land, Regis Hotel.

Santa Anita Rancho

Contributes to

The Guaranty Sale

Sacramento

March 25

1—A daughter of Lady Hiske Walker, 34 lbs. 4 year old daughter of Prince Gelsche Walker, who is also dam of Sir Aaggie Hiske Walker, the bull calf that sold for $2,400 last March. Bred to Prince Walker Cornucopia.

2—A daughter of a cow that made over 1,100 lbs. butter in one year. She herself has a good 305 day record and is bred to Prince Walker Cornucopia.

3—A splendid daughter of Prince Gelsche Walker, bred to Prince Walker Cornucopia.

4—A son of Prince Walker Cornucopia out of a yearly record dam, record dam and an 1,100 pound cow. A high class individual, well grown and well marked.

This is a choice group of young, well bred Holsteins that we feel will prove entirely satisfactory and profitable to their purchasers.

Santa Anita Rancho

Anita M. Baldwin,
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The **E-Z Rider Spring Seat Attachment** positively stops that jolting and rough riding. No alterations, no holes to bore, quickly attached. Satisfaction guaranteed. AGENTS WANTED everywhere, who can give all or a considerable part of their time. Write me for particulars.

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Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 18, Modesto.

March 25, Guaranty Sale, Sacramento.

April 20, Bonita Stock Farm, Lodi.

April 23-24, Southern California Consignment, Los Angeles.

April 28, W. J. Higdon, Tulare.

April 29, R. C. Sturgeon and others, Tulare.

May 12, Leeman & Kilgore, Dispersal, Ripon.

March 30-April 1, Central Shorthorn Breeders Association Show and Sale, Kansas City.

Poland Chinas

March 13, Haag & Bernstein, Hanford.

April 3, Kings County Pig Club sale, Hanford.

April 24, W. T. Dice and Harrold Waltz, Hanford.

Shropshire Sheep

April 17, Butte City Ranch, Butte City.

R. C. Sturgeon, Tulare, reports that the senior three year old Holstein heifer Sadie Maid Pontiac Segis has just finished test, making 24.28 pounds butter in seven days. Recent sales include bull to Alvin Oustlund, Tulare.

W. L. Choisser, Riverdale, has recently sold to Chas. Adams, Burrell, two Poland China sow pigs by Vaughn Jones and litter mates to the two sold in the last Fresno sale for $280.

Anchorage Farm, Orland, recently sold the Modoc Land and Livestock Company 50 bred gilts to which have just been added two gilts from their reserve herd and a boar and sow pig from the first litter by the grand champion boar Natomas Baron Duke. Miss Hardy, manager of the farm, states that the choice pigs of the spring litters are priced at $100 each.

It is the plan of the Mills Berkshire Farm, Hamilton City, to reduce their present herd of 125 sows to about 50. A few bred gilts will be sold this spring and a bred sow and gilt sale held some time during the summer. It is their idea to maintain in the future about 50 sows selected for size, type and prolificacy.

Senator Leavitt, Willows, who owns Packer Bend Farm near Butte City, is rapidly rounding up the farm in shape for more extensive livestock operations. He began founding a herd of Berkshire swine about two years ago, securing foundation stock from Butte City Ranch. Early in the year he secured from Anchorage Farm, Orland, Anchorage Leader 30th, by Star Leader, as senior berd boar, and at the last Berkshire Congress sale he secured a promising young boar in Escalon Artful Leader, by Big Leader, a son of Grand Leader 2nd. A number of sows were purchased at the same sale as well as the Muddux sale. A show herd of young animals will probably be seen at the fall shows.

The annual sale of the Butte City Ranch, of Butte City, scheduled for April 17, has been postponed until some time in August. Mr. Guilford reports that business has been very brisk. Among recent sales made were 20 yearling Shropshire rams at a very good price. The herds and flocks are in good condition and everything points to a busy and prosperous season. The show herds will soon be in course of fitting and should be the cause of some little competition at the leading shows during the coming season. Mention of the August sale will be made as soon as Mr. Guilford decides on the date.

The Anita M. Baldwin Santa Anita Rancho is fitting some great stuff for the Guaranty Sale to be held in Sacramento, March 25. The headquarters of the ranch is now near the old Baldwin residence, the offices in the Washington Building, Third and Spring Streets, Los Angeles, having been discontinued. The Holsteins on the ranch are now in charge of Earl Sturgis, but the direct management of the ranch is now in the hands of Mrs. Baldwin.

William Carruthers of Carruthers Farm, Live Oak, is very busy getting his equipment on his new place in shape to handle his good herds. Among the Shorthorns are some outstanding calves and yearlings by Count Glory. Especial mention is due a five months old roan bull that Carruthers considers just about the greatest calf he has ever bred. He and two roan yearling heifers are good enough to cause some rival showman some little trouble at any state fair in the country. The new home is a beautiful location where the facilities are excellent for maintaining the good herds of Shorthorns and Bershires the Carruthers Farm has been noted for.

Harry L. Redd who has been in charge of the W. J. Higdon herd of Holsteins writes that he is to be associated with E. D. Barry, Jr., owner of the Tosantos Holstein herd, Daggett. Redd is regarded as one of the most successful herdsmen in the West and has a long string of splendid records to his credit. Redd handled Ruby Pietertje of Forest Hill 2d, whose senior four year old record of 39.74 pounds butter placed her at the top of the Pacific Coast cows and whose 30 day official record of 162.11 pounds butter from 3,134.9 pounds milk is the third highest in class. The Tosantos herd includes much excellent material and Redd ventures the prediction this herd will be heard from in a very emphatic manner.

W. F. Sandercock, Berkshire breeder of Sacramento, has purchased from a Kansas breeder a sow that is a litter mate to his former herd boar, Baron Duke 201st, grand champion at the 1917 National Swine Show. Sandercock has sent his new purchase to Anchorage Farm, Orland, to be bred to Natomas Baron Duke, grand champion at the 1919 state fair and the San Francisco show, and a son of Baron Duke 201st.

V. F. Dolcini, Davis, reports the sale of a September Duroc boar pig to the Hollow Hill Ranch, Colton. The boar was sired by Great Wonder's Model 3d, a son of Great Wonder.

Three hundred and five head of Shorthorn bulls and females were sold in the third Shorthorn Congress sale for a total of $292,200, an average of $958. The 95 bulls averaged $719 and the 210 females averaged $1,065. The bull Marmion made the top, selling to a South Dakota buyer for $8,000. Gainford Jilt, a daughter of Gainford Champion, topped the female division at $3,500. A feature of the sale was the number taken by South American buyers.

At a recent sale of Hampshire hogs, held in Iowa, 53 head averaged $656. The boar Lookout Longfellow 2d, sold to a Georgia buyer for $5000 and the top sow was sold for $2,800.

The Monroeville Orchards, Monroevlile, which, in addition to their extensive orchards, maintain one of the largest herds of Berkshire swine to be

VERAMONT HEREFORD BULLS

VERAMONT HEREFORDS scored $975 top and $537.50 average for 8 head at our Davis Sale. Prince Patrician, the top, and three others sired by Patrician 5th.

This splendid grandson of Paragon 12th and Lord Erling is proving a wonderful breeder. Watch his get at future sales and shows. A few more bulls for sale. Address:

H. M. BARNGROVER, Santa Clara, Calif.

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PRICES DORMANT JOINTS:
Per doz.—$1.00, postpaid. 100—$4.00, postpaid.
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Complete Catalog Now Ready. Write

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Milks Correctly with Alternating Action

Universal Teat Cup

Universal natural milker

Alternates, Like Milking With Hands

The Universal Natural Milker enables thousands of farmers to add hours to the day for other duties—and to put extra profits into the bank.

Why not you?

Two times a day, every day, Universal is on the job saving time.

Cows like its gentle alternating action and the farmer gets more milk as the direct result. That means MORE PROFITS.

Almost any child can operate the Universal.

Its alternating action milks two teats at a time, while gently massaging the other two as they refill.

The Universal rubber-lined teat cup fits any cow and is easily cleaned and kept sanitary.

At a very small first cost this saving begins.

WRITE FOR CATALOG which tells you all about this time, labor, and money-saver.

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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

found in the state, are planning now to have out a complete show herd this fall. In addition to the show animals, especial attention will be given the fat barrow classes including the carload classes. Superintendent Fetzer has these operations in charge.

H. P. Slocum and Son, breeders of Duroc-Jersey swine, are now nicely located on their new ranch a few miles north of Willows. This is a far better location than their previous place as it borders the state highway for nearly a mile, has plenty of shade and about 80 acres of alfalfa. About 40 acres of this is being cut up in small lots on which will be grown the spring litters. Sales have reduced this herd to a minimum with the exception of a number of bred gilts and no doubt these will be moved in the near future. The show herd for this year will be segregated soon and especial care given these animals which include a number of high class prospects in the younger classes.

HOT STUFF FROM THE FARMERS UNION

The Farmers Union located at Sylvan, Stanislaus County, is after a gentleman by the name of Webb with a sharp stick. They say:

"Whereas, the attorney general of the state of California has seen fit to grant his permission to certain citizens of the state to bring suit against the Associated Dairymen of California, Inc., and other dairymen's associations in California for the purpose of dissolving the said dairymen's associations because the said dairymen saw fit to organize for the purpose of protecting their property and securing, by organization, a living profit from their labor and investment; and

"Whereas, this decision vitally affects all farmers and farmers' cooperative associations; and

"Whereas, unless the dairyman and the farmer are enabled to secure a fair and living return for their labors and investment, as are commercial and labor organizations, they will be forced to curtail their production, which means increased prices.

"Now, therefore, be it resolved, that the Sylvan Farmers Union, Local No. 158, at this regular monthly meeting on March 1, 1920, publicly condemns the said action of the attorney general in giving his consent to such a suit.

"Be it further resolved, that it is the opinion of this local that any action which is taken to dissolve the said dairymen's associations will cause a reduction of the milk supply, which necessarily means higher prices and greater hardship on the consumer.

"Be it further resolved, that we, the members of the said Sylvan Farmers Union, Local No. 158, emphatically protest against the proposed action against the dairymen and ask the cooperation of all farmers of the state to get behind the dairymen at this time and help to combat the advances which appear to be being made through the attorney general by the greed of commercial and political interests.—Sylvan Farmers Union, Local No. 158—W. M. Sprowl, president; Mrs. C. E. Whitmore, secretary."

HEAVY CONSUMPTION OF WOOL DURING JANUARY

The present year promises to establish a record for wool consumption if the amount consumed in January is an indication. According to figures released today by the bureau of markets, 72,700,000 pounds of virgin wool, grease equivalent, were consumed by manufacturers in the United States in January, compared with 38,200,000 pounds for the corresponding month in 1919 and 65,100,000 pounds in January, 1918.

The amount consumed was more than the monthly average for either 1918 or 1919 and higher than any month since May, 1918. The largest percentage of wool used was fine, which has a high grease content and is, no doubt, partially responsible for these high figures. At the same time it continues to reflect the public's insistence for fabrics composed of fine wools, the consumption of fine wool being the largest reported for any month since the inauguration of the monthly wool consumption report by the bureau of markets.

The Northwest Milk Dealers Association and the Pacific Northwest Association of Dairy and Milk Inspectors recently met in annual session at Portland. Delegates were present from all the Northwestern states. Both conventions will be held next year at Seattle.

Get Bigger Returns
Your Stock Need Help—
It's freshening, farrowing and plowing time. Get maximum returns in work, growth and production. Tone up the animals' systems, rid them of worms, condition them for the big season ahead.
Put Your Stock in Tip-Top Shape
with Dr. LeGear's Stock Powders
Bigger, better gains from packer stuff; better milk yield from your cows; better condition of draft stock inevitably result from the use of this remedy. For twenty-seven years Dr. LeGear has used his own prescriptions in his work as a practising graduate veterinarian.
Dr. LeGear's Stock Powders are sold on a money back guarantee that results will satisfy you. Your dealer is authorized to refund your money if they do not do all that is claimed for them. See your dealer today—get a package—always keep a supply on hand. Sold by over 40,000 dealers, never by peddlers. Send 10c today for Dr. LeGear's Stock and Poultry Book, 128 pages.
Dr. L. D. LeGear Medicine Co.
702 Howard Street St. Louis, Mo.
DR. LEGEAR'S
Dr. LeGear's Stock Powders
TRADE MARK

SENIOR SIRE

Sir Pietertje Ormsby Mercedes 43rd

a son of

Aaggie Wayne Peep

with

A record unequalled by any cow of any breed—4992 Butter, 110,000 lbs. of Milk in 5 years, covering her entire life. Her transmitting ability is demonstrated by her two daughters, both full sisters to 43d. These heifers have both above 26 lbs. and year's records of 800 lbs. Butter and over 18,000 lbs. of Milk.

SIR PIETERTJE ORMSBY MERCEDES 43d is by a sire with more thousand-lb. daughters than any other bull.

At Your Own Price

Bred to These Wonderful Bulls

Ten Head

consigned to the

Guaranty Sale, Sacramento, March 25

by

Toyon Farm A'ssn

Farm: Los Altos, Cal.

Office: Mills Bldg., San Francisco

also a Bull of Exceptional Merit

Toyon Model Hartog

JUNIOR SIRE

Sir Aaggie Mead

a son of

Aralia DeKol Mead

who

is a brilliant example of uniform and persistent production. She has produced in 365 days, under strictly official test, 1215.20 lbs. butter and 23,044.70 lbs. milk. Her transmitting powers are shown by her daughters, one as a 2-year-old made 922 lbs. butter, the other as a junior 2-year-old made 851 lbs. butter, both in one year.

SIR AAGGIE MEAD is sired by a son of Aaggie Acme of Riverside 2d. His 3 nearest dams have produced over 2,000 lbs. butter in 2 consecutive years, averaging over 2,200 lbs. Five of his 7 nearest dams average 1,177 lbs. butter in one year.

VON HEIM AAGGIE HARTOG

COLONY WADMANTJE AAGGIE

Aaggie Cornucopia Newman 11 A. R. O. daughters

Aaggie Corn. Crown De Kol I 8 A. R. O. daughters

Margie Newman Butter 30 dys 131.19

Wadmantje Canary Butter 90 days 340.00

Sir Canary Mechthilde 37 A. R. O. daughters

Wadmantje Queen De Kol 2d

VON HEIM MARY HARTOG
Butter 7 days at 2½ yrs., 31.29
Butter 8 mos. after calving, 13.08

Colantha Sir Hartog 2 A. R. O. daughters

Aaggie Cornucopia Johanna Lad 106 A. R. O. daughters

Dutchland Hartog Butter 7 days 29.69

Jacoba Hartog Canary De Kol Butter 7 days at 8½ yrs. 18.53

Canary Mercedes Alban 35 A. R. O. daughters

Jacoba Hartog De Kol Irmina

KORNDYKE MODEL HARTOG 3d
304 days at 2 yrs. 709.72 lbs. butter. Not reported.

CHIMACUM SPRING FARM KING PONTIAC

Spring Farm King Pontiac 37 A. R. O. daughters

King of the Pontiacs 241 A. R. O. daughters

Tweed White Lady Butter 1 yr. 1127.85

Princess Pontiac Frenesta Burke Butter 1 yr. 693.15

King Pontiac Pietertje Princess 27 A. R. O. daughters

Cora Frenesta Burke Butter 7 dys at 6 yrs. 22.34

KORNDYKE MODEL HARTOG
Butter 305 days at 4 yrs., 872.85

Sir Korndyke Pietertje Hartog 21 A. R. O. daughters

Sir Rag-Apple Korndyke 31 A. R. O. daughters

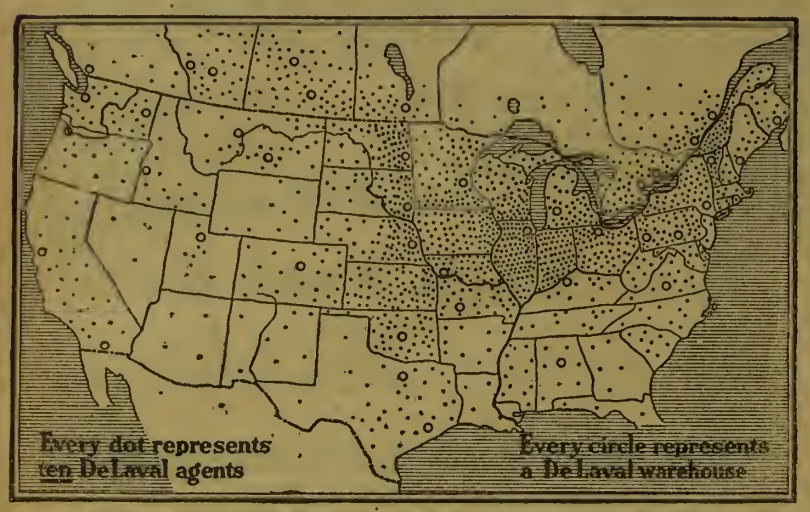
Mabel Pietertje Hartog 2nd Butter 30 dys. 9051

Ava Model Hengerveld 2nd Butter 365 days at 6½ yrs. 1129.20

Highlawn Ondinus 22 A. R. O daughters

Ava Model Hengerveld

DeLaval Service
Covers the Continent



This map shows how completely the service of the De Laval organization reaches every community

Every separator user realizes the importance of having his separator in use every day. Delays waiting for parts, with a separator out of use, mean great inconvenience and loss of product.

Every dot on the map represents ten De Laval agents, and every De Laval agent is individually trained to assist his customers in setting up and operating their machines, to furnish and put in place repair parts, and to insure prompt service and satisfaction to De Laval users.

Not only is the De Laval Cream Separator superior in all points of separator efficiency, but every user of a De Laval is assured of prompt and competent service for all the years to come.

It is therefore not surprising that there are more De Laval Separators in use than all other makes combined. Now is a good time to begin saving time and product by securing a De Laval.

The nearest De Laval agent will be glad to demonstrate a De Laval. If you do not know his name, write to nearest De Laval office

The De Laval Separator Co.

165 Broadway NEW YORK | 29 East Madison Street CHICAGO | 61 Beale Street SAN FRANCISCO

50,000 Branches and Local Agencies the World Over

CENTRAL
Shorthorn Breeders Association
SHOW AND SALE

Kansas City, Missouri

March 30th to April 1st

SHOW on Tuesday, SALE on Wednesday and Thursday

80 BULLS---80 FEMALES

HERD BULLS will be consigned from the best herds in the territory served by this Association. This will be a rare opportunity to secure bulls of the best of breeding, quality and type to be placed at the head of registered herds.

NOTE—The Central Association sales have always offered the leading opportunity of the year to secure bulls in carload lots. This will be no exception.

FEMALES A large number of SCOTCH cows and heifers will be offered—several cows with calves at foot by and rebred to sires that have acquired a broad reputation. Bred and open heifers, also a few calves suitable for calf clubs, will be presented in such numbers that breeders may look forward to securing full carload lots.

Under the Management of W. A. Cochel, American Shorthorn Breeders Association.

Catalogs can be secured of

John A. Forsythe, Sec., Pleasant Hill, Mo.

Auctioneers—Gross, Burgess and Dawson

The Cultivator Costs Only $1.00 Per Year

Be Prompt With Certificates and Transfer

During the last few months there have been a good many complaints from purchasers of pure bred breeding stock that the sellers have been very slow in sending the necessary registration certificates and proper transfers. Generally speaking, most breeders attend to those essential details with commendable promptness but the few who are lax in the matter tend to cast a reflection on the careful sellers that is not justified.

Properly recorded registration certificates constitute the only recognized record that the breeding of an animal is of pure strains and a properly filled out transfer establishes the ownership of the animal. When one buys an animal for breeding purposes he does so because he wants a pure bred animal and knows the increased value attached to such animals. Until he receives the certificate of registry, he has no tangible evidence that he owns a pure bred, and until he receives the signed transfer, he cannot establish ownership and therefore cannot register any offspring.

The prompt furnishing of the necessary "papers" is just as important in the pure bred business as is the deed and abstract to real property.

Usually the delay on the part of the seller is not through any desire to inconvenience the buyer but is due to the lack of system employed by the breeder. Breeders very often put off registering their young things until they are sold. Occasionally the breeder, who is adding to his herd from time to time, overlooks getting the certificates and transfers himself and is not reminded of the oversight until such a time as he may resell his purchase or the produce of his purchase.

All breeders should make it a point to keep their herd records up to date. Care should be taken to gain possession of all papers upon purchase of additional stock. All papers referring to the breeding of the herd or flock should be kept together and accessible. Service dates and births should be recorded. Young stock to be retained or sold for breeding purposes should be registered with as little delay as possible, then when sales are made the purchaser can be handed all papers within a short time after the sale. By following such practice, the breeder can transact his business with greater ease and the buyer, noting such systematic methods, will accord the breeder greater respect and will take pains to speak a good word for the herd—a point well worth considering.

Wouldn't you, Mr. Breeder, rather have it commonly remarked, "When you buy from So and So you can depend on a prompt receipt of certificates and transfers," rather than have former customers advertise the fact "Maybe So and So's stock is all right, but you never can tell when you will get the papers"?—R. P. R.

Kings County Dairy Cow Production Contest

County Agent Wallace Sullivan of Kings County writes that the county farm bureau dairy department cow testing division is testing 900 cows and that all will be enrolled in the production contest. Following are the contest rules:

All owners of herds in this competition must be regular members of the Kings County farm bureau cow testing association, paid up six months in advance.

All records must be kept by the tester employed by the dairy department of the farm bureau and must be kept in herd books furnished by him.

The contest will begin April 1, 1920, and close March 1, 1921. The records will be on ten months' lactation period.

A herd will consist of all cows owned by one man or company that are under test. If for any reason a member desires to drop one or more cows from his testing herd, he may do so subject to the committee.

Under no condition will a cow be dropped that has been tested for six months or more.

At close of contest each herd book will be summarized by the committee in charge and a report of the winners in each class will be rendered to the director of the dairy department who will award the prizes.

Prizes will be awarded:

Herds Contest

Class A, herds ranging 5-20 cows, first, silver cup.

Class B, herds ranging 21-50 cows, first, silver cup.

Class C, herds ranging over 50 cows, first, silver cup.

Class D, groups of five; best five cows in Class A in any one herd, silver medal; best five cows in Class B in any one herd, silver medal; best five cows in Class C in any one herd, silver medal.

Class E, best cow in Class A, silver medal; best cow in Class B, silver medal; best cow in Class C, silver medal.

Class F, grand prizes. Best five cows in any one herd in association, gold medal; second best five cows in any one herd, pennant; third best five cows in any one herd, pennant. Best cow in herd, gold medal; second best cow in any herd, pennant; third best cow in any herd, pennant.

Class G, special prizes: Best record for first calf, heifer, pennant; second best records for first calf, heifer, pennant.

Reasons for Making Dairy Records

The New York state college of agriculture offers the following nine reasons for making dairy records:

1. They enable the dairyman to feed each cow according to the quantity of milk she produces.
2. They form the only basis on which a dairy herd can be improved. The time is here when no dairyman will buy a herd bull whose dam does not have an authentic record, showing creditable milk and butter fat production.
3. Records alone will sell cows when no other quality will. Grade cows with records can be sold for from 25 to 50 per cent more than those without records.
4. A system of records is the first step in building up a herd. The unprofitable cows are the most expensive. Their heifer calves are usually low producers, and should not be raised.
5. Records stimulate better feeding and breeding. The dairyman who feeds a balanced ration, becomes interested in winter dairying, which has numerous advantages over breeding cows to freshen in the spring.
6. The weighing of the feed and milk keeps the owner in close touch with the daily condition of each cow.
7. Records stimulate better milking. Milk scales serve as a check on the milker, and induce him to milk the cows more thoroughly than when the milk is not weighed.
8. A knowledge of what each animal is doing develops personal pride and interest in the herd.
9. Finally, records make dairying a business proposition, and in various incidental ways mean more to the man who milks.

HOW TO CONTROL HOG MANGE

Hog mange is spread mainly by direct bodily contact, according to investigations recently conducted by the United States department of agriculture. The disease is contracted most rapidly among hogs of low vitality, especially those kept in small inclosures. It spreads more slowly among vigorous animals kept in pastures or in clean, well lighted, roomy pens or buildings. Failure by swine owners to control hog mange results in heavy losses from shrinkage as well as from a high death rate. The department states that the disease can be eradicated by four dippings in a lime-sulphur or arsenical solution with intervals of six or seven days between dippings.

THE BEST LINIMENT
OR PAIN KILLER FOR THE HUMAN BODY
Gombault's
Caustic Balsam
IT HAS NO EQUAL

For the Human Body — It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Boils, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

A Perfectly Safe and Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Strains, Lumbago, Sore Lungs, Rheumatism and all Stiff Joints

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. BEYER.

Price $1.75 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet K.

The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

THICK, SWOLLEN GLANDS

that make a horse Wheeze, Roar, have Thick Wind or Choke-down, can be reduced with

ABSORBINE

also other Bunches or Swellings. No blister, no hair gone, and horse kept at work. Economical—only a few drops required at an application. $2.50 per bottle delivered. Book 3 R free. ABSORBINE, JR., the antiseptic liniment for mankind, reduces Cysts, Wens, Painful, Swollen Veins and Ulcers. $1.25 a bottle at dealers or delivered. Book "Evidence" free.

W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

GUERNSEYS

$546 was the Average Price paid for all Guernseys sold at public auction in 1919. This figure indicates the buyers' high estimation of the value of the breed. Let us tell you WHY Guernseys lead in popular favor.

QUALITY ECONOMY QUANTITY

THE AMERICAN GUERNSEY CATTLE CLUB
Box C-44, Peterboro, N. H.

Bunting's Mission Herefords Are Profitable

They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.

JOHN A. BUNTING
Mission San Jose Calif.

DIAMOND G HEREFORDS

are the kind that make good under all conditions. They have the size, bone and constitution that the range operator wants. Herd headed by Don Perfect 2d, one of the best bulls in the West. Correspondence invited and visitors welcome.

H. H. Gable Esparto, Cal.

A Boar to be Great

must be able to sire animals that measure up to the accepted standard.

VAUGHN'S JONES

my Poland China boar measures up. Come and see his get.

Poland Chinas of the Right Type

A. J. Van Cleef Riverdale, Cal.

Beef Cattle Specialist

For 30 years I have been devoting my entire time to pure bred beef cattle. I know where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited. R. M. DUNLAP, Hotel Land. Sacramento, Cal.

When Writing Advertisers, Mention The Cultivator.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Tuberculosis

A friend has a young cow that has three small lumps on the lower jaw, about the size of marbles and movable. She also has a lump in the throat about the size of a hen's egg. She does not cough and is in good condition. Could it come from a manger that is too high where she has to strain to get at the feed?—Subscriber, Ethanac.

This would cause one to suspect tuberculosis. Have her tested at the earliest opportunity. Reaching for the feed would not cause lumps unless on the breast where an animal might lean against a low manger when reaching for the feed.

Ringbone

I have a seven year old mare that has developed what looks to me like ringbone on the hind feet, which I think has come from pulling too heavy loads. She is not what might be called lame but seems to be somewhat stiff in these parts. What can I do to reduce the enlargement and bring the parts to their normal condition?—Subscriber, San Jose.

The ringbones may have been started by overwork as you suggest or from rheumatism. The reason that the lameness is not more marked is because both ankles are affected alike. They can never be brought to their normal condition but can be hardened into solid bone and then the lameness will disappear. The best treatment is to fire and blister the parts, which would require the services of a veterinarian. Probably the next best method would be to use the following liniment: One dram bichloride of mercury, one ounce alcohol and enough turpentine to make one pint. Mix in the order given. Apply enough of the liniment to wet the parts once a day. Do not apply above the ankle nor on the back of the swellings. The skin is too thin there and the liniment would irritate too much. It is good to apply a little vaseline on the back of the ankle to protect the skin. With this treatment you can work the horse at light work. The only cure is to grow the two bones of the ankle together and unless there is considerable lime in the drinking water it would be good to add a tablespoon of phosphate of lime to the feed once a day.

Abscess

We have a heifer about three years old, fresh three months, that has developed a hard swelling about the size of an infant's head on the breast between the front legs. It is smooth and hard with no soft spot nor hole in the skin. She was lame about a month ago and was treated for rheumatism but the lameness has disappeared since the swelling came. She is giving three gallons of milk a day, eats well, chews her cud and seems well but is thin in flesh for the amount of feed she eats. Lanced the swelling today, making half inch incision, but nothing but blood came. It is gradually growing larger. Please advise what it is and what to do for it.—Subscriber, Ethanac.

It is hard to say what caused the abscess but there is only one remedy. Open it, making a large opening and syringe it out once a day with warm water in which you have put enough permanganate of potash to make it cherry red. A large abscess is quite a drain on the system and that is causing her to be thin in flesh. When the abscess is healed she will probably regain her normal flesh.

Our Position

Lendorris Ranch could not have gained and held the enviable position it now holds as a breeder of big type Poland Chinas if the animals bred did not meet the approval of our customers.

True—Lendorris Liberty Bond and Young Jumbo have proven to be superior sires which accounts in part for our present position. Our sows, of course, have been of material assistance. We will be pleased to answer your inquiry.

W. L. Haag and Son Hanford, Cal.
Bred Sow Sale, March 13

There Must be a Reason

for our rapidly increasing business. Our business is breeding the farmer's friend, the big type Poland China hogs.

Golden West King Grand Champion at San Francisco Livestock Show
Blue Valley King by Big Bone Leader

are boars that sire the kind of Poland Chinas that help us increase our business. If we didn't breed the right kind and absolutely satisfy our customers we couldn't increase our business. This is a good reason why you should be one of our customers. Write us.

A. Buckland & Son, R.F.D., Fresno, Cal.

SEQUOIA HERD of Big Type Poland Chinas

Senior Herd Boar—GIANT BOB, grand champion at state fair. Highest priced boar in the West and the sire of the right type of Poland Chinas.
Junior Herd Boar—THE SEQUOIAN, by Blue Valley Big Bone, a young sire of remarkable possibilities.

Z. M. DICKEY, DINUBA, CAL.

King's Big Bone Leader

has amplified our greatest expectation as a sire of big type Poland Chinas.
GIANT BOB 2nd is a young boar of great possibilities.
We feel confident they represent the type most desired.

Les McCracken Ripon, Cal.

You Can Buy Choice Pigs Now

from my herd of big type Poland Chinas I can offer some exceptional buys. Bred sows and gilts or pigs. First that write me will get some choice animals. Priced very reasonable. Write me at once for full description.

Exceptional Herd Boar For Sale.

Eugene Miner Lodi, Cal.

THIS IS WHAT COUNTS

If you are raising hogs the quicker you can make 200 pounds of pork the more money you make. I breed Poland Chinas that mature quick.

BIG MODEL FELLOW—my herd boar was Reserve Grand Champion at last state fair. Buy a sow bred to this boar and secure both quick maturing and show qualities.

J. F. McSwain Merced, Cal.

The Practical Test

of any breeder is satisfied customers. Recent sales to old customers indicate to me that my practical herd of big type Poland China sows headed by Forrestview Bob, a son of Caldwell's Big Bob, are producing the kind that satisfy. I will be pleased to satisfy you. Write me.

J. H. Cook Paradise, Cal.

Aviator A Poland China boar that is proving one of California's greatest sires. His pigs show that excellency of type and quality so much desired and are finding a ready market. Write for yours.

CROSS BROS. MERCED, CAL.

Is a Calf Worth 23 Cents?

For 23 cents you can insure your calves against death from Blackleg by having them vaccinated with PURITY BLACKLEG AGGRESSIN. (The Kansas Germ Free Blackleg Vaccine.) One treatment immunizes for life and there is no danger in introducing Blackleg into healthy herds of cattle. We also manufacture and sell PURITY ANTI-HOG CHOLERA SERUM, PURITY MIXED VACCINE for swine, and PURITY HEMORRAGHIC SEPTICEMIA VACCINES for cattle and sheep. Stop your losses and increase your profits—it's good business. For service that counts, and does not end by selling, write, wire or phone

PURITY SERUM CO., J. L. Thatcher, Manager (Successor to Thatcher Serum Co.
Riverside, Cal. Sacramento, Cal.

How Experienced Breeders

judge breeding animals is a true indication of the high qualities of the animals. In recent public sales our Duroc-Jerseys have stood among the tops. They are the kind that prove a profitable investment. We can supply you one or a young herd of the kind that make money.

Greenwood Farms
H. C. WITHEROW Live Oak, Sutter Co., Cal.

Westrobac
Los Angeles, Calif. 618 So. Spring St.
San Francisco, Calif. 440-442 Sansome St.

JERSEYS

3 BULLS | No. 1 born Mar 1, 1919. Sire Our Noble Mayflair Hero | 3 BULLS

No. 2 born Oct 1, 1919. Sire Our Kathie's Eminent | All from high record cows in Arden herd | No. 3 born Dec 20, 1918. Sire same as No. 2

ARDEN DAIRY CERTIFIED, EL MONTE, CALIF.

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Liner rates: Single insertion 3½c per word; 35c per issue minimum charge.
Mail all classified copy to Los Angeles Office

POULTRY

BROODERS

We are offering to the California public, the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in, and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

We Are Specialists in production of high grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strain of America's choicest Leghorns fill our pens, and my personal attention is given to all details, assured each customer of highest grade stock. All baby chicks guaranteed and only healthy baby chicks shipped; if not satisfactory on arrival your money returned. Catalogue free. F. C. Rhode, Vineburg Hatchery & Poultry Yard,s Vineburg, California.

We Are Now Booking Orders for Eggs. Eggs from our Mammoth Bronze Turkeys, $1, $2, $3 from show stock and 50c utility stock. Eggs from Toulouse Geese, winners at seven shows, $1 each. White Muscovy Duck Eggs, 35c. White Wyandotte Eggs, $3 and $5 a setting. Young unmated pairs, White King Pigeons $2, old mated pairs $3. Pearl Guineas $4 a pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY (Electric), Box 122, Artesia, California.

Baby Chicks from my carefully selected, thoroughbred Breeding Pens of S. C. White Leghorns. Good, strong chicks at $15.00 per 100. Orders booked now for May, June and July delivery at reduced prices. Write for particulars. Every order receives my personal and most careful attention. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Thoroughbred Barred P. Rocks—Egg records 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 5599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

White Leghorns—Breeding Stock, Hatching Eggs. Bred to standard and to lay. At 1919 Oakland Show won 2nd and 4th cock, 4th hen, 4th and 5th pullet, 2nd pen, 178 birds competing. All curves, white plumage, vitality, high egg production. MAHAJO FARM, P. O. Box 597, Sacramento, California.

Golden Rule Poultry Farm — Specialty breeders in profitable quality in Barred Ply. Rocks and White Leghorns. Remember the best is none too good for your foundation stock. Guaranteed hatching eggs. PENN & STAMELEN, Porterville, California.

Baby Chicks Anconas—$18 per 100, Reds, $19 per 100, Brown Leghorns, $18 per 100, White Leghorn McFarland strain, $16 per 100; Black Minorcas, $19 per 100; we can supply a dozen or five thousand. FREE 32-page Catalog. Pioneer Hatchery, 320 S. Spring Street, Los Angeles.

If You Are After Good Layers, buy your Barred Rock, White Leghorns, Ancona, Rhode Island Red, Buff Leghorn and Black Minorca Baby Chicks from the STEVENSON HATCHERY, Watsonville, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Thoroughbred White Leghorns and Mottled Anconas. Eggs from carefully selected stock of high laying strains. The White Leghorn Hatchery, Pomona, California.

Newton Poultry Farm — White Leghorn Baby Chicks from our well known, carefully selected stock. Best strain. Big plant. Order now, any number, and get them when you want them. Los Gatos, California. Dept. 2.

"Watch Us Grow" Baby Chicks. Booking orders now for January and February deliveries. Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen. Campbell, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald , Poultry Ranch, Route 1 Box 246, San Jose, California.

Purebred Chicks from selected bred-to-lay S. C. W. Leghorns, Barred Rocks, R. I. Reds. Order now for February-March delivery. Maxwell Hatchery, Madera, California.

Buff Minorcas—Vigorous utility cocks and cockerels from 200-egg hens. Eggs from 200-egg exhibition stock. Circular. Wendell R. Mortimer, 344 Tennyson Ave., Palo Alto, California.

Chix or Eggs—Hoganized W. Leghorns—also limited quantities of Buff Leghorns, Buff Minorcas, B. P. Rocks, L. Brahmas, Reds. S. Martina, R. 2 —627, Santa Cruz.

For Sale—Pure bred Buff Orpington eggs $3.00 per setting of 15; incubator lots $10 per hundred. Mrs. M. L. Trewhitt, Rt. B, Box 47, Hanford, California.

For Sale—Guaranteed Day Old Pullets, S. C. White Leghorns. March delivery. One ranch here buys 20,000 a year. Eureka Hatchery, Petaluma, California.

Pit Games, Cocks, Stags, Hens, Eggs. R. H. Crane, Route 3, Santa Rosa.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS

We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

S. C. White Leghorn Breeding Cockerels—I am now taking orders for young breeding cockerels to be delivered at age of three months and upward. This is the same class of stock that I have entered in the Santa Cruz Egg Laying Contest, and which at present is leading over all others. Also, a few dozen, each week, of extra choice hatching eggs from specially selected two year old hens, mated with vigorous 10 months old cockerels from high laying strain. D. B. Walls, Rural Route 4, Box 88-A, Petaluma, California.

Your Opportunity—Next two weeks. R. I. Reds, Black Minorcas, Barred and White Rocks, 18 cents each. White and Brown Leghorns, select stock, 16 cents. Utility White Leghorns 13 cents, 500 or more at less. Send at once your order for any of above. Our quality stock, plus "know how" hatching, careful shipping, means safe arrival of good chicks, at reasonable prices. Express or Parcel Post. Try us. Mission Hatchery, Box 27, Campbell, California.

S. C. White Leghorn Hatching Eggs and Chicks. All stock from our own pens of selected high egg producing two year old hens, mated to cockerels having the same blood lines as our 1919-20 prize winners. 500 chix ready March 23. Prices on application. Stock and eggs limited. ALLES-SAN-DRO POULTRY YARDS, 523-D Rosemont Ave., Los Angeles, California. Tel. 53511.

For Sale—Hatching Eggs, Day Old chicks, from Kopps' famous Anconas, the heavy winter layers; they have the vitality and the laying habit and are bred to lay eggs; $3 per 15; $12 per 100. Day old Ancona chicks from my own stock, $20 per 100. S. C. White Leghorn eggs, $2.50 per 100. George Kopp, P. O. Box 819, Los Angeles, California.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

Sly's Single Comb Rhode Island Reds prove their quality by winning at Los Angeles, 2 firsts, 4 seconds, 2 thirds, 2 fourths, 2 fifths, 2 shape specials, 2 color specials, 1 gold special, 3 silver cups. A top notch exhibition and utility strain. Send for Catalogue. A. G. Sly, 1642 E. Middleton Place, Los Angeles.

Day Old Baby Chicks—From mature hen eggs—February—White Leghorns $17.00 per 100; Black Minorcas, Barred Rocks, Rhode Island Reds $22.00 per 100—March $2.00 per 100 less. Terms. One-third cash with order. T. C. Hawley, 504 East Elm Street, Lodi, California.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Buff Orpingtons, Black Minorcas, Anconas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306. San Jose, California.

I Won More First and special prizes on S. C. R. I. Reds at the recent Oakland Show than all other exhibitors combined, 188 Reds competing. Hatching eggs from prize birds for sale. F. M. Lail, 6 Lupton Ave., San Jose, California.

For Sale—Thoroughbred White Wyandotte settings, $2.50 for 15 eggs, also, choice White Wyandotte cockerels from $5.00 to $8.00 each. Apply Gordon O. Tetley, 190 Edgewood Place, Riverside, California.

Baby Chicks and Hatching Eggs from Standard S. C. White Leghorns. We sell only strong, hardy chicks from heavy laying parent stock. Tacker's Poultry Ranch and Hatchery, Escalon, California.

Conklin's Heavy-Laying Strain R. I. Reds, S. C. Light and Dark Brown Leghorns. Eggs reasonable. EVA V. CONKLIN, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

White Minorca Baby Chicks and Hatching Eggs—Dark Cornish and Silver Campine Eggs. Folder. Leech Poultry Yards, Baldwin Park, California.

Baby Chicks, thoroughbred White Leghorns. No weak ones charged for. Schellville Hatchery, Schellville, California.

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S. Reservoir, Pomona, California.

Baby Chicks, standard varieties, high quality, low price. Catalog now ready. Can fill large orders. Madera Hatchery, Madera, California.

Fowler's Reds — Win—Lay—Pay. Cockerels and eggs for sale. Send for mating list. Duarte, California

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C, Ceres, California.

"Eastman's Bred-to-Lay" trap-nest Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

POULTRY

Barred Plymouth Rocks—"Nothing Better in Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Vodden, Los Gatos, California.

White Leghorns—Chicks and hatching eggs from Curtis heavy layers. Our stock has orchard range which in connection with most modern methods assures heavy producers with excellent vitality. All chicks hatched from our own stock exclusively. Progressive poultrymen demand the best. Write for folder. O. B. Curtis & Son, Route 1, Box 29, Gardena, Cal.

Santa Cruz Chicks—We specialize on very best White Leghorns, hatching many thousands each week; also Brown and Buff Leghorns, Anconas, Minorcas, Wyandottes, Orpingtons, Barred Rocks and Rhode Island Reds. Write for folder. B. W. Archibald, Soquel, Santa Cruz County, California.

Thoroughbred S. C. White Leghorn Chicks—In 100 and 1000 lots from our Hoganized and Trapnested Stock. Order now for spring delivery. Inventors and Distributors of "Forbros" Separator and Trapnest combined. Write for circular. Forster Brothers, 2918 Otis Street, Berkeley, California.

Several Varieties—Turkeys, White Holland Bourbon Red; males $18 to $24, eggs, $6 doz. Houdans, cockerels, $2.50, $3.50; chicks 30 cents each. Eggs $2.50 15. White Guinea fowl eggs, $2.50 15. Mrs. B. Hocking, 541 East 33rd St., Los Angeles. Winner of 1st and Specials past 10 years.

White Plymouth Rocks — Fishel strain direct. Five years' select breeding. Eggs $5.00 and $1.50 for 15. Mammoth Bronze Turkeys. Large, vigorous birds, heavy boned and beautifully bronzed. Guaranteed free from disease. Bertha M. Jesch, Fallon, Nevada.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Baby Chicks — Every week, White and Brown Leghorns, R. I. Reds, Barred Rocks, Anconas. Also Baby Ducks. All strong youngsters. Safe arrival guaranteed. Write for free circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

White Leghorn Baby Chix. Heavy laying. Hoganized stock. May and June delivery. $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

White Leghorn Baby Chicks—We get our hatching eggs from a flock of 1,500, two year old Walter Hogan hens that have been carefully Hoganized by an expert. Buy the best—all from one flock. Lyon Hatchery, Gardena, California.

For Sale—Rhode Island Red Baby chicks from our carefully selected matings for size, color and egg production. $20.00 per hundred; also White Leghorns, $17.50 per hundred. Williams' Poultry Place, R. I., Box 563, San Gabriel, California.

Baby Chix from heavy layers. Barred Rocks, R. I. Reds, Black Minorcas, Buff Orpingtons, Brown Leghorns, White Leghorns. We prepay express charges. Willow Glen Poultry Yards, 580 S. 9th St., San Jose, California.

Gape Remedy—For Chicks and Turkeys. Guaranteed to cure or purchase price refunded. Easy to give. Only 25c postpaid. SOUTHERN REMEDY CO., Box 145, Kansas City, Mo.

Pedigreed S. C. White Leghorn Chix—From heavy winter laying stock. Next hatch April 5. Orders for not less than 100 taken. Down's, 1941 81st Ave., Oakland, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

Setting Eggs—Toulouse Geese, 35c each; Pekin Ducks, $1.50 for 12; White Leghorns, $1 for 15. Mokelumne Poultry Ranch, Lockeford, California.

White Wyandottes — Prize winning and heavy laying stock; eggs $3.00 and $5.00 per 15. Baby Chix, Cockerels. R. W. Stawetski, Route B, San Jose, California.

Rhode Island Whites — Hatching Eggs, Chix from best matings possible. Free mating list. Phil. Lehrbach, 1608 N. Ave. 56, Los Angeles.

White Orpington Hatching Eggs for sale, $10.00 per hundred. Also limited number of baby chicks. Mrs. S. D. Koons, P. O. Box 186, Orland, California.

Purebred Buff Orpington Eggs — Heavy laying strain, choice stock, setting $2.50. Mrs. M. Lopez, Box 436, Manteca, California.

Single Comb Red Hatching eggs, $2.00 per 15. W. M. Marquam, Bishop, California.

LIVE STOCK

BUTTE CITY RANCH

Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Third sale at the Ranch—all breeds—April 17, 1920. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale—Pure Toggenburg doe, registered, with two buck kids, $300.00. F. Edward Peterson, Route A, Kingsburg, California.

For Sale—High grade Toggenburg Goats. Some fresh, others coming fresh soon. Louis L. Gakle, Ontario, California. Phone 632-J.

Carruthers Farms—Live Oak, California. Shorthorn cattle and Berkshire swine of quality and select breeding.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Padlands.

FERTILIZERS

The Gypsum You Need — Best agricultural lime, complete fertilizers. H. H. Matthews, 1010 N. Madison, Pasadena.

DUROC-JERSEYS

Pathfinder Wonder—Is son of Great Wonder I Am, the largest boar that ever lived, out of a daughter of PATHFINDER. He is one year old and measures 66 inches from his eyes to the root of his tail. We have a fine bunch of yearling gilts of King's Col. and Model Col. breeding that we will breed to him and sell at reasonable prices. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Special Sale of pure bred Duroc-Jersey weanling pigs (registered). Sired by First Prize Boar of Grand Champion breeding. Marked down in price to advertise our stock. Also a few choice bred and open gilts at slight advance over pork prices. Green Canyon Ranch, Fallbrook, San Diego County, California.

Duroc-Jersey Swine for Sale — Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Priced Right — Sept. boar pig, Orion Cherry King stock. He will make you money. El Bendito Rancho, Lancaster, California.

SWEETWATER DUROCS

The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Wondergerst, California's leading Poland China sire—big himself, bred big and his pigs show the same qualities. His dam was Giantess Wonder, his sire Big Jones—both big, both winners—a combination of the greatest blood of the breed. Breed big type Polands. Start right by using this blood. Write for special offer. A liberal consignment made to the Tulare Poland China Associated Breeders' sale held Tulare, October 21st. OXBONE Herd Poland Chinas, Tipton, California.

Big Type Poland China Bred Sows and Gilts. Also a few open Gilts sired by A Price. Am booking orders for winter and spring boars. Address: W. S. Adams, Gridley, California.

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Tohoqua Big-Type Polands—Young pigs to sell. Champion big-type breeding. Ferguson & McKaig, Orland, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

3 Long, Stretchy Boar Pigs farrowed in July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St. at Third, San Francisco. In charge of Natomas Land Sales.

Bred Gilts—Sired by Mayfield Rookwood 2nd, a Grand Champion Boar, and out of 600-700 lb. Sows, all bred to "ACHIEVER" our English-blood Boar, the Sire that puts more bone and pork-making qualities into his Pigs. Priced reasonable and absolutely guaranteed. Castleview Ranch, Santa Rosa, California.

Grape Wild Farm Berkshires—Guernseys—spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. B. Humphrey, Prop., Escalon, California.

We Can Make Immediate Deliveries on high class Berkshire bred sows, bred gilts and service boars at regular prices. Call or write Lark Meadow Ranch, Geo. A. Stingle, El Monte, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California

WANTED

Wanted — Small ranch in foothills or mountain valley, with rich deep soil suitable for raising English walnuts, fruit, etc. About fifteen acres near stream of water or with springs to assure plenty of water. Reasonable and on easy terms. P. O. Box 76, Oakland, California.

Man With Years of Experience desires position on ranch as cook; steady; best references. Oscar George, Bellflower.

Wanted—A deep well boring outfit. L. George, Hollister, San Benito Co., General Delivery.

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

Wanted—Strawberry plants. Give kind, quantity and price. Crystal Springs Nurseries, Bothell, Wash.

Wanted—2 peafowl hens. Address Todos Santos Ranch, Daggett, California.

FARM LANDS FOR SALE

FOR SALE
One hundred and sixty acres at $275.00 an acre, four and half miles northwest of McFarland. Hog fenced all around and cross fences, 80 acres in alfalfa, 40 acres in barley, 20 acres in pasture, one acre in family orchard and the remainder under cultivation. Two pumping plants and 1200 feet of irrigating cement pipe, good house of six rooms and bath, plastered; one four room tank house, one big horse barn, cement cellar, blacksmith shop and garage. First class improvements for dairy, cow barn for 60 cows; cement floor, good dairy house and outerbuildings for calves and pigs. Shade trees also, horses and implements can be bought also if wanted. For information address owner, P. Granettoni, Route A, Box 98, McFarland, California.

For Sale—60 acre ranch A-1 soil suitable for vines, trees or cotton, all leveled and checked for irrigation. 33 acres Alfalfa, 12 Barley, 10 acres Pima Cotton, about 2 acres in fine family orchard all bearing, 3 acres Eucalyptus timber, 2 fine wells, abundance of water, about 3,000 feet cement pipe, 2 small houses, good barn and dairy barn, separator house, tank house, numerous hog houses, water piped to all yards. Two miles from modern high school. Electric power also lighting. Place well stocked, will sell with or without stock. If interested write H. H. Fowler, owner, Wasco, Kern Co., California.

For Sale—44-A. level bottom, 30 years in vegetables, alfalfa and beans. Plenty irrigating water, shallow lift; 1½ miles from school, P. O. on rural mail route. $300 per acre. Terms. 244-A. rolling hills in grain, beans and pasture, fenced and cross fenced. All necessary buildings; ½ mile from store, P. O. Both places on highway to be paved, $60.00 per acre. Owner, D. E. Jones, San Luis Rey, California.

FOR SALE AND EXCHANGE
10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.
FOR SALE
Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

ANTELOPE VALLEY.
Buy cheap, good alfalfa and fruit land in the easy lift water district near improved dairy and hog ranches. $50 to $75 an acre; one-fifth cash. Send for circulars. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

For Sale—20 acres APPLE and PEAR Land; 5 acres planted to Bartlett Pears, 15 acres in grain. Located about 1½ miles from town in a proven pear and apple district. Price $4250.00. Mortgage of $1270.00 due Feb. 1, 1921. Jos. A. Haubrich, Tehachapi, California.

For Sale—Finest Cattle Ranch in California. Drough does not affect it. Great abundance of water for irrigation, 2,500 acres delta land 45 miles from Sacramento. 2,000 head of Cattle now pasturing on the land. $125.00 per acre. F. N. Chaplin, 631 Argonaut Hotel, San Francisco.

For Sale—A 100 acre ranch; 45 acres in alfalfa, rest in grain and pasture. Young orchard and fair buildings. Good place for dairy. Price $13,000. Communicate with or see owner. R. B. Box 119, Bakersfield, California. Paul Durisch.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

Lake County Land for Sale—Bearing pear and prune orchards, dairy and stock farms. Alfalfa and grain land and other properties. Address Joe Hyman, Lakeport, Lake County, California.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

Alfalfa Ranch—For rent. 70 acres gravity water and pumping plant. Will take share or cash rent. Address P. Herlick, Helendale, Cal.

For Sale—10 acres Peaches in bearing, with house and barn. Water for irrigating. Price $4500.00. H. F. Steinmeier, Ontario, California.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

BUILDING MATERIAL

LUMBER
PLUMBING
CALIFORNIA BLDG.
LAST AND LARGEST
of the Exposition — now coming down 4,000,000 ft. Lumber like new—$25.00 up —Toilets, Basins, Steam Plant, Elevator, Maple Flooring, Spur Track. Salesman on job. Send for estimate. Act quick. Car lot specials. Symm Bros., 1501-27 Market St., San Francisco.

FIRE POTS

For Sale—800 Dunn 3 galion fire pots—pan, lid, stack, cover, all complete. Purchased in 1916 and never unpacked. Can be inspected at Lankershim, Calif. Reasonable price. Write to J. E. Law, Museum of Vertebrate Zoology, Berkeley, California.

DUCKS

White Pekin Baby Ducks—25c. White Pekin Duck Eggs for hatching $5.00 per 100 f. o. b. Ranch, 152 East Spruce St., Inglewood.

White Muscovy Ducklings, week old, hen hatched. Free circular. Caldwell Farm, Box 274-E, Los Angeles, California.

MACHINERY

USED RANCH MATERIAL
WE SELL FOR LESS, SEE US.
WHY PAY MORE?
SURFACE IRRIGATING PIPE
SPECIAL BARGAINS
Plows, $5 to $12; 3-4 gang disc plows, 4 gang Stockton, $28; bone grinder, $8; double disc harrow, $48; mowers, $48; potato planter, $65; walking potato digger, subsoilers, hillside plow, 10 in., $12; 4 row beet planter, $30; 2 row bean cultivator, $35; cable, plow discs.
WINDMILLS
8, 10, 12 FT. SIZES
USED REDWOOD TANKS, ALL SIZES
NEW, USED GALV. TANKS, ALL SIZES
New 1000 gal., $43.75 2000 gal., $59.75
PUMPS
Plunger, Centrifugal pumps. Fine No. 3 AMES double acting, deep well plunger pump, cost $1000 for $350; 4-in. horiz. centrifugal pump, $69.00; 6-in. $125 Duplex boost pump, $80; new double geared windmill and power pumps, $28.50; diaphram pump, $28; double acting Rotary, $35; 2½ in. blower, $9; 4-in. blower, $12.50; Pomona single acting pump, $87.50; 8-in. new double acting draw valve cylinder, $150. Have you anything in our line for sale? Material guaranteed as represented or money back. Demmitt Co., office upstairs, 120 N. Main, Los Angeles.

For Sale—Tractor—C. L. Best 30 Horse Power—$2200.00. Been used less than 10 days since being fully overhauled by manufacturer. Can be seen at the Leffingwell Walnut Orchard, East Whittier, California.

For Sale — Bean Tools—4 row Ventura Planter, 2 row Killifer Cultivator, 2 row Caledonia Cutter, 8 ft. Cyclone. Small American Thresher. Chas. Young, Route 1, Whittier.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thilie, Santa Paula, California.

For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

Agency Discontinued—New floor sample S.25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros. Co., Carpinteria, California.

Samson Tractor in good condition for sale or trade. Apply to Mel. Harding, East Telegraph Road. Phone 9132, Santa Paula, California.

MISCELLANEOUS

Learn Auto and Tractor Business—Operating and repairing all makes thoroughly taught. Positions while learning. Special tuition rates in classes now forming. Write for circular. Automobile Engineering Co., 742 S. Olive St., Los Angeles.

7,000 FEET IRRIGATING PIPE
3,500 ft. 3-in., 2,000 ft. 4-in., 500 ft. 9-in., 500 ft. 10-in.; price right. Don't wait month and cuss us because its gone. Demmitt Co., Office 120 N. Main, Los Angeles.

Red Leaf Tobacco — Homespun aged in bulk. Chewing or Smoking, 6 pounds $3.30; 10 pounds $5.00. Postpaid. Murphy Company, Martin, Tennessee. Reference, People's Bank.

For Sale—Or exchange lot on High Street, Melrose, Oakland, Cal. For particulars address Post Office Box 7, Santa Cruz, California.

For Sale Cheap—Five 10,000 and nine 5,000 gallon redwood tanks. Apply OLD HERMITAGE VINEYARD, 1623 No. Main, Los Angeles.

For Sale—Nitrogen Bacteria for Legumes, 50c per acre guaranteed. William Brunner, Holtville, California.

Kodak Finishing Exclusively. The Kodak Shop, 15 So. California St., Stockton, California.

TURKEYS

For Sale—Turkey Eggs, Mammoth Bronze and Wild Domestic, crosses; raise more poults, introduce wild blood into your flock. Get hardy, vigorous poults. With each order we send you formula for raising close to 90% of those you hatch and special feeding instructions. Will be worth many dollars to all turkey raisers to know the real way. Pamphlet tells you all. The WILD & DOMESTIC Turkey Home, R. D. Box 26 A, Hemet, California.

Giant Bronze Turkey Eggs for hatching from the famous Gold Nugget strain. Range raised, insuring strong poults. Phone city agent Lincoln 333. Mrs. A. H. Aiken, R. F. D. 13, box 315, Los Angeles.

Thoroughbred Mammoth Bronze Cockerels and Tom Turkeys. Also Bronze and Mammoth Bronze Eggs. April and May delivery. Robinson Turkey Ranch, San Dimas, California. Covina Phone 902.

Mammoth Bronze Turkey Eggs — "Gold Nugget" and other strains. Carrie Andrews, Hemet, California.

RABBITS

The Only Exclusive Rabbit and cavy magazine published in California. One year for 25 one cent stamps. Pacific Rabbit and Cavy Breeders, Eagle Rock, California, Dept. CC. "Tell them your troubles."

A. B. C. of Rabbit Culture, $.25. Value of Rabbit Skins and Tanning, $.25. Self cleaning hutch plans, $.50. Registered Pedigreed, prize winning New Zealands. Freeman's Rabbit Tavern, 1108 Jay, Sacramento, California.

For Sale—Pedigreed New Zealand Red Rabbits, fine breeding does and bucks at $3.50, $4.00, $4.50 each, fine healthy stock. Armstrong's Rabbit Farm, Petaluma, California.

Pedigreed Flemish Giants; also utility stock. No fancy prices Maud Beechling, 1578 W. 46th Street, Los Angeles.

Caldwell's Rabbit Remedies—Cure guaranteed. Free circular. Caldwell Rabbit Farm, Box 274-E, Los Angeles.

TREES

J. H. Hale, June Elberta, Elberta, St. John's Early, Krummel's October Free, and other choice varieties Peach trees. White Winter Pearmain, Banana, Arkansas Beauty, Delicious and Stayman's Winesap Apple. Bartlett Pears, Maynard and other good varieties. Plum trees, stock first-class, prices reasonable. Los Nietos Valley Nursery, Downey, California.

Washington Navel, Valencia, Marsh Grapefruit, Eureka and Libson Lemon trees. Sour stocks. One year old buds. We used "Supply Company" buds only. Nurseries Riverside, Puente. Frank A. Tetley & Son, 405 Eighth Street, Riverside.

100,000 Florida Sour Orange Seed Bed Trees; 100,000 Sweet Orange Seed Bed Trees. Valencias, Grapefruit, Kadota Figs, Olives, Umbrella trees. Southland Nurseries, 1941 East Colorado Street, Pasadena, Phone Colorado 6352.

Nursery Stock. Apples, pears, peaches, cherries, prunes, plums, berries, etc. OURS IS MAIL ORDER SYSTEM. IT SAVES YOU MONEY. Write us now for Planters' list. 20 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale—Apples, Pears, Cherries, Plums, Almonds, Quinces. All first-class home-grown trees at very responsable prices. Also full assortment of berry plants. Orange County Nursery Co., Anaheim, California.

For Sale—Placentia Perfection and Eureka walnut trees, also Eureka Lemon and Almond trees. These are all high grade stock. Ketscher's Nursery, 1101 E. 4th St., Santa Ana, California. Phone 572WK.

For Sale—Scions, Eureka and Placentia Perfection from choice grafted orchards. The WALNUT NURSERY, W. A. Litten, Prop., Whittier, California. Phone Home 6294.

Avocado Trees—Mathers' Avocado Nursery. Home of Field Grown Trees. P. O. Box 585, Pasadena. Nursery Phone Colorado 6044.

"Capri" Figs for sale, mammoth crop now ready for delivery, 25 cents each. Chris. Westgard, Pioneer Orchard, Brawley, California.

For Sale—3,000 select orange trees. Also 3,000 lemon trees; first class trees; 20,000 seedbed stock. A. R. Rideout, Whittier.

For Sale—Orange seed bed stock. Nursery Colorado and Huntington Drive, Lamanda Park. Paul B. Magee, R. F. D. 2, Pasadena.

Walnuts—Send in your orders now for grafted and budded walnuts. 1921 delivery. J. G. Grundel's Walnut Nursery, Oakdale, California.

Fine Stock Valencia Orange trees, budded Placentia and Eureka Walnuts on black root. A. R. Marshall, 1212 Ross St., Santa Ana, California.

For Sale—Eureka Walnut Grafting Wood, 6 cents foot. A. C. Kuhn, Route B, Box 351, San Jose.

Place Your Orders Now for all kinds of Citrus Stocks. Butler's Morningside Nursery, Lamanda Park, California.

Citrus Seed Bed Stock — Budded citrus trees. L. A. Tuttle, R. 2, Box 404, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; Inspection invited.

Rooted Olive Cuttings (Mission). Write for prices. Kavan Nurseries, San Bernardino, California.

For Sale—4 Year Old Manzanillo and Mission olive trees. E. E. Barnes, Highland, California.

Tulare Co.—Washington Navel, Valencia trees, 2 year buds, a fine lot of trees. A. G. Ogilvie, Orange Cove, California.

10,000 Registered Eureka Lemons. L. A. Tuttle, R. 2, Box 404, Pasadena.

Pear Trees, Prune and Peaches. Cash Nurseries, Sebastopol.

CATTLE

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Registered and Grade Dairy Cows and Heifers on time notes. When winter is over in the East Europe will take all. Geo. R. Mokel Cow Co., Lock Box 1137, Los Angeles.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Registered Guernsey Bull 14 months old, sired by Chanticleer of the Rancho (43334). Cox Ranch, San Marcos, San Diego Co., California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

For Sale—Registered Holsteins, milkers, calves and bull. D. C. Stanion, Kerman, Fresno County, California.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

SALESMEN WANTED

Men With Spare Time—Ranchers especially, can find excellent renumerative proposition, salary guarantee, working for an old reliable California company. Turn your spare time into cash. Write J. H. Yetter, 115 North Broadway, Los Angeles.

SEEDS AND PLANTS

Cotton Seed For Sale—Mebane and Durango seed, ginned from our crops, grown West Side San Joaquin Valley, which gave generous production, grading excellent staple and color. Quantity limited. Shipped in new sacks weighing approximately fifty-five pounds. If ordering less than ton state number of sacks wanted. Should plant approximately twenty pounds per acre. Prices: seven one-half cents per pound; in lots of ten tons or more to one consignee, seven cents per pound. All quotations f. o. b. Southern Pacific Westhaven. Boston Land Company, Westhaven, Fresno County.

Kaffir Corn (Schrock) Bird-Proof. A sweet, dwarf, sorghum corn, entirely immune from ravages of birds. Has been tested in California thoroughly and is the only sure-crop Kaffir or Maize. Possesses all the qualities of any good Kaffir and is relished by all stock, pigs and poultry. Also valuable for green fodder or silo and if desired can be cut back several times during growing season. Price, 20 cents per lb.; 25 lbs., for $4.00; 50 lbs., $7.50; 100 lbs., $14.00. Postage paid on less than 25 lbs. C. E. Howland, Fallbrook, Cal.

Tomato Seed, save 100 per cent on New Improved Stone, San Jose Canner, postpaid $3.00 pound. Send Money Order, or 20 cents ounce, stamps accepted. Order today, supply limited. Dana Walden, Dept. 25, Wholesale Terminal Bldg., Los Angeles, California.

For Sale—Tomato Seed, New Stone (Improved), Livingston's Favorite; 40 cents per oz., $4.00 per pound each. Postpaid any quantity. All these varieties are the very best select stock. Patton Seed Co., South Pasadena, California.

For Sale—A limited supply of Mountain grown strawberry plants at $1.50 per hundred, postpaid. Varieties. Excelsior, Banner A-1, Etterberg No. 80 and Brandywine. B. Bryan, Camp Baldy, California.

Rhodes Grass—Is making Imperial Valley famous and will make any other section famous, if it is planted, especially if the soil is hard or alkali. Write Imperial Valley Seed House for Literature. El Centro, California.

Strawberry Plants—Americus everbearing. Strong, healthy plants. Do well in California. $2.50 per 100, $5.00 per 250. Postpaid. Catalogue free. F. I. Moffet, Eilensburg, Washington.

Seeds—Alfalfa Seed 40c f. o. b. San Francisco. All varieties Vegetable and Flower Seed. Write for special prices. Bay Counties Seed Co., San Francisco, California.

Grow Your Own Melons. Secure a package of seed, 25 cents. The world's finest musk melon "Casad's Special." Roland C. Casad, Covina, California.

For Sale — Ever-bearing Strawberry plants. Progressive, $1.50 per hundred; Superb, $2 per hundred; postpaid. G. M. Hawley, La Mesa, California.

For Sale — Giant Himalaya Blackberry Tip plants from bearing vines. Immediate delivery. Sylvan Grove Farm, R. D. 1, Box 147, Santa Cruz, California.

Rhubarb Roots—1 year old roots, $3.00 per hundred; 50c per dozen. Two year old roots $1.00 per dozen. Currier Bulb Company, Santa Cruz, California

Cory Thornless Mammoth Blackberry. Get strong rooted plants from Cory Ranch, 6, $1.50; 12, $3.00. Postpaid. G. S. Wills, Jamestown, California.

Berry Plants — Ettersburg Strawberries, Blackberries, Dewberries and Raspberries. M. J. MONIZ, Berry Specialist, Sebastopol, California.

To Get Acquainted—I will mail you for $1.00 two each Cory's Thornless, Bishops Tree and Crandall blackberries. Bishop's Nursery, Highland.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc. Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

Write amount and kinds of seed wanted. Four kinds of alfalfa, 25c and up; free samples. Box 501, Fowler, California.

Stock Beet Seed—Any variety. Write for prices. Aurora Seed Mill, grower, Stockton, California.

Dahlia Novelties—Superb collection. Write for catalog. Dietzel's Dahlia Garden, Oakland, California.

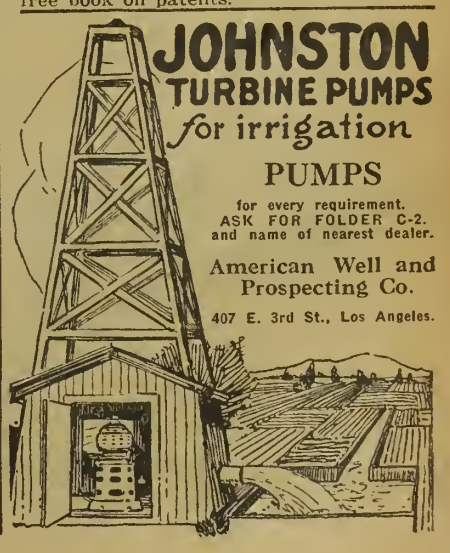
For Sale — California Wonder Corn for seed. Doubles yield. Send for circular. James McKee, Riverside, California.

GOVERNMENT LAND

100,000,000 Acres FREE Gov't Land—Send for free booklet telling how to obtain all necessary information about acquiring these lands. Address The Homeseeker, Dept. M, Los Angeles, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.



CALIFORNIA CAULIFLOWERS

All cauliflower growers are firmly of the opinion that Californians must, by cross-breeding and selection, produce their own cauliflower seed. The writer has now seen at two stations, 14 new varieties of cauliflower being tried and none are promising. Of the two lots, one is on government station grounds at Alhambra, the other on the A. C. Yingling ranch near Compton, both in Los Angeles County. Both are growing much the same, and the most promising is a branching sort,

A Yingling cauliflower trimmed for market.

with one main head and several later smaller heads, the very type the commercial grower is seeking to avoid. He wants one big compact head.

So it may truthfully be said that no outside or foreign varieties have thus far proved as good as the sorts raised here, the original seed of which came from Italy about 1890. We have not had a single name that did or could include all the types, of which there are many. Selection has been going on for many years and it is felt that local stock is now up to a high standard. Mr. Yingling has for years saved his own seed by careful selection until he has a reputation among both growers and shippers of producing none but the best. He is a grower for shipping, not a seed grower. Yet a noted seed expert visited him lately, looked over his crop, and told him if he would let that crop go to seed he would give him $20 a pound for 50 pounds of it and—the crop is now in blossom.

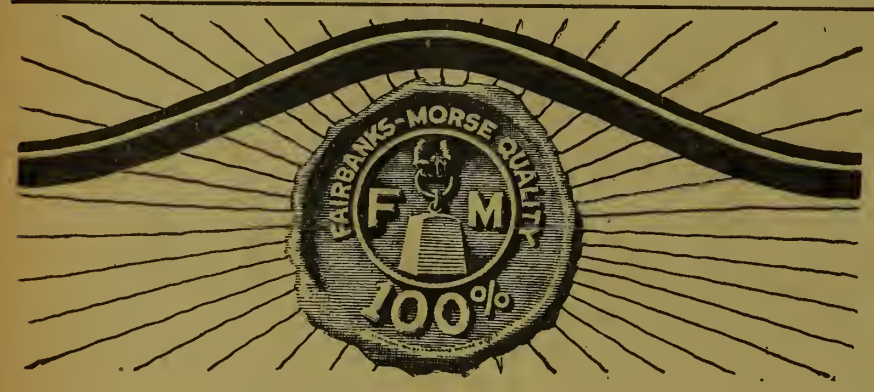
Mr. Yingling's cauliflower seed is used by his neighbors and other growers at other points; also by seedsmen so far as they can get it, for he is not a seed grower and others grow his variety for seed purposes. This variety is short stemmed, perfectly adapted to our mild climate, does not get soft, and the flower is protected from rain, sun and frost by a dense crop of infolding leaves that are likewise a protection in shipping. It is decidedly a laster and is therefore a favorite with all, home grower, gardener, dealer and shipper. What Mr. Yingling has done every large grower may and should do. Grow your own seed and by selection of ideal plants, allowed to go to seed instead of being cut, you will bring your product up to the highest possible standard.—E. B.

A Perfect Envelopment

Leaves cut away to show how foliage protects from rain, sunshine, frost, or injury in transit.

NEIGHBORLINESS REVIVED

American rural and village life is experiencing a new era of neighborliness. It began a score of years ago but received its greatest impetus during and since the war. Well housed rural clubs, something almost unheard of a few years ago, are springing up all over the country. Because they mean so much to their neighborhoods, and because this neighborhood movement contains so much of promise for the 50 million Americans who live in the country or in villages of less than 2,500, the United States department of agriculture has sent representatives to learn first hand the history of nearly 300 of these club houses. The results of this investigation have been recently published in a bulletin, "Rural Community Buildings in the United States," which can be had by addressing a request to the United States Department of Agriculture, Washington, D. C.



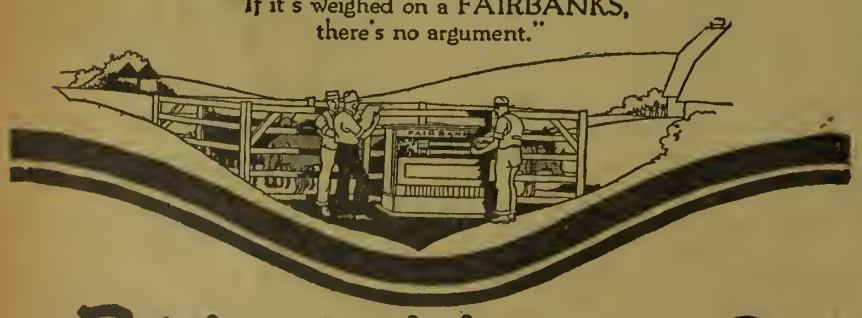
A hundred times a week

THAT'S how often you are likely to be misled by a poor scale. A FAIRBANKS Scale means absolutely accurate weight—saves dollars—pays for itself.

¶ Chickens, cattle, hay, corn, milk—everything you raise should pass over a dependable scale with the built-in quality that insures accuracy. Otherwise you are allowing dollars to slip through your fingers at every weighing.

¶ Modern, efficient farming demands the elimination of guess-work. KNOW your weights. Use a FAIRBANKS Scale.

"If it's weighed on a FAIRBANKS, there's no argument."



Fairbanks, Morse & Co.
CHICAGO

ANNOUNCING

as our Pacific Coast distributors

Fairbanks Morse & Co.

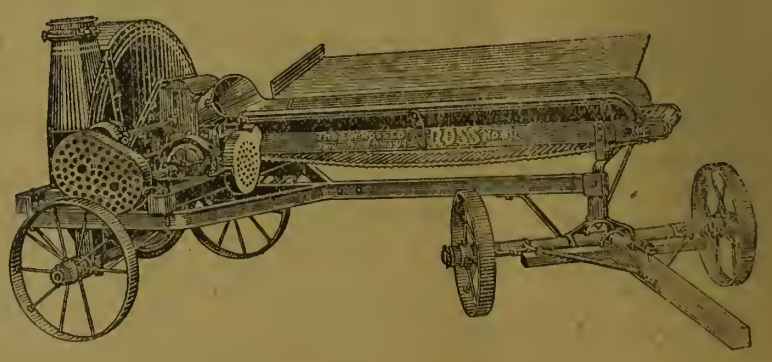
of Los Angeles, San Francisco, Seattle, Portland, and Spokane, who will handle the sale of and repair parts for

Ross Alfalfa and Ensilage Cutters

throughout this territory.

ROSS CUTTERS dominate their field. Their many exclusive mechanical features; their strong, sturdy construction and ability to stand up under the hardest kind of service; and their clean-cut work, done with less power and labor—all have been responsible for the reputation for superiority that they are nationally accorded.

Through the well-developed sales and service organization of Fairbanks, Morse & Co., we are now better able to carry on our work of supplying Ross Machines to the farmers of the Pacific Coast.



E. W. Ross Company

Manufacturers

Springfield, Ohio

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Registration of Minor

A minor will be of age 30 days prior to election. Can such minor register at any time prior to actually becoming of age or must the registration be deferred until he reaches his majority? —Subscriber, Los Angeles.

The qualification of registration as contained in the political code requires that the affiant making the affidavit of registration must be at least 21 years of age at the time of the next succeeding election, therefore he could undoubtelly register prior to the election so as to be entitled to vote upon the election.

Selling Irrigation Water

I own a ranch with a pumping plant. My neighbor has adjoining acreage with no water. Can I furnish him with water for irrigation without being subject to paying a state tax or making an annual report to the railroad commission? I am told that my neighbor would become a part owner of my plant if I furnished him with water for five years. Is this true? — Subscriber, Chino.

The public utility act provides that every person owning, controlling or operating any water system for compensation within this state where the service is performed for or the commodity delivered to the public generally or to any limited portion of the public, including a person, private corporation or otherwise, wherein payment whatsoever was received is a public utility subject to the jurisdiction, control and regulation of the commission. Such public utilities are required to make very extensive reports to the railroad commission, and the rates which they charge are subject to regulation by the state railroad commission. The tax spoken of is probably that which is assessed upon operating corporations by the state and would hardly apply in this case. If the water was furnished under a written agreement your neighbor could not claim any right by prescription to the use of this water. In order to constitute such a right he would be obliged to set up that he is the owner of such right. A contract which you would make with him would furnish conclusive proof that the water was not furnished under any claim of ownership.

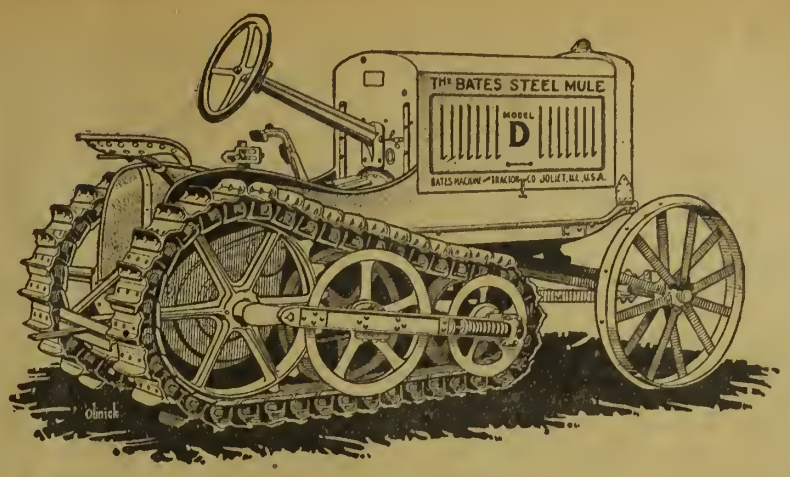
IMPOSSIBLE BY ARITHMETIC

(Continued From Cover Page)

membership is almost exclusively of commercial producers, that is, people who make egg production their sole business. Unless one has at least 500 laying hens he is not eligible. The Southern California association handles nearly a million and a half dollars worth of eggs annually, and at present rate of increase will double that within a few years.

There seems to be no way of stabilizing the market from the standpoint of the backyard producer and the great mass of the eggs of the United States is produced by them. For instance, in the Middle West where millions of cases of eggs are produced daily the commercial poultryman is an unknown quantity; practically every egg is a side line production. Near the larger Eastern centers there are a few commercial producers, but an idea of the magnitude of the backyard industry is shown by the fact that within the city limits of Chicago there are 3,000,000 hens, or three-fourths as many as there are in nearly all Southern California.

As big as the problem is, it is up to the commercial producer to stabilize the market, and the fact that he has stabilized the market, and to an extent, at least, solved the problem given in the first sentence of this article is the reason why he will continue to cooperate and encourage the world's greatest little food producer.



A Better Seed Bed

GREATER grain yield on your farm calls for greater efforts at the source—the seed bed. And it is with the Bates Steel Mule that you will solve your greater production problems.

Bates Steel Mule Crawler type of traction goes into the field and outworks all other tractors and makes playtime of Spring Work. It does not slip on soft ground and therefore allows double discing and harrowing in one quick operation—assuring a finer seed bed.

The broad Crawler surface makes ground pack impossible.

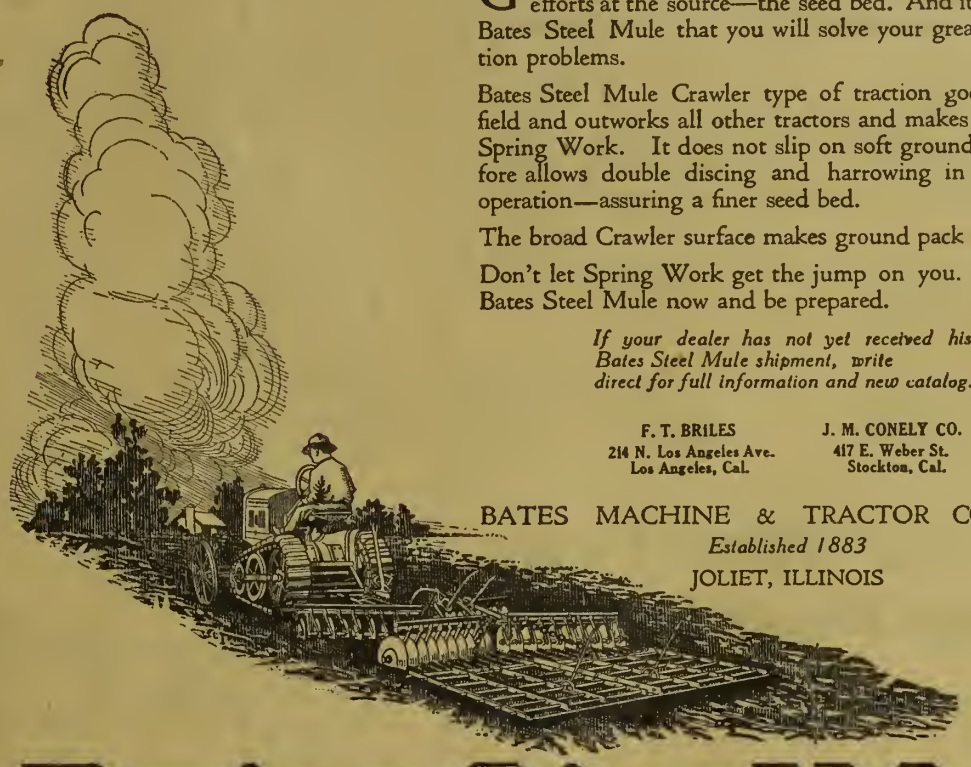
Don't let Spring Work get the jump on you. Buy your Bates Steel Mule now and be prepared.

If your dealer has not yet received his Bates Steel Mule shipment, write direct for full information and new catalog.

F. T. BRILES
214 N. Los Angeles Ave.
Los Angeles, Cal.

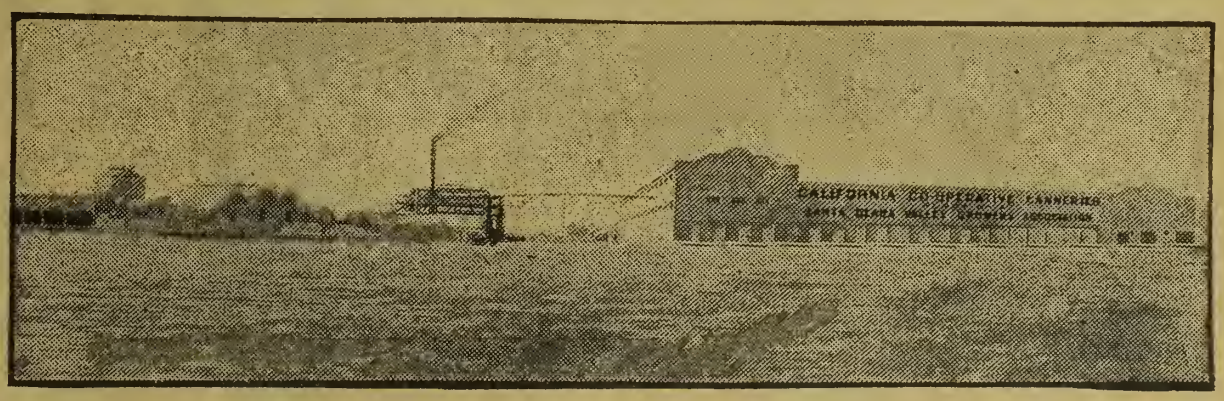
J. M. CONELY CO.
417 E. Weber St.
Stockton, Cal.

BATES MACHINE & TRACTOR COMPANY
Established 1883
JOLIET, ILLINOIS



The New **Bates Steel Mule**

The most efficient Tractor in America



Cling Peaches $137.00

That is what some growers received who delivered their fruit to this big company which they own themselves.

The average price for all grades Number 1's, Number 2's and culls, was $117.00.

These growers expect even better prices for the season of 1920.

If you are interested and want more information, write to the

California Co-operative Canneries

General Offices:—San Jose, Cal.

Plant No. 1—Vegetables, San Jose, Cal.
Plant No. 2—Fruits, San Jose, Cal.
Plant No. 3, Tulare, Cal.
Plant No. 4. Visalia, Cal.

Los Angeles Markets

Los Angeles, March 10, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 59 cents.

Dairy Exchange prices last week on extras:

March	3	4	5	6	8	9
'20	59½	59½	59½	59	59	59

CHEESE

Brokers' prices:

California, lb., 29, price to retail merchants, 29@31.

EGGS

Fresh extras, Produce Exchange closing price, 38 dozen; case count Produce Exchange closing price 36 dozen; pullets, Produce Exchange closing price 33 dozen.

Dairy Exchange prices last week on extras:

March	3	4	5	6	8	9
'20	37	37	38	38	38	38

POULTRY

Price to producers: Hens, lt., 35; heavy, 37; colored over 4 lbs., 38; broilers, 40-44; fryers, 40; roasters, 38; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47.

Belgian hares, 3 to 3½ lbs., live, 20.

LIVE STOCK

Los Angeles, Mar. 9 — Weighed and delivered off cars without food or water: Hogs (hard-grain), 120 to 175 lbs., 14.50; 175 to 225 lbs., 15.00.

Cattle (on foot, gross weight)—Steers, good, 12.00@12.50; medium, 11.50@12.00; cows, good, 10.50@11.00; medium, 10.00@10.50; bulls and stags, 7.50; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, March 9, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Market stronger. New stock: Stockton, Burbanks, special brands, 6.50. Idahos, Russets, 6.50; bakers, 6.50. Local stock, lugs boxes, 2.00@2.25; local White Rose, mostly 5.75@6.00.

Sweet potatoes: Market strong. Lugs, 1.50@1.75.

Onions: Demand and movement slow, market steady. Homegrown and Stockton: White Globes, per cwt., 6.75@7.00. Yellows and Browns, 5.50@6.00 per cwt.; lugs 1.60@1.75; per lb., 6@7. Garlic, lb., 40@45.

VEGETABLES

These are the actual prices obtained March 9, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.25@1.75.

Beets: Doz., 50@60; lb., 4@5; sk., 3.00@3.50.

Brussels Sprouts: Per lb., 10@13, poorer low as 7; best shipping stock, 15@17.

Cabbage: Market steady. Per lb., 3@3½; per cr., mostly 2.50@3.00; some best, 2.75@3.50; poorer, 1.75@2.00 crate; sacks, mostly 3.00@3.50. Red cabbage: 4@5 per lb.

Carrots: Doz., 40@45; lb., 1½@2; sk., best, 1.75@2.25.

Cauliflower: Market stronger, supplies scarce. Local stock; per dozen, best 1.00 scarce. Local stock; per dozen,. best 1.40@1.50; field crates, mostly 3.00@3.25.

Celery: Local and Northern: per dozen bunches, 1.60@1.75; poorer low as 60; crates, 5.00@7.00; fancy shipping stock, 8.00.

Cucumbers: Hothouse, 1.00@3.50 bx.

Eggplant: Florida and hothouse, 25 per lb., local, scarce, 14@17.

Peas: Local, lb., best, 8@10; others, 6@7.

Lettuce: Local Stock: Market slightly weaker. Per dozen, 20@30; mostly 20@25; crates, 60@1.00; poorer low as 50.

Peppers: Local stock: Bells, mostly 18@22; poorer, 15@17. Chilis, best, 15@25 per lb. Floridas: Bells, 30@40 per lb., Chilis, 30@45.

Parsley: Doz., 25@35.

Parsnips: Lugs, 1.10@1.25; sacks, 2.50@2.75; per dozen, 40@50; mostly 40@45.

Rhubarb: Local stock, bx, 1.75@2.25.

Spinach: Doz., 25@30.

Squash: Hubbard, cwt., 4.50@5.00; lb., 4½@5½.

Tomatoes: Mexicans: crates, best 2.25@2.50; mostly 2.00; lugs, repacked, 2.00@2.50; originals, 1.75@1.85.

Turnips: Per dozen, 50@60; per sack, 3.25@4.00.

FRUITS

These are the actual prices obtained March 9, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Bellefleurs, loose, 3@5 per lb.; White Pearmans, 2.25@2.65; 4@6 per lb.; Yellow Newtown Pippins, 4-tier, 2.10@2.25; 3½-tier, 2.35@2.50; 5@6 per lb.; Winesaps, 3.00@4.00; 5@7 per lb.; Delicious, fancy, 3.50@4.00; 5@7 per lb.; Hoovers, fancy, 2.25@2.50; Romes, 2.50@3.25.

Bananas, 8@8½; Red, 9.

Pears: Winter Nelis 6½@7½ lb.; bx., 3.00@3.50.

Grapefruit: California and Arizona: per box, 3.50@4.50, mostly 3.50@4.00. Local, 2.65@3.00 per box.

Lemons: Market stronger. San Fernando Valley stock; fancy packed, 5.25@5.50; loose, 3.50@4.75; juice, 2.50. Local stock; packed, 2.50@3.00 ;loose, 2.00@2.75; some low as 1.25 box; 2@3 per lb.

Oranges: Navels, 3.75@5.25 box; best brands, bx., 5.75@6.50; Local stock: packed, 4.00@5.00; large sizes low as 2.50@3.00. Tangerines, lb., 7½@9.

HONEY

Demand and movement good, market steady. Carloads f. o. b., usual terms, per lb.; white orange blossom, mostly 19; white sage 19@20; extra light amber sage 18½; light amber sage, supplies cleaned up; light amber alfalfa, 16½. Beeswax, local lots, 40@43.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.

1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6: Limas, 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

HAY

The rains of this week have given assurance of 100 per cent crop from San Luis Obispo and Tehachapi south. In the valley from Bakersfield north to Shasta the production may fall as low as 50 per cent of normal, some think even lower.

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	27.00@30.00
Barley	26.00@30.00
Alfalfa	28.00@32.00
Barley Straw	10.00@13.00

GRAIN AND FEEDS

Price bid local grain exchange, March 9.
Barley: 3.40@3.45.
Corn: Yellow, 3.18¾@3.30.
Egyptian: 3.01¼.
Eastern Kafir: 2.55.
Milo: 2.97@3.00; Eastern: 2.53¾.
Hygeria: 2.80.

San Francisco Markets

San Francisco, March 9. 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras						60
March	2	3	4	5	6	8
'20 ...	61	59½	60½	60	60½	60
'19		61½	60	60	60½	59

Rcts. week ending March 8, 4,029 cen-

CHEESE

Dairy Exchange quotations:

Jack, full cream	27@28
Cal. Flats	30@33½
Cal. Y. A.	36
Ore. Trips	32

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	40½
Firsts	38
Extra, pullets	36
Undersized	33

March	2	3	4	5	6	8
'20 ...	44½	42½	40	41	41½	40½
'19		41	40	40	40½	40½

Rcts. wk. ending Mar. 8, 428,810 dozen.

POULTRY

Wholesale prices are:

Leghorn, 40@42; small, 41@43; large, 41@43; roosters, young, 43@45; old, 23@25; broilers, 55@60; fryers, 50@54; turkeys live, 42@43; dressed, 51@52.

Ducks, Indian Runner, 30@32; Pekin, 33@35; geese, 30@32; Squabs, 70@75.

Belgian hares, live, 20@23; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company are:

Cattle—Grass steers, No. 1, weighing 1000 to 1200 lbs., 12@12½; do 1200 to 1400 lbs., 11@12; do, second quaity, 9½@

"I Plow now where I was never able to use horses"

"My LAUSON Tractor has been a paying investment. I have plowed with it in a good many places where I was never able to plow with horses. I used the Tractor for running feed cutter, clover huller and pulling out stumps. It is an all-around labor-saver. Another place where the LAUSON has come in especially handy is pulling manure spreader."

New Holstein, Wisconsin
August 25, 1918.

The John Lauson Mfg.Co,
New Holstein, Wisconsin.

Gentlemen:-

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Costs $1 per Year

10½; thin, 8@9.
Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4@5.
Calves—Light weight, 12½@13; medium, 11@11½; heavy, 9@9½.
Hogs—Weighing 100 to 150 lbs., 15¼; 150 to 225 bs., 15¾; 225 to 300 bs., 15¼; 300 to 400 bs., 14½.
Lambs: Yearlings, 13@13½.
Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:
Cattle—Good steers, 1000 to 1100 lbs., 12@12½; top steers, 1100 to 1200 bs., 11½@12; good heifers, 1000 lbs. and over, 9@9½; No. 2 cows, 1000 lbs. and over, 8@8½; canner cows, 5@6; good bulls, 6@6½.
Calves—Light, 13@14.
Hogs—Top packer, hard and well finished; 100 to 150 lbs.,15; 150 to 225 lbs., 15½; 225 to 300 lbs., 14½; over 300 lbs., 14; under 100 lbs., 14.
Sheep: Ewes, 9@9½. Wethers, 11@12. Yearlings, 13@13½. Milk Lambs, 14@15.

POTATOES

Wholesale selling price:
Per 100 lbs.: Rivers, fancy, 4.75@5.00; choice, 4.50@4.75; Idaho Gems, 4.75@5.25; sweet, 4@5 per lb.

ONIONS

Wholesale selling price:
Onions: Fancy brown, 4.75@5.00; choice, 4.50@4.75; yellow, 5.00@5.25; white, 5.00@5.25. Garlic, China, 14@15; other, 30@35.

VEGETABLES

Wholesale selling price:
Artichokes, No. 1, 90@1.00; No. 2, 65@75; No. 3, 35@55.
Asparagus: lb., 12½@15.
Beans: So., 13; Hothouse, 20@22 lb.
Brussels Sprouts: lb., 8@9½.
Carrots: sk., 1.00@1.35.
Cauliflower, doz., 1.25@1.45.
Cabbage, doz., 40@50; lb., 2½@3.
Celery, doz. bunches, 45@50; cr., 5.00@7.00.
Eggplant: lb., 15@25.
Lettuce: cr., 1:50@1.65; Imp., 1.75@2.00.
Peppers: Bell, lb., 12½@25; Fla., 25@30.
Peas: lb., 12@14.
Radish, 7@9 doz. bunches.
Tomatoes: Southern, 1.25@2.00.
Spinach: lb., 5@6.

DECIDUOUS FRUITS

Apples: Bellflowers, 1.25@1.50; Newtown Pippins, old stock, 1.25@1.50; California storage, 4-tier, 2.00@2.25; Oregon, 2.00@2.35; Spitzenberg, choice, 1.75@2.25; fancy, 2.50@3.25; Winesaps, fancy, 3.75@4.00. saps, fancy, 3.75@4.00.
Pears: bx., 1.50@4.00.
Pineapples: doz., 3.00@5.00.
Bananas: lb., 7@10.
Strawberries: basket, 50.

DRIED FRUITS

Prunes:
Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.
Peaches:
Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:
Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.
For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2 c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special, "practically peeled," 16¾c per pound, bulk basis.
Apples:
Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.
Figs:
White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.
Pears:
Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

HONEY

Extracted jobbing prices: Water white and white, 18 and 20 per lb.; light amber, 16@18; amber, 14@16½; comb, 25@28 for white and water white and 20@22½ for light amber.

RICE

The California market shows a stronger tone and there is every reason to believe that advances will occur in that market, due to the strength of the Oriental market. Prevailing prices range from $12 to $12.25 for spot and futures. The New Orleans market remains very firm and they advise that inquiries are much better from both Cuba and Porto Rico.

BEANS

Jobbing price per cwt.: Small white, 6.00@6.25; large white, 6.00@6.50; cranberry, 7.00@7.10; red Mexican, 8.35@8.50; pink, 6.30@6.50; California Bayo, 9.25@9.50; blackeye, 7.25@7.35; red kidney, 12.00@13.00; lima, 12.50@13.00; Garvanza, 9.50@10.50; Kotenashis (in bond), old crop, 5.25; new crop, 5.75.
Dried Peas—California, 5.25@5.40 per cental for green, recieancd.

GRAIN

Wheat: The prices are based upon federal grades and standards at the terminals in San Francisco Bay and Los Angelcs, and are as follows, per bushel of 60 pounds:

	Per Bushel	Per Cental
Hard White—		
No. 1	$2.20	$3.66 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.09	3.48½

The above are minimum prices.
For sacked grain add 4½ cents per bushel of 60 pounds to above prices. Deductions of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

HAY

Under date of March 6, Scott-Magner & Miller says:
Receipt of hay past week, 560 tons. This large dropping off in receipts no doubt was caused by the recent rains throughout this section and Nevada, where it has been storming so that they could not load for shipment. Although the rains which we have had during the week have been most beneficial and really a Godsend to the state, yet they have not been sufficient to entirely make up for the long dry spell and much more rain is needed. Crops are not suffering at the moment and we have hope. Many have looked for lower prices but the market has remained very firm and top quotations have been obtained without difficulty. Thousands of tons of alfalfa have been brought into this state from Nevada and hay from Oregon is now moving this way in quantities. A small quantity of California hay is still available. Dealers are placing Oregon and Nevada hay wherever possible in order to retain the California hay for such trade as demand it. The United States government was in the market again this week for about 5,000 tons of hay for the various posts and also for shipment overseas. These heavy demands naturally have a tendency to strengthen the market also.
We report the market higher, and quote today wholesale prices in carload lots as appear from dealer's transfers upon the hay market in San Francisco—for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat Hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat or Wheat and Oat Hay	35.00@38.00
No. 2 Wheat or Wheat and Oat Hay	33.00@35.00
Choice Tame Oat Hay	37.00@40.00
Other Tame Oat Hay	33.00@37.00
Wild Oat Hay	Nominal
Barley Hay	Nominal
Alfalfa Hay	32.00@37.00
Stock Hay	29.00@32.00
Oregon Cheat and Oat Mixed	27.00@29.00
No. 1 Barley Straw, per bale	.70@ 1.00

Citrus Markets

Los Angeles, March 10, 1920.

Naveis are going forward at the rate of about 150 carloads daily. Shippers are embarrassed by large proportion of offs. Fruit is beginning to puff somewhat. Rigid culling, however, is keeping grade up and good prices are still prevailing. The keen demand for lemons scems to have sagged somewhat, due in part to the immense number of forcign lemons in sight. There are now some 170,000 boxes for deilvery at Atlantic Coast points.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 9,440 cars; lemons, 2,109; total, 11,549. To same date last season: Oranges, 9,639; lemons, 2,537; total, 12,176. From Central California this season: Oranges, 3,476; lemons, 259; total, 3,735. To same date last season: Oranges, 2,236; lemons, 285; total, 2,471. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

March 5
New York: 13 or, 5 lem. Nav. 3.15-6.95, Tang. halves, 3.30-5.05, lem. 2.75-5.10.
Cleveland: 4 or., 1 lem. Nav. 4.25-7.05, lem. 2.55-5.90.
St. Louis: 5 or., 1 lem. Nav. 4.60-6.35, lem. 3.55-5.30.
Cincinnati: 2 cars lem. 3.90-7.00.
March 8
New York: 10 or., 10 lem. Nav. 2.50-7.40. Tang., halves, 2.80-4.50. Bloods, 1.95-4.00, lem. 2.00-5.55.
Boston: 9 or., 3 lem. Nav. 4.30-7.00, lem. 3.10-4.65.
Pittsburgh: 4 or., 4 lem. Nav. 4.46-6.25, lem. 2.95-4.50.
St. Louis: 5 or., 2 lem. Nav. 4.50-6.20, lem, 2.20-4.10.
March 9
New York: 12 or., 6 lem. Nav. 2.85-7.20, Tang., halves, 2.80-5.15, Seeds. 3.70, Bloods 2.40-4.00, lem, 2.55-4.05, limes, halves 30.
Boston: 6 Nav. 4.50-6.85.

WEATHER REPORT

San Francisco, Cal., March 6, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.47	13.53	33.04	54	36
Red Bluff	.36	5.98	18.17	76	36
Sacramento	1.16	4.98	14.54	70	32
San Francisco	.64	6.45	17.13	69	44
San Jose	1.06	5.31	12.38	68	34
Fresno	.58	4.32	6.80	70	39
San Luis Obispo	.40	8.78	14.84	74	34
Los Angeles	.76	7.93	11.63	76	42
San Diego	.40	5.92	7.53	72	49

WEATHER REPORT

San Francisco, Cal., February 28, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.62	13.01	31.55	56	34
Red Bluff	.38	5.38	3.77	68	36
Sacramento	.26	3.77	13.95	66	36
San Francisco	.43	5.44	16.33	65	44
San Jose	.30	3.84	11.64	70	32
Fresno	.32	3.50	6.48	68	39
San Luis Obispo	.97	8.13	14.08	68	38
Los Angeles	.34	7.06	10.96	70	48
San Diego	.53	5.45	7.13	72	48

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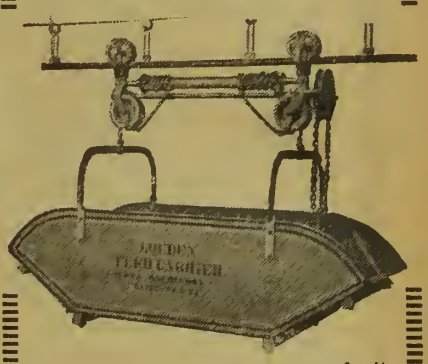
How Long Does It Take To Clean Your Barn?



You will find that you can do it in from ONE-THIRD TO ONE-HALF the time it formerly took, after you install a

LOUDEN Litter Carrier

Labor saved and time saved. No more back-breaking shoveling and wheeling it out in small loads. Now you let the Litter Carrier down to the ground—fill it up (holds 10 bushels)—hoist it up and push it out right over the manure pit where you dump it, liquid and all, because it's WATER-TIGHT.

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LOS ANGELES

Great Implement Bargains

To close out my factory stock of serviceable implements indicated below I will make the big reductions listed. This is fine usable material that has been in storage. Prices are going up rapidly and you can SAVE FROM 40 per cent to 60 per cent on plows, cultivators, harrows, balers, etc.

2 2-gang South Bend Little Giant Plows. Regular price each $180. Will sell for only $110 each.
2 4-gang South Bend Little Giant Plows. Regular price $220. Will sell for only $140 each.
4 12-foot Plano Push Headers. Regular price $500. The Plano is the best header ever put into a California grain field. Sale price, each, $300.
1 8-foot Plano Pull Binder, never used. Sale price only $225.
1 6-foot, 1 7-foot Plano Pull Binder. Big bargains at $215 each.
2 4-row Bean Planters. Regular price $125. Sale price, each $95.
1 4-row Brenneis Beet Planter. Regular price $145. Sale price, $55.
4, 5 or 6- gang Hancock Engine Disc Plows at a big saving.
2 Benicia Beater type single disc plows. 28 inch disc. Price only $75 each. Price only $125.
6 No. 8 South Bend Riding Corn or Cotton Cultivators. Selling elsewhere for from $75 to $85. Sale price, each $60.
8 No. 4 one-row riding Corn or Cotton Planters. Regular price, $75; for $50. These planters can also be made into middle busters or listers.
1 8-disc Orchard Disc Harrow. This will save you $50. Sale price only $65.
1 Benicia Beater type double disc plow. 28 inch disc.
2 100-gallon Tub Traction Power Sprayers. Regular price $125, each $75.
1 Two cylinder, 4 cycle, 8 h.p. gasoline engine. Only $200. This engine sold for upwards of $400.

ROPE! ROPE! ROPE!

Several thousand feet ¾ inch to 1½ inch manila rope, 50 Per Cent to 60 Per Cent. of Regular Price.
1 4-wheel Pope Toledo Chassy make Trailer; only $50.

TRACTOR BARGAIN, SAVE $750

1 15-30 Rumely Gas Pull Tractor, only $1250.
1 Chamberlain Elevating Grader, only $600.
1 10 H. P. Faulk Gas Engine. Price $175.
2 17x22 Roberts Power Balers. Worth $800 each. Balers will be scarce this year. Save money by buying these at only, each $500.
1 17x22 Western Power Baler with 10 H. P. Engine. A good buy at $850.
1 6 H. P. Fuller Johnson Gas Engine. Price $170. All above are second hand, but in good condition.

During the war, material and labor restrictions were such that my manufacturing plant was practically idle and retail store was closed. I now desire to close out all stock on hand and prices at which goods will be sold are at discount of from 40 per cent to 60 per cent of what same goods are quoted elsewhere. It will pay you to invest in anything listed here that you can use. Many factories have withdrawn prices on their goods and further advances are expected if the goods can be supplied at all.

On harvesting machinery orders will be accepted subject to cancellation in case of loss of crop.

Address or call L. M. Davenport Co. Los Angeles, Cal.
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Give your poultry and animals the best living conditions by using Dr. Hess Dip and Disinfectant. It is a powerful germ destroyer—helps to keep off contagious diseases. Make the rounds of the poultry house, pig pens and stables regularly with the sprinkling can. Kills hog lice. Don't neglect the garbage cans, drains, foul-smelling and disease-breeding places. An excellent disinfectant for the home. One gallon makes 100 gallons solution.

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There is only one way to deal with baby chicks and that is to keep them well. Doctoring a hundred or more chicks is mighty discouraging work.

It's pure carelessness to lose more than 10 per cent of chicks, from hatching to full growth. Many lose 40 per cent to 60 per cent, and even more. No profit in that.

Our book, "Care of Baby Chicks" (free) and a package of Germozone is the best chick insurance. WITH BABY CHICKS YOU MUST PREVENT SICKNESS—NOT ATTEMPT TO CURE. "I never had a sick chick all last season"—C. O. Petrain, Moline, Ill. "Not a case of white diarrhoea in three years"—Ralph Wurst, Erie, Pa. "Have 800 chicks now 5 weeks old and not a single case of bowel trouble"—Mrs. Wm. Christiana, Olive Ridge, New York. "Two weeks after we started last spring we were a mighty discouraged pair. Every day from three to six chicks dead. A neighbor put us next to Germozone and we are now sure if we had had it at the start we would not have lost a single chick"—Wm. E. Shepherd, Scranton, Pa.

GERMOZONE is a wonder worker for chicks, chickens, pigeons, cats, dogs, rabbits or other pet or domestic stock. It is preventive as well as curative, which is ten times better. It is used most extensively for roup, bowel trouble, snuffles, gleet, canker, swelled head, sore head, sores, wounds, loss of fur or feathers. 25c, 75c, $1.50 pkgs. at dealers or postpaid.

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FOR SALE — BABY CHICKS

every Saturday and Sunday from our pure bred and bred to lay B. P. Rocks, R. I. Reds, Mottled Anconas and S. C. White Leghorns. We have our own stock and you know what that means. Write for free catalogue and care of baby chicks.

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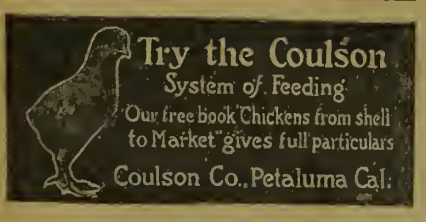
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Fryers in Ten Weeks

By Jean A. Koethen

TO bring Rhode Island Red chicks to broiler size in eight weeks and to fryer size in ten weeks is something of an achievement, but one that is an old story to W. R. Beard of the Ontario district. Mr. Beard hatches the year through, except for the two hottest summer months, has done so for several years, and keeps his brooder houses filled with a steady procession of cockerels and pullets, the former for market, the latter for his laying houses if they are first class, otherwise they, too, become table poultry.

The market poultryman is hard to find these days. High prices of feed, prices of table poultry high enough, doubtless, for the consumer, but hardly commensurate with cost of feed, have turned the eyes of the poultry fraternity toward the production of eggs rather than of meat. Where one is successful with market poultry it is because he has the energy and persistence to work out a system and then make it work.

One secret of Mr. Beard's success is that he lives with his hens. "He knows every one by name, I think," laughed Mrs. Beard, "and it is nothing for him to spend the whole evening in the chicken yards, handling them on the roosts to find which have their crops as full as they should be, and which will lay tomorrow."

Another secret is that he hatches from big hens, selects big eggs for hatching and is extremely particular about the size of the male bird. No undersized breeders for him. If you want chicks that will grow rapidly, they must come from heavy, big-boned ancestry.

Red Rock Crosses

About 600 Rhode Island Reds and a smaller number of Barred Rocks are kept on this little ranch of not more than five acres. The Reds have been there seven years, the Rocks four. The Reds have been systematically bred for egg production till last year one pen averaged 214 eggs and another, containing 12 hens, 226 eggs.

The Barred Rocks were added with the purpose of crossing the two breeds, and some interesting results have been worked out. The mating of a Barred Rock male to Rhode Island Red females give fine, heavy, hardy birds, about the weight of a Rock, and of very similar appearance except that the markings are a little smutty. The young stock from this mating grows rapidly and makes splendid fryers. The cross of Red males on Rock females is not so good. The birds are less hardy and are of a peculiar black and brown color combination which is not attractive. Mr. Beard showed us a row of pens of both crosses, but has not found that the cross breeds grow faster or lay better than the pure breds. His experiments are interesting, and some of the birds from the first cross may be heavier than the average Rock or Red, but he does not advocate crossing as a means of improvement, though it does produce good market poultry in the first generation.

Raising the Chicks

As soon as they come from the incubator the chicks are placed in brooder houses eight feet square, the sides of which are lined with roofing paper to a height of three or four feet and the floor covered with dry sand and alfalfa hay. Fifty chicks are placed in a house, no more and no less. The first feed is of the simplest: Corn meal in one hopper, bran in another, Croley's high protein meat in a third. Cracked milo is thrown in the litter for the chicks to scratch out. A big brooder stove provides ample heat. As soon as the chicks will pick it up, they get whole milo instead of cracked. This is all their ration, except green feed, water, grit and shell, the first six weeks.

At the end of the sixth week the young stock, which are now approaching broiler size, are put on the laying ration, consisting of 400 pounds corn meal, 200 pounds ground barley, 480 pounds bran, 160 pounds meat and ten pounds salt.

By the end of the eighth week the birds intended for broilers are sent to market without further finishing. Sometimes, even on the simple dry mash and milo which has been their only fare, they are too heavy by the end of the eight weeks and require to be dieted a little to "reduce."

When the broilers are marketed the fryers are shut up, sometimes in small pens, sometimes in crates, and fed a moist mash for the last two weeks. Mr. Beard does not consider crate fattening essential to the production of a tender fryer, but is giving it a tryout.

The pullets, when they are taken from the brooder house, and such of the cockerels as are to be kept for breeders, are put in the weaning coop shown in the cut. The slatted portion is the run; the boarded-up portion the coop where the birds roost, which is from four to five feet square. The floor is a foot or more from the ground, so that the birds may walk under it, and easily removed for cleaning.

Mr. Beard sells his birds to a huckster who comes to the door, and who pays him regularly three cents under the wholesale market. He considers the raising of market poultry merely a sideline, though admitting that he received $1,500 last year for fryers and broilers. That the constant raising of young stock involves a good deal of work does not worry him at all, because, as I said in the beginning, he loves his birds and likes to be with them and counts the production of an extra good market bird as a most worth while task.

Convenient Weaning Coop

Cover of boarded up portion is hinged at top, and floor and roosts are readily removed for cleaning.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

During the fifteenth week of the contest at Santa Cruz seven pens went over 70 per cent for the week. Geo. G. Barker of Santa Cruz leads these with an average of 74 per cent for his ten hens for the week.

High pens for the week: Barker, 52 eggs; Wood, 51; Bellows Bros., 51; Binney, 50; Neef, 50; Amsbaugh, 50; Walls, 49.

Leading pens to date: Walls, 633 eggs; Neef, 567; Rose, 559; Enterprize, 548.

Leading individuals to date: Walls, 92 eggs; Walls, 79; Peck, 78; Enterprize, 77; Barker, 76; Gibson, 75.

The Southern Oregon Poultry Association elected the following officers at its regular annual meeting: President, Henry W. Frame; vice-president, J. O. Isaacson; secretary, C. Gus Brommer; treasurer, M. F. Sheets.

SOME CAT

Little Donald, the promising son of a well-known automobile man was intensely interested in the cat on the hearth before the fire. Suddenly he turned and announced excitedly:

"Mamma, he's got his motor going."

Fertilize with NITRATE of SODA buy it in sack lots—or carloads from

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Plant a "pickle-bush"

Of course, the small boy meant a cucumber vine—but, just the same, the idea is good. You can easily raise the most tempting table-delicacies, right in your own yard. It's just a matter of making a selection of Morse's Seeds—always dependable—readily available.

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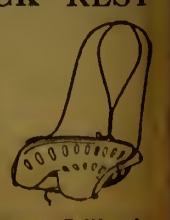
To the seat of your tractor or farm machinery. It saves your back and you ride in comfort. The National Back Rest fits on nearly any seat no matter what style or shape. It can be quickly and easily attached without the use of tools. No screws or bolts. Will not slip off. Three dollars delivered. Some agency territory still open. Satisfaction guaranteed or money refunded



CARL G. JORN
Jorn Bldg., 57 Plaza Square, Orange, California

Poultry Queries

Conducted by J. A. Koethen

Turkey Eggs Don't Hatch

I want to know why my turkey eggs are not hatching. I have set three hens, also a small incubator, and no turks appear. I have given best of care to incubator and hens so I know the trouble is not there. I am feeding equal parts rolled oats, whole wheat and milo, about one-tenth meat scrap, with charcoal and oyster shell before them always. They are kept penned up until noon every day, then are turned into one-half acre alfalfa lot; also just before dark are allowed to range under oaks and where they may, and a handful of wheat is given them to bring them up to roost. The morning feed consists of about one quart of the mixture mentioned. There is a two year old tom with the two and one-half year old hens and I have seen him mate with the eight different hens. The hens lay splendidly, but the eggs do not hatch. I tested at ten days after setting and a slight cloud appears on the top of the eggs, all the same. I have broken several open and they were apparently O. K. so it seems that the eggs were not fertile. Do you think it advisable to change toms? The hens laid well last year and no trouble in hatching occurred, but a different tom was used and the hens were running loose all the time and stole their nests outside of the pen. The birds are in good condition, not fat, so if you can shed any light on this I will be, certainly, deeply gratified.—Subscriber, Lakeside.

Your tom may be to blame for the infertility of the eggs, but I cannot help suspecting the hens may be fatter than they should be. I think this because they are old hens, because they are rather closely confined for breeders, and because you are feeding milo, which is too fattening for breeders. A little feed of wheat bran with a small quantity of flowers of sulphur added every other day is recommended for breeders that must be confined, but it is much better to let them range and feed just a handful of oats or wheat at night. Some breeders prefer to hatch from yearling hens, just because the older hens are likely to be too fat. Oats are particularly good for fertility. One very successful man feeds nothing but oats, meat and vegetables. If the birds are on good range, only the oats are needed. It might be well to try another tom, or possibly use the two in the pen together. Unless the hens are too fat, this should insure fertility.

Feed for Egg Production

What changes would you suggest in this formula for feed for egg production: Six parts bran, two parts barley (ground), two parts beans (ground), two parts fish meal, one part corn (ground), one part charcoal. To this is added Surelay in the proportion of three parts Surelay to two parts mixture. Grain at night, wheat, barley and milo, equal parts. Now feeding buttermilk, one pound to six water. This using of buttermilk (commercial) is quite recent and seems to be having a beneficial effect. Can you suggest a more balanced ration?—Subscriber, Escondido.

The chief trouble with your mash is that it contains too much fibre and too little digestible fat and carbohydrates. Both the bran and the ground barley contain a great deal of fibre and the beans, if they are the common field beans, have neither as much protein nor as much fat as the soy bean, which is generally used in mashes. If you must use the beans—and of course you must if you have them—why not make half your vegetable protein content of a sort which contains more fat, say soy bean or linseed meal? I would also drop part of the bran and substitute low grade flour, which is richer in carbohydrates, of which Leghorns need a good deal, and instead of two parts fish meal, use one and one-half parts fish and one and one-half parts beef scrap. For some reason fish meal alone is not quite as satisfactory as fish meal and beef scrap used together. Your mash formula will then read: Four parts bran, two parts low grade flour, one part ground beans, one part linseed or soy bean meal, one and one-half parts each beef scrap and fish meal, one part corn meal. To this add two and one-half pounds charcoal and one-half pound salt for every 100 pounds of mash. I am suggesting this formula without knowing the composition of Surelay. If it contains a good deal of meat you will have to use less in the mash. It is better, if you wish to use it, to follow the directions of the manufacturer. You do not say how you use the semi-solid buttermilk. It is generally used for moistening the mash once a day and seems to give better results fed in this way than when given alone. The mash recommended by the experts at the university farm consists of five pounds bran, five pounds shorts, three pounds meat scrap, two pounds soy bean meal, five pounds ground barley, one-half pound charcoal, one-tenth pound salt. Now that shorts is so hard to get I presume they substitute low grade flour. The scratch grain used with this consists of 15 pounds wheat, ten pounds barley, five pounds cracked corn or whole Egyptian corn.

Feeding Stimulants

A subscriber writes as to feeding conditioners or stimulants which will secure greater number of eggs during the cooler months. It must be borne in mind that in feeding these stimulants the vitality of the egg is more or less affected and hatching percentage lowered.

EGGS AS FOOD

Hazel Zimmerman, home demonstration agent of the agricultural extension service, gave a unique demonstration during Farmers and Housekeepers' Week at Tucson, Arizona, which showed the high value of eggs as food. Miss Zimmerman says that the composition of hens' eggs compared with that of moderately lean beef is as follows: Hens' eggs—Water, 73.7 per cent; fat, 10.5 per cent protein, 14.8 per cent; mineral matter, 1 per cent. Lean beef—Water, 70.5 per cent; fat, 8.5 per cent; protein, 20 per cent; mineral matter, 1 per cent.

The protein in the white of the eggs is nearly pure albumen. The yolk of the egg is of greater nutritive value than the white. It is rich in the following mineral salts: calcium, iron, potassium and phosphorus, and contains them in such a form that they are readily absorbed and utilized by the body. The white of the egg is rich in sulphur.

Value as Food

By comparing the composition of the egg with that of lean meat, it will be noticed that eggs make a good substitute for meat. Nine average sized eggs weigh one pound and contain about the same amount of nourishment as one pound of beef. As eggs contain no starch or sugar, they should be served with such foods as rice, bread, fruit, potatoes and other vegetables or made into desserts with sugar, tapioca and similar materials.

Digestibility of Eggs

Raw eggs are very easily digested. The digestibility of cooked eggs depends upon the manner in which they are cooked. They should be cooked at a low temperature. Egg albumen begins to coagulate at 134 degrees Fahrenheit, becomes jelly-like at 160 degrees Fahrenheit, hard at 180 degrees Fahrenheit, and when heated to the boiling point, or 212 degrees Fahrenheit, it becomes a tough, leathery mass and very indigestible.

GET MORE EGGS.

"Lady Victory"

1918 Champion laid 304 eggs in 365 days. Highest official record of any living hen. She laid 25 eggs in Jan., 27 in Feb., 29 in March.

Milkoline will help make your hens lay more eggs.

Feeding Milkoline will make you more money—reduce mortality of your flock—keep flock healthy and less liable to disease.

Increase Poultry Profits Any poultry raiser can easily double his profits by doubling his egg production. Feeding Milkoline with other feed greatly assists assimilation, keeps digestive organs vigorous and is a wonderful appetizer, tonic and bowel regulator. Milkoline contains nutritive elements vital to egg production and not found in grain rations.

13,000 More Eggs

Jas. E. Keyes, Petaluma, Calif., says: "After feeding Milkoline for eighteen months to 2,500 hens, I find that worms cannot exist in poultry where Milkoline is used. I reduced mortality with laying hens 10 per cent. I increased the egg production of my flock thirteen thousand eggs in one year. Feeding Milkoline to laying hens keeps them in splendid health thereby preventing disease and derangements of all kinds."

Lowers Feeding Cost

Many feeders say Milkoline lowers feeding cost one-third, because their hens assimilate all feed they eat. Our liberal Guaranteed 30 Day Trial Offer enables you to try Milkoline at our risk—to prove that it will make you mighty good money.

Milkoline has a base of modified buttermilk with essential fats and acids added. Milkoline comes in condensed form. Will not mould, rot or sour. Keeps indefinitely in any climate. Milkoline is simply "Good Buttermilk Made Better for Feeding." Flies don't bother it.

Prevents Disease

Milkoline is not featured as a cure for anything or a preventative, but due to the acidity in the buttermilk it is a germ destroyer and helps keep poultry healthy, which is the best preventative against disease. Milkoline is invaluable as a life saver for baby chicks.

PRICES

These prices are F.O.B. Kansas City or the address of our nearest dealer. Dealers in all parts of the United States.

5 Gal. Keg - $7.50
10 Gal. Keg - 12.50
15 Gal. Keg - 16.50
32 Gal. Barrel 32.00
55 Gal. Barrel 49.50

Prices on smaller packages given in booklet. Buy in barrel lots—it saves you money.

Only 2c a Gallon

For feeding mix one part of Milkoline to 50 parts of water (small feeding 5 tablespoons to gallon of water). Feed either with water or mash feed. Milkoline keeps their appetite keen and its action is highly essential to normal egg production. When fed as directed Milkoline costs only 2c a gallon or less. Trauhaft & Newman, Lankershim, Calif., say: "We would not go back feeding straight buttermilk at any price."

Guaranteed Trial Offer

we will ship you 1 Gallon for $2.25, express prepaid. Take 30 days—feed half to your poultry. If not entirely satisfied simply return unused portion and we will refund every cent you paid us. No charge for portion you have used. Milkoline is legally guaranteed to be satisfactory. You are always the judge. We suggest ordering larger quantity—you get the benefit of lower price—you risk nothing—you must be satisfied or we refund every cent you paid us. Make this test now. The sooner you begin using Milkoline the quicker you will be making money.

Milkoline has been producing so many amazing results and we are so certain of what it will do for you that

Send This Coupon

THE MILKOLINE MFG. CO.
575 Creamery Bldg., Kansas City, Mo.

In accordance with your guaranteed offer, please ship me .....Gallons of Milkoline for which inclosed find $.....
I agree to use half, but at the end of 30 days, if I am not satisfied, I will ship back unused portion, if any, at your expense, and you are to return my money.

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Big Book FREE!

A new 42-page book explaining fully how to make more money from Poultry and Hogs sent free on request.

The Milkoline Mfg. Co.
575 Creamery Bldg.
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Distributed By
STILES POULTRY & SUPPLY CO., San Diego, Calif.

The Reliable Blue Flame Wickless Oil Heated Hover

This Hover Represents Our 30-Inch 42-Inch and 52-Inch Sizes.

THE MODERN HOVER

This hover has the same chick capacity as the coal burning brooder. They are made in four sizes, 18 inch, 30 inch, 42 inch and 52 inch hover. A few of the special points on this oil heated hover are as follows:

Burns Coal Oil
Steady Blue Flame
Comfortable and Easy to Operate
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No Coal, Smoke or Gas
The Flow of Oil Is Regulated Automatically.
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PURE BRED McFARLAND-STRAIN S. C. W. LEGHORNS Bred to lay exclusively. All breeding stock carefully selected and HOGANIZED to insure heavy layers and strong, hardy CHICKS. These CHICKS will be shipped to you on approval and guaranteed; if not as represented can be returned. No weaklings or cripples. Pure white with bright yellow legs. Write for booklet.

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Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or ex steamer to arrive.

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GROUND SQUIRREL WORK OF LARGE SCOPE

Figures of poisoning materials used west of the Mississippi River for the control of ground squirrels from July, 1918, to July, 1919, inclusive, are given by the United States biological survey as follows: Poisoned grain, 2,698,000 pounds; carbon bisulphide, 54,945 gallons; waste balls, 4,000,000; acreage covered, 5,645,000; total cost, $375,000; estimated saving, $3,375,000. Poisoned grain used in California (included in above), 1,138,000 pounds.

WAITE INSPECTS PIMA COTTON SEED

F. W. Waite, horticultural commissioner of Imperial County, has returned from Phoenix where he went to inspect the Pima cotton seed about to be shipped into the Imperial Valley by the Goodyear Company. The main purpose of the inspection was to make sure that the seed is entirely free from Johnson grass. Believing that proper inspection can only be made at the mills where the seed is prepared for shipping, Mr. Waite made the trip to Phoenix and thoroughly looked into the preparation as to every detail. This seed is now being shipped into the Imperial Valley for planting, Mr. Waite having secured the permit required by law of the state department of agriculture.

INCREASED INTEREST IN HIGH SCHOOL AGRICULTURE

According to present indications, there will be more applications from California high schools for state and federal aided agricultural departments than there will be funds available. A number of the high schools now maintaining non-vocational departments desire to change to a Smith-Hughes basis next year. Within the past week three high schools not now maintaining agriculture have indicated their desire to introduce that work on a vocational basis the coming year. There will undoubedly be many more such decisions made by high school boards before the opening of schools next fall. The problem of providing capable instructors is a serious one.

NOT CHARGEABLE TO FARMERS

The high cost of living is, of course, related to agriculture, but no more than to many other lines of activity.

Useless employes must be given an opportunity to become producers upon the farm or in the factory.

I am tempted to believe that the solution of the problem lies more in the hands of those interested in distribution and non-productive enterprises than in the hands of the farmers of the country.

It is not a satisfactory condition for the farmer to receive reduced prices for his pork, wheat, hides, while the prices of his machinery, lumber and shoes are raised.

The farmer asks that the laborers in the mines, the factories and the mills, who are also real producers along with the farmers, make an effort comparable to his to see there is just as little labor expense as possible in each article turned out by their hands, thereby helping the farmers of America, who in turn will help the laborer.

Attention must be given by public spirited citizens to the methods which tend to quicken and cheapen distribution of farm products, such as better terminal facilities, easier transfers, inland water transportation, back hauling, and roundabout routes eliminated.

Every person, no matter in what walk of life he may be engaged, should have a sympathetic, helpful interest in agriculture. — Secretary Meredith, U. S. D. A.

BROOM CORN AND OTHER PLANTS BARRED

Broom corn for manufacturing purposes may be imported hereafter only under permit and when its condition is such that it can be satisfactorily disinfected at port of entry, under a quarantine placed by the secretary of agriculture, effective February 21, 1920. Indian corn and certain related plants from all foreign countries are denied entry into the United States in the raw or unmanufactured state, except sorghum hay from Canada and the shelled or thrashed grain, from any country, of the plants included in the quarantine. The quarantine applies, in addition to broom corn and Indian corn, to such related plants as sweet sorghums, grain sorghums, sugar cane, Sudan grass, Johnson grass, pearl millet, Napier grass, Teosinte, and Job's tears.

The necessity for such a quarantine was demonstrated by the discovery of living larvae of the corn borer in some 97 bales of broom corn shipped from Italy to New York, the first considerable shipment of foreign broom corn since the war period. It has been definitely determined that the European corn borer, now known to exist in Massachusetts, New Hampshire, New York and Pennsylvania, originally reached this country through the medium of imported broom corn.

SHIPS MADE AVAILABLE FOR IMPORTING NITRATE

Indications are that enough Chilean nitrate will reach the United States to meet the nitrate requirements of American farmers for this season. The limiting factor was lack of tonnage to bring the nitrate-to American ports. The department of agriculture on February 7 placed before the shipping board the necessity for prompt action in making such tonnage available. A conference was held on February 11 between the shipping board and representatives of principal nitrate concerns and an agreement was reached under which the board agrees to furnish prompt requisite tonnage covering the period from now until July 1. After that date, according to the agreement, importers will submit their sales on the first of each succeeding month and the shipping board will enter into further engagements to supply the required tonnage.

Deliveries will be somewhat delayed for February and March, but nitrate concerns believe that they will now be able to handle April, May and June arrivals in such way as to clear up all deliveries that are behind and to take care of the forward business in good form. Indications are that importers will make deliveries in accordance with contract, subject to some possible delay during the next few weeks.

FOREST PROTECTION AND UTILITY

Regeneration of the forests of this country on a more productive basis is the most important measure for perpetuating the paper industry in the United States, according to the forest service. In the past forests have been cut extravagantly and little provision made for future growth. In the future operations should be conducted so as to secure an increasing reproduction of species available for lumber and pulp.

Fortunately such species as fir and poplar are prolific seeders and may be reproduced naturally without difficulty. Spruce may also be reproduced under proper methods of forest management. As the cost of pulp wood increases, investments in plantations, especially near pulp mills, would recommend themselves under a proper conservation policy. The production of large quantities of wood near the mills would greatly reduce the cost of lumbering and transportation, as compared with the expense of operating remote tracts that furnish a low yield of wood. Young, thriftily growing forests will produce yields scarcely imagined by one who has been accustomed to deal exclusively with old timber.

Unless this country quickly and widely adopts such reforms, its paper and pulp industry will be permanently crippled, the forest service declares.

"How I chose a power and light outfit for heavy work"

Western Electric Company,
Dear Sirs:

"When a salesman begins to tell me his article is the 'best on the market'—that's my signal to wish him a pleasant trip back to town. Looks to me as if he is more wrapped up in making a sale than in studying my needs and advising me what is best for me. That's my interest, and it ought to be his.

"Not long ago when I was in the market for a power and light outfit, I had the opportunity of seeing half a dozen plants in operation. Some of them looked pretty good to me, but as I never had any experience with an electrical system before, I was a bit puzzled.

"Then along came a salesman whose talk steadied me.

An outfit that can afford to be criticized

" 'You've been looking at some mighty good plants,' the salesman said, 'and probably wonder what I have to offer that is better. Now I'm not going to say that the Western Electric Outfit is the best. No plant is best for every purpose and every situation. But what is your purpose—light or power? If it is light, then I want to say that with the Western Electric Outfit, you get ample light, and something else in the bargain—extra engine capacity.

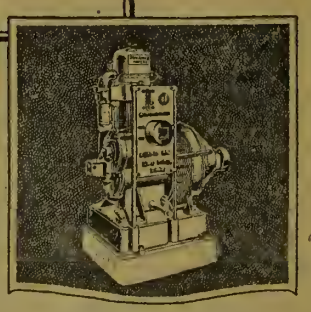
"He went on to tell me that the Western Electric people had gone in for power, plenty of power, believing that most farmers depend on power as a necessary aid in their work. And of course with a powerful outfit abundant light goes along without saying.

Ted Roush is a farmer known to his neighbors as a careful buyer. He looks before he buys any machinery, such as a Power and Light Outfit. So this letter that he wrote to the Western Electric Company—the actual experience of a real farmer—will be helpful to you if *power* is what you are looking for in your outfit.

Say "power" and you're talking the farmer's language

"Just then the Western Electric man caught sight of my grindstone, feed mixer and buzz-saw that I keep hitched up to the shafting down in the barn.

" 'See,' he said. 'Looks as if we figured right in your case too. What you want first of all is power—and I'm going to show you how the Western Electric Outfit can take care of this apparatus of yours.' "



Let the Western Electric Power & Light Outfit help solve your farm labor problem.

Ted Roush
Hillsboro, Ohio

"Then he showed me how I could belt the pulley to my shafting and without any trouble run the machinery. This can be done while the batteries are being charged, or it is just as easy to switch off the generator and deliver all the engine power to the pulley, at the same time you take light from the batteries.

How long do the batteries last?

Here's the agent's answer to that:

" 'The reason why our batteries last is because they are charged without strain. The charge flows in under fairly high pressure at first, but then begins to slow down gradually, so that when the engine stops itself the current is just trickling in. It is thanks to this automatic regulation that the batteries last longer.'

"I like that. But I don't want anybody to believe it because of what I have said. I think the only sensible plan is to see the outfit work, yourself. Then you can be sure."

Ted Roush

No matter what plant you finally buy, you'll be interested in some facts and figures that show just how electric power and light can help you in your farm work. Our booklet CC-2 tells the story. Write a postcard for booklet CC-2 to the Western Electric Company, Los Angeles or San Francisco.

Some good territory still available for live-wire representatives

Western Electric
Power & Light

Makes the Battery last longer

FEDERAL GRADES FOR WHEAT TO STAY

Federal grades for wheat will be enforced under the United States grain standards act after the United States grain corporation ceases to function. Reports have been received by the bureau of markets that farmers and grain dealers in some parts of the country are under the impression that the federal grades and the grain corporation will go out together. This rumor may be due to the fact that the grades went into effect at the beginning of the 1917 crop movement at approximately the same time that the food administration grain corporation began its control of wheat marketing. The grain corporation was created under a war emergency law. The law which empowers the secretary of agriculture to fix grades was approved August 11, 1916, and is a permanent measure.

STORAGE BATTERY TROUBLES

Loss of capacity in storage batteries usualiy comes from ciogging of the pores of the plates with sulphate which is not visible to the eye because the surface of the plates is maintained in proper condition, but the interior portions of the plates have not been thoroughiy reduced. This condition can be remedied, according to Prof. Foltz of the Colorado agricultural college, by prolonged overcharge at a low current rate—at about one-eighth of the normal eight hour rate.

Loss of active material will reduce the capacity of a battery. There is aiways a littie shedding of the active materials of the plates and this may be considered as normal, but when the shedding becomes excessive it indicates that the batteries are being discharged too much. The remedy is to maintain a higher degree of charge in the battery.

PLANNING GREATER CONSERVATION

Onder date of March 4 the Associated Press refers to action recently taken at San Francisco; also to present drouth conditions as follows:

"First steps to gather accurate, compiete information on the water situation in Caiifornia and to work out definite pians to alleviate drouth conditions, said to be the most critical in many years, were taken here today when various state and federai officials formed an organization, headed by E. O. Edgerton, president of the state railroad commission, to be known as the Emergency Water Conservation Conference.

"The conference will begin work at a meeting of representatives of the deita lands, which has been called in this city Friday, to assemble all data bearing on the water situation in their sections of the state.

"A second meeting wiii be held at Wiilows, March 10, and a third at Gridiey the foiiowing day. Following these sessions, which aii water users are invited to attend, Chairman Edgerton and his associates wiii give close study to the facts as brought out and later issue orders to water and power users.

"Those present at today's meeting included Chairman Edgerton, S. T. Harding, state engineer's office; Frank Adams and F. J. Veilmeyer, United States department of agriculture and University of California irrigation investigators; G. H. Hecke, state department of agriculture; C. H. Lee, state water commission; H. D. McGlashan, United States geoiogical survey; A. H. Palmer, United States department of agriculture; H. G. Butler, state power administrator; Lieut.-Coi. L. H. Rand, United States war department; C. H. Loveland and L. S. Ready, state railroad commission. Chairman Edgerton issued this statement:

"'Despite recent rainfall, drouth conditions in the state will remain the most critical in more than 30 years. Water users and irrigationists are warned against assumption that a sufficient water suppiy was made available by reason of the recent rain to relieve the water or power conditions throughout the state during the coming summer.'"

HOW TO TREAT CASES OF POISON OAK AND IVY

If one must handle these poisonous piants, gloves, preferabiy of rubber, should be worn. After the gloves have been removed they should be thoroughly washed with soap and water and rinsed several times. Inasmuch as the clothing which comes in contact with the leaves may be a source of infection for a considerable period, care shouid be taken in changing the garments and also the shoes. Many cases of poisoning have resuited merely from contact with exposed clothing.

One of the surest and best methods of minimizing or preventing infection after the hands, face or other parts of the body have been exposed, is to wash and rinse them repeatedly with an abundance of good kitchen soap and hot water. The poison, after being deposited on the skin, requires some time to penetrate, and if this penetration can be prevented by thorough washing, eruption and irritation will not result. While exposed parts should be cleansed in this manner as soon after exposure as possibie, it is worth whiie to make the attempt even 12 or 20 hours afterwards in the hope that at least a portion of the poison may be removed. A heavy lather shouid be produced and the washing continued several minutes. Severe scrubbing with a brush is not advisable, but several swabs of small compresses of gauze may be used, discarding each in turn, so that the poison may not be distributed by the cloth.

Bathing with alcohol diluted with an equal amount of water is also an effective preventive. Where exposure has been more general, a bath for the entire body, followed by a change of clothing, is a good preventive measure. The hair should not be neglected. Bathing, if not accompanied by sufficient changing of water or rinsing, may result in spreading the rash to skin that had not been infected.

Sugar of Lead Not Recommended

The investigators call attention to the fact that scores of remedies and prescriptions are more or less in popular favor, but in spite of the claims they assert that no specific treatment for poisoning from ivy and sumac is yet available. Ointments should not be used in the acute stage of the disease. In the later stages, however, soothing and astringent ointments may be of vaiue in allaying irritation and hastening cure.

The names "poison oak" and "poison ivy" are used interchangeably in many localities. The plant generally known as poison oak throughout the Pacific Coast occurs as a bush, sometimes four or five feet high, and has leaflets resembiing the leaves of the western oak, but it is also found as a vine, and is sometimes called poison ivy.

While many persons are of the opinion that contact with these plants is not necessary to produce poisoning, it is probabie that many cases supposed to have originated in this way have actually been due to direct or indirect contact. There are cases on record showing that the smoke from burning plants wiil give rise to irritation, and in some cases severe poisoning has resulted from this form of exposure.

Eradication should be followed up systematically. The simplest method is by grubbing, in which care should be taken to cover the hands properly, and also to prevent infection by means of the clothing. The use of kerosene is recommended where injury to other plants or trees is not to be feared. It may be applied with a sprinkler or a spraying pump, and in many cases one application is sufficient. Arsenate of soda has been used very successfully to kiil poison ivy on trees six to ten inches in diameter without injury to the trees, as well as on stone walls, buildings, and along fences.

A Machine that Solves Your Drainage Problem

The Austin Farm Ditcher, Terracer and Road Grader does many things and does them well.

It is unequalled for digging drainage ditches. It will dig a V-shaped ditch 4 feet deep, whose sides slope at an angle of 45 degrees. A ditch of this shape will not cave in or wash out. The Austin Ditcher will grade a road and keep it in repair. It will terrace hillsides so as to prevent soil washing and to make slopes hold moisture. Send for free literature.

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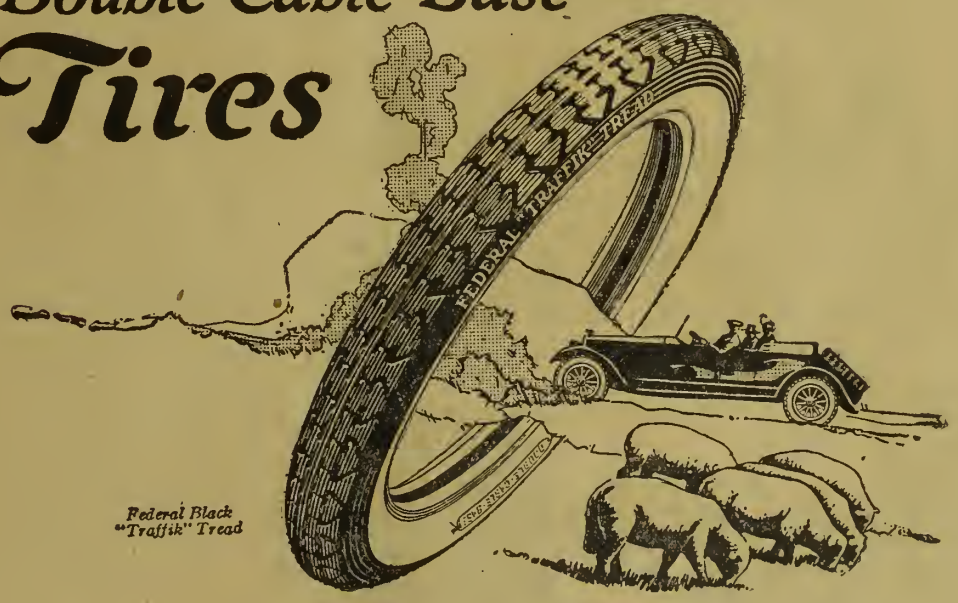

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FEDERALS give you *all* the mileage you ordinarily get from tires *plus* the many miles the Double-Cable-Base saves from rim-wear for *miles on the road.*

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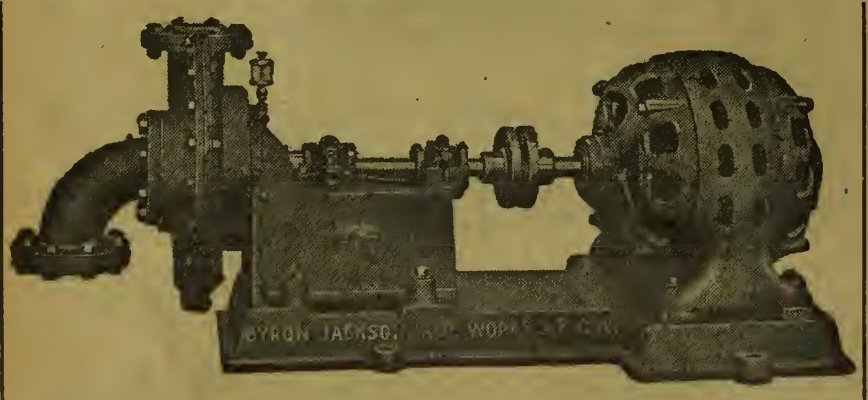

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Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

PUBLIC HEARINGS ON PROPOSED RICE GRADES

Proposed federal grades for milled rice grown in the continental United States have just been published by the United States department of agriculture. Before these grades are adopted public hearings will be held by the chief of the bureau of markets, and growers, handlers, millers and others interested are invited to be present and make suggestions. These suggestions will be considered by the secretary in finally fixing official standards.

The idea of federal grades for milled rice is not new to the rice industry. In September, 1918, the department published a set of permissive standards which was adopted by the United States food administration and afterwards by various boards of trade and other grading agencies throughout the United States, but the grades were never enforced. However, they were the first standards in the United States which embodied definite factors of grading and are now in use to a great extent in the trade.

Public hearings will be held at San Francisco, March 17, 9:00 A. M., Chamber of Commerce, also in various other cities.

CALIFORNIA PINES TO BE CLEARED OF BARK BORERS

Realizing that the destruction of California pine timber by bark boring beetles is a serious menace, a menace directly comparable only to that of forest fires, District Forester P. G. Redington has arranged for control work looking to the eradication of these destructive insects in some 115,000 acres of government timber on the San Joaquin River drainage in the Sierra national forest.

The drainage of San Joaquin was chosen as the scene of operations because of its high timber values (nearly two billion feet of stumpage being involved), values which are now being depreciated by the bark beetles; because these areas of timber are so sharply isolated that the spread of insects into them from outside areas will thus be checked; and because owners of large tracts of private timber adjacent to the government holdings have agreed to cooperate by carrying on similar control work on their own holdings.

GOVERNMENT TIMBER RESERVED FOR SIERRA COUNTY COMMUNITIES

A total of 30 million feet of government stumpage directly adjacent to Loyalton and Sierraville, Sierra County, has just been withdrawn from the general market and will be held for purely local demand.

"The timber situation in the vicinity of Loyalton and Sierraville is rapidly becoming acute," said Assistant District Forester T. D. Woodbury, in commenting on the action of the forest service. "Comparatively large mills are now, and have for some time been cutting in this vicinity, but practically all the lumber so cut goes to the general market only. In addition, the forest service will henceforth refuse to allow logable, sound, saw timber in this locality to be used for firewood, even for local consumption."

READERS ARE USUALLY THINKERS

The practice of daily reading should be begun while in school and should not be discontinued later on account of lack of time. Thirty minutes a day spent in reading will keep one up with the current events and thus widen one's horizon. Thoughts may be gathered that will relieve the monotony and drudgery of the daily task. Reading not only adds to one's daily life but it paves the way for greater enjoyment later. It is as one grows older that the habit of reading becomes most valuable.

DINAH KNEW!

The new colored maid looked like a jewel—a real black diamond. The mistress, a very busy business woman spoke with an apologetic air as they entered the kitchen.

"I know this kitchen looks awful—"

"Laws, honey, don' you min' one minute. I'se used to white folks, I is," soothed Dinah.

CHARITY TODAY

"Have you any particular use for your old clothes?" inquired the charity worker.

"Indeed, I have," was the response, "I wear them."—Literary Digest.

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Household Department

WITH ISHMAEL

Oh, hearths were made for stay-at-homes,
  Who build a little fire,
But feet were made for wanderers
  Whose ankles never tire.

And hands were made for those who love,
  And lips for love to press;
But feet were made for gypsy folk;
  We know no weariness.

For doors were made for householders
  Who sleep the night inside;
But feet were made of knowing flesh
  By flinty roadsides tried.

They say that arms are strong to hold,
  And yielding lips are sweet;
It may be well for sober folk
  Who have forgot their feet.

But I—I have a going foot,
  It will not let me stay;
I bid good morrow to my host,
  And buss his dame good day.

Ishmael had a going foot,
  Under a fairy spell;
And out upon the crags of life
  I camp with Ishmael.
—Willard Wattles, in Springfield Republican.

THE TWO PRETENDERS

THE morning sunshine streamed in through the windows of the hospital, and over little Victor Dubarre's bed. It gleamed on his black hair, and made the red blood glow through the clear olive of his cheeks. The smell of spring was in the air. It was a grand day!

Miss Jimmy almost danced down the corridor, but she paused to straighten the covers on Victor's bed, and fix the corners square with mathematical precision.

"Now you bad little boy," she begged, "can't you let it stay neat five minutes?"

Miss Jimmy's brown hair, under her starchy cap, was curly. Her blue eyes twinkled. Of all the nurses, Victor loved her the best.

"You mean," grinned Victor, "might I could lie still?"

He raised himself up, a rather difficult achievement, since the foot of his bed was much higher than the head, and waved his hand toward the open window with a wide gesture.

"But all the time go past automobiles, wagons, boys running, boys riding burros. Yes! How can I to lie still?"

She pushed him back onto his pillows with a little laugh, and hurried away. If there were tears in Miss Jimmy's eyes, she would not let Victor know it. For, to be sure, as Victor said, he had one good hip—just like anyone's. The other was quite different. That was the reason Dr. Coles had brought him to his hospital, and was making him lie in this tilted bed. That was why Victor was to wear a plaster cast for weeks and weeks after he left the hospital, and then come back again. When the other surgeons discussed Victor's "case," they shook their heads wisely and doubtfully, but Dr. Coles only set his jaw more firmly and said, "You will see." Of course, Victor did not understand much about it, but he knew that Dr. Coles was determined to make him so he could run and jump, even without a crutch.

As I said, it was a grand morning, still Victor was not very happy. His brown eyes moved restlessly. Then suddenly someone was coming up the stairs with quick, light steps.

"Oh, Doctor," Victor called eagerly, smoothing his hair.

"Hello, Vic," answered the surgeon, giving the boy's cheek a pinch. "My, but you look like a dude this morning."

"You mean—"

"You look like a sport."

"Oh, I watered my hair, yes. But Doc-tor, I got to tell you. I cross myself, like always, but also, me, I am a liar."

The surgeon laughed. "You are a liar?"

"Doc-tor, yes. I tell to Miss Jimmy, I tell to everyone, that I have a papa, a mama, lots of folks—and you know I have only but Jacques."

"Why do you do it, Vic?"

Victor frowned, but his dark, wistful eyes, steadily, unwaveringly, searched the surgeon's own.

"If I can to make you understand, Doc-tor. All the time, when I say I have no mama, and only but just Jacques left, all my friends say, 'Poor boy! Oh, such a little boy!'"

"Your friends, Vic? Have you so many friends?"

Victor's face was radiant again.

"In this hospital, even, about a hundred, I guess. All my nurses, the boy that brings the Denver paper, my friend in the wheeling-chair—"

"And you don't want them to pity you?" interrupted the surgeon.

In his earnestness the boy sat upright. His face looked proud, and his shoulders, beneath the hospital nightshirt, squared themselves.

"Me, I do not want them to be sorry, and so I lie." He spoke slowly, as though he were hunting for words to say just what he meant. "When I think to myself how my papa went back to fight for his France and died, I am glad, Doc-tor," he went on softly. "but you see, always when I say it to people they cannot to understand about how brave my papa was. They say, 'Oh, how awful bad!'"

Dr. Coles nodded. "I see, Victor." Then he folded his arms and thought a moment. "And your mother. You remember your mother?"

"Liken as I could forget!" he cried.

"You loved her, Vic?"

"I used to tell to her, 'As much as you are high, as much as you are broad, I love you!'" Slowly his eyes filled with tears, but he blinkel them back. "But my mama, she was very proud about papa, and she told to me and to Jacques, 'Like your papa died for France, it is for you to live for America.'"

Dr. Coles cleared his throat. "Vic," he said, "if you want to have a make-believe game and tell people about the family you used to have it won't hurt anybody.

"The first time I saw you, Vic, hobbling along on the depot platform at Basalt, I told you I would try to make you into a straight man, and I'm doing it. But I'm only straightening your body. Now, the real Victor, you'll have to keep him straight yourself—you and the good Lord. But make believe all the jolly things you want to."

Dr. Coles looked at his watch and snapped it shut again.

"Now I'm going to put a heavier weight on that rope, today, son, and raise the foot of your bed away up."

"Then," chuckled Victor, "Miss Jimmy will call me Victor-Stand-on-your-Head."

And of course she did.

That evening Victor was not sleepy, for the new weight felt very heavy, and something about the rope squeaked a little, whenever he moved. It was dusky in the corridor, with a sort of a subdued December sunset rosiness, for the only lights were the dim red ones marked "Exit." For all that, being wide awake, Victor saw them bring in the Old Aristocrat, and establish him at Twenty-eight. The hospital was crowded. That was why Victor's bed was out in the hall and the door of Twenty-eight was close to his bed. Victor did not know yet that he was the Old Aristocrat, but he saw that he was a sick old man, and rather cross. Miss Jimmy knew him, for he had been at the hospital before. In fact, it was Miss Jimmy who thought of this name for him. The others had called him Old Crosspatch.

"What is that squeaking sound? It annoys me," Victor heard him say to Miss Jimmy, and she came out into the hall.

"Victor, aren't you ever going to sleep?" she asked him, running her fingers lightly through his soft hair.

Victor giggled. "Tell the old gentleman, what squeaks so funny? Has he a little bird in there? Why doesn't he open the window and leave it fly out?"

"Sh-hush!" whispered Miss Jimmy. But the rope squeaked on rather more noisily than before.

The Old Aristocrat groaned ostentatiously a few times, and then went to sleep. After a long time the rope grew quiet, and Victor slept, too.

So at last it was another day, and the rope was rearranged so that the creaking stopped. Then came the boy who sold papers.

"What was I allus a tellin' ye?" he cried, gleefully, tossing Victor a paper. "Av coorse, your ould Franc eis afightin' all righter than iver, ye bet!"

Victor seized the paper joyously.

"But Dannie, no. It is not my France, really. I am for America."

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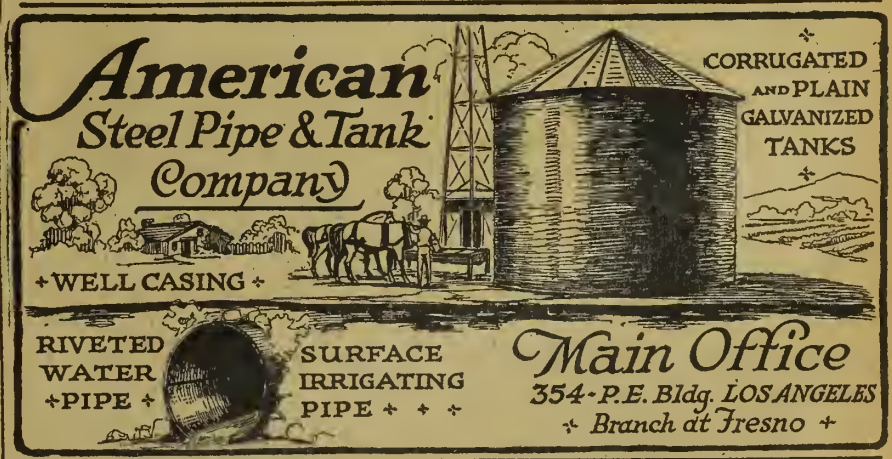

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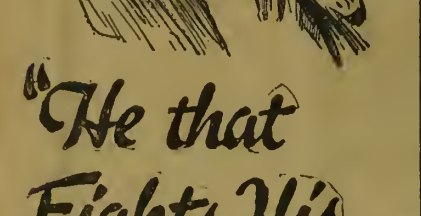

Common tea is half tannin and half poor tea-flavor. When you make it, the tea-taste develops first. It hardly gets going before the tannin comes along and smothers it. Tannin, the rank, harsh, injurious—what people use to tan leather with.

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Dannie grinned back at him. They were great friends.

All at once the Old Aristocrat's voice roared, "Bring me a paper, boy!"

The old gentleman was sitting up, wrapped in a lounging robe of very purple silk. He looked very dignified and handsome, but there was no friendly light in his dark, keen eyes. He did not seem to see Dannie's happy freckled face, or his hair that gleamed like a streak of warm sunshine.

Still Dan ventured a remark as he counted out the change.

"Mebbe ye'll be loikin' to read av the warr, yerself, sorr?"

"Like to read of the war—no!" boomed the old man. Then he went on drearily, "I am too old to fight? All I could give was money—and it is my France—France—France."

Victor gave a start. Was the old gentleman a Frenchman, too? He wanted to ask him, but there was something so forbidding in the way he unfolded his paper and held it before his face that he did not dare. Besides Dr. Coles came to show him a wonderful new brace that was to help make his body straight.

"Doc-tor, it shines like a sword, almost. And such a grand belt it has!" Victor was very nearly shouting. "Could I wear it now and go walking around?"

Dr Coles shook his head. "I want your shoe, Vic. I'll have this fastened to your shoe, and then—".

"I want to ask you, Doc-tor, is it that I can to go home tomorrow?"

"Possibly," said the surgeon, as he hurried away.

Victor frowned for a moment, then he ventured to call out to the Old Aristocrat.

"Do you know, please, what does 'possibly' mean?"

"It means," the old gentleman answered him whimsically, "might you could go, and might you could not go. Why do you want to go home?"

"To see Jacques," the boy answered honestly. Then he remembered his game, and he looked out of the window, and far away, where the distant purple hills touched the blue of the sky.

"I want to see my beautiful mama," he said, in a voice that was strangely happy, "and my brave papa." Then he laughed. "And to hear Louise and Jacques so mad because they have to wash and wipe the dishes, and to know does the baby cry all the time so funny."

The Old Aristocrat offered no comment, but for a moment the little wrinkles around his eyes twinkled, as though he were trying to smile—that was all. Victor settled down among his pillows, with the warm feeling of contentment that always came when he played his game. He did not even notice when the Old Aristocrat got up stiffly and walked to the door, where he stood looking down on the boy, with a strange, intent gaze. Just so had he often gazed, years before, at his own son, building lofty air castles of the things the boy was to achieve.

Something about the boy—perhaps the broad forehead, perhaps the soft curves of his red mouth, brought back the image of that other boy, and then, by a sudden trick of his brain, the picture changed. The old man saw his son again, not a laughing child, but a handsome, hot-headed youth, and he heard his own voice, scornful, bitter.

"So you are a liar? And you think I will shield you?"

Not until the words were uttered did he know that he had spoken aloud. Then the sight of Victor, with his face the color of ashes, and his eyes, staring, staring up at him, brought him to his senses. He had spoken in French, and Victor's knowledge of that language was already becoming hazy. But out of the jumble—"liar"—that word had leaped at him, like a red tongue of flame.

"You said?" he asked in a tiny voice, for his throat was tight and hard.

The Old Aristocrat, somewhat confused, laughed rather drily.

"I was talking to myself," he explained.

"You said liar," prompted Victor.

"Yes," the old man nodded, "I did. I had a son once—but he was a liar."

Victor swallowed painfully and wet his dry lips with his tongue. "Is he dead now?"

"What?" The Old Aristocrat crossed his room and stood looking out of the window, then he turned and came back to the door.

"I do not know," he finished quietly.

"He is not your friend?"

"I never saw him again."

Once more the old gentleman seemed to be talking to himself.

"He came to America. I thought he would come back—but no. And so I came. Twenty years is a long time to wait."

"I know," sighed Victor, "and you loved him."

"When I found he was a liar, there was only hate left in my heart. Only hate. 'A gentleman does not lie,' I told him. 'Our family never has and never will have a place for a scoundrel'. But now I am an old man."

Then he took his paper and began to read again.

At seven that evening, when Miss Jimmy came on duty, Victor called to her. As soon as she was near enough, he seized her and drew her down until his mouth almost touched her ear.

"Miss Jimmy," he whispered, "that old gentleman, he is my friend, my best friend now—and not mad any more."

Miss Jimmy laughed and pushed the hair back off his forehead in the way he loved so well. In his game he pretended she was his mother and that she leaned over and kissed his forehead. To imagine this more easily, he always shut his eye the instant her firm little hand touched his hair. When he opened his eyes this time, Dr. Coles was standing beside Miss Jimmy, and she was examining his new brace fastened now to his shoe.

"Vic," said the surgeon, "Miss Jimmy will help you put this on in the morning. How will that suit you?"

"Oh, but thank you Doc-tor. I want to know—might I can have my clothes?"

"Surely you may, son, and here is your new crutch. It's two inches longer than your old one."

Then as usual, Dr. Coles hurried away. He was a busy man. In 28, he found the Old Aristocrat quite talkative—almost good-natured.

Miss Jimmy went away, too, and then, all at once, Victor knew that Dr. Coles and the old gentleman were talking of him.

"Yes," Dr. Coles was saying, "Victor Dubarre has the bravest heart—"

"Victor Dubarre, you say?" the old gentleman cut in. "Fool that I am, not to have known it. I never asked him his name."

His tone was shrill and excited for a moment, then it dropped again, and Victor heard their voices only as a drone of meaningless words. It must have been an hour later when he heard the Nicest Interne talking to Miss Jimmy. just at the head of the stairs. Victor had been lying with his eyes shut for a long time, but he was as wide-awake as ever.

"So," said the Interne, "it's true. Your Old Aristocrat is Vic's grandfather, but Vic isn't to know it till tomorrow."

"Oh, I am so glad!" Miss Jimmy cried softly. "Victor can have just anything in the world that he wants—" She stopped with a little catch in her voice. "I mean that money can buy him."

"Poor little kid!" sympathized the Interne.

(To be Continued).

SPRING HOUSE BRIGHTENING

We don't say spring "house cleaning" for, especially here in our sunny state we have opportunity to sun and air and clean all through the elsewhere shut-in months.

But when the new leaves begin to come and the fruit trees bloom and the mocking birds and the meadow larks tell us that spring is here, instinctively we begin planning to freshen and brighten our homes as we freshen and brighten our clothing.

A little extra cleaning of course is the first part of the brightening process, but cleaning won't do it all. Don't forget the need of a coat of paint. Sometimes we clean and clean and grieve over the dingy spots when a very small investment in paint and brush and elbow grease would correct the dinginess and make the housekeeper happy. There are so many prepared paints and stains and enamels all ready for use in cans containing from a half pint up that there is no need for hesitating at the thought of work or expense involved.

You will find that grocery, general and drug stores carry these small cans of paint, as well as the regular

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paint shop which may not be accessible.

Also if the paint now on the wood work is not of a pleasing shade it is perfectly practicable to paint it white or cream or any lighter shade—if you use at least three coats, and often the extra expense and labor is more than justified.

And another thing, it isn't in the least bit necessary to wait until your husband can find time to do the work. Just go at it yourself; it isn't half so hard as washing clothes or scrubbing floors, and a heap more interesting.

For the last coat, enamel may be used instead of paint, but it is thicker and more difficult to apply. If used, care should be taken to get it on evenly, not leaving drops of it standing on the surface.

If one does not care to attempt the use of enamel a very satisfactory finish may be obtained by applying flat varnish over the last coat of paint. This produces an effect similar to enamel and is more easily handled.

Woodwork should never have a highly polished surface. Therefore, be sure, in selecting your enamel to get one with an egg shell or satin gloss finish.

An interior finished in this way should be attractive and easily cared for. The floors and woodwork may both be wiped off with a damp cloth without injury to the finish. A little kerosene sprinkled on the cloth is very good for taking up dust and if one wishes to wash the floors, the addition of kerosene to the water facilitates the cleaning.

As to hardwood floors, the oil mop used carefully once in two weeks will soon establish a rich and satiny finish and with the daily brushing be kept in perfect condition.

Then comes the question of fresh curtains and draperies. Never were such alluring patterns shown in cretonnes and tapestries and voiles, and, alas! never were such prices tagged upon them. But the careful shopper may even circumvent this difficulty with ingenuity and dyes and stencils.

Take a look over your house this morning with the eyes of a visitor and see what is needed to make it a brighter, homier place. Or if you have already done your spring brightening write to the Cultivator Household Department what you have done and how you did it and how the family likes it and—if you don't mind telling—how much it cost, and was it worth it.

Your experience and the telling of it may give some of the rest of us just the inspiration we need to brighten up our homes, so don't feel the least bit of false modesty in telling just what you did. If you prefer we will not publish your name, but in these days when women have dropped the clingy vine idea and vote and wear short skirts and join farm bureaus and sometimes farm themselves, why shouldn't we say "My name is Mary Jones, what's yours?"

The pages of this department are always open for your expression. Now let this be a special call for ideas.

Household Contest

For best letter on above topic, $2 cash; second best $1.00; all published one year's subscription to California Cultivator.

Please write on one side of paper only.

Letters should be addressed: Household Department, California Cultivator, Los Angeles, and should be mailed by Saturday, March 20. They will appear in the first issue in April.

With your letter send name and address to which you wish subscription credited.—R. P. D.

THE IRONING BOARD FINDS A HOME

Last week I visited a young housekeeper whom high rents in the city had driven to a home of her own in a small town. It was an unusually attractive bungalow with all the closets and built in features heart of housewife could desire. She was proud of them all, but in the kitchen where she exhibited the ironing board which had a cabinet closet of its own with electric plug for the iron her eyes shone with such pride and satisfaction that it was a lovely thing to see.

And why not a real out-of-the-way-of-everything-else place for the faithful ironing board? Haven't we all packed it away behind the pantry door or hooked it up against the wall of the back porch only to have it assert its helplessness and fall sprawling in the way at hurried and worrisome times?

This particular ironing board was built in to a wall cabinet between the back door and the broom closet at the end of the sink and drain board. When dropped in place it faced the windows over the sink and had at its left the light from the glass door or the open door in warm weather.

This particular board had supporting framework that made it adjustable in height so the cabinet was built with the bottom near the baseboard, and fitted into the back of the cabinet with screws two stiff steel round rods each two feet in length. To the base end of the ironing board were fitted two stout screw hooks which engage these two rods, serving as a hinge in lifting the board into the cabinet for storage and holding it steady for use.

The board slides up or down upon these iron rods to suit the adjustment for different sized persons and when stored settles to the bottom of the rods. It was placed upon hooks instead of eyelets that it might at any time be detached and removed for use to any other part of the house if necessary.

A shelf near the top of the cabinet serves for storage of irons, holders, etc., and a small drawer beneath holds starch box, ironing waxes and other articles needed on ironing day.

It's just one of the little things that mean a great deal of economy in health and happiness.—R. P. D.

CHEESE ADDS SAVOR

Cheese is particularly appetizing in the early spring days. A little added to creamed tuna or chicken or chipped beef makes a very rich and satisfying dish for supper with hot biscuits or toast. Here is a way of using it with corn meal which is new to many:

Corn Meal With Cheese

Cook enough corn meal to spread thin over two pie plates and put dabs of butter on it. Cut the corn meal in both plates into eight or ten triangular pieces of the same size, then grate the cheese, sprinkle it thickly over the butter and sprinkle paprika over it. Lay the second layer of corn meal over the first, taking care to see that each slice fits exactly over the slice under it. Spread butter on the corn meal, grate cheese over it, and bake the dish in a very hot oven until the cheese is soft. In Italy corn meal is often served in this way.

Cheese and Pimento Salad

A very quickly made and delicious salad. Place lettuce leaves on salad plate, a whole canned pimento, a square of yellow cream cheese, over all French dressing made of two tablespoons oil, tablespoon vinegar, Worcestershire sauce and salt to taste.

Cheese in Cream Sauce

Add a little grated cheese to white sauce for meats or vegetables. It gives savor—and it's a change.

Cheese and Onion Sandwiches

Some night for supper or some noon for luncheon serve cheese and onion sandwiches. They are almost a full meal in themselves.

Spread one side of bread with cream cheese, the other with butter—and don't spread either too thin. On one side put finely cut onion, on the other a lettuce leaf or canned pimento and press together.

Cheese in Chowder

Add a bit of cheese to clam or potato chowder, to any cream soup, to stewed tomatoes, corn, beans or peas.

Cheese With Bananas

Cut slit lengthwise in banana skin, force into it a long wedge of cheese, sprinkle salt over it and a little lemon juice, bake in oven ten or 15 minutes. —R. P. D.

TALKING IT OVER

He was a new hand, from the big city.

"Jim," asked the farmer, "have you fed the horses?"

"Yes, sir."

"What did you feed them?"

"Hay."

"Feed the cows?"

"Yes, sir."

"What did you feed them?"

"Hay."

"Did you feed the ducks?"

"Yes, sir."

"Well, what did you feed them?"

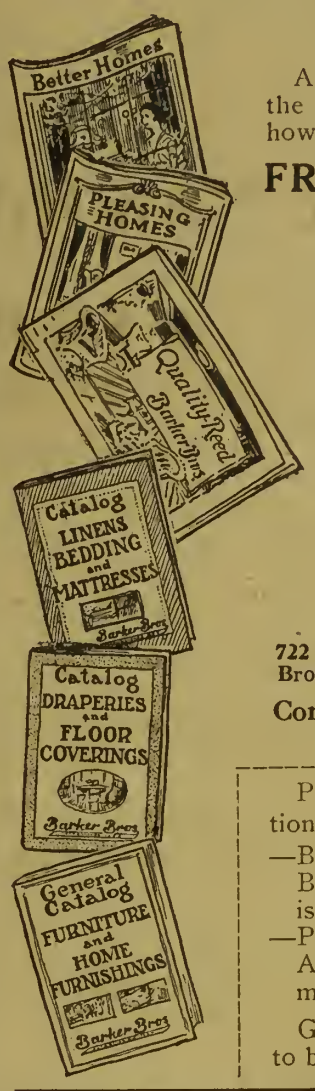
"Hay."

"And did they eat it?"

"Well, no sir, not exactly, they didn't as far as I noticed—but they was talkin' it over when I left."—Ex.

Study of Furniture and Home Furnishings

---The First Necessity in Making a Successful Home



A successful home is the result of doing things the right way. Knowledge of what to do and how to do it is the necessary guide.

FREE Books of Furniture Styles and Fashions

These illustrations show a few of the many fascinating, interesting magazines and booklets and catalogs issued by Barker Bros. and sent Free on Request.

To the home-furnisher they are as enjoyable and necessary as Style and Fashion books to the home dressmaker. They are full of ideas—they teach ways of making rooms cheerful — they show how to select Rugs, Furniture and Draperies for desired effects —they will help you make the most of the furniture you now have.

They are FREE for the ASKING. All you need do to get them is cut out the coupon below, fill in the blanks and send to Dept. D.

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Complete Furnishers of Successful Homes

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Please send me the following FREE publications:

—Better Homes. Beautiful magazine issued quarterly.
—Pleasing Homes. A splendid monthly magazine.
—Catalog of Quality-Reed Furniture.
—Linen-Bedding-Mattress Catalog.
—Drapery and Rug Catalog.

General Catalog of Furniture and Furnishings to be issued in Spring. See later announcements.

International Dehydrator

You are invited to Inspect a Real Working Dehydrating Machine.

GET YOUR ORDER IN

We are now booking orders for next season's deliveries. Save all of your fruit and vegetables and get Dehydrated prices for them.

CUT OUT AND MAIL TODAY
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Give full data as to tonnage and kinds of fruit grown.
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Los Angeles, California. C.C.1-27.
Send me full particulars.
Grower of .....
Tonnage .....
Signed .....
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that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus, Olive Cuttings. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.

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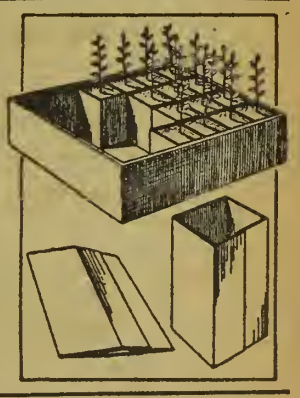
935 East Central Ave. Redlands, California



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PACIFIC NEW AND RE-NEWED PIPE SAVES MONEY

Renewed screw casing costs from one-half to two-thirds less than standard pipe. Large savings on standard pipe, fittings and valves; special fittings made to order. Pacific Pipe is thoroughly tested and guaranteed for 150 pounds working pressure; asphaltum dipped; serves every purpose. Let us save you money. Write

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FISK TIRES

TIRE SUNDRIES

CHICOPEE FALLS, MASS.

PLEASE ADDRESS REPLY "ATTENTION OF

TO THE CAR OWNER:

I wish it were possible for me to meet you personally, to say directly to you some of the things I would like you to know.

If you could conduct an investigation as to which tire commands the greatest good will of its users I honestly believe you would find it to be the FISK.

In the first place, the tire is a good one. I not only think that but I know it. It is built to a high standard. The quality and construction are right and the types of FISK TIRES are generously oversized.

While FISK TIRES are sold through dealers only, we have a big chain of our own branches, one hundred and forty of these being so distributed that all dealers in the United States are within quick reach of Fisk fresh stock.

Each one of these branches is in charge of a Fisk man who is on his tip-toes to see that all dealers and users in his territory are pleased with FISK TIRES.

In direct distribution facilities and in our attitude to our dealers and to you who use tires, we have a place distinctly our own.

In volume of production and in years of experience we are among the small group that leads the whole tire industry.

I personally have seen, in my twenty years' association with The Fisk Rubber Company, its business grow from two-thirds of an acre of floor space to thirty-one acres of floor space and from an annual business, in 1900, of less than $90,000 to very close to $50,000,000 in 1919.

Our Ideal, - To Be The Best Concern In The World To Work For and The Squarest Concern In Existence To Do Business With, - is a true indication of our aims and policies.

Ask your dealer about Fisk Tires.

Very truly yours,

E. H. Broadwell

EHB:M Vice President & Gen'l Manager.

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — March 20, 1920 — No. 12

Hold the Floods in the Mountains

By C. B. Messenger

SINCE early mining days the control of the floods, the preventing of filling of streams with mining detritus, the distribution of water for mining, for power, for irrigation, and for domestic use have been questions of great moment to California and the answering of them has received more attention this year than any preceding year in the state's history. Had the wild dream, discussed at times for a period of many years, been enacted into a reality, the crops produced, the comfort added, and the power supplied for the industries of the cities this one year would have paid the ten millions per year which was suggested should be invested in the Sierra Nevada; damage from floods of former years would have been prevented and their waters would have been available for release this year.

Stream Gauging Stations in Los Angeles County Mountain Watersheds
These and other stations are maintained through cooperation of Federal Weather Bureau officials, State Water Commission and various counties of the state. They will furnish data for later impounding or other conservation.

The scheme called for impounding dams, for spreading of waters over gravel beds, for reforestation, for every step which would retard water and prevent early melting of snow; also for great high line canals skirting along the foothills of the Sierra Nevada from Shasta to well towards Tehachapi. South of Tehachapi there was no such opportunity, though similar plans were suggested for the waters of the Colorado. The scheme was too big; the opportunity was not grasped, and even these dry years fail to give much intelligent discussion to it, or to a better scheme.

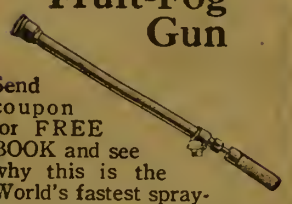
However, every year sees a straightening and deepening of channels to the ocean. The wealth giving waters are speeded on their way rather than retarded. All of Southern California is now engaged in this disposal of her flood waters. It seems necessary if property along the banks of the arroyos and streams is to be saved, but may we not pause a moment and discuss the claims of the careful observers. What are reforestation committees, boards of engineers, counties associations, federal and state officials and others urging upon us?

All are not given the natural opportunity afforded to irrigators on the great alluvial fan which lies at the mouth of San Antonio Canyon above the Pomona-Ontario section. For nearly a score of years these irrigators have taken the flood waters and distributed them over this great bed of gravel and boulders lying from a few hundred feet to several hundred feet above the great tillable valley. These waters have filled the gravel beds underlying the valley and given assured summer irrigation and even made safe the domestic water supply of several small cities. In addition, since the days when T. P. Lukens tramped the mountains and appealed to the people to begin reforesting operations there has been occasional warning to flee the flood to come. But this reforesting, this spreading of the waste waters, is the mere beginning. Let us awake. Our land resources are vastly greater than our water resources. Stop the floods wasting into the ocean.

W. A. Johnstone of the state water commission gave in last week's Cultivator an idea of some of the work now being done in the gathering of data which will afford opportunity— (Continued on Page 483.)

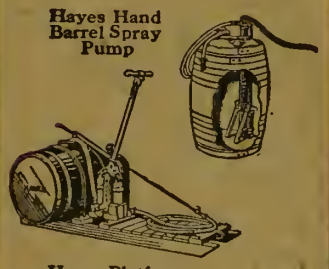
America's Foremost Spraying Apparatus

HAYES Fruit-Fog Gun



Send coupon for FREE BOOK and see why this is the World's fastest spraying apparatus. The only gun which combines great speed with the thoroughness of Fruit-Fog. One man handles capacity of big power sprayer. Does four days' work in one. Simple twist shoots long spray to top of tallest trees, or gives wide spray for close-up work, or shuts off tight and prevents waste of solution between trees. Mechanically perfect and fully guaranteed. Get the book for full details.

Hayes Hand Barrel Spray Pump



Hayes Platform Duplex Hand Sprayer

Hayes High Pressure Triplex Power Sprayer

Nation-Wide Service

Users of Hayes Power Sprayers are within only 24 hours of a service station at all times. In case of accident at a critical time this quick service may save your fruit crops. Hayes Power Sprayers, Engines and Repairs are distributed by

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We Also Maintain Stocks at

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Hayes Hand Sprayers are distributed by Hardware, Implement and Seed Jobbers

Send for the Startling Story of Fruit-Fog Spraying!

FRUIT Growers and Farmers should beware of life-sucking, profit-stealing pests this year. Reports say their ravages are more terrible than ever before in some sections. Send the coupon for Big New FREE Book and Valuable Spraying Guide now. Get all the *new facts* on spraying before it is too late. Learn, for example, why Fruit-Fog—the vaporous super-spray—is the ONLY spray *fine enough* to penetrate into the microscopic niches in bark, buds and foliage—where *millions* of UNSEEN deadly pests hide—and where no coarse, heavy, low-pressure spray can reach. This explains why ordinary spraying often fails. Also why Fruit-Fog Spraying has been pronounced a phenomenal success by Experts, Experiment Stations and Fruit Growers everywhere. Fruit-Fog positive *thoroughness* is the direct reason for the *big crops* and *big profits* that have made Fruit-Fog Spraying famous. Send the coupon now.

HAYES FRUIT-FOG SPRAYERS

The Hayes scientifically atomized, fog-like spray is produced by Hayes guaranteed 300 lb. pressure and the scientific Hayes nozzle. Its vapory fineness gives Fruit-Fog remarkable adhering powers. No drops form—no solution wasted—no buds or leaves knocked off—as with coarse, heavy, low-pressure sprays.

Hayes Fruit-Fog Sprayers are positively standardized in every part. They are skillfully made in a way that insures enduring service and greatest efficiency under high pressure.

To assure Hayes Fruit-Fog users the best possible engine service, we have selected the famous Fairbanks-Morse "Z" Engine as standard equipment.

Sprayers for Every Purpose

There are Hayes Sprayers for Orchards, Gardens, Field Crops, Vineyard, Nurseries, Cemeteries, Greenhouses, Shade Trees, Potatoes, Cotton, Flowers, Alfalfa, Sugar-beets, Poultry and Hog Disinfecting, Whitewashing, Cold Water Painting and every other known use.

No matter what your sprayer needs, from our great Triplex Fruit-Fog Power Sprayer to the smallest Garden Atomizer, we make it.

Send the Coupon Today!

Tell us how many trees you want to spray and how old they are on the average. Also what other uses you have for your sprayer. We'll tell you where and how you can get the style of Hayes Sprayer best suited to your needs, and its price. We'll also send our Big New Book of Hayes Sprayers and Valuable Spraying Guide FREE. Send the coupon today.

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Dept. D, GALVA, ILLINOIS (44)

Send for Big Spraying Book FREE!

The book pictures and describes the Fifty Styles of Hayes Sprayers. Tells why the deadly pests that infest your Fruit, Potatoes, Hogs, Poultry, etc., cost you more each season than several Hayes Spraying Outfits. Proves that these destructive pests are costing American Farmers and Fruit Growers an *appalling toll*. Shows how thousands of owners of Hayes Sprayers have *stopped these losses*—and turned them into *big profits*. Send the coupon now and get the FREE BOOK.

Valuable Spraying Guide Also Sent FREE!

This Spraying Guide tells you, in simple, handy form, how to recognize and kill every known pest that infests every fruit and other crop, also every animal on your place. Tells what solution to use—how to mix it—how and when to apply it. Worth hundreds of dollars to any Farmer or Fruit Grower. Send the coupon and get your copy FREE.

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Gentlemen:
Please send FREE and without obligation, your Big New Sprayer Book and your Valuable Spraying Guide.

Number of trees ..... Average age ....

Other uses.....

Name.....

P. O.....

State ..... R.F.D. .....

California Cultivator

Vol. LIV, No. 12 Los Angeles, March 20, 1920 One Dollar Yearly

California, Greatest of Alfalfa Growers

By C. B. Messenger

"MR. MILLER, how did you do it?"

"When was the seed planted?"

"Did you fertilize the ground?"

"Was the land tiled?"

"Was the seed drilled or broadcasted?"

"How many cuttings did you make during the year?"

"Are there any weeds in your field?"

"Did you inoculate seed?"

"Now, wait a minute, Mr. Messenger; I am not in the habit of taking government contracts, and your questions are rather too numerous for intelligent answer all at once."

We have always taken it for granted that California produces the biggest and best crops of everything, especially alfalfa. Some of the first crops produced in North America were grown in this state, and yet, when it was announced that the greatest tonnage per acre of alfalfa on non-irrigated lands of the United States was produced in the little Chino Valley of San Bernardino County, all we Californians were still somewhat surprised and highly gratified. Hence my flood of questions. I wanted to know for Cultivator readers the how and the why and the when.

It was early one morning last week that I drove out to see the wonder field, and as a Californian looks at things it was no wonder after all. It was simply California alfalfa, grown on California soil by a California farmer. There were some weeds, mostly malva; there was here and there a gopher, and yet, on this fifth day of March there was alfalfa ready for the cutting, the first one of 1920, nearly a month earlier than the first cutting of the prize winning crop of 1919.

But as common as it all appeared, as one looked over the field of beautiful alfalfa, the story as outlined by Mr. Miller was one of intense interest. So far as I have heard he was the only competitor from this state. Before the war ended, an Eastern farm paper, the Farm Journal of Philadelphia, determined as a part of its work in spurring up war time agriculture, to offer prizes for the biggest and best crops of corn, cotton, wheat, potatoes, oats, and alfalfa, these crops to be harvested during the year 1919 and on lands which were not irrigated. Mr. Miller entered the contest. California seemed to be handed this left-handed one: "As a compliment to irrigation farmers, they are not permitted to compete, because they can generally excel non-irrigation growers." But California has some lands which may not receive a drop of rainfall for six or eight months and yet are such wonderful water holders and of such wonderful fertility that they still produce great crops. The lands of Mr. Miller are on the lower slopes of the great plain which extends from the Sierra Madre in the neighborhood of San Antonio Canyon south and southeast toward the Santa Ana River. The soil is a rich sediment of great depth. The particular field from which was cut this prize winning crop of all America grew crops of sugar beets for six years without rotation prior to 1916. Mr. Miller then determined to give it a trial at alfalfa. There were two or three alkali spots or damp places which were reclaimed by laying five to eight inch tiles in a six foot ditch and carrying these tile lines to the district outfall.

America's Biggest Tonnage Non-irrigated Alfalfe Hay.

N. W. Miller of Chino, taken in the alfalfa field which won a $1,000 cash prize and a gold medal for an average yield of seven tons, 748 pounds per acre, or 37 tons, 903 pounds in the five acres entered in the contest, in the season of 1919. This photograph was taken by a Cultivator photographer March 3, 1920 and shows the alfalfa growth nearly 30 days ahead of last year's. Mr. Miller is accompanied by his little grandson.

Following removal of the last crop of sugar beets the land was disked, seeded with something over 15 pounds of seed per acre, broadcasted by hand, and lightly harrowed in. This was in the late fall, November or December of 1916. The first year's crop was good; the next, that of 1918, was much better, in fact, Mr. Miller thinks far greater in tonnage than the prize wining crop of 1919, for the rains of the fall of 1918 and winter of 1919 were lighter than those of the preceding year and much lighter than those of the present year. This drouth, together with the cold, prevented early cutting; the first was in April. Other cuttings were made at regular intervals until the last, which was in November. Each weighing was in the hands of a committee of three. The manner of their work is explained below by Mr. Condee, who was one of the committee. But, in a word, a careful measurement was made of exactly five acres. Every load taken from that five acres was driven to the scales on the ranch. A specimen of the hay was tightly corked in glass container which was forwarded to the University of California to determine its moisture content. Twelve and one-half per cent of moisture was permitted, or, rather, was the basis for determination under the rules of the contest.

After the November cutting and weighing by the committee, reports

(Continued on Page 512.)

The Chili Pepper Outlook

By Ernest Braunton

FOR a few days or a week the chili pepper industry is hanging in mid-air, so far as gross acreage is concerned. A considerable crop will be planted, no matter which way the pendulum swings, but if the swing is to the right the area of planting will possibly be extended over that of last year. If plans do not miscarry a representative of the growers is already speeding eastward, and when he reaches enough big market points he will wire to plant or not to plant.

For the past three years the pepper lands have produced below the normal crops. The soils are getting "old" in this crop and some return must be made if normal production is to be maintained. And fertilization is dependent uopn the contract price for the 1920 crop, and the deal must be closed quickly, for the planting season is at hand. Last year the growers were paid 16 cents a pound for their crop, but between the contract of spring and the harvest of autumn the cost of production had increased about two cents a pound. The grower must have from 18 to 20 cents a pound for the 1920 output before he is assured of a fair chance for profit, for he fears a still further advance in cost of production. To present date the Eastern buyers will not meet these prices, and if the representative speeding toward New York cannot induce them to "come throngh," he will wire back "no planting" and the acreage will be light.

Planting Operations

Great care is taken by the individual planter in the selection of his seed peppers, for upon the standard of his crop depends whether he receives the full contract price or if that price is cut slightly because the product is not up to specifications. So he goes through his fields when plants are in prime condition and places a stake by every plant that is of proper shape, has the right foliage, and good size, form, and color in the fruit. From these plants come the seeds for the next year's crop. This close selection is maintained each year and to this practice is ascribed the fame California enjoys for producing the 'world's best peppers.

The best time for planting ranges from March 20 to April 10, dependent upon temperature and rainfall. In former days seeds were planted in seed beds and the young plants removed when three or four inches high. But the present practice is to plant in the field where the plants are to grow. So it is drilled in rows from 44 to 48 inches apart and when plants are well up they are thinned to 24 to 30 inches in the row. At the same time, if plants are lacking in quantity the better and stronger of the thinning is used to fill the vacancies. The amount of seed sown per acre is about two pounds, covered one to two inches, according to texture of soil.

Intensive cultivation is the price of a good crop of chilis, and nothing yet discovered or devised will take its place. The young plants must be kept free from weeds and the soil constantly stirred. Once a week is the rule laid down for cultivation and in a good soil for peppers once in two weeks is enough of irrigation. In loose, sandy soils the plants will be thirsty every ten days. Fertilization is necessary, especially in the older and more constantly cropped fields, and present knowledge points to fish meal as the best foundation. To this some growers add ten per cent nitrate of soda and the different applications have quite a range in mixture, dependent upon nature of soil and results obtained by the individual in feeding experiments.

Growers interviewed by the writer are still, for the greater number, shaking their heads or shrugging their shoulders when asked if they will plant peppers this year. One man who grew 90 acres of them last year has already contracted with a sugar factory for a beet crop, and many smaller growers have done likewise. The next ten days will settle the question of acreage. J. A. Knapp of Garden Grove, one of the most extensive handlers, and who shipped 50 carloads of chilis the past season, told the writer that he expects to leave for the far Eastern markets to interview the big buyers in a few days. If he reaches a point where negotiations justify, he will wire back the single word "plant." If he does not, the reader knows just as much about the situation as the Cultivator.

Agricultural News Notes of the Pacific Coast

Northern California

A hop ranch recently sold near Mendocino for $130,000.

State farm bureau membership now exceeds 20,000.

Asparagus shipping has begun from the Sacramento delta district.

Humboldt County will vote on a $500,000 bond issue to "save the redwoods."

The March meeting of the Chico farm bureau will discuss irrigation of orchards.

Petaluma poultry district has a poultry adviser with permanent office at Petaluma.

The farm bureau of Oak Park, Yolo County, is planning to establish a marketing department.

Orland irrigation farmers are endorsing forest patrol and better protection of the watersheds.

A tractor school will be held at the Napa high school. Fifty farmers have already enrolled for the course.

Placer County farm bureau meetings will be held at Applegate, March 15; Weimar, 17; Roseville, 22; Colfax, 24.

Prof. Elwood Mead, chairman of the California Land Settlement Board, has established a home at Cloverdale, Sonoma County.

The state railroad commission has issued an appeal to all water users of California to join in a "save the water" movement.

Rice growers of the Sacramento and San Joaquin Valleys are guessing as to what drouth conditions will allow them to do he coming season.

The wool growers of Mendocina County are planning to pool their fall clip through the farm bureau sheep department. They are holding for 50 cents.

Articles of incorporation have been filed by the Pacific Rice Land Company, composed of Japanese, who will operate at East Nicolaus, Sutter County.

The state highway commission has ruled that irrigators may not make use of state highway drainage structures to carry irrigation water across state highways.

The Cone Ranch Company of Red Bluff, Tehama County, is feeding corn to sheep on the range, in order to give the ewes milk enough to raise their lambs.

A San Francisco concern is suing Chico rice company, the point at issue being as to whether title to rice passes as soon as price is named and agreed upon.

Prof. C. M. Packard, in charge of the United States bureau of entomology field station, is affiliating with the state department of agriculture in entomological work.

A sheep growers department of the Mendocino County farm bureau was organized last week at Anderson Valley. It is hoped to extend the activities of the organization to wool men of all Mendocino County.

Seventy-five stockmen of Contra Costa, San Joaquin and Santa Clara Counties met at Livermore under the auspices of the Livermore Stockmen's Protective Association to discuss necessary steps should they be obliged to ship their cattle to pasturage in other states. The meeting appointed a committee consisting of H. P. Holley, Patrick Connelly, J. L. Moy, Joseph Concannon and James Gallagher to make full report of the situation.

Central California

Fresno reports serious inroads from early cutworms.

Farm bureau meeting will be held at Lodi, March 27.

San Joaquin County's farm bureau membership totals 642.

Terra Bella, Tulare County, will plant largely to long staple cotton.

Grape growers near Clovis, Fresno County, anticipate large grape crop.

A new roller gin has been installed at Kearney Vineyard, Fresno County.

Estimate for Melones reservoir for the Oakdale irrigation district is $1,750,000.

Site has been selected for California Cooperative Cannery plant at Terra Bella.

It is rumored that Gilbert Daniels will succeed Harris Weinstock as market director.

The new dried milk plant at Tranquillity, Fresno County, is now making carload shipments.

A maturity test is now suggested for olives by the United States department of agriculture.

Kings County has completed a fine concrete bridge over the Kings River, connecting Hanford with Kingsburg.

Irrigators in the San Joaquin Valley have been given temporary relief from the power shortage by the recent rains.

San Joaquin County irrigators are discussing flood control projects, especially that of the headwaters of the Calaveras.

Settlers on the West Side are endeavoring to secure an irrigation district covering lands located in Kings, Fresno and Madera Counties.

Farmers of Merced, Madera, Kern, Kings, Tulare and Fresno Counties are protesting through their farm bureau organization against increased power rates.

The farmers union of Stanislaus County has adopted strong resolutions condemning sale of land to Japanese as "detrimental to the best interests of the community."

The senate public lands committee has reported favorably on Senator Phelan's bill to enlarge the Sequoia national park and change its name to Roosevelt national park.

Report comes from France that buyers are already offering as high as 15 cents per pound dried for wine grapes, and digging up of wine grape vineyards has been stopped.

The annual farm bureau traveling conference begins at Berkeley this week and will continue with a trip through the Sacramento Valley until April 3. The trip will not start until March 29.

An orchardist has discovered method of oak root fungus control. It consists of stripping roots of trees which are near the surface and saturating ground with solution of cyanide of potassium, one ounce to ten gallons of water.

Judges Wallace and Allen have filed an opinion ordering that a Japanese guardian of two minor heirs be removed from guardianship because the Japanese has farmed the land as his own, making contracts without authority of the court and committing other acts which indicate that his guardianship was merely to evade the alien land law.

Southern California

Orange County fair is scheduled at Huntington Beach, October 7-9.

The Citrus Association at Tustin is increasing its acreage of lemons.

San Dimas marmalade factory contemplates increasing its capacity.

The new berry container adopted by the California berry growers will contain 12 ounces.

The Orange County farm bureau will hold its annual picnic on May Day at Orange County Park.

The farm development bureau of the Goodyear Tire & Rubber Company is urging the value of diversified farming.

The Oxnard drainage district, Ventura County, will soon begin construction of portions of the drainage system.

The San Fernando Valley water consumers are working through the farm bureau to secure a reduced winter rate.

Farm Adviser Walberg of Orange County reports highest value of orchard cover crop at time it comes into bloom.

The designer of the San Diego Exposition grounds, John C. Olmstead, has died at his home at Brookline, Massachusetts.

Six bankers of Anaheim and Santa Ana are uniting with farm bureau members in encouraging more pure bred dairy stock.

Dean Thomas F. Hunt of the college of agriculture has been investigating alkali and flood reclamation in several Southern California counties.

Residents of Palo Verde Valley are requesting the state highway commission to hurry up the construction of the road from Mecca to Blythe.

The Merchants and Manufacturers Association of Santa Ana, Orange County, is discussing advisability of community daylight saving plan.

The dairy department of the Orange County farm bureau it is expected will develop into a mutual buying organization for purchase of feeds in large quantities.

The Cypress drainage district in Orange County is now considering proposal to discharge its drainage through canals on the Bixby and Hellman properties.

The Salton Sea shows higher water than any time during the past year, caused by local rains. Several sections which had become dry land are again under water.

The dairy department of the Orange County farm bureau has organized an executive committee composed of M. Babylon, J. T. Raitt, J. J. Kelly, P. H. Kirck and H. L. Wakeham.

At the last monthly meeting of the Claremont-La Verne-San Dimas farm center in Los Angeles County J. P. Englehart of Glendora demonstrated his system of pruning lemon trees.

A mass meeting of the dairymen of Orange County will be held the second week of April at the dairy of J. T. Raitt near Santa Ana. This will be under the auspices of the dairy department of the county farm bureau.

Owensmouth, Los Angeles County, farm bureau center has an "inoculation committee." The bacillus is harmless, however, or rather is beneficial. The inoculation has to do with legumes though the committee reports: "What the soil needs is more humus; the bacteria are already here."

The Coast and General

Some of Arizona's best Pima is bringing a dollar a pound.

Cowlitz County, Oregon, has a cow testing association of 500 cows.

Wenatchee, Washington, has 1,600 cars of apples waiting shipment.

The Willamette Valley potato market is running around $4 for best stock.

The Texas onion growers will be allowed to bring in contract labor from Mexico.

The Yuma County, Arizona, Water Users Association elected A. Y. Greer, president.

The Southwestern Stockmen's Association recently elected S. G. Brite, president.

Recent rains have put the Arizona ranges in good condition and the livestock situation is improving.

Farmers of New York are reported to be lining up to fight the recently enacted state daylight saving law.

Later returns indicate truck crops nearly wiped out along eastern coast of Florida by frost early this month.

Spinach growers of Walla Walla, are shipping some of their stock to canneries at Salt Lake and Denver.

The main canal on the Yuma project recently washed out in the floods, and the ditches were dry for some days.

Texas lettuce growers are seeing the necessity of putting up a better pack in order to compete with California lettuce.

Walla Walla Valley, Washington, has started marketing spinach. $2 per crate was received for the first shipments.

California lemons are not commanding as long prices in New York and other Eastern markets as they did six weeks ago.

Somerton, Arizona, is erecting a $40,000 long staple gin. Large contracts have been made with the Goodyear Company.

Egg producing sections the United States over report great increase in output over 1919. California's district showing greatest increase is that around Petaluma.

The 534 cows in the Stillaquamish, Washington, testing association, which were on test during the month of January, averaged 576 pounds of milk per cow and 27.2 pounds of butterfat per cow. Six cows produced over 60 pounds of butterfat.

According to a recent survey of the dairy situation, it was found there are 23,000,000 cows in the United States, producing 84,611,000,000 pounds of milk per year. Of this amount only 43 per cent is used as whole milk, which is less than a pint per person.

Boys' and girls' club work in Tillamook County, Oregon, even without a regular leader, resulted last year in the production of $1,358 worth of produce at a cost of $570, according to the annual report. Potato clubs produced $230 worth, garden clubs $120, pig clubs $261, and calf clubs $96.

The Klamath County, Oregon, Wool Growers Association has elected the following officers for the ensuing year: E. M. Hammond, president; M. P. Barry, vice-president; J. H. Carnahan, secretary; J. W. Siemens Jr., treasurer; Jerry McCartie, I. C. McCall, Dennis O'Connor, D. B. Murphy and Dan Driscoll, directors.

Bud Selection---Stock Selection---Efficiency

By C. B. Messenger

WAY back in '86 when I landed in California I believed all the real estate agents told me and decided that the only way to ever secure an orange grove was to buy at once before some other imaginary sucker had taken the last desirable piece of such property. The one particular selection that had been made for me had one qualification which finally clinched the deal. This was, "The Navel trees in this orchard were budded from trees only 'one remove' from the original Tibbets tree." This, I was assured, was almost as good as buds from the original two Washington Navel trees. The idea was carried, as the "removes" increased the virtue in the tree decreased.

In proof of this claim that "bud selection" was a good thing one of California's first treatises on "The Orange," written by Wm. A. Spalding and published in '85, was referred to for authority. Mr. Spalding said: "Original Buds—It is advisable then, in budding to a choice variety, to go back to the original stock, if possible; otherwise to get buds only one degree removed from the original, and those grown on non-deteriorating trees. Too much care cannot be exercised if our standards are to be maintained."

In finishing the planting of the unimproved part of this place I visited nurserymen who made claims as to nearest relationship to the original two Navel trees. But in those days, the boom of '86 and '87, when everybody planted everything, nurserymen were charging up to $2.35 for good Washington Navel trees, and certain importers got busy and scores of carloads of Florida trees were imported. Thus was introduced into California a conglomerate mass of varieties and even many trees not worthy of being called varieties, and with it all, purple and some other scales which have caused untold loss and sorrow. Had we stuck to the principles being explained to us in those days and planted in orchards only our own home grown trees, with few removes from the original, California would be infinitely better horticulturally. With this mass of stuff from Florida, however, came one good introduction; that was sour stock. Prior to that the Tahiti seedling was the preferred stock though much of our stuff had been grown on stock secured from culls of California sweet seedlings.

W. T. Kirkman

So in those early days of a third of a century ago, bud selection and stock selection were great factors in our prosperity, and it is very probable that the pioneers of those days were preceded by others, seekers after higher producing and longer lived strains of stock.

But as much reasonableness and common sense as there was in the plans of those days it has taken many years to arrive at practical, everyday application of these principles. The "removes" from the original stock was soon forgotten and nurserymen and growers found easier securing of buds from certain types of thrifty trees, which meant more wood and less fruit. Then came the knowledge that some trees were persistently great producers of large quantities of the finest fruit, while an adjoining tree equally as regularly produced smaller quantities of inferior fruit.

J. H. Reed, who passed only a few days ago at Riverside, was one of the first to make this observation and, following his natural bent, he was continually asking "Why," and believing that an answer could be found he interested others and application was made to the department of agriculture at Washington for an expert to investigate the subject. For, once we were told why, the way was open to stop these non-producing trees from being

J. E. Bergtholdt.

reproduced and to secure a greater percentage of the high quality and quantity producers.

Shamel came, Scott came, and other scientists from Washington, and they found growers, practical men of years of experience, lending fullest cooperation. The story is long and too well known to repeat here.

After spending some years in the work Scott was assigned to other fields, but the good work he did was remembered, and now the state is bringing him back. I say, the state is bringing him back, though less than a score of men are directly responsible for the work which he is to take up. But in the body of men are included the largest and best operators in their line of business in the world. I believe in the years to come they will be classed with others of our pioneers as worthy of places in the state's hall of fame.

The bud selection, the stock and seed selection problems which have been studied all these years will be practically worked out. The slipshod methods of the backyard nurseryman will be eliminated. The workman who studies out the principles and applies them will win the reward which comes from returning great benefit to the state and—we hope—more immediate financial reward.

Speaking on the topic "Standardization of Commercial Nursery Products" Wm. T. Kirkman, Jr., said at the San Jose convention of nurserymen held at San Jose in October, 1917:

Max J. Crow

"It seems to me that a good way to begin a movement of this kind that will eventually command the cooperation of every propagator in the state would be to collectively organize and own a sort of bureau for the careful and diligent study of varieties and distribution of propagation wood.

"This bureau for the betterment of California horticulture would appoint an advisory commission of a few of our members who are best fitted by experience to act as a consultation board, and they employ an active, competent man to personally make a careful study of standard and new varieties and determine from what portion of the state, and from which orchards, and from which individual trees in said orchards, can be procured bud wood of the record breakers of each respective variety being called for by the planters of the state.

"The proposition I want to ask you to think over for later definite action is the standardization of varieties, and by this I mean the selection and improvement of varieties wherever possible, the elimination of inferior strains and the general adoption by the California Nurserymen's Association of well defined varieties."

At the Riverside convention in 1919 the formal resolutions set forth that: "The annual production of economic and ornamental plants in California aggregates about four millions of dollars, and the total investment in land and improvements totals something like ten millions of dollars. Fruit growing and commercial plant growing has reached a higher development and a greater exploitation in this state than in any other American commonwealth, representing an annual turnover of about one hundred and seventy-five millions of dollars, covering a wide diversity of orchard and vineyard products, of plants and flowers, than is enjoyed by scarcely any similar geographical area."

L. B. Scott

This was followed by recommendations as to the federal quarantine and a general discussion of standardization and stock improvement plans. This discussion was continued in the interval between the Riverside convention and the one closed a few weeks ago at Chico. At that convention definite steps were taken, outline of which was given in former Cultivators.

It was realized that the time had come for definite action and a strong working committee was appointed which held several meetings and got definite action looking toward an organization supported by sufficient capital to make investigations and put into actual operation a producing plant where selected seeds, buds and stocks might be produced. This finally resulted last December in the election of a board of directors consisting of Wm. T. Kirkman, Jr., Fresno; J. E. Bergtholdt, Newcastle; H. A. Hyde, Watsonville; J. S. Armstrong, Ontario; J. W. Barnicott, Newcastle; Geo. C. Roeding, Fresno. Wm. T. Kirkman, Jr., was elected president; J. E. Bergtholdt, vice president, and Max J. Crow, secretary and treasurer. Committees were delegated to negotiate for the location and the purchase of a permanent farm headquarters for the association; likewise to engage the services of a manager, superintendent, etc The wisdom of the board of directors was shown in the selection of L. B. Scott as superintendent and manager.

George C. Roeding

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Who is Scott?

Those of us who became acquainted with him when he was connected with the work at Riverside can answer in a word, "A most pleasing and capable gentleman." His photograph appears in the upper right hand corner of Page 471 this issue. In addition, we wrote to Mr. Shamel's office in Riverside regarding Mr. Scott's work, and in the absence of Mr. Shamel, R. E. Caryl writes:

"In reply to your letter of the 28th requesting information regarding Leo B. Scott, you may consider the following as fairly correct as I have known Mr. Scott personally since 1911.

"Graduate of the horticultural department of the Michigan agricultural college in the class of 1911. Immediately after graduation he started work as a scientific assistant in the horticultural and pomological investigations, bureau of plant industry, United States department of agriculture, under the direction of A. D. Shamel in the work of the improvement of citrus fruits through bud selection, which was then being carried on in Riverside and Corona. He was connected with this work until November, 1916, when he left for Washington, D. C., to take charge of the office of tropical and semi-tropical fruit investigations.

"In 1914 he was given the title of Assistant Pomologist and in 1916 the title of Pomologist in the department.

"While engaged in the work of the improvement of citrus fruits in California he attained considerable prominence as a lecturer and speaker on

H. A. Hyde

horticultural subjects at the annual meetings of the State Fruit Growers Conventions and other gatherings of a similar nature.

"He is the co-author with A. D. Shamel and C. S. Pomeroy of the United States department of agriculture Bulletins Nos. 623 and 624 entitled Citrus Fruit Improvement, A Study of Bud Variation in the Washington Navel Orange and the Valencia Orange, respectively; also the as yet unpublished bulletin entitled Citrus Fruit Improvement, A Study of Bud Variation in the Eureka and Lisbon Lemons.

"Mr. Scott is undoubtedly the best man that could be found today, for the new position which he has just accepted, as his long experience, study, and investigations of the behavior of plants in their relation to commercial agriculture and horticulture has peculiarly fitted him for the position of manager of the California Nurserymen's Bud Selection Association where the sole object of the organization is the production of better trees and more productive trees for the benefit of the best horticultural state in the Union."

Mr. Scott has written us: "I expect to leave for California about the first of April to assume my new duties with the California Nurserymen's Bud Selection Association." We believe the effort made by this association is worthy of highest commendation and we are glad to encourage it. It has been made possible by the energy and

J. S. Armstrong

hard work of President Kirkman seconded most ably by the efforts of Vice-President Bergtholdt. Every other member of the board of directors is joining heartily in plans to make the work of the association a success.

RULES FOR MAKING GOOD CONCRETE

Good concrete for posts, blocks, floors and troughs can be made by observing a few simple rules urged by the division of agricultural engineering of the University of Minnesota, as follows:

Use cement that has been kept dry.

Use clean sand and gravel or crushed rock.

Measure the cement, sand and gravel in the proper proportions.

Mix the cement and sand thoroughly, then add the gravel and mix thoroughly.

Place the concrete immediately, and tamp or spade thoroughly.

Protect from freezing for two days or from drying for four days.

It is poor economy to try to save by not using the proper amount of cement in the mixture. The labor, forms, sand and gravel cost as much for a lean, weak mixture, which will not be permanent, as they do for a rich mixture which is suited to the place where it is to be used and which gives at a slight additional cost for cement both permanence and satisfaction.

By a recent ruling of the labor department at Washington arrangements have been made whereby Mexican labor will be admitted into the Southwestern states with the suspension of the literacy test and the per capita tax. This ruling is of the utmost importance to cotton growers and sugar beet growers.

J. W. Barnicut

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"I haul on pneumatics and deliver fruit unbruised—direct from tree to town —no reloading from orchard teams. Others here have ruined thousands of dollars' worth of fruit by jolting it on solid truck tires. A truck contractor has used two sets of solid tires since I began hauling on my Goodyear Cord Tires."—F. A. Tufts, Lone Pine Ranch, R. F. D. 31, Loomis, Cal.

IN much the same way as that described above farmers everywhere have demonstrated how thoroughly pneumatic tires equip motor trucks for all farm hauling.

By affording traction, cushioning and quickness that solid tires cannot supply, Goodyear Cord Tires on trucks help users forget crop-moving difficulties hitherto requiring extra labor and expense.

The able Goodyear Cord Tires do away with needless transfers of loads from teams to trucks, protect crops in transit and enable marketing with a promptness that catches prices at their highest.

Their unflinching behavior in grinding toil shows that all the valuable advantages of the pneumatic tire have been made entirely practical for truck duty through the development of Goodyear Cord construction.

This construction furnishes the sinews of a tremendous ruggedness and thus fits the big pneumatics to deliver mileages frequently rivaling those of powerful solid tires.

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GOODYEAR

CORD TIRES

Putting Under the Cover Crop

By E. L. Koethen

WE consider the time of putting under the crop a question of paramount importance. So important is it that the practice of growing a crop has often been abandoned because of evil results of allowing it to be delayed too late. In our opinion it should be covered over before it has lost its succulence, for two reasons. First, because it then decays quickly and the fertilizing material stored during the months when the trees were dormant is liberated quickly and is available for use when the trees need it most. Secondly, because if allowed to mature, the woody fiber is developed, which is slow to decay, and the cellulose of the fiber is of such a character that it not only decays slowly itself, but retards nitrification of other nitrogenous materials in the soil, thus locking up the plant food during the fruit setting period.

Another reason for early working is the danger of disturbing the root system of the trees during the most critical period of the growth of citrus trees.

How to Cover

Local conditions must determine the method of covering the crop. Other things being equal, we consider plowing it under best for the reason that then it may be all covered and quickly rotted. Disking will partially cover it and render the soil friable and place it in good tilth. It is a mistaken idea that when the cover crop has been all covered and decayed, it is lost. On the contrary, it is only converted into humus when it has disappeared, and the humus is the ultimate aim in growing it. A lot of dry sticks on the surface of the soil may help to loosen up the soil, but they do not feed the trees. On the other hand the decayed vegetable matter does loosen up and flocculate the soil.

If the soil was plowed in late summer before the cover crop was sowed, it is safer to plow in late winter than it would otherwise be. We consider it already too late to practice deep plowing this season.

The best kind of a plow for this purpose is undoubtedly the disk plow. With it the heaviest kind of a crop can be completely covered, providing the work is undertaken when the moisture conditions are right. Even should it become a little dry before it is finished the disk plow will work when a mouldboard plow is useless. If the latter is used, a rolling coulter is a useful attachment to the plow, as it slices the green vines off ahead of the plow, preventing clogging of the plow. This is especially important with such cover crops as vetch and bur clover.

If disking under is followed, a very satisfactory way is to use the double disk with plenty of power ahead of it. This leaves the ground level and in fine shape.

If rains should cease and the ground get too dry to work before the crop is under, it may be necessary to irrigate before the work can be accomplished. Should it get dry before the material gets a chance to rot, it is necessary to wet up the soil, as it might be a serious blow to the growing trees to allow the loose plowed soil to become dry at this season.

Another matter that should be considered is the army worm. We have seen this pest crawl up the green plants under the drip of the tree onto the limbs and bore holes into a large percentage of oranges. For this reason the entire cover crop should be covered and cleaned up before the first of April, as the main brood of this worm makes its appearance about that time. It is about time for this pest to make its appearance again in its periodic attack on our crops.

In closing, we would say that no matter how large or how small the growth of the cover crop at this period, we would advise getting it under at once. Remember that even a comparatively short growth above ground is augmented in bulk by the growth under ground and thus a larger tonnage is obtained than is realized.

SUPPLEMENTING COVER CROP WITH MANURES

By Fred M. Reed

THE writer has been in the citrus game for about 30 years and has seen the introduction of the cover crop as a factor in fertilization and all the phases of its development. It would seem as if by this time some definite method of cover crop management should have been developed and so well verified by practical experience that one could say with assurance, "This is the way to do it."

Unfortunately, this is not the case. Many successful growers have no use for the cover crop at all, but depend on manure or commercial fertilizers, or both, to make their crops, while other growers who are near failures are very enthusiastic about cover crops and apt to be quite dogmatic as to how and when to put them down. As a matter of fact, after trying all the different ways of getting the cover crop into the soil, and watching the methods of others, we are not able to see that it makes any difference how it is done, if the work is done well.

This district has not made an enviable record in quantity of fruit per tree production, but in the far too few instances where production equals or approaches that of the best citrus districts, it is invariably found that those growers have consistently used liberal amounts of commercial fertilizers and manure, and that they get these results irrespective of whether they work their cover crops in early or late, whether they use a plow or disk to do it with, or whether they have any cover crop at all.

It is no great compliment to the intelligence of the citrus growers that after many years of practical experience and observation no more definite rules of handling the cover crop should have been developed, but there is no use trying to dodge the facts. We do know that while pruning, fumigating and various methods of orchard management are desirable and necessary, the factor that makes the difference between crop and no crop is the liberal and constant use of good fertilizers.

GROWING COTTON

Tne college of agriculture of the University of Arizona has issued Bulletin No. 90, "Growing Cotton in Arizona," by G. E. Thompson and C. J. Wood. It gives general cultural directions which will have much of value for the beginner in cotton growing. From its summary we give:

In growing cotton, good seed is extremely important.

A rich sandy loam soil, well supplied with humus, is ideal.

Early, deep plowing and thorough preparation of the land are necessary.

The seed bed should be wet to a depth of four to five feet.

Plant early, but not until the ground is sufficiently warm to insure good germination and thrifty plants.

The character of the land should govern the rate of thinning.

Cultivation should begin as soon as the plants are through the ground well enough to mark the row.

Proper irrigation is the most important single item in the growing of cotton.

After planting, withhold irrigation as long as possible.

Prevent excessive growth.

The terminal bud should be kept growing slightly in the lead of the flowers on the fruiting branches.

In picking, keep the cotton clean.

Volunteering cotton does not pay.

Report trouble with disease or insect pests to the agricultural experiment station or the state entomologist.

Do not allow the soil to become depleted; practice crop rotation; maintain a balanced agriculture.

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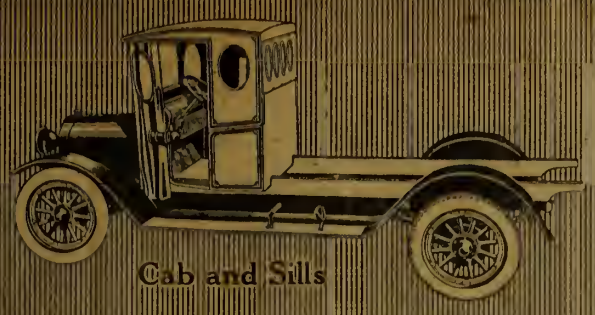
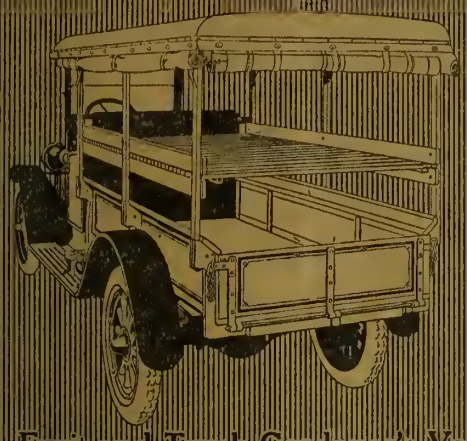


Cab and Sills



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How much more would it have meant to you in the past if you had been able to deliver your crops, your garden truck, your dairy produce or your live stock—hogs, cattle, sheep—to market in time to take advantage of the highest quotations?

Figure back—you'd have been a very rich man by now.

Add to that what you would have realized from a greater acreage seeded each year, and crops harvested in prime condition so as to command the highest prices.

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A Reo "Speed-Wagon"—on pneumatic tires—will enable you to rush your produce to market within a few hours after you have gotten the top quotations—and to deliver the most perishable fruits or live stock in prime condition and with the minimum of depreciation in weight and value.

Free yourself from a non-competitive, small-town market!

The "Speed-Wagon" brings several markets within reach and stimulates competitive bidding.

No matter what your specialty or the nature of your produce, you can have a body that exactly suits your needs, by mounting on the basic body below any of the attachments shown at left. The adaptability of this "Speed-Wagon" is almost limitless.

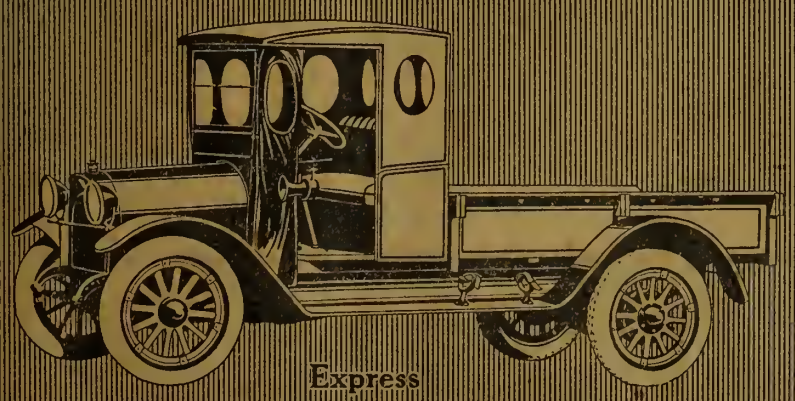
Two standard types are shown at bottom—the standard basic (express) body and the canopy express—and you can buy from your Reo dealer any or all of the attachments for a few dollars extra—either at time of buying the "Speed-Wagon" or any time thereafter.

Electric starter and lights are standard equipment.

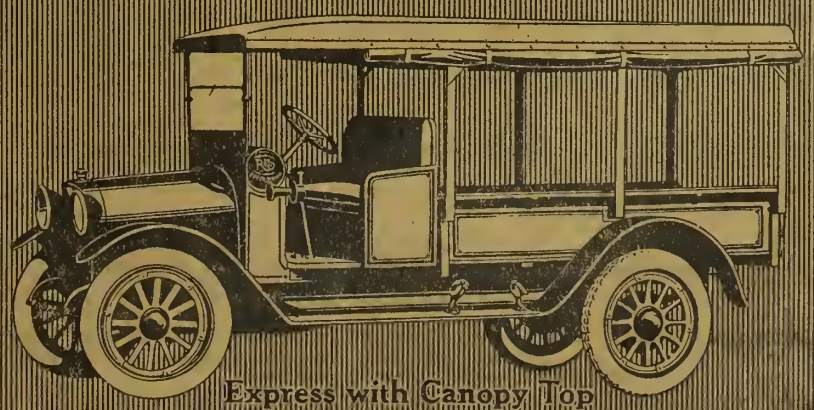
There is a Reo Dealer in your vicinity
If You Don't Happen to Know Him
Write the Factory for Illustrated Catalog

Reo Motor Car Company, Lansing, Mich.

"SPEED-WAGON"



Express



Express with Canopy Top

"THE GOLD STANDARD OF VALUES"

A Paying business proposition

The fact that the "Caterpillar" Tractor has stood the test of time—that it is backed by years of manufacturing experience—is, to many purchasers, ample proof of supremacy. And many find its strongest claim to merit in the fact that the "Caterpillar" Tractor was the exclusive choice of France, England and the United States for their heaviest and most severe war work.

There are still others who require more definite, individual proof that the "Caterpillar" Tractor will be a paying business investment for them. The latter class of purchasers find conclusive evidence in the experience of the thousands of successful and satisfied "Caterpillar" Tractor users that makes this tractor their choice, and in the number of "Caterpillar" Tractor owners who, when requiring additional power, purchase more Holt equipment.

This advice is old, but wise to follow—

"Ask the man who owns one."

THE HOLT MANUFACTURING COMPANY

STOCKTON, CALIF. PEORIA, ILL.

San Francisco Balboa Building — *Representation in every part of the world* — Los Angeles 117 So. Los Angeles St.

Dependable Pumping Plants

When you install a pumping plant you want water—plenty of water—full-rated production and more, if possible. And that's what you get when you install

AMERICAN CENTRIFUGAL PUMPS

These pumps produce the full guaranteed amount of water and they keep power bills down to a minimum! That's more than a claim—it's a guaranteed fact.

Write For Catalog

—which illustrates and describes the entire line of American Pumps and proves their advantages beyond a question. The American Catalog points the way to irrigation efficiency.

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—Deep Well Heads
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By buying fertilizers on a unit basis and not a cost per box basis, you are losing a money making, labor saving, crop increasing advantage.

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When Writing Advertisers, Mention the Cultivator.

Recent Fumigation Development

By H. J. Quayle before Citrus Institute at San Bernardino.

WE are now practically at the close of the third season in the use of liquid hydrocyanic acid, and this period of experience has established beyond question the practicability of the use of such material and its adoption as a marked advance in fumigation methods. Some of the difficulties encountered in the first year or two of the use of liquid hydrocyanic acid, or prussic acid, have now been almost entirely overcome. The purity has been standardized, greater recovery has been effected in the liquefaction process, and the handling of the material has been made reasonably safe.

The important development of the year, from the manufacturing standpoint, has been the demonstration that liquid HCN of high purity may be obtained from low grade materials. In fact, one of the plants that has been furnishing the liquefied product during the past season has been using as the raw material, not sodium cyanide at all, but a different compound low in cyanogen content, from which high grade prussic acid is obtained. Whether or not there are advantages in efficiency or economy, more than one source for raw materials is an important addition to the industry.

Some more definite conclusions have been reached during the year in regard to the general use of liquid HCN. While a low grade material is not desirable, it is generally agreed that, from the standpoint of safety, the product may be of too high a purity. Consequently material of 95 or 96 per cent purity has been recommended for the present. On account of its volatility and low boiling point prussic acid of 98 or 99 per cent, or even higher, has proved to be of more or less concern to fumigators in handling. A reduction of two or three per cent in purity will not overcome all possibilities of danger by any means, but a product of 95 or 96 per cent answers the requirements for efficiency, and it is handled with greater ease than a product of extremely high purity. The question of the uniform diffusion of the gas under the tent was a point of some doubt a year or so ago, but with the higher purity of the present output this is no longer considered important. The past season's experience has also borne out the necessity for using an amount of the liquid that would produce about the same amount of gas for a given tree as was formerly generated by the pot or portable generator.

Red Scale Fumigation at Corona

In addition to the more general problems connected with fumigation, the citrus experiment station has been devoting particular attention to fumigation of the red scale at Corona. This problem has been occupying our attention more or less since 1915, but beginning in April, 1919, a systematic study of the situation was undertaken and since that time Hugh Knight, assistant entomologist, has been almost continuously in the field at that place.

For several years past unsatisfactory fumigation results have prevailed with red scale in many of the lemon groves in the vicinity of Corona. Ordinarily the 100 or 110 per cent schedules, in some cases even the 85 per cent schedule, are sufficient for the red scale, but in the Corona district even much higher schedules are not satisfactory. Our own field tests, as well as the commercial work, abundantly bear out the fact that the red scale is actually more resistant there than in some other sections, rather than that poor results may be ascribed to insufficient dosage, poor tents, or lack of attention to the details of the process. In any comparative fumigation tests the work must be done under identical conditions, hence the work must be done at the same time and place and preferably the comparison made under the same tent. We have been able to meet these conditions with red scale. Lemons from two different localities infested with the red scale have been fumigated under the same tent. Such tests have been caried on for five seasons with almost uniform results, which show that the scales from Corona are actually more difficult to kill than the same scales from some other sections.

Having determined the cause of the unsatisfactory results, what is the remedy? Naturally, our first conclusion was to increase the dosage. Where the scales are most likely to survive the fumigation is on large thrifty trees with heavy foliage, the heavy foliage type of Lisbon tree particularly, and in the Corona section there are a lot of thrifty trees including lemons, oranges and grapefruit. We have determined that the more foliage there is under the tent the more gas it requires to effect a killing of the scales. Under a tent with no foliage and under a tent of identical size and shape enclosing an ordinary orange tree the difference in efficiency with the same dosage amounted to 10 per cent in favor of the tent with no tree enclosed. A tree of heavier foliage would result in even greater difference. After a series of experiments in the field, a special schedule was worked out to meet the particular situation, based upon the percentage of kill at different dosages and on different sized trees. This dosage was only slightly increased for the smaller trees but rapidly increased with the size of the tree until, with the largest trees, the dosage amounts to 160 per cent.

While this dosage has given much better results than heretofore, still in some cases too many scales survive the fumigation. We have considered, therefore, other factors which might have a bearing, such as the condition of the scale and the time of year. Our results have shown that there are two stages of the red scale that are most resistant to hydrocyanic acid gas. These are the adult or mature stage, and the second molting period, and of these two stages the insect is more resistant during the period of the second molt.

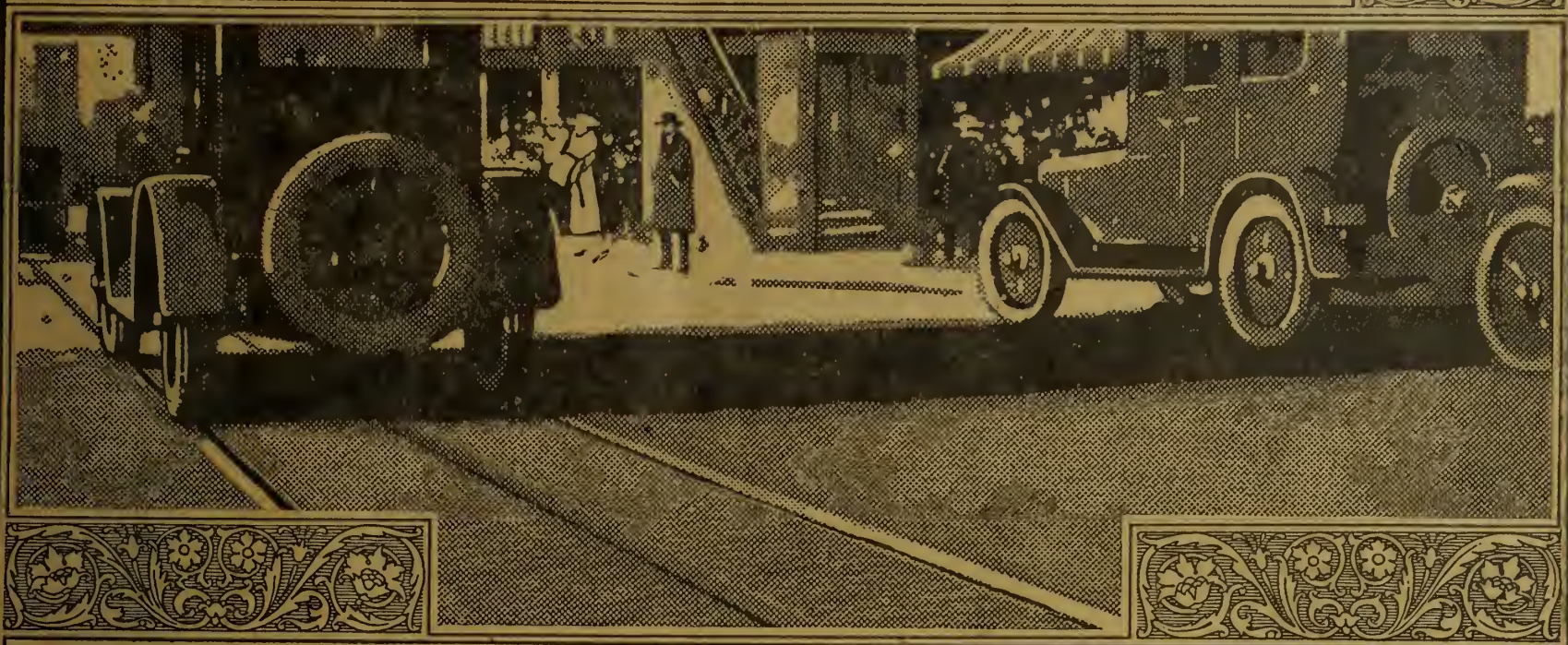
On account of the difference in resistance at different periods in the development of the scale, it would be expected that the best fumigation results would be secured at a season when there are the fewest numbers in these resistant stages, and we have found such to be the case. But, unfortunately, the red scale may be found to a greater or less extent in all stages at practically all seasons. However, the work we did in April and May last year proved to be the most satisfactory of the entire season, even where the maximum dosages were not used. Trees in several different groves that were fumigated at that time are still comparatively clean. Whether we can duplicate these results this year between this date and early in June remains to be determined.

It has already been stated that the red scale is hardest to kill on the thrifty trees, and it is also true that resistance to the gas varies according to the part of the tree on which the scales are situated. It is a well known fact that scales are much more difficult to kill on the fruit than on the leaves or branches; the red scale is also more difficult to kill on sucker growth than on less thrifty growth, on older mature fruit than on young fruit, and apparently more resistant on the leaves than on the twigs. The question of resistance here is evidently related to the food supply.

Lower schedules allow many scales to survive on the leaves and twigs With the schedule of dosage we have adopted at Corona, practically the only scales that survive are on the fruit It is advisable, therefore, to pick the scaly fruit soon after the fumigation The red scale on navel oranges at Corona represents no serious problem, because the fruit is picked within a reasonable time after the fumigation. With lemons, Valencias and grapefruit the scales that survive on the fruit have a chance to increase and spread during the following summer before much of the fruit may be picked.

The request for this discussion has come too soon to give complete report for the year. Further corroboration of winter and early spring fumigation, which has given considerable promise, will not be available until later. Fumigation in the Corona district during the past season has been practically in charge of the citrus experiment station, and we desire to express our appreciation for this cooperation.

Go to a Legitimate Dealer and Get a Legitimate Tire



THIS year the American people will spend more than $900,000,000 for automobile tires.

Tires are one of the largest items in the motorist's budget.

The cost is making even careless buyers think and inquire.

And the more they inquire, the smaller will grow the influence of hearsay and the irresponsible tire dealer.

* * *

We have all met the man who takes his opinions readymade.

He tells everything he knows. He knows more about every car than the man who made it, where to buy the cheapest truck

Every time you drive your car along a track or a rut in a country road you are taking some life out of your tires.

Worn frogs and switches often cause small cuts, which are rapidly enlarged by the action of gravel and moisture. Ruts and track slots pinch the tire, wearing away the tread where their edges strike it.

It is well to avoid such places as much as possible.

—how to get the biggest bargain in tires.

He always arouses a certain amount of wonder in the unknowing. They never think to ask him where he gets his secrets.

* * *

"Somebody says" and "everybody does" are responsible for more wrong impressions about tires than anything else you can think of.

It is on the people who come under the influences of these phrases that the irresponsible dealer thrives.

You generally find him with the name of a standard tire displayed in his windows to give an impression of quality.

But when you get inside the first thing he begins to talk about is price and substitution.

What the thoughtful motorist is looking for today is *better* tires.

He goes to a legitimate dealer and gets a legitimate tire.

The *quality* idea—the idea of a quality tire, of a dealer who believes in quality—is commanding a greater respect from a larger portion of the motoring public all the time.

It is the idea on which the United States Rubber Company was founded—on which it has staked a greater investment than any other rubber organization in the world.

Build a *tire* that will *do more, a better tire than was built before,* and you are sure of a large and loyal following.

We have never been able to build enough U. S. Tires to go around.

United States Tires

United States Rubber Company

Fifty-three Factories The oldest and largest Rubber Organization in the World Two hundred and thirty-five Branches

Daylight Fumigation

Daylight fumigation represents a development in the fumigation process that has been carried farther during the past season than any previous single season, or, in fact, in all previous seasons put together. One fumigation outfit in Orange County started and continued throughout the season by working during the day. In connection with our red scale work at Corona we have been doing daylight fumigation since last September.

We have always assumed that light and temperature were two important factors in connection with fumigation injury, and, so far as the developments have occurred during the season, I think we are justified in still so assuming. But we have ventured out into the daylight much more boldly than heretofore, and we know something more about the results, although I would not presume to claim that much more than a start has been made on the subject.

During the present winter months, December, January and February, daylight fumigation has been carried on in various sections of the citrus belt with satisfactory results. During this season the usual heavy dew at night and the wet cover crop or other growth in the grove, make night fumigation less desirable than day fumigation. The temperature and light conditions and the condition of the tree during this period are not likely to be unfavorable. In such an interior section as Corona daylight fumigation during September, October and a part of November was much more likely to do injury than night fumigation. The dosage could not be reduced to avoid such injury without sacrificing the results on the scales. Valencias are most susceptible (aside from some of the minor varieties, such as St. Michael), Navels less, and lemons the least, susceptible to injury by daylight fumigation. Trees were injured by temperatures of 80 to 85 per cent Fahrenheit in October that were not injured by the same temperature in January. This is probably due to a difference in light intensity or in the condition of the tree. Except in winter a temperature of 65 or 70 degrees is near the maximum for oranges. In January we have fumigated oranges with a heavy schedule at a temperature of 89 degrees without important injury. The season when daylight fumigation can be practiced with safety will be longer, of course, in the cooler sections. Likewise, when high dosage schedules are not necessary there will be a greater margin of safety in daylight work.

Typical daylight fumigation injury is characterized by more or less heavy leaf drop or foliage injury on the south side of the tree. Sometimes the foliage injury is severe without fruit pitting, but daylight fumigation will cause fruit pitting just the same as night work. Some of the older leaves are given a pale white color over a portion of their surface, which is also a manifestation of the effects of light and gas injury. The stomata of older citrus foliage is said not to undergo any movement as a result of light and darkness, but there appears to be some penetration of the gas through the cuticle. In the younger foliage gas penetrates more easily through the thinner cuticle and probably also more readily through the stomata.

From our work thus far it appears that somewhat better results can be secured in day than in night fumigation with the same dosage, or, in other words, the dosage may be reduced slightly in daylight with the same effect on the scales.

Daylight fumigation is not likely to supersede night fumigation, but at the time of the year, or the locality, where the conditions are favorable, daylight fumigation will probably be more widely practiced than at present. Because daylight work has been satisfactory during the latter part of the present season, this should not be a criterion for beginning work on the same basis during the higher temperatures of the coming season.

Light, temperature, season, condition of the tree, variety of the tree, and amount of dosage, are the main factors influencing injury, and where these factors are favorable, as I have attempted to point out, daylight fumigation can be practiced with a fair degree of safety and with satisfactory results on the scales.

MORE COOPERATION

The organization of the Stanislaus Growers Association was completed at an enthusiastic meeting held at Modesto on Thursday, March 4, attended by a large number of leading fruit growers of Stanislaus County.

This meeting brought to a close probably the shortest and most successful campaign in the history of the cooperative movement in the state. Thirty days ago the project of the cooperative canneries had not been taken up, but at the solicitation of a few prominent growers two representatives of the California Cooperative Canneries, Dallas H. Gray of Armona, a leading raisin grower and one of the organizers of the Associated Raisin Company, and Harold T. Johnson of Santa Clara, a member of the Cooperative Canneries at San Pose, presented the project. At the meeting this past week subscriptions to the new cannery fund were turned in to the extent of $117,000, with assurance of upwards of 2,000 tons of fruit. It is expected that the funds for the cannery will be increased rapidly and reach within a short time the figure of $175,000.

The local association was formally organized and directors for the first year elected as follows: T. K. Beard, E. A. Jones, R. Farr and H. G. Pierce of Modesto; M. S. Amerine and L. E. Pitts, representing the McHenry district; H. G. Huls of Salida; J. W. Hackett of Ceres; Geo. N. Pfarr of Empire; M. L. Harmon of Denair and P. A. Hunt of Oakdale. The board of directors completed their organization by electing H. S. Amerine, president; H. G. Pierce, vice-president, and Geo N. Pfarr, secretary-treasurer, and the executive committee consisting of the president, secretary and T. K. Beard.

A site for the new cannery will be selected at once and construction work started, which will insure the completion of the cannery to handle peaches during the coming season.—R. G. S.

BULK THE GRAIN

Labor costs money. Cut it out when possible—not lazily but energetically Bulk handling of grain is one way.

When the grain is spouted directly from the bulk attachment on the harvester to the grain tight wagons (which are drawn with the machine or brought up by teams as needed) there is no occasion for the services of the jiggers and sewers on the harvester. The crop is then handled by a small elevator into the storage bins and later, when market and hauling conditions are satisfactory, trucked to the railroad siding and placed in the loading station or in the cars, without at any time having been shoveled or lifted by hand.

This change makes it possible to harvest and market the crop with from one to three less laborers than are necessary under the sacking system. And, naturally enough, the others are better satisfied with jobs which consist in driving or attending to machinery than with those involving sack juggling for weeks at a time.

The bulk system is certainly in line with twentieth century ideas, for it substitutes cheaply driven and tireless machinery for human backs and arms. In these days, gasoline engines are certainly preferable to the exercise of "main strength and awkwardness."

COPRA CRUSHING INDUSTRY

Crushing copra, dried kernels of coconuts, became an American industry in war time when European countries were unable to get the raw material. Now an important agricultural problem is the maintenance of the industry in this country, because it has added valuable growth producing substances to American stock feeds. Investigations have shown that a little of the press cake added to stock feed greatly increases its feeding value. The copra press cake is especially valuable as an addition to dairy feed and its worth in that regard has long been recognized in Europe.

Help Mother Nature

NATURE does her share in seed bed building by providing fertile soil, moisture, and healthy seed. There Nature's obligation ends. The rest is up to you.

And the preparation of a mellow, thoroughly pulverized seed bed is almost as important as fertile soil and moisture. Upon it depends the healthy germination of the seed and a sturdy growth of the plant.

A seed bed prepared with **International Tillage Tools — disk harrows, spring and peg-tooth harrows, combination harrows and culti-packers** — will form a solid foundation for a bumper crop because these implements are thorough in their work. And they are not only efficient but also very durable, being made of high-grade material throughout. The name "International" is a guarantee of unquestioned worth.

Let us mail you descriptive folders of these tillage implements so that you will know just a bit more about the preparing of Spring seed beds. With every implement goes an alert, responsive and intelligent service. The International dealer will serve you direct.

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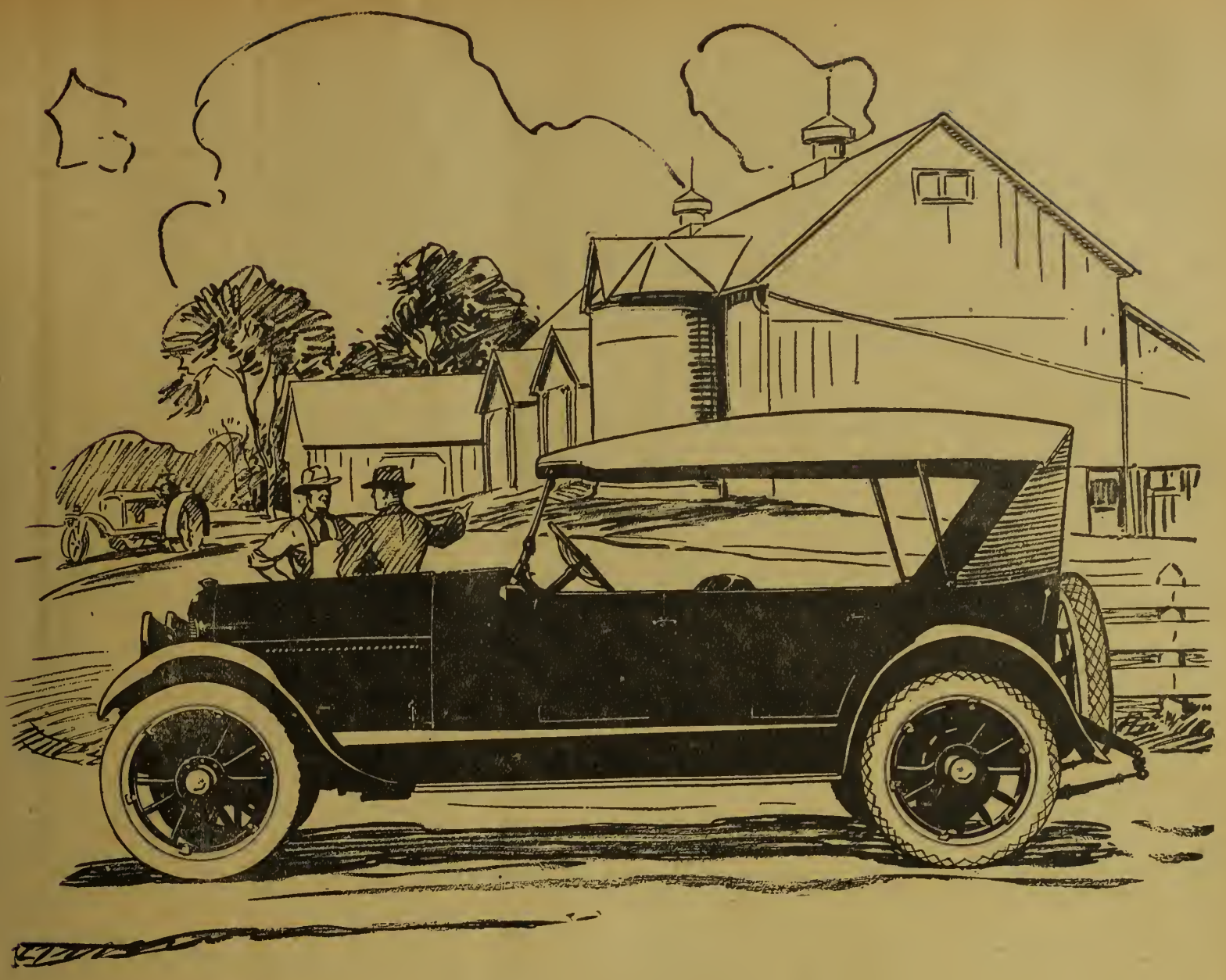

PAIGE

The Most Beautiful Car in America

It is no exaggeration to say that our new "Glenbrook" model has been a sensational feature of both the national and local automobile shows. Its fame has traveled from state to state, city to city, and it now occupies an unchallenged position of leadership in the field of five passenger cars.

In our long experience as manufacturers, we have never produced a model that has so quickly won its way to public favor. Everyone, apparently, recognizes in the "Glenbrook" an engineering and designing achievement of the utmost importance.

The "Glenbrook" is now one of the fastest selling cars on the American market and the demand is increasing with each succeeding day. Already our production schedule has been sorely taxed and orders for spring delivery will undoubtedly result in an oversold condition.

Accept our advice, therefore, and inspect this model at your earliest opportunity. Compare it with any five passenger car that the market affords and determine whether it is not, indeed, the greatest dollar-for-dollar value in the light six field.

PAIGE - DETROIT MOTOR CAR COMPANY, . . DETROIT, MICHIGAN

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultvator 1916

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Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must be in the office Tuesday preceding date of issue to insure insertion.

Advertising rates furnished on application.

The Sacramento office is Room 210 Ochsner Building. All mail pertaining to livestock should be addressed to our Sacramento office.

The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

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Entered as second-class matter February 12, 1900, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Saturday March 20, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

ANOTHER FINE ONE

Another glorious rain, with greatest precipitation in the North at Eureka in Humboldt County of 1.38 and greatest precipitation in Southern California at Pomona of 1.05, tapering down to as low as a quarter of an inch in some sections, has been sufficient to drive away the gloom. We repeat, it is going to be a fine year.

AND MILK DID IT

An exchange gives the following news item:

"After drinking three quarts of bay rum, a bottle of milk and a dish of dill pickles, a Delaware man is dead. The doctor says he thinks the milk is what did it."

Naturally, it was the milk. There have also been cases of sophisticated olives and canned fruits, and even a raisin has contaminated a gallon of water. Whatever happens, the farmer gets the blame.

DREHER PRESIDENT

A "charter member" and one working hardest for organization of a cooperative marketing association, which would handle citrus fruits, in '92, '93 and '94 was P. J. Dreher. He has consistently stayed by cooperative marketing since. Most of that time he was manager of the San Antonio Fruit Exchange at Pomona and all that time he has been a representative in the counsels of the central exchange in Los Angeles. He has now been made president to fill the vacancy made by the resignation of F. Q. Story.

SHOP EARLY

Well, we had a real time of it in closing up our income tax reports, and a lot of us are still wondering how soon we will be called in to correct some of the errors and even dreaming of being fined or sent to jail for some lapse or "misstatement."

It's a wonderful document to fill out, not for the professional bookkeeper, but for the most of us. Hence, the best method of handling the income tax for 1920 is to begin work on it during 1920. We imagine some of our subscribers are doing just this thing, for the offer which we made of sending the Farmers Income Tax Primer is still being availed of after the fatal 15th of March, which was the last day for making the report. These subscribers are eminently wise in getting a good start. Shop early.

FRENCH ECONOMY

A returned service man who came back with a French bride preferred charges, or, at least, raised the question of her sanity because her nervous system was so wrought upon by the American H. C. L. She complained that the money went out as fast as it came in. The board of examiners before whom she was tried found her entirely sane. A part of her evidence was: "I can't afford to have my meat delivered in an automobile and I won't." Possibly some of these French brides will be the means of our using a bit less of gas for free deliveries.

It wouldn't hurt Americans to go back to the good old days of putting down a barrel of pork, smoking a few sides of bacon and filling the cellar with a few bushels of potatoes and apples.

COFFEE"

The department of agriculture is issuing a very sage warning on permitting ourselves to be taken in by the "South American coffee bean," "new coffee bean," "coffee berry," "new coffee plant," "domestic coffee berry," and numberless other fancifully named substitutes for the real thing. As a matter of fact, these "coffee" beans are very common, everyday beans, either the soya or Jack variety. Beans have long been used as substitutes for coffee, as have the grains of rye and even barley. Some like them; more of us don't. But they are good substitutes, far better and cheaper than some which are widely advertised, and, like margarine, should be sold or used as substitutes only and not as imitations.

If you want to grow coffee, grow coffee where coffee is grown.

In California grow beans, but don't let the faker camouflage beans for coffee.

NEMATODES-EELWORMS

A subscriber writes: "See nothing in your paper regarding eelworms, which are a serious pest in our section. Tell us how to get rid of them."

The question is a long one, but first we would call attention of our subscribers to some of the things we have been saying about nematodes, especially what we have said regarding the seriousness of the nematode situation in California. There are various nematodes and various eelworms, but as a rule the terms are interchangeable, especially as to infestation of potatoes. This matter of eelworms in potatoes will become even more serious than it is today, that is, it will because the California horticultural commissioners, acting as state quarantine guardians, will be compelled hereafter to draw hard and fast lines over which eelworm infested potatoes may not pass. There are tens of thousands of acres already infested. The spread must be stopped if the state is to continue in the potato business. So far as known there is no eradication within economic bounds, therefore prevention is our only hope. Quarantine officials can hardly make their campaign too strenuous for the state's welfare.

ARMY AND NAVY STORES

The awful lot of junk that is being sold through the agency of certain "army and navy" stores has impelled The Associated Advertising Clubs of the World to appoint a vigilance committee, and the vigilance committee seems to be manifesting considerable pep. In the effort to control the H. C. of L. both army and navy have united and have established stations for the distribution of unused war supplies. Some of these, like wool blankets, are renovated or renewed, but always offered on the market at prices which give full value to the purchaser. But for many years there have been so-called army and navy stores which have perhaps carried some supplies which were formerly secured through the army or navy. But these have simply been the carrier for a vast quantity of stuff which is often practically worthless.

The government is now checking up on some of these distributors as well as some others which, for instance, like U. S. Audit Bureau, Washington, D. C., are using names which convey a false impression as to their connection with the federal government. The advertising clubs' vigilance committee is now asking cooperation of the people in locating any organization which is sailing under false colors.

PUT IT ON THE FARM

"The savings of a lifetime on the farm should not be expended upon building city homes instead of building country homes and as soon as people have secured a competence and are in position to have the leisure which would enable them to take an active part in developing an adequate country life they should not abandon the country and go to the city, thus impoverishing country life."

This is a quotation from an address made at Farmers Week at Columbus, Ohio, recently, and as it expresses a truth in California as well as in Ohio, let us think about it a bit.

The pioneer and his wife start life in a new country when comforts, in fact everything except merest necessities, are impossible. The habit of enduring and denying is formed, and when independence comes there is still endurance with the same old inconveniences and crude makeshifts. The independence secured is sufficient to justify the town house which from the necessities of the case carries all kinds of comforts and conveniences which were denied on the farm. Then the comparison is made between farm life, and the housewife is very likely to say, "Never again for the farm!". A little more consideration of the family's comfort will mean much in popularizing farming with our sons and daughters.

BY-PRODUCTS

The possibilities in by-products were shown most graphically in the recent National Orange Show. One corner, almost two entire sides, of the large tent was given to display of by-products of the orange, pomelo, lemon and lime. There were marmalades of all shades of sweetness and bitter-sweetness and put up in most attractive glasses and less attractive tins. There were cakes of orange, lemon and pomelo flavors. There were pies even more diverse. There were stick candies, creams and orange chocolates. There were jellies of all shades and consistencies. There were lemon and orange syrups and vinegar. There were both orange and lemon sweet pickles. There were lemon relishes and cordials of all kinds, nectars almost as diverse, orange filled wafers, orange puddings, even orange and lemon sandwiches, lemon mincemeat and, still more far-fetched, orange sugar. This latter, however, consisted only of ordinary white sugar tinted and flavored to add to teas or other drinks. Some of these products were not intended as an exhibit of practical, large commercial possibilities, but many of them were, and the exhibit was truly educational in that it did offer many suggestions which may lead to the establishment of other factories as large and handling as great quantities as do the marmalade factories at San Dimas, Anaheim and elsewhere.

CAN'T WORK WITHOUT CAPITAL

The American Legion, or at least some of its members, have suggested certain changes in the California land settlement act, which we believe it would be very unwise to grant. One of the features of the act is the provision that every one availing himself of those lands must have a capital of at least $1,500 and in addition some experience in farming. The Legion's suggestion that for ex-service men the capital requirement be entirely set aside would open the way for certain failure of the movement. Not that everyone who has not secured capital would be a failure at farming, but simply that lack of capital in any business, no matter how great the credit, is a most serious handicap, and the young man who endeavors to set himself up in the business of farming with simply his two hands, backed by the credit of the state of California, shows lack of realization of the situation which will confront him. Regarding this question, Dr. Elwood Mead has said:

"The board feels that to accept a settler with less than $1,500 would be contrary to its own judgment. On the large farms like those of 56 and 70 acres, the settler ought to have more capital and the applicants with more capital will be the ones that will be accepted.

"The man without capital is not excluded. The farm laborer can get a two acre block by paying five per cent of its cost. No question is asked about his capital. Payments can be saved out of wages. The farm laborer's allotment is the stepping stone to the farm. The children of the farm laborers at Durham and Delhi will be farm owners in the next 20 years."

The land settlement proposition is a movement by the state to settle unused, or, more correctly, not fully used, lands and to give opportunity for more American homes. It is not in any sense a reward for service plan.

Standards for Certified Seed Potatoes

IT IS understood that potatoes for seed certification should first conform to the general standards governing "U. S. No. 1 market stock." This is interpreted as being practically free from dirt or other foreign matter, frost injury, second growth, growth cracks, cuts, bruises, or other damages caused by diseases, insects or mechanical means, with no more than a three per cent variation by weight from any of the above details. It is also recommended that certified seed be marketed in new sacks or containers.

Size

Inasmuch as oversized tubers are wasteful and less desirable than properly grown, uniform, seed-size potatoes, the seed-size standard shall be from two to 12 ounces for long varieties and two to ten ounces for round varieties, with a variation tolerance of five per cent by weight.

Varietal Purity

Since mixed varieties of seed potatoes are a potent cause of economic loss in potato production and marketing, a rigid adherence to trueness to name is required. Furthermore, since the practice of renaming old varieties or changing the names of named varieties through ignorance, or with malicious intention to defraud, is detrimental to the potato industry, a standard on nomenclature and use of the "Group Classification and Varietal Description of Some American Potatoes," by Prof. William Stuart of the United States department of agriculture, is adopted.

Since offtype or runout strains of any given variety are essentially as detrimental to successful potato production as mixtures of varieties, no stock shall be certified or planted with the expectation of producing potatoes for certification that are not uniformly typical in all characteristics for that particular variety in the district where it is grown.

Pests and Diseases That Disqualify

No potatoes shall be certified that show by inspection on vine or tuber the presence of the diseases known as black wart, powdery scab and violet rhizoctonia, and the pests eelworm and potato tuber moth.

Limitations of Other Infections

Scab. No potatoes shall be certified which show upon the tuber at final inspection more than five per cent scab, with no deep scab pustules permissible.

Rhizoctonia (black scurf). More than 12 per cent shall disqualify and no scurf spot larger than one-eighth inch in diameter shall be permitted.

Vascular infection. Not to exceed five per cent of the tubers, as determined by transverse sections of stem end of tuber in the final tuber inspection, shall be permitted. Vascular infection shall be interpreted as meaning wilt diseases.

Late blight. Not to exceed two per cent of the tubers infected with late blight rot spots, and no spot to exceed one-half of an inch.

Vine Inspections

Inspection of potatoes is not only necessary after the crop is harvested but also during the growing season to determine trueness to type and variety and freedom from disease. This shall be accomplished by an inspection of the potato plants in the field at blooming time and again just prior to maturity of the plant.

Bloom Time Inspection

Variety. More than five per cent varietal mixture at this inspection shall disqualify for certification. Furthermore, a variation in type of plants in excess of ten per cent, indicating degenerate or inferior strains of a variety shall disqualify for certification.

Diseases. More than ten per cent of the plants at this inspection affected by the following diseases, or more than five per cent affected by any one of the following groups of diseases shall disqualify the field for certification:

1. Well-defined "curly dwarf," "leaf-roll," "mosaic," or other inherited weaknesses, combined.
2. "Wilt" diseases and "blackleg" combined.
3. Rhizoctonia (black scurf).

Immediately following the bloom time inspection all diseases or objectionable plants must be rogued under the supervision of the inspector.

Second Plant Inspection

At this inspection the tolerances governing certification shall be: Not to exceed five per cent of mosaic, curly dwarf, leaf-roll and other inherited weaknesses; not to exceed two per cent of diseased plants from any one of the following diseases: wilt, blackleg and rhizoctonia, nor a total of four per cent of diseased plants from these three causes. Roguing of the field must again follow the second plant inspection. If ten per cent or more of the vines show serious infection of late blight, the field shall be disqualified for certification. The uniformity and quality of the product as seed shall be determined at the second inspection, at which time not to exceed five per cent of the hills shall each weigh less than 30 per cent of the average 100 consecutive hills.

Final Tuber Inspection

This inspection shall be after harvest and after final grading for the seed market and shall conform to the conditions as hereinbefore specified.

Certification Tag

There shall be attached to each bag or container of certified seed a certification tag, stating thereon that the package contains certified seed potatoes, also giving name and address of the grower, the variety of the potatoes and the year grown; however, if the seed potatoes are grown under contract and to be sold by a party other than the grower they shall meet the requirements as set forth herein and the certification tag shall be marked either with a lot number or the grower's name and the name of the party for whom the potatoes are grown.

On the reverse side of the certification tag the following "Standards for Eligibility to Certification" shall be shown:

"Freedom from varietal mixtures, and conformity to the correct vine and tuber characteristics of the variety.

"Weight of seed tubers from two to 12 ounces for long varieties and two to ten ounces for round varieties, with five per cent variation tolerance.

"Freedom from wart, powdery scab, eelworm and larvae of tuber moth.

"Freedom from serious infection of common scab, rhizoctonia, wilt and other important tuber borne diseases.

"The holder of a certificate is responsible for all undesirable conditions which may develop after the date of the final tuber inspection.

"A certificate of seed potato inspection in conformity with the above standards has been issued by..... to the person whose name appears on the reverse side of this tag."

HOLD THE FLOODS IN THE MOUNTAINS

(Continued from Cover Page.)

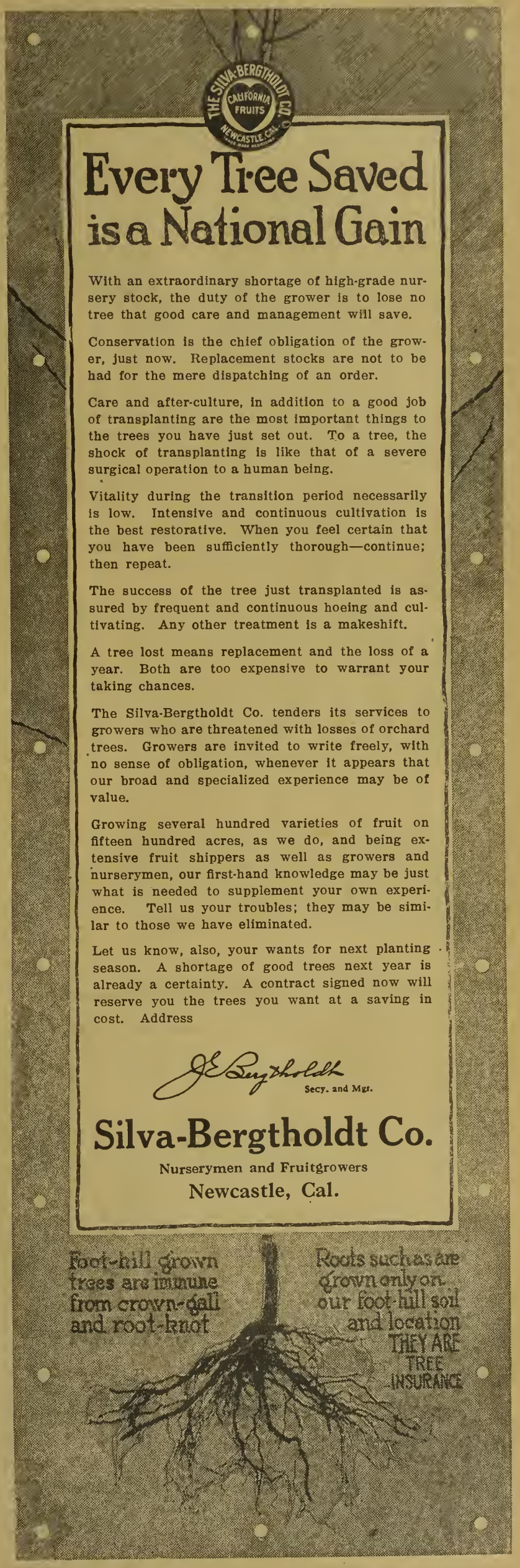
for more definite action in later years. Stream measurement, or figures as to the run-off of various watersheds, is the necessary foundation for definite action in impounding. As Mr. Johnstone suggested, this information is being gathered by expert engineers under the direction of county, state and federal officials. This work will continue, but producers generally must appreciate more fully the needs of the country in this particular.

Don't wear an orange tie to a St. Patrick's Day celebration. Likewise remember that tact is the first requisite of a lasting friendship.—Ex.

Many a man who imagines he could conquer the world and all the folks in it, can't even manage the pests in the garden.

The home garden should be near the house, but not too near the hen house.

Seeds, like mankind, are able to sleep well and get up early if they have a good bed.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Every Tree Saved is a National Gain
With an extraordinary shortage of high-grade nursery stock, the duty of the grower is to lose no tree that good care and management will save.
Conservation is the chief obligation of the grower, just now. Replacement stocks are not to be had for the mere dispatching of an order.
Care and after-culture, in addition to a good job of transplanting are the most important things to the trees you have just set out. To a tree, the shock of transplanting is like that of a severe surgical operation to a human being.
Vitality during the transition period necessarily is low. Intensive and continuous cultivation is the best restorative. When you feel certain that you have been sufficiently thorough—continue; then repeat.
The success of the tree just transplanted is assured by frequent and continuous hoeing and cultivating. Any other treatment is a makeshift.
A tree lost means replacement and the loss of a year. Both are too expensive to warrant your taking chances.
The Silva-Bergtholdt Co. tenders its services to growers who are threatened with losses of orchard trees. Growers are invited to write freely, with no sense of obligation, whenever it appears that our broad and specialized experience may be of value.
Growing several hundred varieties of fruit on fifteen hundred acres, as we do, and being extensive fruit shippers as well as growers and nurserymen, our first-hand knowledge may be just what is needed to supplement your own experience. Tell us your troubles; they may be similar to those we have eliminated.
Let us know, also, your wants for next planting season. A shortage of good trees next year is already a certainty. A contract signed now will reserve you the trees you want at a saving in cost. Address
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Foot-hill grown trees are immune from crown-gall and root-knot
Roots such as are grown only on our foot-hill soil and location THEY ARE TREE INSURANCE

It Makes Them Grow

You can cultivate your bearing orchards by blasting between the rows with Hercules Dynamite. The shock of the explosion breaks the hard subsoil beneath them. You'll be surprised at the way your trees will grow and bear after you've used a little

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"I couldn't get along without Hercules Dynamite. It does three men's work on my place. And its *easy* to learn how to use it. Send to the Hercules Powder Co. for a copy of their 68 page illustrated book, 'Progressive Cultivation'. They'll send it to you for the asking. This book tells you how to plant trees, dig ditches, cultivate your bearing orchards, clear your land, and do many other things with the help of explosives."

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Culture—Sudan Grass is strictly an annual. It may be drilled or broadcasted. If drilled 8 to 12 lbs. per acre is ample; for broadcasting 15 to 25 lbs. should be used. It grows 8 to 10 feet high and yields from 3 to 8 tons per acre. You are sure of two cuttings, and if irrigated three or four cuttings.

Sudan Grass for Pasture—During the months of August, September and October all other grasses are dry, then is the time Sudan is most valuable for fall pasture, and by having it fenced in small fields it will yield food for six times as much stock as any other forage will without irrigation. For milk cows and hogs, there is no better and more abundant pasture than Sudan Grass. It will solve the hay proposition as nothing else can or will do in this climate. A good silage and balanced ration. This seed was grown on our own farm, and is free from Johnson Grass.

Price Per Pound:

10 lb. lots, 25c — 100 lb. lots, 20c
250 lb. lots, 19c — 500 lb. lots, 18c
1000 lb. lots, 17c

Bowman's Hardware and Implement Company
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The Cultivator Costs Only $1.00 Per Year

Growing Roselle

By Robert W. Hodgson

FRUITS and nuts indigenous to the tropics and to foreign countries are now, as never before, attracting the attention of the people of the United States, as witness the intense interest now being exhibited in the avocado and the number of such fruits reaching economic importance within the last two decades, among them the avocado, Japanese persimmon, pomegranate, loquat, feijoa, guava, and roselle. The roselle is, however, hardly as well known as most of the fruits mentioned, although it is by no means less deserving of attention.

While many of the more recently introduced fruits are of American origin, the roselle is native to the Old World, where it has been grown and appreciated for many years. A strictly tropical plant, it is very sensitive to frosts and therefore its culture is at present limited in the United States to Florida and California. Since its merits have been realized by the English speaking peoples, it has enjoyed its greatest extension in Australia, in parts of which it is now grown to a considerable degree, being used largely for the manufacture of jams and jellies for export. The roselle is particularly well adapted to the home garden as its culture is so simple and its requirements so few.

Its habit of growth is much like that of the cotton plant, the stems, however, being reddish and branching much more profusely. The plant reaches a height of six to eight feet and bears beautiful large yellow flowers, each with a dark red eye. The plant itself is quite ornamental, and aside from its useful qualities constitutes a valuable addition to our list of ornamental plants. The flowers open during the night and close during the forenoon, so that much of the beauty of the plant is not evident after ten in the morning. The roselle constitutes one of the few cultivated plants in which the part used for food represents a portion of the flower, which is in this case the calyx. The development of the calyx is very rapid, within three weeks after the opening of the flower attaining its maximum size, at which time it should be picked. If left to mature the "fruit," if we may so call it, loses much of its valuable properties. In addition, if allowed to mature the yield of the plant is materially reduced, since in the axil of each leaf there are several latent flower buds which develop only if the first crop is removed. By picking the calyces from the plant as fast as they reach the proper stage, the yield of the plant is greatly increased.

Roselle

Plant marked for seed selection. By proper seed selection it will be possible to double the present yield.

Culture

The plant is an annual and must be planted each year. Since it is very susceptible to frost it should not be planted until all danger from frost is past, which usually means about the first of April in Southern California. Here best results seem to be obtained by planting directly in the field, some five or six seeds being placed to a hill and later thinned out to one plant.

The plants are usually spaced from six to ten feet apart each way, depending upon the character and fertility of the soil. The roselle demands no special type of soil, but will thrive on any soil that is moderately well supplied with plant food. It apparently does best, however, on a rich sandy loam. The use of large amounts of barnyard manure is not to be advised, since in some cases it apparently stimulates the plant to vegetative growth at the expense of fruiting.

For best results the plants require sunshine on all sides, which makes planting in crowded rows unsatisfactory. The aim should be to have the plants spaced so that when full sized there is still a slight distance between them.

Planted early in April if weather conditions are normal, one may expect to begin harvesting the calyces in late August, and the season is in full swing during September and October, the plants continuing to bear until killed by frost. This is in marked contrast with Florida conditions, where the plant is reported as never bearing earlier than October, although it there continues bearing on through the winter months.

Yields and Returns

There is considerable variation in the seasonal yield per plant, some running as low as two pounds while others will produce 12 or 15 pounds of the calyces during a season. However, an average yield of five or six pounds may be counted upon under ordinary conditions. Planted eight feet on the square, there are 680 plants to the acre, which, averaging five pounds to the plant, would give a total yield of 3,400 pounds. At five cents a pound, and during recent years prices have averaged much higher than this, the gross return would be $170 per acre. The labor cost of harvesting is high, running several cents a pound, but from the figures given it is easy to see that while the net returns are not high, there is still good money to be made in growing it. Of course, at the present time the market demand is not large and the business might easily be overdone. Nevertheless, as the product becomes better known and the market demand greater, it is the writer's belief that the commercial culture of the roselle as a jelly and jam fruit is bound to increase and remain

on a sound economic basis.

Seed Selection

The great variation in size of the calyces and in yield of individual plants furnishes favorable oportunity for increasing both these qualities by the proper selection of seed. If the average yield could be doubled, which seems possible, much greater profits could be made. Individual plants which produce large numbers of well formed calyces should be marked for seed selection. The pods for such purposes are left on the plants until the seed pods turn yellow and show signs of splitting at the apical end. They are then picked and dried in the sun and the seed threshed out and stored in a dry place.

In composition the roselle is almost identical with the cranberry. Indeed, it furnishes a most excellent substitute for the cranberry and this quality alone should make it popular with the American people. It may be used in the making of pickles, sauces, jams, jellies, and in many other ways which will occur to the housewife.

In preparing for cooking, the stem and basal end of the pod are cut off at the point of junction of the calyx and seed pod. A slight pressure forces the seed pod out of the apical end of the calyx. The calyx alone is ordinarily used, since it contains the color, but the seed pod also contains large amounts of pectin and may be included for jelly making.

There are very few pests attacking the roselle, about the only one of importance being the ordinary garden nematode which attacks the roots. No satisfactory remedy for this pest on any crop has been found and infested land should not be planted to the roselle.

THE GRASSHOPPER OUTLOOK

Director Hecke writes: Among the many problems involved in the activities of spring which the farmer must solve is the one of fighting grasshoppers in his fields and orchard.

The unusually large numbers of adult grasshoppers depositing eggs in many localities in the late summer months of 1919, the mild winter weather, and the lack of winter rains are strong indications of one of the most severe grasshopper seasons that California has seen in recent years.

With a shortage of spring rains we may expect grasses on waste areas and range lands to dry very rapidly, forcing this pest to migrate in search of food to the green fields and orchards of irrigated districts.

A shortage of rainfall and irrigation water will render orchard trees, vines and field crops less able to withstand severe grasshopper injury.

The high cost of labor and the high prices of farm products are such that the fruit growers and farmers cannot afford to have their trees and vines destroyed and alfalfa fields devastated.

But we have much to be thankful for in that this pest can be controlled where communities become properly organized and diligently practice the most modern methods of fighting grasshopper outbreaks.

The office of pest control is at the present time making all plans for a state wide grasshopper campaign in an effort to offer the most practical service to every individual and every community desiring assistance in the control of this pest. For this purpose we have been fortunate in securing the services of T. D. Urbahns, formerly grasshopper expert for the United States department of agriculture, whose work was a signal success against this pest last year in California.

The University of California and bureau of entomology, United States department of agriculture, will be asked to cooperate in this campaign.

Farmers can assist greatly by keeping close watch of the development of the pest and giving timely warning to State Department of Agriculture, Sacramento, the county horticultural commissioner, or the farm adviser of this county.

NOT EXACTLY

"Marriage is a lottery."

"Not exactly," commented Miss Cayenne. "When you lose in a lottery it's an easy matter to tear up the ticket and forget it."—Washington Star.

VARIATION IN PRECIPITATION

By Charles Kirby Fox

Probably the greatest single factor in determining the character of people who permanently inhabit any section of the globe, their character and products, is climate. The principal factors in making a satisfactory climate are rainfall, temperature, sunshine, humidity and wind velocities. Rainfall is probably the most important of these. If the rainfall is excessive, as in some tropical countries, it is practically impossible for a complete civilization to be maintained, whereas if a great shortage exists either in the annual or seasonal distribution, as on some of the deserts, it renders it impossible for any great development without engineering construction, as is exemplified by the great irrigation works in the Western states. There is one great advantage, however, in connection with irrigation agriculture in many parts of the great Southwest, the growing season is long, while bright sunshine is a very material factor in plant growth.

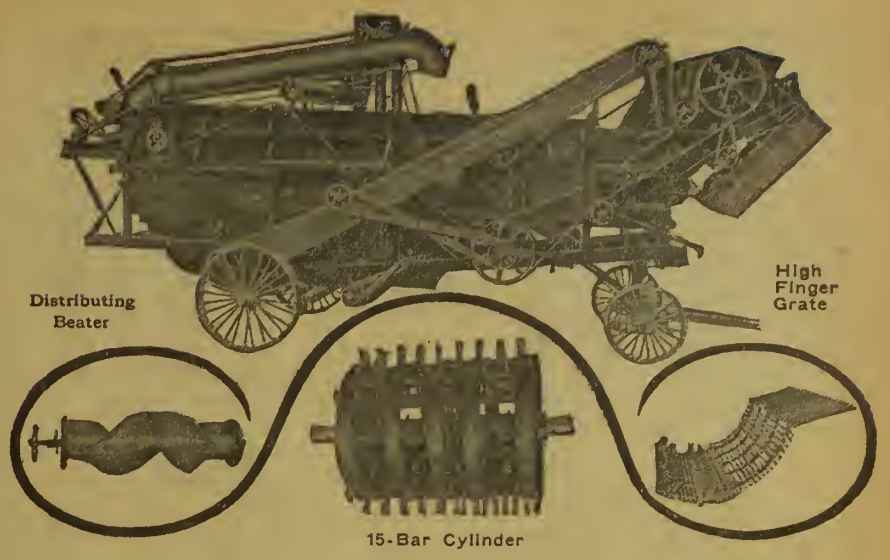
Rainfall in a given locality is subject to a wide variation; seemingly by some cycle of years. Floods usually caused by a heavy rainfall on saturated ground or excessive melting of snow, sometimes cause great damage and usually require extensive protection works, and on the other hand, unprovided for drouths cause great losses also.

Rainfall also varies even within short distances, usually increasing with altitude, but the direction from which the storm comes and the location and elevation of the mountains have a material influence on the rate of increase. During the last few years the local association of members of the American Society of Civil Engineers succeeded in prevailing upon the local weather bureau, then under Dr. Ford C. Carpenter, to make an extensive study of the rainfall in the local mountains.

Rainfall and temperature stations are maintained in several thousand places in the United States. They are usually attended by unpaid local cooperative observers who deserve the commendation of their fellow citizens for their work.

The records I have found to be very reliable, although sometimes the rain gauges are too close to high objects to give best results, and sometimes, unintentionally, I believe, some have placed their thermometers too close to the south side of a large house to obtain the coldest records in the vicinity.

The annual convention of the New Mexico wool growers, recently held at Roswell, gave much time and thought to discussion of disease conditions and rodent control.



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It has more proven good points and exclusive features than *any other thresher* made, including the famous Big Easy-Running 15-Bar Cylinder, the patented High-Finger Grate, and the patented Distributing Beater that spreads the straw evenly full width across beginning of separating table.

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Cling Peaches $137.00

That is what some growers received who delivered their fruit to this big company which they own themselves.

The average price for all grades Number 1's, Number 2's and culls, was $117.00.

These growers expect even better prices for the season of 1920. If you are interested and want more information, write to the

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Bleaching Walnuts

Please tell me how chloride of lime is used to bleach walnuts.—Subscriber, Stockton.

The following answer was given by J. B. Neff in the Cultivator two years ago. Since that time the process has not been changed:

The commercial bleaching of walnuts is not practical in a small way, but the following formula and method may be helpful if only a few hundred pounds are to be processed and there is no association of which you can become a member. The walnuts must be perfectly dry before the bleaching is attempted. Twenty-five pounds of bleaching powder (chloride of lime), 18 pounds sal soda, 50 gallons of water. Made by dissolving the bleaching powder in water, allowing insolubles to settle; then draw off the clear liquid and to it add the dissolved sal soda; agitate, and then allow the calcium carbonate to settle; draw off the clear liquor and make up 50 gallons with water. This should weigh about 425 pounds avoirdupois. To bleach.—Use this liquor, adding sulphuric acid (strength 43 degrees B) in such quantity as not to amount to over .15 of one per cent absolute sulphuric acid in the whole bleaching mixture—in other words, to the 425 pounds bleaching liquid add one and one-fourth pounds of sulphuric acid of strength 43 degrees B, i. e., 50 per cent acid. Dip the nuts five to ten seconds; then wash with water and dry at once. Do not use metal containers for the liquid at any time nor metal baskets to dip the nuts.

Cherry Not Bearing

I have a large Black Tartarian cherry tree on my property which blooms profusely every year, but fails to set any crop. Will you kindly tell me what the probable cause of this lack of crop production is?—Subscriber?

This question was referred to L. D. Batchelor of the Riverside experiment station and he writes:

"The Black Tartarian cherry, like many other sweet cherries is self-sterile, that is, it will not set fruit when the blossoms are pollinated merely with its own pollen. It requires the introduction of pollen from another variety to cause the fruit to set. The work of the Oregon experiment station, published in Bulletin 116, shows that Black Tartarians are readily cross pollinated with either one of the following varieties: Bing, Lambert or Napoleon. The Lambert probably being the best adapted to this cross pollination. If, therefore, you will topwork part of your cherry tree to one of these varieties, or if there is sufficient room, plant a Bing, Lambert or Napoleon tree, I think you will find when this new variety comes into blossom that your Black Tartarian will probably begin to bear. For the time intervening before the blooming of the topworked portion of this tree, or the young tree, I think you can obtain a small setting of Black Tartarians by simply placing a "bouquet" of flowers of one of the three varieties mentioned above, in a can of water, in the Tartarian tree. If any of your neighbors have these varieties available, it will surely be worth while for you to try this temporary means of obtaining a setting of fruit. This "bouquet" method is actually practiced to a considerable degree in some orchards where the White Winter Pearmain apple has been planted in solid blocks. This variety is self-sterile, but will produce fairly satisfactory crops with the aid of "bouquets" of Yellow Newtons placed among the trees during the season of full bloom."

Rabbit With Caked Udder

I have a doe that has a litter of seven rabbits about three weeks old, and the milk is caking in her teats. First one and now another has started. I have been rubbing warm lard on them, but it doesn't seem to soften them any. She is very much of a pet and I hate to kill her if there is any way of helping her. I would be very thankful to you if you could tell me, through the Cultivator, of something that would help.—Subscriber, St. Helena.

Caked udders and teats are often found in nursing mothers in all animals. A good bag ointment, used according to directions, will relieve the congestion. Give plenty of exercise and good nutritious food as a preventive. Before litter comes, feed doe some green food and barks of trees to furnish nature's remedy for many rabbit ills.—W. D. W.

Raising Rabbits

Please give best method of raising rabbits. Is it profitable?—Subscriber, Baker, Oregon.

A large subject to cover in one article. Many things are necessary for a rabbit raiser to know, but the writer will not attempt to cover them all here. Four things are absolutely essential to bring success, stock pure bred, hutches comfortable and clean, feeding right, and general care good. Begin with one buck and four to six does of as good pure bred stock as your pocketbook will permit, and bought of a reliable breeder. If possible, secure unrelated stock unless stock is line bred; then secure pedigrees and follow out lines used by breeder. There are many plans for hutches, but in all events have no drafts; ease of operation and cleaning; closed sides and backs with open fronts are best; floors solid and slanting—two inch fall in three feet from front to back, three feet deep and three to four feet long, 18 to 20 inches high, single, double or triple tiers as one may desire. Feed good lean hay and rolled barley with green feed two or three times per week. This menu can be varied with different grains used sparingly in the rolled barley. Give water clean and fresh daily, in hot weather oftimes three or four times per day. As to general care, feed regularly, clean out hutches and yards often, use a good disinfectant, especially in damp places, remembering that good care and good feeds are the best preventives of disease. As to further directions, buy a good rabbit book and read it, and then read it again and again. Ponder well what you read from magazines and if possible belong to a good live rabbit and pet stock association. Nothing pays so well for labor and study as raising rabbits.—W. D. W.

Ear Ticks

Enclosed find bugs which go into dogs' ears. Can you tell me what they are and how I can get rid of them? They stay under the house where no one can get with the exception of a small animal. I am afraid they may come through the floor and crawl on the children. I have tried

sheep dip, but it won't kill thom, and the dog's ears on the inside are all raw.—Subscriber, McFarland.

The first step would be to clear the dog of the pest, and in removing the ticks from the ears care should be taken not to break off the head and leave it fastened in the ear. If this is done blood poisoning and sometimes serious abscesses result. Tobacco solution applied to the ear causes the ticks to loosen their hold, and they may then be removed. The place occupied by the dog should be cleaned out and, if possible, this may be made more effective by burning sulphur in a tightly enclosed apartment.

Cottony Cushion Scale

Am sending twigs of a lemon tree infested with some kind of bug. Will you please tell me what it is and what I could do to get rid of it? It is also on a pear tree.—Subscriber, Oceanside.

This is a serious infestation of fluted or cottony cushion scale, icerya purchasi. At one time this pest threatened the orchards of California. A natural enemy was introduced from Australia in the vedalia cardinalis. This little beneficial insect is still in the state and if not available elsewhere may be secured by writing Harry S. Smith, State Insectary, Sacramento. However, these specimens were submitted to Los Angeles County Commissioner Ryan and he finds several internal parasites already working on the scale.

Tomato Blight

Will you please tell me what tomato blight is and if there is any remedy? We lost one-half of our crop last year.—Subscriber, San Jose.

The true fusarium blight, sometimes called summer blight, yields to no treatment, for when it begins to show in the curling or wilting leaf the roots of the plant are past saving, for the disease has so affected them that they are unable to take up moisture. The only successful method is to get disease free seed, plant in disease free seed bed and on land which is not affected with the disease. The late or fall blight is a fungous trouble, however, which is liable to occur after warm rain or a series of warm foggy mornings. This may be prevented by spraying with a weak Bordeaux mixture.

Onions and Garlic

Kindly give me a little advice on onions planted from seed in Northern Ukiah Valley. Soil is red (diluvian), quite moist land. What kind of onion would be best for that soil and when would be the best time to plant to avoid frost and still get benefit of rains? No irrigation on land. Does garlic do well on such land, and how many pounds are required to the acre and also time for planting?—Subscriber, San Francisco.

Regarding growing onions from seed it is rather late to sow now, December and January being the best months to sow for main crop onions, the earlier varieties, such as Early Red and Crystal White Wax, being sown even in September, the crop maturing in May or June. You need have no fear of frost, as the onion is an extremely hardy plant. Your soil if well worked over with the plow disk and harrow, providing, of course, that it has not been previously over cropped, should be rich enough to produce a good onion crop, but for this season we would advise planting onion sets grown the previous season from seed. Plant an inch or so deep, six inches apart in rows 18 inches apart. You may secure sets of the Brown Australian variety or yellow from your seedsman. It will be necessary to plant at the rate of 250 pounds of sets per acre, and you should lose no time in planting if you wish to take advantage of present favorablo moisture conditions. Garlic is grown from small bulbs or sets taken from the compound bulbs you may secure from your seedsman or produce dealer. These bulbs are divided. The outer bulbs are best for planting. Your soil will also be suitable for this crop. The same culture may be observed as given above and the crop may be harvested when the tops are dried off, when the bulbs should be stored in a dry place. Thorough cultivation between the rows to conserve moisture during the growing season is essential for success.—A. R. G.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Adoption of Child

If I adopt a child, taking out legal adoption papers and giving the girl my name, will her adopted name be legal under all conditions in California? Can she claim the property of her adopted parents if no will or deed is left and there are other blood relations (not sons or daughters), who may come in and claim the property after the death of her adopted parents? If she cannot claim this property in California after their death, what course would the parents need to take while living to make their property secure for her? Would a will made in her adopted name be legal?—Subscriber, Fullerton.

A child when adopted may take the family name of the person adopting. After adoption the two shall sustain towards each other the legal relation of parent and child and have all of the rights and be subject to all of the duties of that relation. The parents of an adopted child are from the time of the adoption relieved of all parental duties towards and all responsibility for child so adopted, and have no right over it. The most frequent attack in the cases of adoption where there is no will left is to in some means invalidate the judgment of adoption. It would, therefore, be a matter of caution for the parents to make a will in favor of the adopted child, as otherwise some portion of the property might go other than it was desired. The laws of adoption in every state differ more or less, so that the above rules apply to California, but may be taken as generally applicable to other states.

Stock in Corporation

In a California corporation some of the stockholders paid in more money for the expenses of the company than others, for which they took the company's stock at par. Later when the company had a surplus for a dividend they wished to turn the stock back and get their money back. Could the directors legally accept the stock and give them back the money?—Subscriber, St. Paul.

Having paid for the stock, they have purchased an interest in the corporation for which stock has been issued. The directors would have no power to reduce the capital of the corporation thus acquired or to divert any portion of that capital to any certain individuals. If they did the directors would be individually and personally liable for the full amount of the capital so paid in the suit of any stockholder or creditor.

Widow's Share

In case a woman marries a man with children, what portion of the estate would she inherit upon his death in case he left no will?—Subscriber.

The estate of the husband being all separate property, upon his death without will, in case there was one child, the property would go in equal share to the surviving wife and to the surviving child. In case there is more than one child, one-third of the property would go to the surviving wife and tho remainder in equal shares to the children or issue of any deceased child. The property being all separate property, it is, however, absolutely subject to the disposition of husband by will and he could in such will provide any different proposition, could absolutely disinherit either the wife or the child.

Desert Land Act

What are the purchase provisions of the desert land act?—Subscriber.

If the question means what money would it cost to take up land, the provisions of the act are as follows: Upon filing the claim to desert land, the party taking up the land must pay 25 cents per acre for the total number of acres embraced in the application. Thereafter each year, for at least three years, he must expend not less than $1 per acre for the purchase of water rights or in the reclamation and cultivation of land. At any time after filing the declaration and within a period of four years thereafter, upon payment to the receiver of the additional sum of $1 per acre for said land, the patent shall issue in case the reclamation and cultivation has been made as required by the act.

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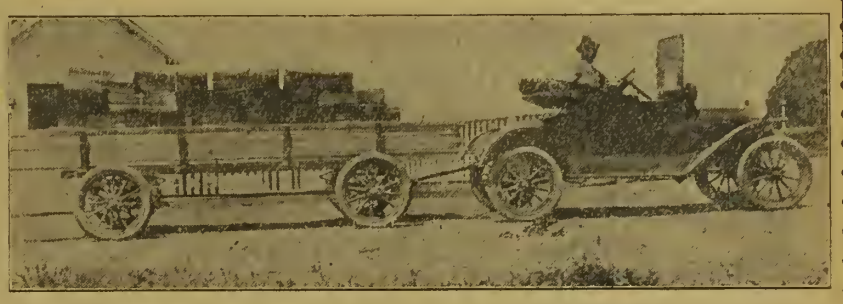

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They grow quickly, bear young, require little water, bear every year, sell well. Look into this.

FIGS	6 ft.	5 ft.	4 ft.	3 ft.	2 ft.	1 ft.
Price per 100	$60.00	$50.00	$45.00	$35.00	$25.00	$15.00
Mission	....	....	....	....	50	90
Brown Turkey	100	40	40	20	20	130
Black Spanish	30	100	120	20	100	50
Brunswick	....	80	80	20	100	120
White Adriatic	....	8	....	20	20	20

20 each 1-ft. size, at 20c, Calimyra, Kadota and Verdal Longue 10% discount in 100 lots.

QUINCES	6-8 ft. heavy. $60.00	4-6 ft., $50	2-4 ft. $30
Van Deman	....	30	50
Champion	....	40	30
Smyrna	200	60	30
Angers (½ price)	250	80	60

PEARS—4-6 ft., $65; 3-4 ft., $45. 85 Anjou, 45 Seckel, 350 Bartlett 3-4 ft.
GRAFTED PECANS, 6-8 ft., $2.00 each; $18 for 10 trees.
Frotscher, Van Deman, Delmas, Stewart.
Placentia Seedling Walnut, 75 beautiful little trees, 1 ft., 35c.
GRAPES—4000 Cornichon, $7.00 per 100, $50 per 1000.
650 Concord, 30c each, $25 per 100.
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Sweet Potatoes

By Ernest Braunton

THE planting season for sweet potatoes is nearly here and Nancy Hall is the best variety to use. Unless you are well equipped for producing your own plants it will be better to buy them from the seed stores. Millions of plants are so handled every year. In those parts of the state having warm spring weather the plants may be started in a sunny exposure, in sand, but often this method brings the plants too late and a good hotbed is preferable. If inconvenient to make one and tend to it every day, you had best buy your plants. Seeds are not for sale.

A hotbed may be any size or shape. If against a building, fence, or other structure, three to four feet is as far as one can conveniently reach to break off the shoots. It may be built above ground, but the heat will be better confined and conserved, if in a pit, and this should be about two feet deep. If manure is plentiful you may use more and not dig a pit, but have the area greater, and you will have to make a frame to put on top. So perhaps a pit is more economical. Fill the pit with the manure or you may put cereal or bean straw in the bottom and tread it down until it is six inches deep. Then put on the manure until within six inches or so of top of pit, treading it heavily and laying it smooth and even. Next put on three inches of any soil, but sandy if you have any choice. Lay your potatoes on the soil; if very large, cut in two and lay with flat sides down, close together, and cover with two to three inches of soil or sand.

Another Method

To propagate without artificial heat select a place that is warm and sheltered, where the sun will strike all, or nearly all, day. As the first of April is the time to start such bed, a warm place should be easy to find. Spade up the soil as deeply as possible and rake it smooth, but do not tread it down, for we should have drainage and air freely. Place your potatoes on this bed, close together. Or, if sand is available, sprinkle some over soil before placing potatoes. It will be better if you make a frame of six inch boards for a bed margin and put the potatoes inside this. Cover them with fine sand two inches deep if you can get it, or sprinkle them over with sand, if available, and cover with the lightest soil you have, not less than two inches deep.

With either method give one good watering and then watch closely until the sprouts show to see that soil does not get dry, but do not keep soil wet, for all the heat possible is needed and heat is neither in nor can it get into a soggy soil. After the shoots show, watering may be more free; there is greater need of it. Some growers transplant the sprouts direct to the field, but the better practice is to break them off and set them in the soil an inch or two apart over as large beds as you wish. They rapidly make such a mass of roots that transplanting is a safe and easy operation. When set in the field they are planted on ridges two and a half or three feet apart. These ridges are made by various implements, but all are generally sharp and uneven on top. A plank smoother to ride on two or more ridges at once is run over them to make flat and smooth. The plants should be set in a row in the middle of the flattened ridges, about 15 inches apart. In the garden the ridges are raked smooth and each plant watered by hand as soon as a row is set. In field practice irrigation precedes and follows planting. A stream is run down on one side of a ridge and the planter and assistant work in the next furrow. As soil must be sandy, it is easy to handle. One person goes ahead of the planter, makes a hole for a plant, dips water into it from the opposite trench, and so proceeds down the row. The planter closely follows, puts his plant down into the mud and throws in a handful of dry soil. The water is then turned into the furrow just vacated by the planter and success thereby assured, for the sweet potato needs lots of moisture. Irrigation and culture throughout the season vary with the texture and needs of the soil, but weeds must be kept down and soil must always be moist not far below the surface. About April first is soon enough to plant your "seed" bed.

Sugar Beets in Australia

CULTURAL methods in the southern hemisphere have certain interest for those of us who are on the other side of the line. In sugar beet culture there is so much of hesitation, even of distrust, that planting will be very materially reduced the present year. On the other hand, in Australia the interest seems greater than ever before. In discussing the sugar beet industry and in giving cultural directions the Journal of Agriculture of Victoria, a government publication, has this to say regarding soils and cultural methods in that country:

Rich sandy or silty loams and heavy loams with a good depth of soil and comparatively free subsoils are desirable. A good type beet must root deep, so that waterlogged areas and soils with an impervious hardpan near the surface are unsuitable unless such faults are corrected. Raw peat lands are not desirable. Sandy heath lands often produce impoverished or stunted beets high in sugar content.

Cultivation

Where convenient the beet land should be deep plowed or plowed and subsoiled in the autumn up to 12 inches and allowed to mellow during the winter. In the early spring the area should be surface cultivated or shallow plowed and brought to a fine tilth, with a well firmed soil and a fine seed bed. Good preliminary cultivation is a long step towards success and economy in growing the beet crop.

Seeding and Fertilizing

Seeding should immediately follow the final cultivation of the seed bed in order that the weeds may have no advantage over the beet seed. If the soil is dry, free and warm, sow on a rolled surface; if moist and disposed to cake, plant on a harrowed surface about one-half inch deep for early sowings. Sometimes growers plant the seed very deep in loose soil and generally secure a slow, thin, unsatisfactory germination. A special four row beet seed drill is used, with rows 18 to 20 inches apart, the most favored widths for yield of sugar per acre. About 12 pounds of seed is sown per acre because it is necessary to secure a rapid, strong germination, the germinating seeds helping one another through.

Superphosphate is drilled in beforehand or with the seed and has proved beneficial to the growth of the plant without disturbing the sugar content and purity of the beets. The quantities used locally range from one-half to two hundredweight per acre.

The beet uses up a quantity of potash which would probably have to be added in the form of sulphate of potash in most well established beet areas. By plowing in the beet crowns and tops a great part of the plant food absorbed by the beets may be restored to the soil. Beets thrive in well limed soils, and growers have not yet seen fit to use the mill waste lime as freely as they should.

Cultivation

Early plantings should germinate in two weeks, late plantings in a week, and directly the rows are defined the area should be rolled and followed by four row beet cultivators fitted with special sweeps that will cut very close to the rows without disturbing the beets. This first cultivation can hardly be done too early and is most important in checking the weeds, giving the beets a strong, clear start and making thinning easy and economical. The growers who neglect or delay their first cultivation almost invariably pay dearly for it subsequently. The

intertillage is not costly, as a four row machine will comfortably do ten acres a day and should be applied after thinning and after rain as frequently as necessary to keep the soil in the best condition and free of weeds.

Thinning and Side Hoeing

Beet thinning is the principal hand work, and is done by casual labor on contract. As a rule it is best for the grower to devote his own time to the cultivation work and have the thinning done quickly by contract labor at the ruling rates.

Thinning should be done soon after the first cultivation and commenced while the beets are quite small, as young beets are easier to thin than forward beets and such thinning is more satisfactory for the contractor. If delayed the weeds soon develop and the beets get overstrong and are difficult to handle, thereby adding to the cost of thinning. The absorption of moisture by a full stand of beets allowed to remain too long unthinned is a heavy pull on the soil and will invariably reduce the yield of beets to a tonnage considerably below those sections thinned at the correct period. Experience and costs have repeatedly shown that it is better to err on the early side than on the late side when thinning beets.

Thinning is done with short handled hoes to space the beets. The left hand of the operator is free to thin the beets to a single strong plant at distances approximately eight inches in rich, moist soil, ten inches in good beet soil, and 12 inches in medium or drier soils. Many thinners become very expert at the work and do as much as half an acre and sometimes more per day.

The development of single germ seeds would be a great advantage to thinning, and checkrow planting a possible improvement.

Side hoeing is done with long handled hoes a few weeks after thinning to remove all weeds growing in the rows, the cultivator destroying everything between rows. Side hoeing is frequently done by contract at prices varying according to the cleanness or otherwise of the crop.

Irrigation

Although the beet crop holds remarkably well through dry periods because of its deep rooting propensities, irrigation is undoubtedly very desirable in some districts. It is a summer crop that absorbs a large quantity of moisture, and if by irrigation an abundance of this can be supplied during the youth of the plants to keep them growing freely without any check, much better quality beets will be secured than if the plants are severely checked by lack of moisture in the summer and subsequently develop an abnormal growth in the autumn. High quality beets need an abundance of moisture during the spring and early summer and comparatively dry conditions towards autumn in order that high sugar content and purity may be encouraged to the utmost. This can best be regulated by irrigation. Any system of irrigation may show good results but undoubtedly the furrow system is the best. Every second row should be furrowed out with irrigation shovels placed on the cultivator. These furrows should be connected with the service channel or pipe, and water admitted in sections, as many rows as the water will supply being irrigated at one time. In this way the water may be well controlled and through the loose furrows it soaks well down to the subsoil without smothering the leaves, and very soon after the furrows may be cultivated to conserve the moisture.

Harvesting

A special two point beet lifter is used to lift the beets, or a single furrow plow stripped of its moldboard. The topping is done by contract at a price per ton depending on the yield, and occupies a number of men. The beet toppers pull and shake the loosened beets and throw them into rows. Then with large beet knives they slice off the crown and tops, throwing the roots into heaps. The carters fork the beets into drays, haul them to the factory or railway siding, have them weighed and tared for dirt and faulty topping and tipped from high beet loading platforms into trucks or dumped direct into the beet bins ready for manufacture.

Excepting the crowns and tops, which remain with the grower as valuable stock feed the whole bulk of the crop has to be carted, and it would generally be considered unprofitable to cart beets more than five miles by road. The limits by rail depend on freight and loading conveniences. A good average yield of clean beets is 12 tons per acre, but a diligent grower should expect to do better than this.

General Considerations

Good cultivation is essential to beet growing, and this is the main reason why beet growing improves the soil for other crops.

Fertilization is very desirable, and growers have now come to realize this and seldom plant without fertilizers.

The application of lime is good policy but not yet practiced to any extent here.

Irrigation is the best assurance of consistent and profitable yields, and with a large irrigation system in course of construction for this district it should benefit beet growers.

Systematic rotation of crops is very important but rarely practiced, partly because farmers have been fortunate enough to get along all right without it. But as reducing areas, higher values and increasing costs come into conflict with decreasing fertility, rotation will find its proper place in the maintenance and improvement of the productivity of the soil. Mainly have beet growers neglected rotation because they have to lease land at high rentals for short terms and are compelled to grow beets on the same land from year to year. Although continuous beet cropping is bad practice and not approved, it is interesting to note that in spite of those who contend that beet growing injures the soil, sugar beets have now been grown on some lands for six consecutive years and produced good crops every year.

A farmer who follows diversified farming and rotation is well advised to give his best attention to five or ten acres of beets rather than indifferently care for larger areas. A grower who is experienced and devotes himself almost wholly to beet growing need have no anxiety about handling 100 acres.

Beet thinning is the main cash item of expense in the early stages, and the factories generally advance on any well cared for crop sufficient to meet this expense. As soon as deliveries commence growers secure progressive payments to meet the cost of harvesting.

In America there are now being fully tested two beet harvesting machines designed to mechanically lift the beets, top, and place them ready for carting. These show great promise of success, and, if so, they will be a great economy, convenience and encouragement to beet growers.

FLATTERED

"It used to please me when I was a youngster," said Olden, "to have the barber ask me if I wanted a shave."

"Yes-"

"Yes; and now he sometimes flatters me by asking if I want a hair cut."—Public Ledger.

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American Farm Bureau Federation

By Robert W. Hodgson

BY a unanimous vote of 400 delegates representing the 28 states which had ratified the proposed constitution, permanent organization of the American Farm Bureau Federation was effected in Chicago, March 3. The total number of voting directors to start off the organization, one from each state and one from each 20,000 paid up members, came to 53, the two from California being President W. H. Walker of Willows, of the California Farm Bureau Federation, and Geo. H. Sawyer of Waterford. A careful estimate of the paid up membership of the new organization shows better than 700,000 to start off with, and it will undoubtedly soon reach the million mark, with many states now actively conducting membership campaigns.

Outstanding among the states represented in point of membership was Iowa, with 104,383 paid up members, many of which, it is stated, are signed up for life. New York came next with 67,000 members, followed by Illinois with 50,000; Missouri, 34,000; Michigan and Indiana, 31,000 each; Ohio, 30,000; California, 19,000; Minnesota, 17,000; West Virginia, 15,000; Nebraska, Idaho, Kansas and Massachusetts, 14,000 each; Utah, 12,000; Kentucky and Vermont, 8,000 each; New Hampshire, 6,000; Maryland, 5,000; Colorado, 4,000; South Dakota, 3,000; Wyoming, 15,000; Arizona, 1,200, and New Jersey, Georgia, Oklahoma, Connecticut and Texas membership not reported. The total budget for the first year was fixed at approximately $200,000, and work outlined to cover most of the budget.

A particularly striking feature of the conference, which lasted two days in Chicago and then adjourned to Washington for three days more, was the complete harmony which reigned among the directors. The absence of the bitter controversy which characterized the previous meeting was most pronounced and significant.

Permanent organization completed, the federation went to work at once. James R. Howard of Clemons, Iowa, temporary president, was confirmed as first president at a salary of $15,000 with $3,000 for traveling expenses. S. L. Strivings of Castile, New York, was elected vice-president, and J. W. Coverdale of Ames, Iowa, permanent secretary. Executive committee members were elected by regions as follows: Northeastern section—E. B. Cornwall, Middlebury, Vermont; E. F. Richardson, Millis, Massachusetts, and H. E. Taylor, Freehold, New Jersey. Middle West section—O. E. Bradfute, Xenia, Ohio; Chester H. Grey, Nevada, Missouri, and Howard Leonard, Eureka, Illinois. Far West section—W. H. Walker, Willows, California; W. E. Jamieson, La Veta, Colorado, and John F. Burton, Garland, Colorado. South section—Grey Silver, Martensburg, West Virginia; James W. Morton, Athens, Georgia, and George Bishop, Cordell, Oklahoma.

An important change in the constitution is in the membership fee. The original provision assessed ten per cent of local dues for the national federation. This was changed to a flat rate of 50 cents per member for the year 1921.

A comprehensive program of work was laid out in the form of recommendations made to the executive committee and left to the direction of this committee. The plan is for the organization of bureaus of publicity, trade relations, distribution, statistics, legislation and cooperation, as indicated in the recommendations given to the executive committee. It is instructed to set up without delay a business organization under direction of trained experts and create bureaus or divisions as follows:

A bureau of transportation which will look into transportation matters by both rail and water, to the end that we may secure rates on farm products which shall be fair as compared with rates on other commodities, and which shall give the farmers of the United States ocean rates which will enable them to compete on a fair basis with the farmers of other nations of the world.

A bureau of trade relations which shall investigate our dealings with foreign countries to the end that the interests of agriculture may be promoted.

A bureau of distribution which shall make a thorough study of the distribution of farm products.

A bureau of statistics which shall inquire into world conditions which influence supply and demand, and which shall especially study the mechanics of prices.

A legislative bureau which shall have to do with matters of national legislation which affect farming and farmers.

A bureau of cooperation which will make a special study of cooperative methods which have been found successful both here and in other countries, and which shall draw up standard forms for cooperative enterprises of various kinds and aid state federations to promote local cooperative enterprises on thoroughly safe and truly cooperative lines.

After passing a number of resolutions, a digest of which will be found below, on the urgent invitation of Hon. E. T. Meredith, new secretary of agriculture, the entire executive committee made a trip to Washington, where three days were spent. A Washington representative was arranged for and appointed, a hearing held before the agricultural appropriation committee, a bureau of publicity and federation headquarters established at Washington and a thorough survey made of the work of the department of agriculture.

Executive headquarters have not yet been selected, but will probably be in one of the following three cities: Indianapolis, St. Louis, or Chicago.

Resolutions

The resolutions set forth in very definite terms a pledge of full support to the constitution of the United States, condemning radicals and reactionaries.

Increased production is essential to national well being. We stand for higher individual efficiency. In determining a compensation we believe that the result of the day's work, rather than the hours thereof, should be of paramount importance.

We pledge the farmers of America to the largest possible production consistent with good husbandry, with a view of relieving the world's dire necessities, and invite the workers of all other industries to join us in this spirit of service.

We declare the strike no longer justifiable and no longer to be tolerated by a long suffering public.

We favor the creation of such arbitration boards or courts, with power and authority, to adjust controversies between labor and capital as shall safeguard the rights of the parties directly interested, as well as the welfare of the general public.

Realizing the need of trained workers and a healthy citizenship in all walks of life, we urge such general course of instruction of our young manhood as shall call attention to and give promise of relieving general health conditions throughout the country.

We hail the American Legion as one of the most important factors in the life of America, pledge our support in its great work and welcome it to comradeship.

We pledge the full strength of this institution and its individual membership in support of the good roads movement throughout the country.

Deploring the waste and extravagance of the present day, we urge the necessity for a return to the more humble and prudent practices of the past.

Our country needs stability and the brakes must be applied to secure that much desired result. Waste breeds recklessness, a lack of responsibility, and is the best aid to the profiteer whose selfishness knows no country and who has no regard for the rights of the masses.

We recommend legislation providing that the presence of all substitutes for virgin wool in fabrics and apparel purporting to contain wool shall be made known.

We recommend that a committee be appointed to confer with the international revenue department in working

out a simpiified form for income tax returns for farmers.

We definitely and emphaticaiiy oppose the proposed iegisiation to levy a tax of one per cent on iand holdings in excess of $10,000.

We demand for agricuiture, at the hands of state and nationai iegisiative hodies, the priviiege of coiiective bargaining.

We insist that in ail tariff iegisiation, agricuiture be given equal consideration with other industries.

We wish the American people to definitely understand that the organization seif styied "The Farmers National Council" has no authority to speak in hehaif of the farmers of this country.

Any and aii efforts on the part of The Farmers National Council to aiiy the agriculturists of America with the radicals in the industriai worid is herehy denounced.

EXPANDING BUSINESS

We have a letter from J. E. Bergthoidt, for many years at the head of the Siiva-Bergthoidt Company, in which he makes reference to "unscramhiing the active hranches of our husiness." This concern has heen known to many of the Cuitivator's readers as a great nursery firm, hut many have not known of some of its other lines of activity. The same institution has heen in active control, not only of iarge nursery interests, hut of even larger interests in fruit growing—having large ranch properties—fruit packing, shipping and seiling, and large mercantiie estahlishments of Newcastle. The "unscramhiing" consists of organizing three separate and independent corporations — the Siiva- Bergtholdt Fruit Company, capitaiized for $250,000; the Silva-Bergthoidt Nursery Company, capitalized for $250,000, and the Silva-Bergtholdt Hardware Company, capitalized for $50,000.

The active management of the Siiva-Bergtholdt Fruit Company will be in charge of J. M. Stacker, for several years manager of the Newcastle Fruit Growers Exchange, a man of large experience in the fruit industry and thoroughly qualified and competent to act in the new responsihility which he is assuming. Mr. Stacker has tendered his resignation with the Fruit Growers Exchange, taking effect April 1, when he assumes his duties as general manager of the Silva-Bergtholdt Fruit Company.

The Silva-Bergtholdt Nursery Company wiil continue under the active management of J. E. Bergtholdt, aided by a corps of efficient assistants.

It has heen the poiicy of the Silva-Bergtholdt Company for several years in the past to pay their employes a iiberal honus on salaries, and by this means they have heen enahled to create a loyal and efficient corps of empioyes—ail of which has made for efficiency in the husiness of the concern. The new corporations will continue this plan, or, still hetter, wiil make the employes stockholders.

The story of a barefoot boy is always of interest, so here is a hit of human interest stuff furnished to us regarding such a youngster landing in California many years ago.

J. E. Bergthoidt, under whose sole acting management the business has heen built up to its present proportions, "blew" in from the prairies of Western Kansas and landed at the foot of Market Street, San Francisco, at the age of 14.

Three years later he drifted into Vaca Vailey and hegan his original venture in the fruit business on a sole triangular investment of a husky appetite for a joh, 17 birthdays, and a roll of hlankets, successively graduating from punching mules, pruning trees, loading cars of fruit and keeping hooks for several fruit shipping concerns.

In 1899, on an investment of $500, together with Ed B. Silva, the present business of the Silva-Bergtholdt Company was founded hy the commencement of a business in the express shipment of fruit in competition with numerous iarge and long established fruit shippers in what was then deemed the losing branch of the fruit shipping business, engaging at that time simultaneously aiso in a small way in the nursery business, which, under the then existent conditions, was also deemed a poor man's venture.

That initial investment and the accumulation of 20 years of hard work are represented today in the extensive merchandising business at Newcastle; a nursery husiness making Siiva-Bergthoidt Company's foothili grown trees a household word in every home in Caiifornia; an express fruit shipping husiness piacing the hrand of the Silva-Bergthoidt Company on the counter of every groceryman and fruit dealer throughout the territory west of the Rocky Mountains and east of the Sierras hetween the Canadian and Mexican line; a carload fruit shipping business extending throughout the markets of the East; and an orchard husiness operating, under their ownership over 1,050 acres of orchard and, in addition, three to four hundred acres under lease.

INOCULATION IN SOILS

The practical importance of soil bacteria is just beginning to he recognized. It is now known that normal soils contain many kinds of bacteria as weil as other lower organisms, hoth animal and vegetahle. Many of these organisms are heneficiai to the useful plants, some are positiveiy essentiai, and others are seriously harmful. Certain ones are without effect in themseives, hut are of importance through their action in encouraging or destroying those which are directiy effectuai. The composition of the soil constitutes a veritabie iittle worid of itself. Constant reactions and changes are going on, aii of which are of the utmost importance to agricuiture.

The practical possibility of infiuencing these actions and reactions appears to he great. Many chemicai suhstances are known to he influential in stimuiating or suppressing specific groups of organisms. However, the selection and deveiopment of particulariy active or resistant varieties of bacteria is just as possihie as the deveiopment of desirahle varieties of higher piant life.

The great improvement of fermentation yeast which has heen accompiished hy the hrewers and bakers is a case in point. If, for instance, the weil known group of soil hacteria which have the power of producing nitrates through the fixation of atmospheric nitrogen could be improved to the extent that has heen attained in the case of yeast, it wouid he possihle to fix in the soil itseif sufficient nitrogen for the needs of agricuiture.

It has been demonstrated that growth and nitrogen content of aifaifa piants on siit loam soii are greatly increased by inoculation. A remarkahie increase in both yield and quantity of nitrogen was aiso caused through inocuiation in the case of soy heans. In Plainfield sand an enormous increase of nitrogen in the piant was noted, especiaiiy after the second cutting.

Eiectro-chemistry has heen advocated as a soiution for the nitrogen prohiem. However, in the face of resuits such as have already heen obtained hy inocuiation, it seems not at all improhahle that the permanent solution wiii be found in the manipulation of soil bacteria.—Aifaifa Buiietin.

WILD HERDS INCREASE

In the ten years since the Montana national hison range was estahiished the 37 huffaioes with which the herd was started have increased to 296. In addition there are on the range 125 eik (not inciuding caives of iast year), 33 anteiope and 13 mule deer. It is helieved that the range is large enough to support 800 hison, 400 anteiope, 500 deer and 800 eik.

HUDSON SUPER SIX

Isn't This the True Mark Of Hudson Endurance?

No Stock Car Ever Equalled Its Official Records In Speed - Hill - Climbing, Acceleration, Endurance

In every performance asked of a motor Hudson's official records reveal greater ability than any other car has ever shown.

They have stood for five years. They are not held by hairs'-breadth, but by big, convincing margins, before which argument is dumb. They prove the master type, with limits of power speed, and endurance that none has matched to this day.

Yet if they stood for only contest supremacy, they would have small importance to you.

In all the years your Hudson serves, you will hardly require its full capacity. You do not want 80-mile-an-hour speed. You will scarcely encounter a situation to tax its limit of power.

These Qualities Count in Every Day Service

Of course, there is pride in possession of car qualities you know are unexcelled. And this performance mastery gives innumerable advantages. For instance, you travel faster within the speed limits. That is because you are away quicker. You pick-up faster. You have power that levels hills with ease. You have smoothness that makes the long journey comfortable and free of fatigue.

But you will have far more occasions to admire Hudson's superb riding ease, its good looks, and its trustworthy dependability, than its more spectacular qualities of great speed and power.

So, it is chiefly as they reveal its basic principle of supremacy — the control of vibration—that the Super-Six's world famous records are important.

Endurance Gave It Mastery

The exclusive Super-Six motor adds no weight or size. Yet it adds 72 per cent to power, and 80 per cent to efficiency. It almost doubles endurance. It does this by converting to useful power the destructive force of vibration, which uncontrolled quickly undermines motor endurance.

That is why the Super-Six can go faster, farther and lasts longer.

These are official proofs. All can verify them.

By no possibility will all who want Hudsons be able to get them.

You should place your order now for your Hudson, even though delivery is not desired until summer.

Hudson Motor Car Company, Detroit

Materials for Garden Building

By Ernest Braunton

THE most pressing question with the garden bulder is: What shall I plant? It is conceded by all that shade and shelter is a fundamental need, therefore let us begin with trees. Some places are in greater need of shelter than shade, and for such places a windbreak on two sides is necessary. As quick growth is usually the first consideration, we cannot do better than plant eucalypts. even though we make a secondary or more permanent planting.

Eucalypts are such great soil robbers that many plantations once considered a blessing are now being uprooted. This is especially true in vegetable growing districts, where the trees both rob the plants of food and shade so much soil that with the double cause for complaint the trees have to go. In the lettuce and cauliflower districts south of Los Angeles and in the potato and mixed vegetable sections of the San Gabriel Valley the eucalypts are rapidly disappearing, and their removal is costly. The question arises: Shall we plant eucalypts?

It may be better; if soil robbery is to be seriously considered, to plant a few rows of eucalypts farther from the dwelling and other buildings than first planned, and inside this line rows of a permanent windbreak. For eucalypts either the blue gum or red gum will prove the best, except in regions both too hot in summer and too cold in winter for these species. Here the E. viminalis will be found to meet conditions better than any other. Throughout the state generally the Monterey cypress has been a favorite windbreak tree, for it retains its lower branches and stops the ground currents, which the eucalypts do not. Where too cold for this species the Arizona cypress will prove hardy amid ice and snow. Olive trees have been used where a tall windbreak is not needed, and the dwarf blue gum is also excellent. Leptospermum laevigatum is a large shrub well adapted to the purpose, and in sandy soil, in coastal districts, a native beach shrub, Lavatera assurgentifolia, makes a good tall hedge. It is much in use about Compton, Los Angeles County, and proves very effective. It is also quite tolerant of alkali. In the acacia family there are both trees and shrubs for windbreaks that will grow in any soil or situation not too cold.

When it comes to the garden proper there are few families of trees that will prove so effective as acacias. Acacia Baileyana, A. dealbata, A. longifolia and A. cyanophylla all are beautiful, medium sized trees noted for their glorious crop of yellow flowers, and are splendid for grouping in the home grounds or to frame your yard or lawn. A more shrubby species is A. cultriformis, of a finer yellow, with small three cornered leaves of fine bluish green. But for hedges A. armata is a fine thick growing shrub with small thorns, an ideal plant for the purpose. In its native Australia it is much planted for hedges and is called the "kangaroo thorn." Out of all plant groups few have proved more popular than the acacias and all should have a closer knowledge of them. The species numbers about 550, and of these about 150 have been grown in California and nearly 50 of these are fairly well distributed.

But while we are framing our garden picture why may we not also grow something to eat? Some evergreen fruit trees and shrubs are hardy in nearly all parts of the state. Many more will grow and bear fine fruits where oranges are a commercial possibility. So that from San Diego to Chico we may grow avocados instead of magnolias in the warmer sections and sapotes and others will do as well, while budded and named varieties of loquats will grow anywhere in California, as will the fine varieties of the Paraguay guava, Feijoa Sellowiana. The strawberry guava makes a hedge of good size, while for a lower hedge, of two feet. Carissa grandiflora is a beautiful fruiting shub.

The pines and cedars, with their numerous relatives, should be used where climate will not allow tropical evergreen fruit trees, and no tree known surpasses in beauty Cedrus deodara, the giant cedar of the Himalayas. Two other species, one of which is the famed cedar of Lebanon. are nearly as attractive. California should grow them by thousands in every county in the state. Of pines there are a score of natives and others of great beauty. such as Pinus Canariensis. The cypress are available in a half dozen species and the Lawson cypress is one of the most majestic of trees. The California big tree thrives everywhere, and its cousin, the redwood, wherever fogs are heavy and soil fairly moist. The stately araucarias, the junipers, yews, firs and spruces must all be considered in the home grounds.

Before taking up the evergreen shrubs let us not forget that deciduous trees are sometimes needed to provide shade for summer while not shutting out the winter's sun. Here, too, fruit may enter, and what can surpass in beauty the walnuts and chestnuts? If for beauty alone the oriental plane, or sycamore, the soft and other maples, birches. catalpas, tulip tree, elms, oaks, poplars. mulberries, lindens, weeping willows, etc., are enough of a list for anyone. In deciduous snrubs we have barberries, deutzias, hydrangeas. philadelphus or syringa. spirea or bridal wreath and snowball. Others are to be had in a hundred species, but these are among the best. In evergreen shrubs there are so many we cannot list them, but there are those for every prospect. Some are so resistant to drouth that they need no water other than the winter's rains, and this is true of many evergreen trees. It is not true of many deciduous trees or shrubs. Eucalypts, acacias, carob, or St. John's Bread, need no summer water, and this is true of shrubby acacias, leptospermum. Spanish broom, bottle brushes. casslas. lantanas, oleanders and pittosporums. Do not be troubled about not finding enough suitable trees and shrubs; the variety is too great. Rather be concerned with what you should not plant, those weakly subjects that would need perpetual care and nursing. Plant none of them.

TOMATO CULTURE

Nothing is to be gained by planting tomatoes too early. Be reasonably sure that frosts are over before you set plants. While tomato plants consume much food, a very rich soil, containing plenty of humus, will give you vines rather than fruits. A rather "hungry" soil, naturally, with special fertilization, has given the best garden crops and should hold equally well for extensive field operations. It is not, however, good practice to grow tomatoes on any land for more than three years without alternating with some other crop.

One successful grower plowed an old truck garden soil up deeply, applied superphosphate broadcast to the amount of 500 pounds an acre, and harrowed the soil smooth just before planting. When the plants began to bloom he sowed 200 pounds per acre of nitrate of soda, first run through a screen so no lumps were possible. Two or three weeks later he again sowed a like amount, cultivating it once after each feeding. His success was good for the practice followed was based on 20 years in the growing of tomatoes for market. Above all, do not plant too early. The tomato requires much heat and in a cool spring or with early planting it has been proven that one planting will not bring a crop a single day ahead of plants set in the field two weeks later. For summer and fall crops seeds may be planted in seed beds from April to July, according to the time you wish the crop to mature.—E. B.

The Firestone Cord, showing heavy non-skid tread

The Firestone Park School is one of the most complete in Ohio

Firestone Park—and Most Miles per Dollar

All ideals that aim toward the general good, all practical efforts at community betterment, have a wide and far-reaching effect.

Firestone Park, a community of homes, churches, schools and all incentives to loyal citizenship—is an example of the way in which the Firestone organization shows itself mindful of the importance of the home in any great working group.

In Firestone Park are gathered together Firestone workers who are also owners of their homes and stockholders in the business.

They are united by every motive of personal pride to make tires of best possible quality at lowest possible cost. Firestone's resources in capital and workers such as these, create economies that are passed on to the car owner in more tire for the money—most miles per dollar.

FIRESTONE TIRE & RUBBER COMPANY, Firestone Park, Akron, Ohio

Firestone

Organization Has Benefited Bean Growers

By Joseph Rorke, Organization Manager California Bean Growers

THIS is the day and age of cooperative marketing; every few days we get news of another growers' association being formed. Recently the Michigan Gleaners Association, composed of 70,000 farmers, the majority of whom are bean growers, bought out control of the bean elevators owned and operated by the Lewellyn Bean Company. It has been said by large operators in Michigan that there would never be an association of farmers in Michigan. It has come to pass, the farmers there recognizing the fact that they should have a voice regarding what price their products should be sold for.

It was good news to get, inasmuch as the California bean growers and the Michigan bean growers are mutually interested and we presume to think that this will mean better conditions for one and the other. As an organization of bean growers, we will be able to keep one another posted as to crop and market conditions. This could not be accomplished if we had to try and procure this information from the bean dealer and the man who speculates with the product of the farmer.

The bean growers of the United States are just waking up to the fact that they must get together. What they have gone through this last two years has taught them that much and we venture to say that in the course of a short while we will see all the bean growing states formed into associations or marketing organizations.

The bean industry of California is of great importance and should bring to the farmers a price which will enable them to continue raising beans. The bean production of California ranks from second to fourth as to the amount of money it brings to this state. Is it not time for us all to get together and make the California Bean Growers Association one that will stand the acid test?

It is realized in writing this article that a number of you who read it will say to yourselves: "Well, it is all right, but what good has the association done us this year?"

Mr. Bean Grower, we want to emphasize the following facts:

The association started during a year when Uncle Sam said food will win the war and every farmer did his utmost to raise food products.

The bean crop of California was the largest that was ever known and the war still going on, it looked as though there would be a ready market for every bean that was raised.

You will remember in September of 1918 that we had heavy rains and all during the harvest it was more or less wet. This meant that at the time all the beans were in the warehouse, instead of having a product that was marketable, we had a large proportion of it rain damaged.

About the time our beans were in the warehouses the war came to a close (for which we were all thankful though we still had our crops on hand).

News came that practically all Europe was starving and that the United States would have to furnish them with food. Here we saw a ready market for our beans, but it seems that European countries, though they wanted our products, had not the money to pay for them. The rate of exchange dropped so rapidly that it was hazardous to do business with these countries and we were forced to look for other markets for our beans.

The market brightened up on beans and in eight or ten days the association sold at advancing prices to all parts of the United States. At this time our hopes ran high and we were wondering what next would happen. It came in the form of governmental inquiry into the high cost of living. This inquiry stopped the buyers from purchasing any more beans than they had to, as they were afraid they would be seized as hoarded food products.

Mistakes have been made and one of them was that we figured the whole of the crop held by the association would be moved in large blocks. Home trade was neglected and we later had to get busy and make connections all over the United States for the disposal of our crop. However, today we have the finest connections for the disposal of beans in the United States and are constantly receiving letters from our selling representatives that they would sooner deal through a growers' organization, because of the fact that they get what they buy and that the association is behind all they sell.

Had the Bean Growers Association dumped the whole of its holdings on the market at any one time during the last year, it would have spelled ruination to the bean market and we firmly believe that we would have seen beans selling at three to four cents. As it is, though we have been holding our members' crops, we feel sure that our members will receive a better average price for their beans than the independent grower.

The California Bean Growers Association has had a hard road to hoe since its inauguration, but a large proportion of our members are loyal to us and they all feel that we must at all costs make this organization one of the strongest in the state and we can do so if our members will give us their support.

Mr. Bean Grower, get behind this organization and make it one of the best and one of which you will be proud, when you can say to your neighbor, "Well, Bill, we have a bean association now that is some association. All I have to do is to turn in my beans and I am through worrying about them." This can and will be accomplished if each member will consider this association part of his business, which it really is. Do not forget that the California Bean Growers Association is your association and it is going to be what you make it.

The bean growing districts which are now organized are Michigan, Colorado, New Mexico and California. This only leaves New York unorganized (which is of importance in the production of beans).

The benefits that an association can be to its members are many. It has facilities of keeping touch with market and crop conditions all over the world and is in constant touch with the demand, can advise the grower the variety of beans that he should plant and can see that he gets the very choicest beans possible when it comes to planting time, so that he does not have to go to a seed house and pay exorbitant prices for seed beans. It can purchase sacks and twine and other necessary materials for his use. Think this matter over and write and give us your views on the subject. We are always open to receive suggestions from our members that will be a benefit to the organization.

NEW CHIEF

California has been honored in the appointment of Wm. B. Greeley chief forester to succeed Henry S. Graves, who is to retire May 1. The new forester has spent much of his life in California, graduating from the San Jose high school and the University of California. Greeley is the third to fill this office, the first having been Gifford Pinchot.

Mr. Greeley served as inspector of timber sales for the forest service in California from 1905 to 1906, and for the next two years as supervisor of Sequoia national forest. For six years he has been assistant forester with headquarters at Washington.

At the outbreak of the war he received a commission as lieutenant-colonel and had charge of American forestry work in France.

He was awarded the French Legion of Honor and the British D. S. O. for his work as chief of the forestry section of the American army in charge of 21,000 specially trained troops, whom he had helped to recruit, and 95 saw mills.

STEALING WALNUTS

A very profitable and novel industry has developed in Los Angeles County, as may be noted in the following:

"Fifteen thousand dollars worth of walnut meats were stolen from a warehouse at 106 East Avenue 20 last night by two burglars, who used a big truck to haul away their loot."

There were something over 250 sacks, 60 pounds to the sack, of these walnut meats.

GRAMM PIONEER BERNSTEIN

Ship by Truck

Two-ton Gramm Bernstein with 5-in-1 Combination Farm Body as used in sugar beet fields in Putnam County, Ohio

"Extras" are Standard on the Gramm-Bernstein

Gramm-Bernstein Worm-Drive Trucks carry, at the listed sale price, $500 to $550 worth of equipment, according to type and size.

This equipment is all essential to truck efficiency and economy. Any truck must have it.

On the Gramm-Bernstein it is listed as follows:—

Standard Gramm-Bernstein cab, with doors and storm curtains.

Exceptionally rugged metal ventilating wind shield.

Front fenders and steps.

Sturdy radiator guard, attached to frame independent of radiator.

Radiator shutter, operated from seat—facilitates starting, saves gasoline.

Boyce motometer, to indicate temperature of engine.

Army type towing hooks at front end.

Spring trailer drawbar at rear, on all capacities above 1½ ton.

Electric generator. Electric side lights with dimmers and non-glare lenses; dash light; bullseye tail light, protected in frame; electric horn.

Patented Gramm-Bernstein always-in-mesh transmission, with extension oil filler spout.

Patented dirt-proof wick oilers on all spring bolts.

Metal license brackets, front and rear.

100,000-mile hub odometer.

All Gramm-Bernstein Transmissions are trouble-proof and are provided with a pad for attaching Gramm's Basic Patent Power Take-off. Dealers and truck owners should assure themselves that any trucks purchased with power take-off do not infringe B. A. Gramm's Basic Patent No. 1194994

Ready for the Body— Not an Extra to Buy

Again Gramm-Bernstein is pioneering, in selling its trucks completely equipped.

This means that Gramm-Bernstein savings begin before the truck is put to work. They actually begin with the purchase of the chassis itself.

No one, we believe, appreciates better than farmers themselves the need of trucks on the farm, nor the time and money a good truck will save.

All truck buyers have always had to invest upwards of $500 in extras before they could put their machines to work.

Nothing of the sort with Gramm-Bernstein. It comes to you completely equipped—ready for the body—*not a single extra to buy.*

In this, as in the industry itself and most of its forward steps, B. A. Gramm has led the way.

Gramm-Bernstein records fairly bristle with figures that show these trucks *haul for less*, both in operation and upkeep; that they *last longer;* that they are actually *better built;* that they do require *far less* service and repairs.

Every farmer owes it to himself, before he buys a truck, to be sure he is making the best investment he can make.

On that score, we recommend the Gramm-Bernstein—most earnestly.

We sincerely believe that the Gramm-Bernstein far excels in downright, honest, dollar-value.

The nearest Gramm-Bernstein dealer will be glad to give you the benefit of his knowledge; or we will direct you to him if you will write us.

Walter H. Fisher, 917 S. Grand St., Los Angeles, California.
Koerber-Watkins Auto Co., San Francisco, California.
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S. C. WHITE LEGHORNS
We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

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POULTRY

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3 Long, Stretchy Boar Pigs farrowed in July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St. at Third, San Francisco. In charge of Natomas Land Sales.

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An extremely well laid out plot of land 220 ft. by 454 ft. with full width city streets on three sides and an alley 30 ft. wide on the fourth, only eight blocks from Santa Barbara Post Office and business center. The land is first class sandy loam and will grow anything. There are 146 full bearing fruit trees, including apples, pears, peaches, nectraines, plums, apricots, oranges, lemons, figs, walnuts, loquats, avocados and berries: a good assortment of the best varieties and planted in perfect order. The place is planned for a first class chicken ranch and is fully equqipped for 10,000 to 12,000 head of fowls, including houses of the best construction and all modern, with cement floors, automatic drinking fountains, feed hoppers, brooders and houses, manure shed; feed house with alfalfa cutter motor driven, in fact everything in order for a first class farm. There is a well built house containing three bedrooms, livingroom, diningroom, kitchen and bath, (oak floors) for a home, and a two story, eight room house for working men. Garage for two cars. The fruit from the place will more than pay expenses. This property must be seen to be appreciated. It is offered at the low figure of $12,000 to settle up an estate. Come and see it, or write for fuller particulars and terms to F. H. Lingham, 10 West Anapamu Street, Santa Barbara, California. (Exclusive Agent.)

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10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.
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Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

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Buy cheap, good alfalfa and fruit land in the easy lift water district near improved dairy and hog ranches. $50 to $75 an acre, one-fifth cash. Send for circulars. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

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SURFACE IRRIGATING PIPE
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Plows, $5 to $12; 3-4 gang disc plows, 4 gang Stockton, $28; bone grinder, $8; double disc harrow, $48; mowers, $48; potato planter, $65; walking potato digger, subsoilers, hillside plow, 10 in., $12; 4 row beet planter, $30; 2 row bean cultivator, $35; cable, plow discs.
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For Sale — Bean Tools—4 row Ventura Planter, 2 row Klilifer Cultivator, 2 row Caledonia Cutter, 8 ft. Cyclone, Small American Thresher. Chas. Young, Route 1, Whittier.

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For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

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Mammoth Bronze Turkey Eggs — "Gold Nugget" and other strains. Carrie Andrews, Hemet, California.

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Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

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Cotton Seed For Sale—Mebane and Durango seed, ginned from our crops, grown West Side San Joaquin Valley, which gave generous production, grading excellent staple and color. Quantity limited. Shipped in new sacks weighing approximately fifty-five pounds. If ordering less than ton state number of sacks wanted. Should plant approximately twenty pounds per acre. Prices: seven one-half cents per pound; in lots of ten tons or more to one consignee, seven cents per pound. All quotations f. o. b. Southern Pacific Westhaven. Boston Land Company, Westhaven, Fresno County.

Mammoth Blackberry, Himalaya Blackberry, Mersercau Bush Blackberry, also three kinds Red Raspberry, $1.00 dozen, $6.00 hundred. Loganberry, Phenomenal Berry, Blackcap Raspberry, $1.50 dozen, $9.00 hundred. Cory's Thornless Blackberry, $2.50 dozen, $18 hundred. Asparagus Roots, 30c and 50c dozen, $1.50 and $2.50 hundred. Prepaid if cash with order. Name second choice. Pioneer Nursery, Monrovia, California.

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For Sale—Tomato Seed, New Stone (improved), Livingston's Favorite; 40 cents per oz., $4.00 per pound each. Postpaid any quantity. All these varieties are the very best select stock. Patton Seed Co., South Pasadena, California.

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Write amount and kinds of seed wanted. Four kinds of alfalfa, 25c and up; free samples. Box 501, Fowler, California.

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The Velvet Bean

By Ernest Braunton

IN THE cotton belt of the Southern states no forage or cover crop has met with such favor as the velvet bean. It is an odd plant, differing in many ways from any other we grow but more closely related to the soy bean than any known to cultivation. It makes a growth each year that is little less than marvelous, the most vigorous of any cover crop. As a soil renovator for summer growth it has no equal and exceeds them all in tonnage of green feed or fertilizer.

While a little less adapted to general conditions in California, owing to our variety of soil and climatic conditions, in some sections it has retained all the glory it earlier gained in Florida. It is a hot weather plant and in midsummer makes its most vigorous growth. In the San Fernando Valley, near Los Angeles, and at other points, it has made a larger growth in a given period than any cover crop tried. While sometimes tender and caught by the first frosts it is claimed hardy varieties have been segregated that materially lengthen its growing season and extend its range. Its use is urged by those who have tried it as a quick soil cover to aid in overcoming the June drop of the orange, to yield humus and gather nitrogen.

According to the United States department of agriculture, the Velvet bean is the most vigorous growing annual legume cultivated in the United States and it is further stated that the acreage in the United States was increased from 1,000,000 acres in 1915 to more than 5,000,000 in 1917, principally in the Southern states; which will give an idea of the rapidly increasing favor which this crop has met.

The Best Variety

The Georgia, or Early Speckled Velvet bean, or in some sections known as the 100 Day Speckled Velvet bean, is probably the variety best adapted to Southern California soil and climatic conditions, and as it matures in 90 to 110 days it can be seen that its foliage would cover an orange grove in a short time. It has a great tendency to spread, sending runners out which are covered with heavy thick foliage.

Velvet beans surpass the cow pea in sandy soil and in heavier clay or adobe are as good producers. This particular crop can be planted in the early spring, as soon as the ground begins to warm up and after all danger of frost is over, and as the speckled variety is an early maturing legume it will produce a splendid foliage by the time the warmer period comes on. The system of planting is in hills about 18 inches apart at the rate of 15 to 20 pounds per acre when used in citrus orchards, which will give an ample growth to insure good moisture conservation.

Quoting from the government's experiment station report on the uses of the Velvet bean: "As an annual green manure crop it is unexcelled." The report goes on to state that when Velvet beans are planted without a supporting crop they produce such a dense growth of vines that in many cases noxious weeds and grasses are smothered. The Florida experiment station planted a recently plowed field of Bermuda grass to Velvet beans in 1898, and in 1899 this field was planted to cassavas, during which time it remained entirely free from Bermuda grass. And again in 1900 it was planted to a cultivated crop and no trace of Bermuda found. When Velvet beans are planted as a cover crop on new land they should be sown broadcast, but when on old grass land it is best to plant them in rows so that at least one cultivation may be given before the vines begin to run.

"In most instances where soil is cultivated to a large extent, there develops a hard under soil known as the heavy tap root is known to penetrate hard subsoil. When this root decays, it leaves an opening which will allow the moisture and air to get down into the deeper soil and thereby gives a greater productiveness.

"For cover crops the beans should be planted during April and May. This plow sole, which is detrimental in so far as the air and water will not penetrate to any satisfactory degree, and it is in this instance that the Velvet bean serves a splendid purpose, as will bring maturity during the late summer and early fall, when it should be turned under. Velvet beans should be planted in rows three feet apart, dropping two beans every 12 inches apart in the row. This will take from 20 to 25 pounds per acre. It will not do to sow broadcast on rich soils as they make too heavy a growth and interfere with irrigation. In plowing under, a chain should be attached to the plow at the end of which a weight should be attached, such as a horseshoe. The soil should be turned on this chain. The result will be that the chain and horseshoe will draw the growth under the soil, covering it completely."

Standardizing Figs

Cooperation is cooperating more and more. The fig growers are the latest. They met recently in Fresno and discussed cooperative programs in better growing methods, better standardizing and shipping methods and then in better market methods. After much discussion and even investigation into the present growing and packing methods, a committee of five consisting of Mayor W. F. Toomey of Fresno, as chairman, and F. W. Yoakum, I. J. Condit, Fred P. Roullard and J. M. Wrightsen was appointed with request to investigate and cooperate with the bureau of foods and the state department of agriculture, especially its standardization bureau, in growing, sorting and packing a higher grade standardized crop in 1920. The Fresno Republican reports:

"Following the appointment of the committee an informal conference was held and it was announced by the chairman, W. F. Toomey, that it had been arranged to send conservative samples of the figs grown in this locality, collected from different orchards and graded according to the beliefs of the growers, to Dr. E. J. Lea, director of the bureau of pure foods and drugs at Berkeley, for his analysis and report. The samples are to be separated and graded and sent to the state pure food expert in that form so that he may secure the grading as practiced by the growers and make report on the impurities found in the figs. This, it is believed, will do much toward standardizing the fig industry and eliminating controversy on the character of the California product."

Inasmuch as the losses are great, both to consumer and shipper in former methods, there is great interest in this new standardization movement. Mayor Toomey outlined the losses formerly incurred by the growers, stating that it amounted to five to seven per cent culls in White Adriatics, 20 to 35 per cent in Calimyrnas, while the ioss at the packing house, also shouldered by the grower, amounted to the same on Adriatics and from 12 to 15 per cent on Calimyrnas.

It was stated that it was almost impossible to determine whether a fig was a "cull" or not and that in some instances, especially that of smut, it was impossible to teli to what extent the fruit was injured until it was split open. This unstable situation in determining the percentage of good figs in the crops is stated by Toomey to be the cause for the lack of offers in advance on the San Joaquin Valley crop, while top prices are being offered for other fruits. The mayor outlined the federal tests which he had secured here a few years ago and told of the percentages which are allowed for impurities in imported packs, running to 34 per cent, although the exact basis of computing is unknown here.

Professor R. H. Taylor of the state department of agriculture outlined the status of his department in its relations to the growers of the state and offered cooperation with the bureau of

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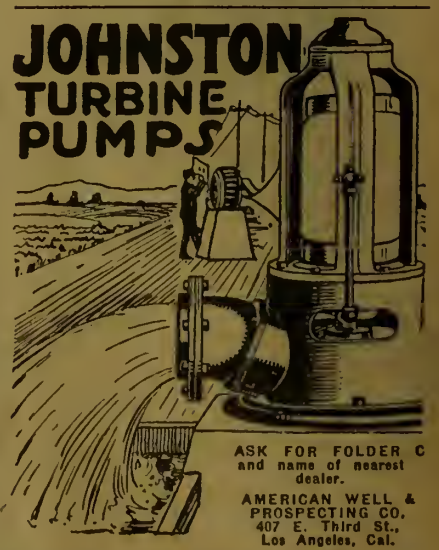

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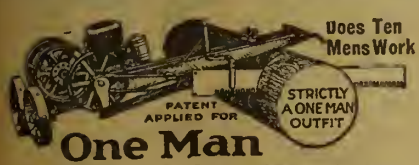

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foods and the growers to assist in the work. He stated that the ultimate to be sought by any producer is the satisfaction of the consumer and that temporary loss will reap eventual gain in the fig industry.

THE CHERIMOYA

By Ernest Braunton

WHEN one sees three men in an orchard filling lug boxes with cherimoyas, or custard apples, which are shipped East and sold at an average price of more than one dollar each, it is time to ask if we have not "arrived" as a producer of strictly tropical fruits. For this is just what the writer saw a few days ago and what has taken place in this orchard for several years past. And the cherimoya is more tender than the avocado.

Typical Cherimoya—From Tree Producing Fruit Weighing Three and One-half Pounds.—Photo by Cultivator.

The trees, about 20 in number, are about 20 feet high, more than 20 feet through and about 20 years old. They have never been injured by frost, even in the cold snap of January, 1913. As is the case with nearly all tropical and subtropical fruits, they remain on the trees over a long period of ripening, so that from the first ripened fruit to the last, one may enjoy cherimoyas in the home orchard over several months. Fruits have been picked from the trees mentioned for the past three months and have varied in weight from a few ounces to a bouncer of three and one-fourth pounds, averaging about a pound and a half each.

Family History

The custard apples are typical of the order Annonaceae, to which they belong and have Annona for a family name. The species grown in California is the only one entitled to "cherimoya," but all are custard apples, a name which aptly fits the appearance and consistency of the flesh. The botanical name of our species is Annona Cherimola. Common names of other species are: soursop, custard apple, bullock's-heart, anona, sweet-sop, and negro-head. The latter is a purple fruit, and a reddish one is known as anona colorado, the latter name being Spanish for red. All those mentioned are more tropical in their requirements than the cherimoya and cannot well be grown anywhere in California. Ours is a native to the Andes of Peru, but others are from tropical Mexico, South and Central America. One mountain form. A. montana, is a large robust tree not yet known in California, but should be introduced as stock upon which to bud the cherimoya, as it is much the more vigorous of the two.

THE BLACKEYE BEAN

It is said rabbits will not eat the Blackeye bean and for that reason it has been somewhat a favorite with frontier planters, though not commanding as high a price as some other varieties. While they will produce well on any soil, a sandy loam is probably best. The yield is heavy, even without irrigation, but greatly increased with periodical waterings. As a field crop this bean has yielded as high as 2,500 pounds to the acre without irrigation, and is a good cover crop and soil improver. The best time for planting is generally the first half of April.

The present per capita consumption of the potato in America is less than three bushels, about one-third that of Europe. America has not kept step.

Instead of a seedless apple, we need one that is as big in the bottom of the box as at the top.

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Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 25, Guaranty Sale, Sacramento.

April 20, Bonita Stock Farm, Lodi.

April 27-28, Southern California Consignment, Clearwater.

May 5, W. J. Higdon, Tulare.

May 6, R. C. Sturgeon and others, Tulare.

May 12, Leeman & Kilgore, Dispersal, Ripon.

Shorthorns

March 30-April 1, Central Shorthorn Breeders Association Show and Sale, Kansas City.

June 17, C. W. Anderson, Burkbank. Dispersal.

Poland Chinas

March 13, Haag & Bernstein, Hanford.

April 3, Kings County Pig Club sale, Hanford.

April 24, W. T. Dice and Harrold Waltz, Hanford.

E. D. Barry of Todos Santos Ranch, Daggett, writes that Ida Pontiac Korndyke, a junior two year old, has finished her 305 day test with about 517 pounds butter and 13,570 pounds milk. She will freshen again before the last of next month. Mr. Barry adds that Harry L. Redd has become herdsman of Todos Santos. Harry Redd was for several years with Higdon's big producers in Tulare County and under his care Mr. Barry expects a long bunch of his cows to freshen soon and make some long yearly records. A number of outside cows will also be brought to the ranch for test and breeding to the herd sire, Sir Aaggie Hiske Walker.

E. M. Walker, Lakeside, has sold his entire herd of Holsteins to Aitken Brothers, proprietors of the Meadow Lane Farm, Waukesha, Wisconsin. Included in the herd was the bull Terracelawn Hengerveld Segis, a son of the century sire Pierterje Hengerveld Segis and from a 32 pound daughter of Hengerveld De Kol, the first century sire. Terracelawn Hengerveld Segis has three century sires and three near century sires out of the seven nearest sires in his pedigre.

The two young daughters of King Korndyke Pontiac 20th, now in milk at Santa Anita Rancho, Santa Anita, have both increased the records reported in one of our recent issues. Anoakia King Korndyke, freshening at 17 months, made 15.40 pounds butter from 449 pounds milk in seven days, milking 65.8 pounds her best day. Anoakia Pontiac Beets 2nd, freshening at 20 months of age, made 18.27 pounds butter from 454.7 pounds milk, milking 68.9 pounds her best day. Both of these heifers are going right ahead with a big milk flow like real dairy cows.

Spring Farm Pauline Pontiac 2nd, owned by Bridgford Holstein Company, Patterson, is now on official test and already has over 35 pounds butter and over 775 pounds milk to her credit in seven days. She had a record at last freshening of over 33 pounds butter in seven days. Her son by the three times grand champion King Segis Alcartra Prilly will be sold in the Guaranty Sale at Sacramento on March 25, and besides his great breeding is an unusually high class individual.

King Segis Alcartra Abbekerk, senior herd sire in the Bridgford Holstein Company herd at Patterson, has another two year old now on test with above 24 pounds butter to her credit in seven days, and a senior two year old that promises to set a new high mark in her class in California. Rose De Kol Candee, a four year old in the same herd, has crossed the 30 pound mark and is still on test.

Emerson Mary Pontiac, a senior three year old, recently became the Kansas high record Holstein female of any age when she made on official test 33.46 pounds butter from 699.06 pounds milk in seven days. She is sired by Sir Piebe De Kol Segis Pontiac, son of the famous sire King Segis Pontiac Count, who is herd sire at Hillcrest Farms, S. E. Spires managing owner, Caruthers, California. This is the oldest daughter of this sire to freshen to date and is one of the heifers that Mr. Spires left in Kansas when he moved to California. Five good cows bred to this bull will be sold in the Tulare sale on May 6 by Hillcrest Farms.

Jane Garden Farm, owned by Fred W. Kiesel, Sacramento, has a number of good Holsteins on official test at present. One of the finest individuals in the herd now has above 27 pounds butter in seven days and promises to make further increase. She, together with several others of the very tops in the herd, will be sold in the Guaranty Sale at Sacramento on March 25.

C. W. Anderson, Burbank, will disperse his herd of registered Holsteins at his Edgemont Farm on June 17. According to C. L. Hughes, sale manager of California Breeders Sales and Pedigree Company, who will manage the sale, this is one of the very choicest herds of young Holsteins that has ever been sold in the state, both as to breeding and individuality.

Over 100 head of registered Holsteins have been listed by Southern California breeders for the big two day sale at Rhoades & Rhoades Sale Pavilion, Clearwater, on April 27 and 28. Besides the dispersal of the good herd owned by W. D. Millard, Arcadia, there will be high class consignments from Burr Farm, Agee Bros., P. H. Krick, W. T. McAlister, Bost & Johnstone, Chas. Harrington, Stalder Bros., and possibly others.

The sale of registered Holsteins at Bonita Stock Farm, Lodi, on April 20, will be rather a new feature in California Holstein sales, from the fact that there are no females of milking age in the sale. The offering will consist of 63 heifers from calves up to bred heifers, and 27 young bulls. A large percentage of the offering is sired by the 32 pound bull Supreme Glista Pietje, and more than half are out of dams with good official records. It promises to be an interesting event for the large number of buyers who have been making unsuccessful quests for registered Holstein heifers during the past several months.

A. R. Doctor at Van Nuys recently bought the young boar Belle's Hanford Boy from the John Bernstein herd in Kings County. At one year old this boar weighed 400 pounds, with the following measurements: 54 inch heart, 64 inch length, 33 inch height, and 10 inch bone. He is sired by President and out of Beautiful Belle. He and his get will be seen in the show rings next fall. Mr. Doctor recently secured one of the best brood sows sold in the McClune sale at Hanford, with prospective litter by Kings Massive Orange. The herd now embraces the blood lines of old Nelson, Jumbo, Expansion and old Glantess.

W. F. Sandercock, Berkshire breeder of Sacramento, writes that he has received word from W. Teasdale, Fallon, Nevada, who was recently elected a director of the Western Berkshire Congress, that he expects to show at the 1920 California state fair. Mr. Teasdale's herd is strong in the blood of the imported boar Epochal.

T. J. Gist and Sons of the Holberk Stock Farm near Tulare have just finished some official testing on some of their registered Holstein cattle. The heifer Gleesome Girl Mercedes of Holberk made 15.25 pounds of butter in seven days. Mooriand Hermana Jetze made 22.50 pounds as junior four year old. Holberk Cream Cup Scott made 17.50 pounds butter as a junior two year old. The latter is a daughter of their former herd sire, Cream Cup Pontiac Burke 3d. Another daughter made a 26.50 pound junior four year old record.

Toyon Farm Association announces the result of tuberculin test made on their Los Aitos herd last summer. The test was made under the supervision of the state veterinarian. One hundred and thirty-six head were subjected to the subcutaneous, intradermal and opthalmic tests. There were no reactors or any suspicious cases. Buyers at the coming Guaranty Sale at Sacramento will have a chance to buy some sterling individuals from a herd with this exceptional record. Toyon Model Hartog (bull), a great youngster by a son of a 31 pound two year old, out of a 23 pound junior two year old cow making a large yearly record, second dam a 31 pound cow that made over 30 pounds as a four year old and over 800 pounds in one year, third dam a 30 pound cow that made 1,129 pounds butter in one year. Others offered are Northfield Maid Ragapple, Stanislaus Princess Pontiac, Kakenstein Gerben, Cascade Mary Ormsby, Toyon Stanessa, Isabelle Ormsby Valdessa, Cascade Johanna, Laconner Pontiac Evangeline, Laconner Pontiac Albino Girl, Tritomia Bessie.

Numerically speaking, Donald Graham of Lancaster has one of the greatest Duroc litters of the season. His good sow Aneeda Rose recently farrowed 18 living pigs, four boars and 14 sows, the litter weighing over 50 pounds. She is raising 12 of them. They are sired by Orion's King Gano, the sire of many outstanding young things on the Graham ranch. A September boar by Great I Am is one of the classiest young prospects seen in a long time. The young females reserved for the sow sale some time this summer are a nice lot and will make an attractive offering.

Alex D. McCarty of Riverina Farms, Modesto, is constantly improving his herd of Poland Chinas. His most recent purchases include a September boar sired by Liberator and an April gilt by Big Square Jumbo 2nd. These were purchased at the recent Haag & Bernstein sale. They are both candidates for a place in the McCarty show herd for the coming season.

BURR FARM SALES

A letter from Burr Farm:

"Recent sales from Burr Farm registered Holsteins include a good three months old bull calf out of a granddaughter of King of the Pontiacs and sired by our Sir Veeman bull. He goes to J. F. Grueb of Huntington Beach to head his herd of grade cows. We sold Frank Reed Sanders of Phoenix, Arizona, one of the best bull calves that ever left our place. He is a son of Orndyke Duchess Korndyke, a 27.84 pound cow that milked 3,000 pounds of milk in 30 days, and the calf is sired by It. We have at our place two sisters of this calf from the same cow. One of them was junior champion at the Los Angeles Livestock Show. She calved at the fair grounds and 30 days afterwards made a record of 18 pounds butter in seven days as a yearling. The other sister has just calved with her second calf and is making a remarkable showing. We are going to put her on official test also. Mr. Sanders bought this calf to follow his herd bull, King Pearl Segis Pontiac, which is out of the same sire as J. J. Jeffries' great bull.

"Another sale that is of more than passing importance to the Holstein interests of Southern California is the purchase of eight cows from us by F F. Pellissier of Whittier. Mr. Pellissier purchased these cows as a foundation for a herd of registered Holsteins. All the cows are on semi-official yearly test and he is going to continue them, so that every cow he starts with will have a yearly record. Several of them have good seven day records now and they are a very fine lot of producers as well as being right individually. The cows purchased include Doremoon, with a 26 pound seven day record; Brudorin, a sister by the same sire, both being sisters to the 37 pound cow Boweda. The way the Doremoon cow is starting off this year she looks like a sure shot for

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NAPIER GRASS (heaviest cropper (180 tons per acre) of rich, green fodder known, relished by poultry, rabbits, goats, hogs, cattle; no rancher should be without it. Indorsed by U. S. Gov't. and State Exp. Stations—reports and bulletins free. Get our prices before ordering.
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Riverside Segis Pontiac Burke
has sired some beautiful calves for us. They are splendid individuals, large, well built, and of beautiful conformation.
His Sire Is
Segis De Kol Pontiac Burke
Grandson of
Riverside Sadie De Kol Burke
Butter 7 da., 32.29
Butter 1 yr., 1085.12
His Dam is
Lady Pontiac Ardsa Hengerveld
daughter of
ARDSA
Butter 7 da., 24.22
Milk 7 da., 468.60
and granddaughter of
KING OF THE PONTIACS
Let us tell you of some of the fine young bulls we have for sale from both tested and untested dams.
Sunnybrook Ranch
Willits California

a 1,000 pound record. He also secured a fine granddaughter of King Segis. Mr. Pellissier is known as one of the best dairymen of Southern California and has always purchased the best of pure bred sires to put at the head of his grade herd, paying as high as $1,000 for them. His son just recently finished his university course at Davis and is taking active charge of the farm. We predict that before many years one of the finest herds of registered Holsteins will be on the Pellissier Ranch."

IMMUNITY TO HOG CHOLERA LASTING

A series of recent experiments on duration of immunity to hog cholera following simultaneous inoculation of young pigs supports the conclusion that the protection is lasting. The investigations were conducted at Ames, Iowa, by specialists of the United States department of agriculture.

Altogether 171 pigs, inoculated when a week to six weeks old and exposed to hog cholera, at times varying from five months to nine months and 26 days later, were found without exception to be immune to that disease.

Three of the pigs, however, died during the period of exposure from causes other than hog cholera.

There was no apparent ill effect from the simultaneous inoculation in any of the pigs.

There was no difference in the immunity of pigs from immune and non-immune sows.

Pigs that were approximately one week old received ten cubic centimeters of anti-hog cholera serum and one-half cubic centimeter of virus. Pigs that were three weeks old or more received from 15 to 20 cubic centimeters of serum and from one-half to three-fourths cubic centimeter of virus.

Immunity was tested by injecting five cubic centimeters of virus into the animals when they had attained weights exceeding, in many cases, 200 pounds. None of the hogs contracted cholera. The experiments appear to disprove assertions by some observers that simultaneous inoculation of young pigs is not lasting and that immunity disappears at stages of growth variously placed from weaning time up to 50 or 60 pounds in weight.

DO LICE ON HOGS INCREASE COST OF GAINS?

The secretary of the National Swine Growers Association was recently at the U. S. government experiment farm at Beltsville, Maryland, and saw the third bunch of hogs fed in the series of experiments to determine the difference in the cost of feeding lousy pigs as compard with those which are free from lice.

The work was begun in the fall of 1918, at which time two bunches of hogs were selected from some lousy hogs bought for the work. One of the bunches was given a thorough delousing treatment with crude oil and the other was untreated. Each lot of ten pigs averaging about 80 pounds was fed for 106 days on shelled corn and fishmeal in separate compartments of self-feeders. At the end of that time the lousy hogs showed 175 pounds less gain and the gains cost $1.00 per hundred more than did those in the louse-free lot. In this as in the second and third tests, the corn was valued at $1.75 per bushel and the fishmeal at $100.00 per ton.

In the second trial two lots with 12 pigs averaging about 100 pounds each were similarly fed and treated with the exception that they received middlings in addition to the other feeds although thy were fed for but 91 days.

At the end of the test the louse free hogs showed 192 pounds more gain than did those which were lousy. With the middlings valued at $50.00 per ton and the other feeds as given for the first test the louse free hogs produced each one-hundred pounds of gain for $1.50 iess than did the other lot.

In the last trial 15 pigs averaging 73 pounds each were fed for 89 days in each lot. The ration and treatment was the same as for the second trial. The louse free hogs made a total of 420 pounds more gain than did the others and their gains cost $2.94 less per hundred pounds than in the lot where the pigs were lousy.

In no one case in the three trials were the pigs unthrifty to a state of making very slow gains. The three lots of lousy pigs gained 1.23, 1.41, and 1.28 pounds daily per pig respectively. The corresponding gains for the other three lots were as follows: 1.40, 1.58, and 1.59 pounds per pig. In economy of gains a very good showing was made throughout the three trials. The cost per pound of gain in the three different lots of lousy hogs was as follows: 14.3c, 16.4c, and 15.2c. Corresponding to [illegible] the gains in the louse free [illegible] 13.3c, 14.9c, and 12.3c per pound gain.

It is very interesting to note that in the tests in which middlings was fed with the corn and fishmeal the lousy pigs on that ration ate more of the high protein feeds than did the pigs in the other lot. The reason for this is doubtless that the lice tended to drain the blood from the veins of the pigs and this had to be replaced. On account of the composition of the blood it naturally required a high protein ration for its replacement.

These three tests are doubtless the most complete of their kind which have ever been conducted. They indicate very clearly that one can well afford to take a little time and go to some expense to rid the hogs of lice if they are infested.

The department is contemplating going more thoroughly into this and other problems directly affecting the economic production of pork. Extensive work in the control and eradication of internal parasites will doubtless be included in the studies.

CLEANING MILKING MACHINE PARTS

One of the principal objections to the use of milking machines has been the difficulty in sterilizing the rubber parts so as to produce a milk of good quality and low bacterial count. Some of the milking machine companies have recommended simply washing and placing these parts in a brine or so-called steriiizing solution. While the inadequacy of this method has been widely recognized, there has been a lack of knowledge of a really satisfactory one.

Some dairymen have worked out methods for themselves which are apparently satisfactory. One of these parties is Miss Lucy Hicks of Santa Barbara, who has used a miiking machine for four or five years. She milks about 30 cows and has a high class trade, obtaining some three cents per quart more than her competitors. The average of her bacterial counts from wagon samples for the last nine months was 7,700 and among them was only one above 10,000.

After each milking she rinses the rubber parts in cold water, washes them with soap and water, using a brush, then places them in a vat of cold sterilized solution and turns in steam until a temperature of about 180 degrees is reached. They remain in this solution until the next milking. Under this method the long tubes last about a year, the short tubes six months and the teat cup rubbers three months

D. O. Brant of Elliott Brant Rancho near Los Angeles has developed a similar method. Mr. Brant milks 60 cows. He also has a high class trade, his miik being consumed largely in hospitals. His average count for the last four months from wagon samples was 6,000, the lowest being 700 and the highest 25,000.

He cleans the tubes with warm water, using a brush, places them in a sterilizing solution for a few minutes. He then places them in a ten gallon miik can, fills with cold water and turns in steam untii a temperature of about 160 degrees is reached. He ieaves them in this water until the next milking. The life of the long tubes is about four months, the short tubes two months and the inflations three months.

WORMS IN PIGS

The new crop of pigs will soon be getting to a stage where ciose attention should be paid to their physical condition. Dr. K. W. Stouder, veterinarian of the agricuitural etxension department of Iowa state college, strongly advocates the following formula for hogs infested with worms: Santonin, 5 grains; areca nut, 3 drams; calomel, 3 grains; sodium bicarbonate, 1 dram.

The above amounts constitute a dose for a 100 pound pig. Use twice as much for a 200 pound pig and two and one-half times as much for a 300 pound hog. Feed should be withheld for at least 18 hours before feeding above mixture. Repeat the dose in eight to ten days to make sure all worms are expelled. Where all the ingredients cannot be obtained, the following formula for a 100 pound pig may be substiuted: Santonin, 7 grains; calomei, 7 grains.

The average farmer has from eight to ten acres of crops per animal unit. By using silos and proper crops and cropping methods, a few farmers have reduced this to two and three acres per animal unit.

90 CHOICE HOLSTEIN YOUNGSTERS

At Public Auction

Bonita Stock Farm

Lodi, Cal.

Tuesday April 20, 1920

This is a complete dispersal of the young stock In this well known herd, and consists of

63 REGISTERED HOLSTEIN HEIFERS from calves up to bred heifers.

27 REGISTERED HOLSTEIN BULLS from young calves up to service age.

A large percentage of these are sired by the 32 pound buil Supreme Gilsta Pietje, and many are out of high record dams of excellent breeding.

This is as choice a lot of calves of unusually good type as has even been sold at auction in the state. Practically all of them are growthy, in excellent condition, well marked, and we consider this sale a rare opportunity for the buyer of young things.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager
Sacramento, Calif.

Auctioneers
Col. Ben A. Rhoades, Los Angeles.
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CONSIGNED TO THE

Guaranty Sale

March 25

TOSANTOS WALKER PONTIAC

His Sire—KING KORNDYKE PONTIAC 20th. The $6500 Bull.

KING KORNDYKE PONTIAC, One of the best bred sons of King of the Pontiacs.

MISS VALLEY MEAD DE KOL WALKER.
Butter, 7 dy., 3 yr. 36.81
Milk 688.60
Butter, 257 dys..... 790.38
Milk 17,010.90

His Dam—MISS FILLED KORNDYKE WALKER.
Butter 7 dy., 4 yr. 26.38
Milk 565.60
Over 100 lbs. butter for her first 30 days on semi official.

Her full sister Miss Gelsche Walker Korndyke
Butter 7 dy. 32.76

PRINCE GELSCHE WALKER,
His 3 nearest dams average:
Butter, 7 dys. 31.75
3 of his daughters average:
Butter, 7 dys. 34.60

MISS FILLED KORNDYKE,
Butter, 7 dys, 5 yrs..... 29.67
Milk 615.10
Butter, 365 days, 2½ yrs..... 563.14
Milk 12,684.90

ANNOUNCEMENT
On April 1st

Harry L. Redd
Will take charge of our test cows

Chas. L. Humphreys
Will have charge of our show herd

TOSANTOS HERD

E. D. BARRY, JR. DAGGETT, CAL.

Closing Out Sale

On HARWOOD-WILLIAMS Ranch

Four miles south and three-fourths miles west of Poplar. Thirteen miles southeast of Porterville. Twenty-seven miles southeast of Tulare. One mile north and eight miles east of Pixley.

Wednesday, March 31

Beginning at 10 o'clock A.M.

184 Cows and Heifers, Bulls, Horses, Hogs

COMPRISING

27 Richly Bred Registered Holstein Cows
8 Registered Yearling Heifers
7 Registered Yearling Bulls
5 Registered Heifer Calves
5 Registered Bull Calves
1 Registered Bull, Herd Sire 4 Years Old
53 Extra High Grade Holstein Cows
16 Extra High Grade Holstein Heifers
25 Extra High Grade Holstein Calves

All of these cattle are in fine condition. Nearly all the cows are milking or will be soon. All are from Registered Sires and bred to Registered Bull.

2 Brood Mares, 1 Gelding, 2 Colts, 1 Registered Duroc Boar, 8 Brood Sows, 35 Feeder Shoats

Dairy Equipment Including 1 Four-Unit Perfection Milking Machine, 1 Simplex Separator and Motor, Cans, Etc.

TERMS—$100 and under, Cash. Sums over $100 half cash, balance Six Months at 8 per cent on approved security. Sums exceeding $100, 5 per cent discount for all cash.

FREE LUNCH AT NOON LADIES INVITED

PARTICULAR ATTENTION is directed to the fact that some of the richest bred Holstein families are represented in this offering. Parties desiring to improve their herds, or to start a foundation herd, should attend this big sale.

A. P. HARWOOD, Owner

V. W. and R. L. Shore, Auctioneers A. Crawford, Clerk

Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

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Have all Breeds of Registered

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Shorthorn and Hereford Bulls

Registered and Unregistered.

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YEAST — A concentrate high in PROTEIN and FAT content, sterilized and predigested.

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REGISTERED HOG SALES A SPECIALTY

Some Factors in the Development of High Producing Cows

By C. V. Castle

THE success and reputation of the breeder of pure bred dairy cattle is based mainly on the records in milk and fat he can make with his cows. It is the ambition of every breeder to own a high producing cow, especially a class leader or near leader. Small breeders, especially those with moderate capital, are prone to become discouraged and to give up, saying that it is useless to try and compete with the man who has money to buy animals with fancy pedigrees at fancy prices. Such a point is not well taken. There are practically no strains or families in any of the leading dairy breeds from which it is not possible to develop high producing cows, and the poor man has almost equal oportunity with the man of means. This is not theory but has been demonstrated time and again, and almost every day a new record is made by a cow of so-called plain breeding, and quite often in the hands of dairymen of very modest means. It is the object of this article to state a few observations on the development of high producing cows.

The first thing to consider in starting out to develop a high producing cow is the material at hand to work with. First you want a heifer between two and three years old. She need not be a show heifer or one bred in the purple. She need not possess anything more to begin with than ordinary dairy type. What she must have, however, is a good strong constitution, as shown by large heart girth, good handling qualities, a bright eye and open nostrils. You want a heifer with a large open framework, and preferably free from any beefy tendency. The most important thing of all is her temperament and disposition. I would prefer a heifer a little highstrung and one with a kindly disposition. It is a hard grind for a cow to make a big record, and in order to do it a cow must possess a lot of grit and determination. She must be treated so as to develop a full response to the man who handles her, so that she will give every drop of milk possible—good feed or bad, hot weather or cold, sick or well. She need not have, to begin with, a very large barrel or an unusual development of the mammary system.

Starting with a heifer that answers the above description, the next thing to consider is how to develop her. She should be kept in a thrifty condition and be bred to calve when about 30 months old. She should be rather fat before freshening, as this excess fat will stimulate her to milk heavily.

The next thing to consider, after she freshens, is a method of feeding and milking that will develop her udder and add to her feeding capacity. It is possible to take heifers that look like a wasp after freshening and with six months time put a barrel on them that would do credit to many full aged cows.

The development of the barrel and increased feeding capacity is mainly a matter of proper feeding. Root crops such as mangels, carrots or sugar beets, or soaked beet pulp, I believe to be quite necessary. Feeding of grain and hay, even with silage, will not extend the abdomen as will roots or soaked beet pulp. The growth and expansion of the abdomen requires that the cow be properly nourished as well as fed bulky feeds, and to that end be liberal with the grain. The expansion of the abdomen is a matter of growth as well as stretching and in order to force the heifer to grow as well as give milk, feed a great deal more grain than would be done if economy of production were the only thing sought. To properly nourish the body and produce both milk and growth, feed a ration fairly well balanced, with a somewhat narrower nutritive ratio than would be used with a mature cow. There are some who think that a balanced ration is all right for an ordinary cow but that the test cow must have a very narrow ration. This practice may sometimes be held accountable for barrenness and other troubles encountered in high producing cows.

To develop the udder, milk veins, and persistency of the young cow, she should be milked at least three times a day. The natural tendency after a cow has been in milk for several months is to decrease rather rapidly in milk flow. To counteract this it is necessary to feed her heavily, much more than is really economical feeding, and it can be said that as long as the cow is thriving her grain should not be reduced even when her milk flow decreases. The next thing to do to keep up the milk flow is to milk more than twice a day. Generally, three times a day is often enough. The extra milking stimulates the udder, causes a growth of glandular tissue in the udder and an enlargement of the milk veins. It also stimulates the appetite of the cow. The milking must be well done. It is well to start in rather slowly at first until the cow lets down her milk and the blood begins to circulate in the teat, then milk rapidly in a businesslike manner, milking the two back teats or the two front teats first. When the milk is almost out, take plenty of time with the stripping. Strip the udder dry and then massage it for a few moments, then strip again. It sometimes helps some cows, especially small cows, to push in and up on one quarter while stripping the same teat with the other hand. If any of the quarters are light, and quite often the forequarters are, milk them first. In this way more milk is drawn through them and they are thereby stimulated and will become better developed.

The treatment of pure bred heifers in the manner outlined above will result in the development of many heifers into high producing cows that would, under ordinary treatment, be only average producers. This treatment will not only give the cow a larger record as an immature cow but will so develop her feeding capacity, mammary system and dairy instincts that she should, with proper treatment, make a large record as a mature cow.

Some may ask why it is not possible to wait until the cow is mature before feeding her so heavily and milking her three times a day. Of course, many cows are capable of making big records when handled that way, but a large number are not. It is necessary to grow and develop the capacity and mammary system while the cow is still immature and in a stage of growth and development.

One can hardly expect to take a cow that has been poorly treated as a heifer and succeed in giving her as large a record as a mature cow as can be made when the heifer has been accorded every opportunity for maximum development. Even a daughter of Tilly Alcartra and Carnation King Sylvia must needs be handled properly when young to develop maximum production.

While it is a fact that daughters of extremely high producers are seldom much better than daughters of cows with smaller production, the reason is largely attributable to the fact that the extreme production was not entirely inherited, but was in part due to development and environment. It is no doubt true that in a measure many high producing cows may transmit a part of this acquired productive ability to a son or daughter, but it is not to be expected that the dam can transmit more than she herself inherited.

It seems possible, however, that the continued forcing of a strain of cows to high production may in time tend to fix heavy milking qualities so as to result in more certain transmissi n of those qualities than is now the case.

SILAGE IS MOST ECONOMICAL

The Pennsylvania experiment station has found that two tons of silage and 200 pounds of linseed meal will carry a 1,?00 pound beef cow through the winter with some gain. This is more proof that silage is indispensable to the producer of beef. "Shortage of crops some years, due to drouth, cannot be helped," says R. W. Clark of the Colorado Agricultural College, "but on the whole the losses can be reduced to almost nothing. Silage will work wonders in preventing losses of all kinds."

MAINE JERSEY MAKES WORLD'S RECORD

Where is the man who said that an ordinary farmer under everyday working conditions cannot make a world's record with his cows?

Thrice within a year this theory has been contradicted by Jersey cows in working farmers hands. First by Vive La France, an Oregon farmer's cow, which made the four year old and breed record of 1,031 pounds fat; then by Lulu Alphea of Ashburn, a yearling, which made 800 pounds fat for her owner who only two years before had graduated from grades to pure breds.

The third and latest case is that of Plain Mary, a registered Jersey that found her way into the barn of two farmers who had decided to try their luck with pure breds. Their cow has made 15,255 pounds milk and 1,040 pounds butterfat in one year and gained the title of World's Champion Jersey. She is now owned by F. W. Ayer of Bangor, Maine, who bought her at a fancy price from Kelly and Cossar of Winn, Maine, the men who owned the cow until the sixth month of her present test. She was sold on condition that she remain at the old home farm to finish her record, and she will now be sent to her new home in Bangor.

Mary started her test at eight years and eleven months of age, and during the first six months she averaged more than 100 pounds of butterfat per month. From then on she had a few reverses and did not make as large a record as was expected.

The country in which she lived is subject to severe extremes of weather and the setbacks were due to a weather variation of 84 degrees in one day in June and then in December she was subjected to 45 degrees below zero in an unheated barn. The farm is located in an unprotected spot on the shores of the Penobscot River, and Mary had the benefit of all the fresh air that blew across fields of ice and snow. In spite of her handicaps she finished strong and averaged 28 pounds of milk a day during the last month of her record.

Plain Mary's record is more of a tribute to official test work than it is to breeding, as she does not belong to any particular strain. She reverts to St. Lambert blood chiefly, but no plan of breeding is brought out in her pedigree. As an individual she is much better looking than her picture. Cattle experts who have seen her say she is an almost perfect specimen of the producing dairy cow. She has plenty of barrel, strong constitution, good udder and teats, a very fine hide and every evidence of "dairy temperament," or willingness to work.

Where the Jersey World's Record Was Made

Plain Mary is the cow nearest wall on left shown by X. Joe Cossar is the man who fed and milked her.

Plain Mary occupies one of the two box stalls built for Register of Merit cows in Kelly and Cossar's barn. There is a total of 51 animals in the barn, five of which are on Register of Merit test. All the work is attended to by Joe Cossar and his assistant, Frank Baker.

Plain Mary was milked three times a day. Mr. Cossar did the night and morning milkings, while Frank Baker did the noon milking. Had she been milked four times a day, as some animals are milked on large farms, she undoubtedly would have done even better.

Plain Mary's record was very closely supervised. There were 22 supervisions by official testers (each of whom stayed two days). They represented five state agriculturai colieges and each one was a recognized expert in this line of work.

A notabie feature of this record, and of the other two mentioned in the first part of this article, is that all these animals carried calves during the greater part of their records, and Plain Mary is due to calve and qualify for Class AA Register of Merit, which means a calf with each record. Plain Mary has two other official records to her credit, one of 514 pounds fat and the other 828 pounds fat. She has also had six recorded calves and therefore is a great reproducer as well as a maker of large milk and butterfat records.

The figures given here show how Mary piled up her total of 1,040 pounds of fat by months.

1919	Milk, ibs.	Fat, lbs.
Februay 28	42.5	2.75
March	1,656.3	107.16
Aprii	1,741.0	109.16
May	1,650.6	107.95
June	1,436.7	89.22
Juiy	1,447.8	100.48
August	1,350.7	98.74
September	1,211.6	91.96
October	1,087.3	69.70
November	958.6	64.03
December	1,025.9	74.28
1920		
January	928.4	69.17
February 27	718.5	55.47
	15,255.9	1,040.07

LARGE COWS EXCEL IN YIELD

Cow testing records based on 38,532 dairy cows from 110 cow testing associations are being analyzed by specialists of the dairy division, United States department of agriculture. The tabulations have brought out a number of interesting relations between milk production, butterfat test, butterfat production, and income over cost of feed. The larger cows excelled the medium and small cows in production of both milk and butterfat.

The average annual milk production of all the animals was 5.936 pounds per cow, and the average butterfat prodnction 246 pounds. These figures are considerably larger than the average for the United States, indicating that dairymen who are members of cow testing associations either dispose of their poorest cows or else make them more profitable by better feeding and handling.

GUERNSEYS AVERAGE $546

According to published reports in the Guernsey Breeders Journal 29 Guernsey sales were held during the calendar year 1919. A total of 1,309 Guernseys sold for $715,748, or an average of $546. Two hundred thirteen bulls averaged $470 and 1,096 cows averaged $561.

SENIOR SIRE

Sir Pietertje Ormsby Mercedes 43rd

a son of

Aaggie Wayne Peep

with

A record unequaiied by any cow of any breed—4992 Butter, 110,000 lbs. of Milk in 5 years, covering her entire life. Her transmitting ability is demonstrated by her two daughters, both full sisters to 43d. These heifers have both above 26 lbs. and year's records of 800 lbs. Butter and over 18,000 lbs. of Milk.

SIR PIETERTJE ORMSBY MERCEDES 43d is by a sire with more thousand-lb. daughters than any other buli.

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Ten Head

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Guaranty Sale, Sacramento, March 25

by

Toyon Farm A'ssn

Farm: Los Altos, Cal.

Office: Mills Bldg., San Francisco

also a Bull of Exceptional Merit

Toyon Model Hartog

JUNIOR SIRE

Sir Aaggie Mead

a son of

Aralia DeKol Mead

who

is a brilliant example of uniform and persistent production. She has produced in 365 days, under strictly official test, 1215.20 lbs. butter and 23,044.70 lbs. milk. Her transmitting powers are shown by her daughters, one as a 2-year-oid made 922 ibs. butter, the other as a junior 2-year-old made 851 lbs. butter, both in one year.

SIR AAGGIE MEAD is sired by a son of Aaggie Acme of Riverside 2d. His 3 nearest dams have produced over 2,000 ibs. butter in 2 consecutive years, averaging over 2,200 ibs. Five of his 7 nearest dams average 1,177 lbs. butter in one year.

VON HEIM AAGGIE HARTOG

KORNDYKE MODEL HARTOG 3d
304 days at 2 yrs. 709.72 lbs. butter. Not reported.

COLONY WADMANTJE AAGGIE

Aaggie Cornucopia Newman 11 A. R. O. daughters

Aaggie Corn. Crown De Kol I 8 A. R. O. daughters

Margie Newman Butter 30 dys 131.19

Wadmantje Canary Butter 90 days 340.00

Sir Canary Mechthilde 37 A. R. O. daughters

Wadmantje Queen De Kol 2d

VON HEIM MARY HARTOG
Butter 7 days at 2½ yrs., 31.29
Butter 8 mos. after calving, 13.08

Colantha Sir Hartog 2 A. R. O. daughters

Aaggie Cornucopia Johanna Lad 106 A. R. O. daughters

Dutchland Hartog Butter 7 days 29.69

Jacoba Hartog Canary De Kol Butter 7 days at 8½ yrs. 18.53

Canary Mercedes Alban 35 A. R. O. daughters

Jacoba Hartog De Kol Irmina

CHIMACUM SPRING FARM KING PONTIAC

Spring Farm King Pontiac 37 A. R. O. daughters

King of the Pontiacs 241 A. R. O. daughters

Tweed White Lady Butter 1 yr. 1127.85

Princess Pontiac Frenesta Burke Butter 1 yr. 693.15

King Pontiac Pietertje Princess 27 A. R. O. daughters

Cora Frenesta Burke Butter 7 dys at 6 yrs. 22.34

KORNDYKE MODEL HARTOG
Butter 305 days at 4 yrs., 872.85

Sir Korndyke Pietertje Hartog 21 A. R. O. daughters

Sir Rag-Apple Korodyke 31 A. R. O. daughters

Mabel Pietertje Hartog 2nd Butter 30 dys 9051

Ava Model Hengerveld 2nd Butter 365 days at 6½ yrs. 1129.20

Highlawn Ondinus 22 A. R. O daughters

Ava Model Hengerveld

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Stop Losing Calves

Abortion is unnatural, and denotes a run-down condition of the genital organs. Strengthen these organs and they will resist the ravages of the Abortion germ.

KOW-KURE is a medicine that acts directly on the genital and digestive organs, giving them the vigor of perfect health. Cows treated with KOW-KURE before calving do not abort. You save both the calf and the cow's health by using the KOW-KURE preventive treatment.

KOW-KURE is also invaluable in the prevention and treatment of Retained Afterbirth, Barrenness, Bunches, Scours and Milk Fever. Sold by feed dealers and druggists; 60c and $1.20. Write for free book, "The Home Cow Doctor."

Dairy Association Co., Lyndonville, Vt.

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YOU LOSE MONEY every time you lay your horses up for sores. Use Bickmore's Gall Cure—cure them while they work! Money back if it fails. At all dealers, 35c, 70c, and $1.40. Also ask for Bickmore's Horse Liniment.

For yourself, always keep handy Bickmore's XYZ Skin Ointment and Bickmore's XYZ Family Liniment. Ask your dealer for them.

GALL CURE

GUERNSEYS

$546 Was the Average Price paid for all Guernseys sold at public auction in 1919. This figure indicates the buyers' high estimation of the value of the breed. Let us tell you WHY Guernseys lead in popular favor.

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Registered Shorthorns and Berkshires---Both Sexes

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When an Optimist Turns Pessimist

By Geo. W. Fry, The Redwoods Ayrshire Farm

I AM not usually a pessimist, in fact, I always encourage myself to lean the other way, but the present tendency of the dairy industry is apt to strike a note of pessimism in the heart of anyone. The dairyman is in between two millstones; the one is the ever upward cost of production and the other the always downward bearing selling price of products. This mill is grinding exceedingly fine and promises to grind finer before the present season is over.

As I write this we are having a life-saving rain, but whether or not it will be sufficient to make up for the deficiency of the past months and also store up enough moisture for spring and summer remains to be seen. It will make the crops and pastures grow but it is a question in my mind if it will be enough to assure a long pasture season. If it rains all through March with showers in April we may expect a fair season. Otherwise (and here is where the pessimism enters), the dairyman must buy roughages and grains which promise to be exceedingly high. Many are in debt now for feed used in the last few months and they do not feel cheerful about buying more feed before that debt is paid. Most reserve stocks of hay and grain have been used up. Local alfalfa has been consumed and large supplies of Nevada grown hay brought in at a high cost. This means that even though we get enough rains to insure the usual number of cuttings this year that the price will be high as farmers' barns and the warehouses are empty. The farmers will fill their barns to guard against another such season and the warehouse owners will stock up for speculative purposes.

The grain and mill feed markets do not seem to be any more promising. It is going to cost more to produce grain crops this year; the millers will have to pay more and they in turn will charge more for the flour and the bran and other byproducts. Cocoanut meal is scarce; we are told that the labor problem is acute in the lands where the raw product is produced. Ships are more or less scarce and are asking a high freight rate. The main item of cost in all these things is the high price of labor and that is not going to change—unless it be upward.

The United States department of Agriculture recently completed a survey in New York which showed that the movement of farm owners and hired help cityward is greater now than it was during the first few months of the war. Their investigation leads to the statement that farm labor will receive 14 per cent more this year than in 1919, which in turn was 80 per cent higher than at the outset of the war. This will, of course, be reflected in the wages to be paid here on the coast.

On the other hand consumers are demanding that the price of milk and cream and butter be reduced and in their ignorance are taking up the unfair method of boycotting these products. They lose by this but don't know it. Price investigating committees are now at work and more will spring up here and there, but these bodies work so slowly that the dairy industry could be extinguished while awaiting their report. These committees are not efficient as a rule and their findings are inaccurate and unreliable. A New York commission recently rendered a report that was very near Bolshevism. They proposed to put the farmer, cows and all under a board of three politicians with absolute authority to say what should be produced and how disposed of—thoroughly unpractical as you can't make a horse drink even if you tie him to the trough all day.

The American dairyman is beginning to feel the depressing effect of foreign competition. About 560,000 pounds of Danish butter arrived last month and a larger shipment is due during March. The Danes are now contracting butter for future delivery at 50 cents per pound. The government says that if our price goes much higher Argentine will turn her surplus stocks this way. All this may mean lower prices for the consumer—at least as long as the Americans try to meet the competition—but if the game is too hard the American will quit and then Mr. Consumer will know what high prices really are.

I have no remedy to offer. Personally, I am not going out of the dairy business but am going to hang on until the last dog is hung. There are others, however, who can't or won't do this. Some of them are beginning to get out now. Reports came in yesterday of an old established concern in the Santa Clara Valley changing hands. That man is going to take his $50,000 and put it where it will earn a better rate of interest with less work on his part. Others are going to butcher their herds and go to work. Milkers can get from $100 to $150 per month and board and that is more than some dairy owners clear.

The consumer must wake up. He makes the mistake of his life if he lets the California dairy industry go under. Shortened production means nothing but increased price and if the process of elimination goes too far there won't even be milk for those that can pay the price.

We must have a price that will allow us a fair margin of profit. We must surround our families with the same degree of comfort and convenience that our money and labor would permit if invested in some other line of endeavor. We, and by that we mean dairymen generally, are not going to maintain our investment of five or ten or 15 thousand dollars in cows, land and a plant and then work ten to 15 hours per day seven days in the week for what is really less than the interest our money would bring if put into government bonds.

BILLS OF SALE FOR CATTLE

Apparently considerable misunderstanding exists regarding the requirements of the act of May 28, 1917, with reference to bills of sale. Section five of the act provides in part as follows:

"Upon the sale or transfer of any cattle in this state, the actual delivery of such animal shall be accompanied by a written bill of sale, giving the number, kind and marks and brands of each animal, which bill of sale shall be signed by the party giving the same," etc.

This particular provision of the law is not a new one in this state and did not first become a legal requirement at the time of the passage of the present hide and brand law. Section 3182 of the political code of California, enacted March 12, 1872, makes the following regulations for selling cattle, etc.:

"Persons selling cattle, horses, mules, jacks or jennets must counterbrand them on the shoulder, or give a written descriptive bill of sale."

This section of the code, which has never been repealed, provides that a person selling cattle, etc., must do one of two things—either vent his cattle at time of sale, or give a written bill of sale. This act of May 28, 1917, simply defines the kind of a bill of sale that shall be given. The old law of 1872 requiring that all cattle be vented or a bill of sale given at time of transfer, became inoperative and was not complied with generally by cattlemen and others, due to the fact that no particular officer was charged with its enforcement.

Cattlemen should at all times insist that a buyer take a bill of sale whenever the ownership in cattle is transferred. This is a reasonable legal and business requirement and protects both buyer and seller. Aside from this, a bill of sale properly executed is the only evidence of ownership of cattle that can be offered and accepted by inspectors employed by the department of agriculture for the office of cattle protection when such inspectors are inspecting cattle for marks and brands. The evidence of ownership and the legal right of parties in the possession of any cattle or to ship or slaughter the same, can only be verified by these bills of sale, which must be shown before the inspectors can permit the cattle to be shipped or slaughtered. As an example, John Brown, a cattle buyer or slaughterer, has in his possession two head of cattle. These are branded with the letter "S." Before Mr. Brown can ship or slaughter these cattle they must first be inspected and his rights to the ownership of the cattle verified. If the records show that the cattle branded "S" are the property of John Smith, Mr. Brown must be able to produce a bill of sale from John Smith showing that he has purchased the cattle, before the inspector can be satisfied as to Mr. Brown's legal right of possession and ownership of the cattle. The owner is thus fully protected by virtue of the bill of sale, which should be in the possession of the buyer at all times. A buyer of cattle should for his protection refuse to purchase cattle from anyone who declines to give him a bill of sale. When a person is unwilling to comply with the simple legal and business provision of the law, which insists that a bill of sale be given when cattle are transferred, a questioon arises as to the seller's rights of ownership in the cattle, as no one legally in possession of any cattle can reasonably refuse to give a purchaser legal evidence of ownership.

GRADUAL DECREASE IN FARM HORSES

Horses in this country reached their maximum in 1918 and since then have been gradually decreasing, according to data compiled by the bureau of crop estimates. While this statement applies to the United States as a whole, the information secured by the bureau relates primarily to the supply of horses on farms and ranches, the gradual decrease of which is attributed to motor vehicles. That the decline of the horse on farms is not due merely to the use of passenger automobiles is indicated by a survey recently undertaken by approximately 36,000 crop reporters representing the bureau in all sections of the country. They have reported the names of more than 49,000 farmers who use motor trucks on their farms. But the extent to which these trucks displace horses is problematical. In many cases the introduction of a truck on a farm indicates provision for increased hauling rather than an actual reduction in the number of horses used.

The estimated number of horses on farms and ranches January 1 of this year was 21,109,000, a decrease of 373,000 head, or 1.7 per cent, compared with a year ago. The total value of these animals this year is estimated at $1,992,542,000, as against

Ye Olden Time Farm Auction at Tipton, Tulare County, Calif.

On Tuesday, the 23rd day of March Free barbecue lunch at noon. No catalogues issued but all stock, pure blood and registered or eligible to record. Registration papers furnished free. Selections of choice individuals out of a herd of 140 head, Oxbone, Poland Chinas, the massive smooth hogs, boars, bred sows and open gilts, sired by the great boar Wondergerst No. 317713. He was sired by Big Jones, by Gerstdale Jones of a Big Bob Wonder Dam. Great breeding, a great individual and a great sire.

There is everywhere a shortage in Brood sows. Here is a great opportunity to get them at your own price and pure blood.

Owners, F. E. Fay and Dr. F. E. Hull.

Sale on Dr. Hull's ranch, 2 miles southwest of Tipton, Tulare County, Calif., March 23rd, 1920, 12 o'clock.

$2,114,897,000 last year. This means an average value per head for horses of all ages of $94.39, compared with $98.45 a year ago. The average value per head ten years ago was $108.03. From these figures it is not difficult to understand why the horse market is regarded as unsettled and the future equally uncertain. The best demand during the past year has been in the South, while decreases have occurred on the western ranges. During the past two years the increased demand for feed for high priced meat animals has made it relatively more costly to keep a horse on the farm.

PRODUCTION RECORDS NECESSARY IN DAIRY MANAGEMENT

Notwithstanding the fact that one occasionally hears the argument that high producing cows are unprofitable because of their more exacting requirements as to feed and care over cows of lower production there is ample evidence, says A. E. Perkins of the Ohio experiment station, to prove that almost invariably, aside from extreme forced feeding, cows producing large amounts of milk or fat produce unit quantities of these substances more economically than their mates who eat less and produce less.

Cows of the same body weight require approximately the same amount of food to maintain their weight and bodily activities regardless of their productive ability. The conclusion has been quite generally accepted in recent years that it is the ability to consume and make proper use of food beyond this maintenance requirement that determines a cow's value for dairy purposes. The man who ignores this weight of evidence and by preference or neglect retains low producing cows will be badly handicapped if he depends on dairying for a livelihood.

Many seem to consider that one testing of a cow's milk by the Babcock method without even so much as a reference to the amount of milk produced will determnie once for all the cow's status as a producer. It should at all times be remembered in interpreting results secured with the Babcock test that the total amount of fat produced is of far more importance than the percentage of fat. The fat production is ascertained by multiplying the weight of milk produced by the per cent of fat it contains as found by the Babcock test. It will thus be apparent that accurate figures regarding the milk production are fully as important as the test in determining fat production. The cow producing the highest testing milk is not always the most economical producer of fat. A cow producing 40 pounds of three per cent milk is producing just as much fat as the cow whose milk tests six per cent, but which produces only 20 pounds per day; and far more than one testing eight per cent which produces only ten or 12 pounds of milk. Rough estimates of the quantity of milk produced and an unaided memory as a means of recording it are thoroughly unreliable and unsatisfactory. Likewise estimates of the richness of the milk based on its color or the readiness with which it forms a cream layer are not to be depended upon. Dependance on any such measures is quite liable to lead to condemning the wrong cow.

As is well known, marked variations in both quantity and quality of a cow's milk occur from time to time. The most important cause of these variations is the advance of the milking period, although other causes, such as changes in quantity and quality of food, changes of weather and nervous excitement of any kind may exert a great influence in this respect. For the reasons just stated, weighing and testing a single milking or the milk of a single day can give no very reliable idea of a cow's productive ability, even though the weighing and testing be done with the utmost accuracy. The average of several of these daily weighings and tests, taken at approximately regular intervals, gives good results and when the work is done as often as once a month the results come surprisingly close to those secured by more elaborate systems.

Besides their value in locating low producers, production records are well worth their cost for other purposes. Too many dairymen feed all cows alike regardless of production, or at most give only a small extra allowance to the heavy producer without any special thought in the matter, not realizing that a good cow in the early part of her milking period may need two or three times as much digestible food material as the small producer standing beside her or as she herself would need for her diminished milk production near the end of the milking period. The extra feed needed to bring the ration of the heavy producer up to the amount called for in one of the recognized feeding standards will usually pay far better dividends than any other feed used on the farm; and failure to supply it is a real extravagance. On the other hand, the heavy feeding of cows which lack milking capacity can result only in waste of feed. A definite determination of the production at approximately regular intervals, and adjustment of the amount of grain fed according to the amount of production, would doubtless result in a vast saving of feed and a considerable increase of milk production on most farms where some such program is not already in effect.

Many who are convinced of the desirability of production records fail to keep them because, in the press of other duties time does not seem available. The time actually required with simple equipment under ordinary working conditions to weigh and record the milk production and to remove the sample for testing was found by the writer to average 23 seconds. This would mean less than two hours' time per year in a herd of ten cows, where the work was done one day each month. The testing of each sample in duplicate for butter fat and the care of the samples and glassware was found to require an average of six minutes' time by an experienced man using a power driven tester. A less experienced man using less convenient equipment would perhaps require twice as much time to do this work. Three hours per cow per year would thus seem to be a liberal estimate of the time requirement for making a reasonably accurate production record. The work of taking samples and testing, although it should be done at approximately regular intervals, could be planned or set aside to dodge especially busy seasons and done on a day when the weather makes field work impracticable. The records could be worked up in permanent form at times when other work was not pressing.

Simple equipment for weighing, sampling and testing milk is illustrated and described in the publications already referred to. This is procurable for a very modest expenditure. Blanks suitable for keeping records may easily be prepared by the dairyman himself, or may be purchased from firms dealing in dairy and creamery supplies. Proper blanks and record books, bringing the records together in permanent form, are an essential part of the system; for scattered records which are not totaled and put on a yearly basis are of little value and are likely to result in disappointment and the abandonment of the entire scheme.

CARE OF COW AFTER CALVING

After a cow has calved she should not be bothered by any other animals or persons, but should be kept as quiet as possible and left alone, is the advice offered by Dr. G. H. Conn of the Iowa experiment station. The quarters should be comfortable and should be as clean as possible and her body should be kept as clean as possible. The afterbirth should be removed, and the blood that has soiled the tail and thighs should be removed by washings. In the summer time if the afterbirth is allowed to remain where the cow is stabled or the soiled bedding is allowed to remain it greatly attracts flies.

She should have plenty of good nutritious food and fresh drinking water. If it is in the summer season, grass makes a very good feed for cows.

The cow frequently resents the approach of other animals and also of man and will frequently injure her young by trampling upon them. This is especially noticed in cows that are in the field during the greater part of the time. Especially is it dangerous for strangers to approach some cows under this condition.

Occasionally young cows refuse to allow the calf to suck and will have nothing at all to do with it. We observed a strange incident with one heifer with her first calf. After it was delivered she bellowed fearfully and backed off in one corner of the stall and placed her head to the floor and would make feints as if to butt it and did so two or three times, but not hard enough to injure it. We advised leaving her absolutely to herself for awhile, which was done. She mothered the calf in fine shape. If this repulsion is not too strong it can often be overcome by handling the cow carefully and holding her and permitting the calf to suck a few times per day. Sometimes this may be brought about by annoyance of the attendants.

Where there are several young calves it not infrequently happens that some of them will suck some of the other cows, thus stealing the feed from the calf that belongs to the cow. Another difficulty that may be experienced is the interchange of young, especially if several of them are calved at about the same time and are running loose in an enclosure. In some instances calves have been stolen from one cow by another.

A good plan to follow with the cow when she has calved all right and is comfortable is to permit as little interference as possible to the carrying out of her maternal instinct.

ARIZONA FEEDING TESTS

Some feed tests are being conducted at the Salt River Valley experiment station under the direction of Dr. R. H. Williams. Thirty-six steers were used in the test, divided into six lots of six steers each. They were fed eight weeks.

One lot was fed on alfalfa and sorghum silage; one on sorghum silage and three pounds cottonseed meal; one on alfalfa hay forage; one on three pounds cottonseed meal, silage and alfalfa hay; one on silage, three pounds cottonseed meal and six pounds ground threshed milo; one on silage, alfalfa hay, three pounds cottonseed meal and six pounds of ground milo.

The best results seemed to be from the lot fed silage, three pounds cottonseed meal and alfalfa hay. This lot made an average gain of 3.10 pounds per day.

Cattle ranges in the northeastern part of Arizona are reported to be green and stock making splendid improvement. The snow is disappearing from the high elevations. Weeds and grass in other parts of the state are good and stock is reported to be in fine condition. Steers are being sold for the May delivery.

300 Weanlings

FOR SALE

Duroc - Jerseys

Breeding

California's Defender and Crimson Wonder

Pick at Ranch

$15.00 Each

Diablo Stock Farm

DANVILLE, CAL.

200 Bred Duroc-Jersey

sows and gilts bred for spring litters. All carefully selected from Glenn County herds. They are the kind that will make a profit on any farm. All are priced at exceedingly low prices. Bargains for car lot buyers. Get busy and write or come and see us immediately as they won't last long at the price.

H. P. Slocum and Son

Willows, California

Breeders of Duroc-Jerseys. The Key Herd of the Pacific Coast.

DUROC BOARS FOR SALE

We were raising these two Colonel Boars to use with our Phenomenal Herd Boar, PATHFINDER WONDER. We have purchased another splendid Pathfinder boar, however, so will have no use for the Colonels. These Colonel boars were sired by Derryfield Colonel, Dam, Fair Lulu 3d. Farrowed July 15, 1919.

They are both exceptionally fine boars; have been well raised and will make real herd boars. If you want Colonel breeding you can make no mistake in purchasing either one. Prices reasonable considering quality of stock.

HAMLIN FARM W. A. Meyer, Prop. Mills, Sacto. Co.

P.O. Address: Box 697, Sacramento

A-1 Duroc Ranch

Where one of the state's greatest herds of Duroc-Jerseys is maintained. For years our Durocs have proven profitable to farmer and breeder alike. Better place your order now for spring pigs as what we will be able to spare will go quickly. Remember, this is the home of the state's highest priced ($1500) and most valuable Duroc-Jersey sow.

J. P. Walker, RFD 1, Box 40½, Visalia, Cal.

THE VICTORY HERD——Holsteins and Duroc-Jerseys

Holsteins of known value, headed by Sir Plebe De Kol Segis Pontiac, a son of King Segis Pontiac Count, acknowledged one of the breed's greatest sires. A young bull from this herd is bound to prove a profitable investment.

HILLCREST FARM, H. E. Spires, Mgr., Caruthers, Cal.

Duroc-Jersey Swine of Highest Quality

The Greatest Duroc Boar of His Age! Choice Wonder 3d

a winner at the 1919 Iowa State fair, sired by the great boar, Mahaska Wonder, and a litter mate to the first prize junior boar of Iowa, heads our herd. He is the largest, heaviest boned, best footed boar in the state and he is being mated to the sows that have made this herd famous for futurity winners. Get your order in early for his pigs. Prices are most moderate. Satisfaction guaranteed.

JUNE ACRES STOCK FARM V. F. Dolcini, Davis, Cal.

Qualities That Inspire

confidence and pride of ownership are found in Duroc-Jerseys sired by Orion's King Gano, and whose pigs are in such heavy demand all over the state. Spring pigs, prospects for fall shows or pigs that will make money on the farm. Write early as orders arriving daily will soon exhaust what I will have for sale.

Donald H. Graham Lancaster, Cal.

Insure the Dairy against Udder Troubles

Do all of your cows have soft, pliable udders and clean, easy-milking teats? If not, you are passing up valuable milk-income which you might just as well have.

The big dairymen—the successful cow-owners—know that the cow's milk-making organ must be healthy inside and out, or an immediate milk loss is inevitable.

Bag Balm is the "little guardian of the udder"—a soothing, healing ointment in a liberal package, just right for stable use. Its penetrating quality reaches promptly and relieves any internal congestion or inflammation. Caked Bag, Cow Pox, Bunches, Chapping—any irritated or abnormal condition of the tissues is almost instantly reduced by application of Bag Balm. Makes the udder surface and teats clean, smooth and easy to milk.

Bag Balm is a great healer, too, for all scratches, cuts, chaps, sores and bruises. It should be on hand in every cow stable. Write for our useful booklet, "Dairy Wrinkles"—sent free.

BAG BALM
MADE BY THE KOW-KURE PEOPLE

Sold in a big 60c package by feed dealers, druggists and general stores everywhere. Manufactured only by

DAIRY ASSOCIATION CO., Lyndonville, Vt.

JEREY

The Cows for the Working Farmer

Always on the job to produce for profit, not to run up excessive feed bills—that's Jerseys! You feed a Jersey for her udder. She can make a dollar's worth of feed go farther and yield a greater return than any other breed. Her milk averages 5.37% butter fat. The market pays more for Jersey milk, Jersey butter, and Jersey cheese.

If you want Pride-Prize-Profit cows, don't hesitate—get Jerseys. Let us send you "Profitable Facts about Jerseys." It is a free booklet with hundreds of valuable points and information.

The American Jersey Cattle Club, 324-C West 23rd Street, New York, N. Y.

Venadera Herd

Register of Merit Jerseys.

Senior herd sire Altama Interest sire of 12 cows in Register of Merit.
Junior herd sire Jap's Perfection Owl, a line bred Spermfield Owl bull.

Guy H. Miller, Modesto, Cal.

All My Records
Are made under ordinary dairy conditions
The Farmer's Cow is
The Jersey
YOUNG BULLS FOR SALE
C. D. Hayworth
Modesto, Cal.

Young Jersey Bulls

For Sale

One at the head of your herd will pay big dividends on his cost. Write to

W. J. Hackett
Modesto Cal.

Jersey Bull

FOR SALE

A fine straight one, bred right, priced right.

S. F. Williams
Chico, Cal.
Member Orland Jersey Cattle Club

California Wonder

Kings County Jack Ranch

Breeders and dealers in American Jacks and Jennets

Jacks and Jennets for sale at all times. Come and see them.

JOHN BURRELL
R.F.D.B. Box 74
Hanford, Kings County, Cal.

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

Selection and Use of Range Bulls

From Address by Charles U. Pickrell Before Arizona Cattle Growers Association

INCREASED expenses of the business make a higher return per cow necessary. In days gone by ranges cost practically nothing, overhead expenses were not so heavy, and in a struggle for new range area a grower was more concerned with numbers than with quality. Today, whether a cow grazes on the forest, on leased or on patented land, she must be charged with a feed bill. This, with the increased cost of labor and improvements, leaves the cattle industry working on a closer margin than ever before. It is evident that if a man desires to remain in the business he must receive a higher return from every cow. The scrub cow cannot meet this demand, so, added to list of problems confronting the cattle grower is one of no little importance, that of herd improvement.

It would not be practical for various reasons to sell off an entire range herd and replace it with pure bred stock. Improvement must come through the use of good bulls. You probably have heard it before, but allow me to repeat it again—that a bull is half of the herd, and he can be even more than that. Think of the bulls you are using as controlling more than one-half of the value of your calf crop.

The first evidence of benefits from the use of good bulls is found when yearling steers are marketed. The average scrub yearling will do well to weigh 300 pounds, while a good grade of the same age will weigh 425 pounds and will sell for at least two cents a pound more. The average two year old scrubs will weigh about 525 pounds. Average two year old grades of the same age weigh about 725 pounds, and here we find at least three cents a pound difference in price.

Right here it might be well to mention a few points that determine the value of a beef animal. Though we do not fatten many cattle in this state, and though of late years a very small percentage of the steers are kept after they reach the yearling stage, our cattle must meet the demands of the butchers, whether they are put on the market from the growing ranges of the Northwest or from the feed lots of the Cornbelt.

The butcher desires an animal having: a high dressing percentage, that is, a carcass that will contain the largest possible amount of the live weight; the largest possible amount of the weight of the carcass carried on the loin, the rib and the round. These three cuts contain a little more than half the weight of the carcass but bring over three-quarters of the selling price of the beef.

The best grade of carcasses are classed as block or side beef, that is, beef that can be sold over the block for retail trade. A carcass for this purpose must be thick, have plenty of width for its length, and have fat well intermixed with the lean. The next class is the cutter class. Carcasses of this class contain rounds and loins that are thick enough for block trade, and the remainder is sold as boneless or cured beef at a much reduced price. Last, we have the canner class; here we find carcasses no part of which is fit for block trade.

Nearly without exception, an animal with a high dressing percentage yields a carcass fit for the block.

The feeder must meet all the demands of the butcher and also have an animal that will make the largest amount of gain on the least possible feed in the shortest possible time. The grower must meet the demands of the feeder, which of course are those of the butcher, too. And here in Arizona it is necessary to breed animals that will meet these demands and also do well under range conditions.

I have already mentioned, the requirements of a beef animal.

Now I think it would be well to go a little further and speak of the exterior appearance of a bull to sire this type of an animal.

A beef animal must have plenty of depth, close to the ground; flanks low, broad, and smoothly covered with a thick covering of firm flesh. While a butcher would rather have a small percentage of bone, a small boned animal does not put on the weight or fatten as readily. The head of a breeding animal is by no means to be overlooked. On a beef bull we want to find a short, broad head, one denoting character. A strong, masculine head on a male or a refined feminine head on a female are the best indications of strong sex development, and we are very apt to find it an indication of offspring. Take, for example, the head of a steer; it ceases to become masculine when the animal is desexed, and a barren cow has a head much like that of a steer in appearance.

Well bred bulls sometimes are of little use on a range because of having poor feet. A bull is not different from a horse in this respect. A saddle horse grown to maturity on soft ground is of little use in the rocks. It is the same with a bull; to move about in rough country he must possess large feet with thick walls and soles. Where do we find the bull with sore feet? Down on the creek beds and flats while the cows are grazing on the highest parts of the range.

Size, also, is of great importance. We can even approach roughness to obtain size.

Why is a registered bull the best? Because you have a greater assurance that your bull will breed truer to his type. It is foolish to buy just a pedigree alone. We all know that even pure bred herds produce a certain percentage of animals that are not good. But of two good bulls, one registered and the other unregistered, the registered animal is by far the best, even at a considerable difference in price.

The registered bull has the "pull of ancestry" behind him; his ancestors have been selected for generations. Selection does not make perfect, but it tends to do so, and the more generations we have under selection the greater the possibilities for an animal to produce like offspring.

A bull should be brought under the conditions where he is to be used at as early an age as possible, in order to become acclimated and grow used to conditions before his services as a sire are needed. Especially is this true with reference to the development of the feet of an animal. A young animal can grow feet for the rocks, but an old one cannot do it.

It is not uncommon to hear cattlemen remark, "I brought my bulls in last year from such and such a place, and this year I haven't but a few calves." A change in climatic conditions can easily render a bull worthless as a breeder for several months. Buy yearling calves and place them on the range in a separate pasture, if possible. If not, turn them on the range with other cattle, but have enough other bulls of breeding age so as not to count upon the yearlings at all. Breeding yearling bulls stunts their growth, and a small calf crop results. Conditions cause a variation as to the number of bulls to the number of cows. I have yet to find a man who said that he had too many bulls. Successful cattlemen tell us that at least eight bulls to 100 cows are necessary on mountain ranges, and five to 100 on ranges located in smooth country.

The period of usefulness as a sire varies somewhat with the individual, but the average is about five years of service. That is, bulls commence to be useful at two years and are useful as sires until the age of seven or eight.

Much of the effort in securing good bulls is wasted if they are left to rustle the year around. I do not mean by that bulls are more apt to starve to death, but a thin bull will spend his time rustling feed instead of looking after the cows. As a result, all cows are not served at the best time. A bull that has been well fed will serve more cows and do it in a shorter period; he will hunt the cows up and be more vigorous. Young bulls will grow larger and losses will be less. A little straw or silage and two pounds of cottonseed meal for 60 days will do wonders for a bull. Bulls of the grade we need are too valuable to be starved.

Feed can put fat on an animal, but breeding must make the form and put on the lean meet. The man who produces well bred steers sells to the same buyer every year, many times

by correspondence, and receives the highest prices. The user of good bulls need never be afraid to sell by weight; and where is the producer of scrubs when cattle are sold by weight?

BEEF CATTLE PROGRESS AND OPPORTUNITIES IN CALIFORNIA

By H. M. Barngrover, Vice-President Pacific Coast Hereford Breeders Association, In American Hereford Journal

The discouraging conditions of the past placed beef bulls at a low standard, and the pioneer breeder had poor encouragement. Some large herds went out of business or failed to keep up records on the cattle, and many entirely lost sight of the corncrib cross, much to the detriment of the beef breeds.

These conditions resulted in the shipment of inferior bulls from the East because good ones would not bring returns to the shipper. The inevitable result was too many inferior, cat-hammed steers, with white faces their only recommendation.

Fortunately, the general improvement in conditions brought into the business a goodly number of practical, deep thinking men who realized that beef quality and character must be reckoned in the game, and a number of excellent herds have been established. Recent sales show that good cattle are appreciated and sell at good prices.

Turning Good Things to Good Account

Nature has been lavish in her gifts, and we are beginning to turn the good account and show the world that our excellent climate, coupled with rich and abundant pasture and judicious feeding, is capable of producing the best. Recent showings by our state university and individual breeders abundantly prove this. We welcome good cattle and invite high class competition; we do not want cat-hammed culls just because they have white faces.

Our first Herefords of consequence came from the Governor Sparks herd at Reno, Nevada, which was a splendid herd gathered together at great expense and care. Owing to reverses, the worst of which was an exceptionally severe winter in Nevada, Sparks lost about 80 per cent of his range herd of several thousand head. Characteristic of Herefords, it was found on the spring roundup that 85 per cent of the cattle surviving had white faces.

While this was encouraging to the Hereford breeders in a general way, the happening was disastrous to Governor Sparks. The greater part of the older cows were sold to a breeder and formed the nucleus of what is now the largest registered herd in California, but because of discouragement much of the young stock was not recorded, although many of the cattle and their descendants are still in California herds, doing their share to improve our beef cattle.

Another herd that did much to establish Herefords on the Pacific Coast was the speindid one of Jack Splawn of Washington, previously of Missouri, which was sold to California breeders some years ago. A few of the good females found their way into the state university's herd, and they have left a splendid impress upon it. The balance are mainly in the hands of one of our best breeders, where they are giving a good account of themselves.

We ha·e a wide range of climates and find that Herefords adapt themselves to the feed and conditions, whether in the heat of our valleys or the rigors of the high Sierra. Alfalfa is our greatest single feed, but we have a variety of grasses and native clovers. Alfilaria is a succulent plant with a wide range, that is loved by all stock. Barley and the grain sorghums are our best grains for fat producing. Little Indian corn is raised or fed as grain, but its use along with sorghums for silage is steadily increasing.

One of the encouraging Hereford signs—and there are many—is found in the fact that Miller & Lux, with headquarters in San Francisco but ranging their great herds all over the Pacific Coast, raising tens of thousands of cattle and requiring about 1,000 bulls, have changed almost entirely to Herefords in the past ten years. Hereford breeders do not need to be told that there are reasons.

Our Pacific Coast shows made fine records last year, the judges from other sections frankly admitting that the number and quality of our cattle was a surprise to them. We are anxious to do still better this year and hope to see more outside herds shown. Many new herds are forming and I know that with many of us quality and breed character will be our slogan.

I feel it is our mission and privilege as breeders to show the difference between low grade stuff and real cattle. California is now on the Hereford map and coming fast.

BELKNAP DUROCS AVERAGE $167

The dispersal sale of Duroc-Jersey sows and gilts held by Dr. L. J. Belknap, San Jose, Wednesday, March 10, hardly came up to expectations. The attendance was small, very few breeders being present. The fact that a number of the best females were sold either open or bred late had an effect on the prices. An average of $167 was realized on the stuff of breeding age. The top of the sale was a daughter of Orion Model Jr., going to Diablo Stock Farm, Danville, for $530. The next high price was $525, at which figure J. L. Bowden of Hughson secured one of the best things in the offering.

Cols. Leachman and Snook sold the offering in a capable manner.

The offering sold as follows:

1. J. L. Bowden, Hughson, $525.
2. Diablo Stock Farm, Danville, $530.
3. J. L. Bowden, $175.
4. Western Laboratories, Stockton, $150
5. C. E. Lammiman, Palo Alto, $140.
6. Bisceglan Bros., San Jose, $80.
7. Elmer Lamb, Ceres, $65.
8. Bisceglan Bros., $167.50.
9. Cv M. Clark, Modesto, $140.
10. Bisceglan Bros., $120.
11. Geo. Goodwin, San Jose, $55.
12. Diablo Stock Farm, $235.
13. Diablo Stock Farm, $360.
14. Western Laboratories, $150.
15. Western aboratories, $75.
16. Western aboratories, $70.
17. Elmer Lamb, $65.
18. J. L. Bowden, $85.
19. Cv M. Clark, $65.
20. Elmer Lamb, $90.

CONSERVE FEED

An Oxnard subscriber, John Eastwood, sends in the following dry year hint:

Nobody knows what treatment the weather man has in store for us during the next few weeks. But we do know that to conserve our stock feed will be a good practice under any circumstances. This can best be done by the use of a cutting or grinding machine and an application of 10 or 20 per cent molasses. Bean or grain straw or corn stalks where thus treated become nice feed. With a little persistent effort a lot of waste hay can often be collected from the feed racks and if thus treated becomes quite a help. In fact, if each farmer conserves to the utmost, the saving throughout the county will reach a figure of no small importance.

A question which has a pertinent suggestion is, "Why not plan at once for an increase of silo capacity and growing of more silage crops?"

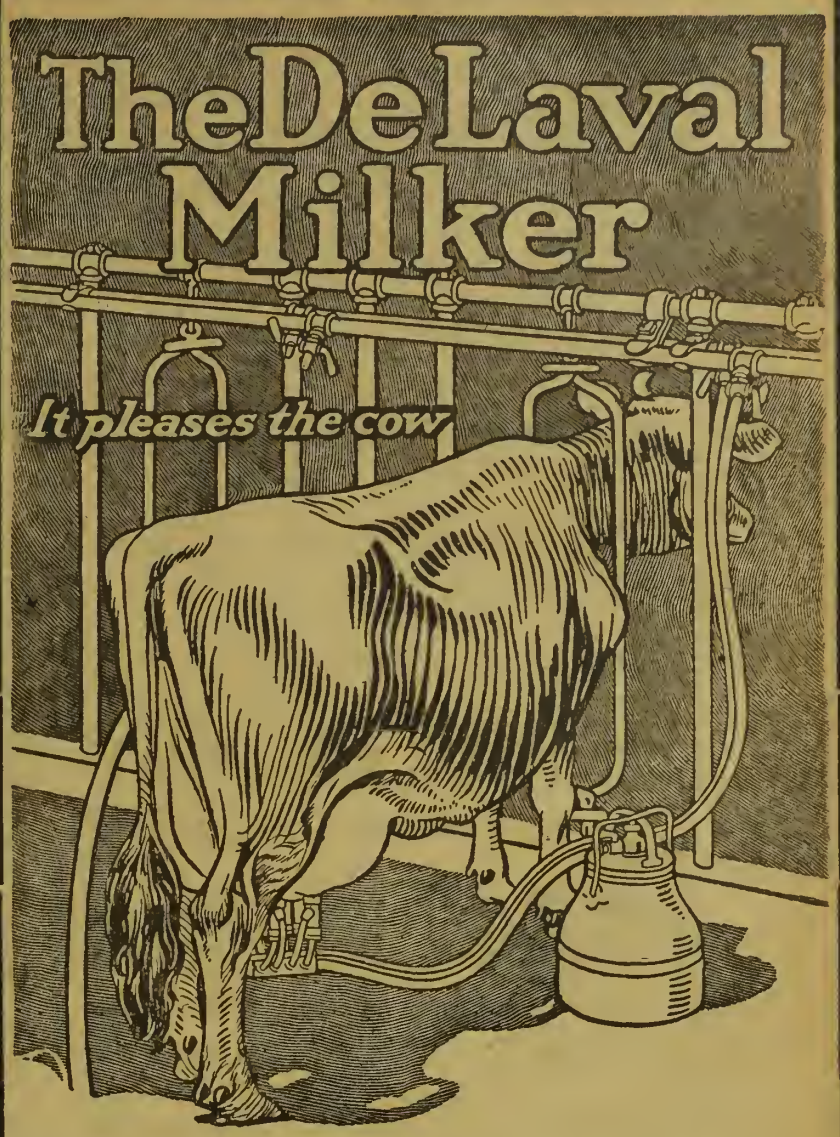
COTTONSEED MEAL FOR WORK STOCK

One pound of cottonseed meal per day for each 1,000 pounds live weight is the most satisfactory quantity to feed work animals, according to recent experiments conducted by the United States department of agriculture. A test in feeding cottonseed meal to work horses and mules at the government farm, Beltsville, Maryland, was begun in 1918, and continued last year. When the meal was fed in large quantities harmful effects were apparent, however, indicating that cottonseed meal, like any other high protein feed, must be fed with care to horses and mules.

MINERAL MATTER AND MILK

Experiments conducted by the bureau of animal industry, United States department of agriculture, with dairy cows, are showing an important relation between milk secretion and certain mineral substances. Feeding compounds of phosphorus and calcium have resulted in a decidedly beneficial effect on the milk flow in both quantity and fat content.

It has been shown also that a deficiency of phosphorus in dairy rations has a detrimental effect on milk secretion of cows and growth of calves. A remedy was found in the addition of sodium phosphate to rations deficient in phosphorus. The work is being continued.



The Name Insures Satisfaction

The De Laval Milker is sold with full knowledge of the fact that more is expected of the De Laval than of any other milker. For over forty years the name DE LAVAL on dairy machinery has stood for highest value and service to the user.

The De Laval Milker is a distinctly different type of machine from other milkers, and was designed with two chief objects in view—the comfort of the cow and ease of cleaning.

The Udder Pulsator, with its alternating action and positive, uniform pulsation, pleases the cow and induces milk secretion. The simple and sanitary design of all parts with which the milk comes in contact, and the special quality of the rubber used, make possible practical sterilization and production of milk of higher sales value.

The De Laval Milker has been in daily use for three years on cows of every breed, as well as in producing certified milk and in A. R. O. work.

The De Laval Company's well-known facilities and reputation for service are an assurance of lasting satisfaction to users of De Laval Milkers.

Write to nearest De Laval office for Milker Catalog, mentioning number of cows milked

The De Laval Separator Co.

165 Broadway NEW YORK | 29 East Madison Street CHICAGO | 61 Beale Street SAN FRANCISCO

Ten Reasons for a Silo

A. L. Haecker, writing in a recent issue of the Jersey Bulletin, gives the following ten reasons for using a silo:

1. As the principal business of farming is to make money, the silo, especially on the stock farm, will best accomplish this end.

2. Corn silage is the farmer's cheapest source of digestible carbohydrates. As this is the principal food element required by our domestic animals, it certainly is wise to provide it.

3. Summing up all the experiments conducted by some 23 different state experiment stations over a period of 15 years, silage has proven the most economic food for the production of stock and stock products.

4. There are about one-half million silos now in use in the United States, and it is difficult to find a user who is not more than pleased with the results from his silo. Silo salesmen use a slogan, "Ask the man who has a silo."

5. The greatest expense connected with the livestock business is the cost of feeding the animals. The silo will lower this cost and therefore it should be one of the first considerations of the stock keeper.

6. The silo stands ever ready as an insurance against many of the common crop failures, especially such failures as damages from early frost, drouth and hail. Wet seasons often prevent the putting up of a crop of clover or alfalfa; this can be saved in the silo. Whatever is grown in the way of forage can be siloed and preserved for future use.

7. The silo is a labor saving equipment and it saves in storage space. Eight times more feed can be stored in the silo than in the mow. Cattle can be fed quickly and easily from the silo, as it is in a condensed form, close to the point of feeding, and is always in condition for feeding. Many feeding arrangements require the hitching up of a team to a wagon or cart and the hauling of feed from one place to another. A silo properly placed will do away with this.

8. Silage is a succulent, grass-like feed, easily digested, and seems to stimulate digestion. It has much the same effect as grass, giving thrift to the animal; and less sickness is experienced among the stock when good silage is fed. Silage stimulates the milk flow, and all milking stock should receive it. Silage is cooling and appetizing and it prevents many of the troubles resulting from the over feeding of concentrates.

9. Experiments and experience have taught that the most profitable feeding is liberal feeding, such as will supply the animal with its requirements. Quick growth is profitable growth, large production is profitable production, and the feeder of silage is more inclined to feed well, which means profitable feeding. The man with the silo is supplied with a large amount of good feed, and in emergency it can be carried over for several years and still can be used with good profit.

10. Competition is keen in all lines of industry, and the stock keeper with a silo has an advantage over his neighbor without one. In order to compete with the silo keeper, all stock keepers must use silos. World competition in growing stock and producing stock products will require the American farmer to use the best and most economical means. With the silo we need fear no competition from any country of the world.

TEST YOUR COWS

"It isn't always the man who is doing the most work that makes the real money with dairy cows," says E. M. Harmon of the Missouri college of agriculture. "Too many men have among their herds cows which not only are not paying, but which are actually eating up the profits made by the rest of the herd.

"We are continually finding examples of this over the entire state. One man in Webster County said recently that when he joined the cow testing association last June he was milking 50 cows. With the aid of the association he eliminated 26 and is making more profit from the remaining 24 than he made on the whole 50. In addition to that he reduced his labor by one-half. A neighbor of his started in a year ago with a herd of 37 milkers. He has reduced that number by 14 with the same result—more profit from fewer cows.

"One man in a cow testing association recently sold a cow which he said was annually losing him more than it cost him to have his entire herd tested.

"After allowing a fair amount for labor and interest, in addition to feed, it was found that 36 per cent of the cows in the Webster County association last year were losing their owners money. It is safe to say that the cows in this association were well above the average Missouri cow. But even using these figures as a basis and granting that only 36 per cent of the 800,000 cows in Missouri are losing money, we find that over 330,000 of

Longheath Ormsby Johanna

First grandson of Sir Pietertje Ormsby Mercedes ever sold at public sale in West. Consigned to Guaranty Sale by Longheath Farm, Falion, Nevada.

Madrigal Mooike 2d

Thirty-two pound three year old. Consigned to Guaranty Sale by W. J. Higdon, Tulare.

Every Female in our consignment to the Sacramento Sale has been bred to---

CARNATION KING SYLVIA

—Son of the famous May Echo Sylvia

or—

MATADOR SEGIS WALKER

—whose Get won 10 first prizes out of a possible 23 at the Portland Show

This is an exceptional opportunity for you to get a good foundation cow for your herd and possibly—a son of one of our famous herd sires, when she calves. Five females and one bull are to be sold—as follows:

Cantate Domino Sir Skylark 3d (No. 232525). Born 3-2-14. Record at 5 yr. 7 mo. 12 da. M-606.1, B-27.30, M-2402.4, B-111.119 (30). A young cow in her prime and producing heaviiy. In conformation she is a beauty. Straight as a iine, very square hips, fine shouider, neck and head. Sire: Dutchiand Governor Sir Coiantha No. 90477. Bred 1-11-20 to Carnation King Sylvia.

Edna De Koi Sir Skylark 3d (No. 241026). Born 4-18-14. Record at 4 yr. 4 mo. 16 da. M-454.7, B-25.65, M. 2060.2, B-97.177 (30). An unusuaiiy nice cow, straight as a iine with good heart and middie and an excellent udder. A persistent producer as is shown by her record. Sire: Dutchiand Governor Sir Coiantha No. 90477. Bred 1-12-20 to Matador Segis Walker.

LaConner Pontiac Becky (No. 355022). Born 12-17-15. Record at 3 yr. 11 mo. 20da. M-453.0, B-24.017. A grand young cow backed by Morris breeding. Individuaiiy very fine, and of excellent dairy type. A persistent producer and will make a good record next year. Made her last record without any fitting. She is three-quarters biack, straight with good bone and a fine udder. Sire: Segis Pontiac Acme No. 107557. Bred 1-11-20 to Matador Segis Walker.

LaConner Pontiac Bessie (No. 384411). Born 5-4-17. Record at 2 yr. 6 mo. 2 da. M-423.0, B-17.493. Another Morris bred heifer of excellent type. Very iong and strongiy made. Good ioin and excellent middle. Udder ievei and of good quaiity. A fresh heifer just starting to produce. Sire: Segis Pontiac Acme No. 107557. Bred 3-3-20 to Carnation King Sylvia.

Lady Coloma Geische (No. 318889). Born 12-26-15. Record at 3 yr. 10 mo. 2 da. M-447.9, B-24.721. A nice individuai. A show cow in every way and one that wiii do credit to any man's herd. She is square behind with smooth shouiders, good depth and an excellent udder. Sire: Prince Priiiy Gelsche, No. 72922. Bred 1-15-20 to Carnation King Sylvia.

—See this wonderful Bull.

Duke Finderne Fayne Hartog (No. 293971). Born 8-14-19. Here is a wonderfui 7 months oid son of Finderne Mutuai Fayne Vaidessa (No. 137495), from Von Heim Mary Hartog (No. 284404), a 31-ib. senior 2-yr. old cow. He is backed by high ciass breeding, straight and very long with good hips and loin and excellent shoulders. About ¾ black. A spiendid opportunity for you to get an exceptional herd sire.

Write us your needs—if you are in the market for a choice sire, or if you need some good foundation females write for our special list No. 300.

Carnation Stock Farms

Office: 1083 Stuart Building, Seattle, Wash.
Farm: near Tolt, Carnation, Wash.

them are kept at a loss. In other words, the farmer of Missouri will feed and milk over 330,000 cows tonight and pay those cows for the happy privilege of doing so. There is one way to find out which ones are making the money. That is the use of milk scales and the Babcock test and a cow testing association."

MILKING A COW

Not long ago a certain farmer had occasion to milk a cow. He called in a member of the cowboys' union and sent him to bring the cow from the pasture. When she reached the yard a skilled gate swinger opened the gate, and after the cow had passed through, closed it again. An experienced water pumper filled the tank and the cow drank her fill of the pure water.

She then passed into the barn, where a member of the silage slingers' union gave her her supper. An expert udder rubber removed the dust from the bag and teats, under the supervision of an inspector from the health department. In the meantime the local representative of the hired girls' union had washed the milk pail, the milkstool boy (an apprentice) brought the stool, and the farmer sat down and milked the cow.

This is not a true story.

But here is one that is.

It is told by Mr. D. O. Thompson, secretary of the Illinois Agricultural Association, as follows:

"We recently had occasion to move a telephone connection about six feet along the wall. To do this required the following men: First, a carpenter removed four screws and took down a piece of molding. Then the telephone company electrician moved the wiring and attachment, and since the desk buzzer is not standard telephone equipment, to move that required the services of another electrician. Then the carpenter came back and replaced the molding. A considerable amount of plaster had fallen on the carpet, and the services of a janitor were required to clean it up. The job is not yet finished. There are two holes in the plaster where the telephone used to be. It will require the services of a mason to fill these holes, and later the services of a decorator to calcimine over this spot."—The Prairie Farmer.

HAAG AND BERNSTEIN SALE

The Haag and Bernstein sale of Poland China sows at Hanford Saturday, March 13, brought very conservative figures. The top of the sale was No. 34, an excellent sow of Liberator, purchased by Alex D. McCarty of Modesto. McCarty also bought the highest priced spring gilt at $200. Will Bernstein of Hanford made a good selection in buying a yearling gilt sired by Miller's Long Chief at $200. The two top gilts were from the John M. Bernstein consignment. The three Liberator boars from W. L. Haag & Son consignment sold for $610. These pigs were from a sow Messrs. Haag bought in Missouri last fall at a good figure. In addition to the $610 realized from the three pigs, Haag & Son have an outstanding herd boar prospect reserved for use in their own herd, a high class sow and four classy gilts worth much more than the cost of the sow to show the profit that can be made with high class hogs. The offering sold as follows:

1, Fred Northrup, Selma, $195.
2, C. F. Fish, Corcoran, $115.
3, W. Bernstein, Hanford, $85.
4, H. D. McCune, Lemoore, $175.
5, C. B. McNeil, Fresno, $145.
8, A. J. Van Cleef Riverdale, $135.
9, J. A. Crawshaw, Hanford, $85.
10, A. J. Van Cleef, $100.
11, A. D. McCarty, Modesto, $200.
12, H. D. McCune, $125.
18, H. I. Marsh, $135.
19, E. S. Myers, Riverdale, $75.
23, W. Bernstein, $200.
24, W. Bernstein, $90.
26, W. L. Haag & Son, Hanford, $70.
28, C. N. Clark, Jr., Modesto, $105.
34, A. D. McCarty, $300.
35, P. E. Mitchell, Atwater, $165.
35x J. M. Bernstein, $150.
38x W. R. Nance, Stratford, $85.
39x Les McCracken, Ripon, $75.
40x Glenn Smith, Hanford, $90.

THE ABSENT MINDED BISHOP

An absent minded bishop could not produce his ticket to the railway collector. "Never mind, my lord," said the porter. "It's all right, anyway, whether you find it or not."

"O, no, it isn't," said the bishop, turning out his pockets. "I must find that ticket, for I want to know where I am going."

Holsteins of Unsurpassed Excellence

80 Registered Holstein Cows, Heifers and Bulls 80

The Guaranty Sale

State Fair Grounds
Sacramento, Cal.

Thursday, March 25, 1920

In previous announcements we have gone into some detail respecting the 71 outstanding cows and heifers in this sale, and the scores of interested persons who have written for catalogs now have a copy of the catalog for study of the pedigrees, and sale day will uncover the fact that we have understated rather than overstated the wonderful individuality of these females.

In this the final announcement before the sale, we want to go more fully than before into the high excellence of the nine richly bred bulls to be offered, and we want to urge upon owners of high class herds of grade Holsteins the advisability of attending this sale. We know that every bull in this sale is qualified to head a herd of registered females, and we are at the same time morally certain that some of these bulls will sell at prices well within what some owners of grade herds are willing to pay for bulls of this character. For it is a fact that within the past two years a very considerable number of bulls have gone to head grade Holstein herds in this state at prices ranging from $750 to $1500, and they have been first class investments at the price.

Following is a Complete List of the Nine Bulls to be Offered in This Sale:

KING PONTIAC ALCARTRA PRILLY—Born March 31, 1919. Consigned by Bridgford Holstein Company, Patterson, Calif. He is sired by King Segis Alcartra Prilly, the richly bred bull that has been three times grand champion at California State Fair, and whose get have been the sensation of the show for the past two years. His dam is Spring Farm Pauline Pontiac 2nd, who made over 33 lbs. butter in 7 days last year. SHE IS NOW FRESH AND ON TEST AGAIN AND AT THIS WRITING HAS OVER 35 LBS. BUTTER FROM OVER 775 LBS. MILK IN 7 DAYS TO HER CREDIT. She is by a 37 lb. son of King of the Pontiacs. This is absolutely one of the best bulls ever sold out of the Bridgford herd, and he is a splendid individual.

LONGHEATH ORMSBY JOHANNA—Born May 11, 1919. Consigned by Longheath Farm, Fallon, Nev. He is sired by King Ormsby Canary Johanna, who is by Sir Pietertje Ormsby Mercedes, the greatest sire of long distance producers and show ring winners in the world, out of the 34.59 lb. cow Glen Canary De Kol, and therefore full brother to Glen Canary De Kol 2nd who made 1323.36 lbs. butter in one year as a junior 4 year old, and 951.05 lbs. in one year at 24 months. The dam of this great youngster is a 19.21 lb. junior 3 year old whose dam is a 32 lb. granddaughter of Colantha Johanna Lad. He is a high class individual and is the first grandson of Sir Pietertje Ormsby Mercedes ever offered at public sale in California.

TOSANTOS WALKER PONTIAC—Born Feb. 11, 1919. Consigned by E. D. Barry, Jr., Daggett, Calif. He is sired by King Korndyke Pontiac 20th, the great $6500 son of Miss Valley Mead De Kol Walker, whose first two daughters to freshen have made sensational records at age. The dam is Miss Filled Korndyke Walker a 26.35 lb. junior 4 year old daughter of Prince Geische Walker. Second dam a 29 lb. daughter of Korndyke Queen De Kol's Prince. The dam is also full sister to Miss Gelsche Walker Korndyke who recently made over 32 lbs. butter from 705 lbs. milk in 7 days. The dam of this youngster is a most promising candidate for a very large record at mature age. The bull himself is an excellent individual.

ROSAMAINES PONTIAC POSCH—Born Nov. 14, 1918. Consigned by Rosamaines Rancho, Riverside, Calif. He is sired by King Pontiac Netherland Segis 3d, one of the very best young sires yet developed in California. The sire is by a son of King of the Pontiacs and out of that great 34 pound cow Gerben Abbekerk Maid, who is by Sir Skylark Ormsby Hengerveld. The dam of this bull is Locust Terrace Gold Drop, a high class cow that made over 28 lbs. butter from 750 lbs. milk in 7 days, and she has a 25 lb. 3 year old daughter and another now on test as a junior 2 year old, full sister to this bull, with over 17 lbs. to her credit at present. He is of correct type and a good bull any way you look at him.

BULL—Born Aug. 14, 1919. Consigned by Carnation Stock Farms, Seattle, Wash. He is sired by Finderne Mutual Fayne Valdessa, who is out of a 3 year old that made over 36 lbs. butter in 7 days and over 1200 lbs. butter in one year. The sire is by King Valdessa whose dam is the 41 lb. cow Valdessa Scott 2nd. The dam of this youngster is Von Heim Mary Hartog who made over 31 lbs. butter in 7 days as a 2 year old. Individually he is as good as his breeding and should find a home in a good herd.

PRINCE WALKER CORNUCOPIA 8TH—Born April 20, 1919. Consigned by Santa Anita Rancho, Santa Anita, Calif. He is sired by Prince Walker Cornucopia, son of Prince Gelsche Walker and the 36 lb. cow Alba Sadie Cornucopia Crettia. The dam is a 305 day record daughter of Mosetta Mutual Paul Johanna who made 1117 lbs. butter from 26868 lbs. milk in one year. The three nearest dams of this high class young sire all have good yearly records, and he will be a valuable sire for someone. He is a high class individual.

BULL BORN MAY 8, 1919. Consigned by W. J. Higdon, Tulare, Calif. He is sired by King Korndyke Pontiac 20th, the $6500 son of Miss Valley Mead De Kol Walker who is regarded today as one of the very best young sires of the breed. The dam is the famous heifer Madrigal Mooike 2nd, who made 759.52 lbs. butter from 20160.5 lbs. milk in one year as a junior 2 year old and at last freshening as a senior 3 year old made 32.91 lbs. butter from 567.5 lbs. milk in 7 days. She is unquestionably one of the greatest producing heifers yet developed in the west and is most promising for a very large record at mature age. This youngster is an individual of great merit and should go to head a high class herd.

SIR TOYON MODEL HARTOG—Born April 29, 1919. He is sired by Von Heim Aaggie Hartog, whose dam is a 31 lb. 2 year old. The dam of this bull is the 23 lb. junior 2 year old Korndyke Model Hartog 3d, who sold at public sale for $2600 before she dropped her first calf. She is now on yearly test and has 709.72 lbs. butter to her credit in 304 days as a junior 2 year old. Her dam made over 30 lbs. butter in 7 days and 872.85 lbs. in 305 days as a junior 4 year old, and over 31 lbs. in 7 days as a 5 year old. She was also first prize 3 year old at National Dairy Show in 1918. The third dam made over 30 lbs. butter in 7 days and 1129.20 lbs. in one year. This bull is backed by three generations of dams that rank among the greatest in the west, and there is a wealth of world's record backing on the sire's side. Here is a bull that no breeder can afford to overlook.

ENSIGN KORNDYKE MODEL PONTIAC—Born April 6, 1919. Consigned by A. E. Smith, Sumas, Wash. The sire is Chimacum Spring Farm King Pontiac, whose young daughters are making extraordinary records with their first calves. The dam is Korndyke Model Hartog 2nd, who made over 27 lbs. butter in 7 days as a 3 year old and now on yearly test promises to make around 850 lbs. butter in one year. Second dam a 31 lb. cow that made 872.85 lbs. butter in 305 days as a junior 4 year old, and was first prize 3 year old at 1918 National Dairy Show. Third dam a 30 lb. cow that made 1129.20 lbs. butter in one year. This is a show bull of rare excellence. When his dam completes her record he will have an average of about 925 pounds butter in one year for five of his seven nearest dams, and his dam holds out every promise of making a very large record in mature form. This bull is backed by type and production of the first quality, and he should command attention in any sale ring where buyers of the best gather.

While we have utilized most of the space this week with descriptions of the nine bulls in the offering, don't forget that there are in the sale

11 Cows with Records from 30 to 35 pounds Butter in 7 days.
20 Cows with Records from 25 to 29 pounds Butter in 7 days.
A wonderful lot of 2 year olds with records up to over 24 pounds Butter in 7 days.
An extra choice lot of 3 year olds with good records.
And that practically all of the females are bred to 20 of the best bulls on the Pacific Coast today.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to 60 day retest by the buyer.

CONTRIBUTORS TO SALE:

CARNATION STOCK FARMS, Seattle
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LONGHEATH FARM, Fallon, Nev.
ROSAMAINES RANCHO, Riverside
SANTA ANITA RANCHO, Santa Anita
JAS. J. JEFFRIES, Burbank, Calif.
W. J. HIGDON, Tulare, Calif.
ALEX WHALEY, Tulare, Calif.
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TOYON FARM ASSOCIATION, Los Altos
THE J. S. GIBSON CO., Williams,
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LEEMAN & KILGORE, Ripon, Calif.
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Napier Elephant Grass

Fastest growing grass and Largest producing, perennial Grass in the world for warm Countries, also the richest Green feed for all kinds of Stock, with no bad effects.

Place your order now for March and April planting. Large orders a SPECIALTY.

Prices of Joints: $1 per doz.; $4 per 100; $12 per 500, or $20 per 1000.

Root Plants: $1 per doz.; $5 per 100, or $40 per 1000.

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616 East 54th St., Los Angeles, Cal.

When Writing Advertisers, Mention the Cultivator.

Supplemental Feeding of Range Cattle

By George H. Wilson, University of California

BY supplemental feeding of range cattle is meant the provision of feeds other than native pasture at such times of the year as the native grass is short, usually during winter months on winter ranges.

Cattlemen know all too well the picture of the cattle, fat and sleek as they come off of the summer range and how three months later most of us are quite well pleased if they are merely thrifty though 200 pounds lighter, and the ranches are few which have not lost cattle in the streams this winter due absolutely to weakness, unless they provided supplementary feed to carry them through.

Consider for a moment the effects of the lack of feed. There is first the loss of 150-250 pounds of flesh and fat, a loss which must be replaced in full before a pound of real gain is put on the following year. In the case of the breeding herd, the loss is made up again but only at the expense of grass which might well be developing a steer. In the case of the steer, it is just a loss of 200 pounds at market price, to be replaced only by feed which might go to make legitimate gains.

If it were only a proposition of living through the winter months on a part of the fat accumulated during the period of abundant feed, there might be some justification, but the losses are usually carried to a degree of emaciation or breaking down and sloughing off of the body tissues as shown by the mucus of the intestinal tract, the rough coat and the lack of thrift. With the coming of the new grass, the slow and costly process of rebuilding these tissues is necessary before the storing of muscle and fat can commence, a total loss of several weeks and much good grass consumed in the process of tissue rebuilding.

This loss of time in tissue rebuilding and the replacement of lost weight means many of the two, three, and even fours do not have time during the summer to get into butcher condition so must go through the process another year hoping for better luck.

This carrying of an excessive number of 3's and 4's means an equal reduction in the beef output or money return of the ranch.

The average cattleman of California runs 75 head of cattle. Let us say, 20 cows, 15 yearlings, 15 two's, 15 three's and ten four's. He turns off 15 head per year at $125 per head, totaling $1,875. Why could he not run 28 cows, 21 yearlings, 21 two's and five three's, turning off 21 head per year at $125 per head, amounting to $2,625, or $750 more, giving $350 for hay and labor and $400 and the satisfaction of good ranching as profit.

No effort has been made to describe the actual loss of life, the animal mired down in the stream on account of being too weak to unloosen a foot caught by the suction, or the loss of both cow and calf due only to lack of vitality to carry them through the critical calving period.

What, then, are the possibilities of supplementary feeding?

Maintenance of fat accumulated on cheap range.

Maintenance of thrift of animals.

The stock is able to make the best use of spring grasses from the first.

Increase in the carrying capacity of summer ranges.

Practically insures all two year olds coming off fat in the fall.

Insures cows being strong enough to calve easily and give abundant flow of milk.

Makes early calving profitable.

Early calving means long season of milk for calves and possibility of finishing almost all breeding before bulls are sent out on summer range.

Feeding Experiences

Mr. Church, of the Lime Kiln Ranch near Auburn, says they did not feed the 1918 calves the first winter, but they have fed the 1919 calves and that the 1919 calves are now just as large as the 1918, or one winter's silage and hay fed to calves saved one whole year's feed to a steer.

Robert Yelland, manager of the C. C. Moore ranch in Shasta County, has been feeding steers on corn silage and chopped alfalfa hay at the rate of 16 pounds chopped hay and 22 pounds of silage per day, getting gains of 2.7 pounds per day.

The Kansas state agricultural college at the Fort Hays range has for seven years been carrying on work with breeding heifers, dividing them into four groups:

Group I. Average ranch feed, bred to calves at two years.

Group II. Supplemental winter feed, bred to calves at two years.

Group III. Average ranch feed, bred to calves at three years.

Group IV. Supplemental winter feed, bred to calves at three years.

Groups I and IV have been dispensed with, Group I being very unsatisfactory calves and Group IV being too expensive.

The results from Groups I and III are about equal, or in other words, supplementary winter feeding saves one year of the life of a heifer and makes room on the range for one more steer.

Now how are these results to be accomplished? It is within the province of this article only to suggest the use of silage, the sorghums or corn being preferable, or of sudan grass, rye or grain, clover or alfalfa hays. A small amount of concentrate may in some cases be advisable, but roughages will be the main dependence, the size of the ration from 8-25 pounds per day, varying with the supply of supplemental and native feeds. It is suggested that preference be given to: 1, cows with calf; 2, calves; 3, yearlings; 4, two's.

LIVESTOCK BREEDERS MUST COOPERATE

Dr. R. H. Williams, animal husbandman of the Arizona agricultural college, speaks for better cooperation among livestock breeders. He says:

"The modern way of doing a big job is team work. Cooperation applies to business as well as football. In the livestock business allliances among breeders, dealers, advertising mediums and breeders associations, with their efficient machinery, are necessary to put it across. We may call this a ring into which one must become initiated and continue to function according to the best interests of the group, clique or fraternity.

"A breeder who forms no alliance with livestock papers, with his breed association or the leaders and promoters of the breed, occupies a solitary position which means failure. Breeders are either in the select circle of friends and coteries or else they are without. It is not necessary for those in their set to feel that they are enemies of those in the other group, but one must belong to a set to succeed.

"The advantages of lining up with the promoters of any particular breed are many. In the first place there is a sympathy and good fellowship in meeting and associating with people with mutual interests. A man who loses this sociability with his fellow breeder and is without desire to cooperate with others in the business soon loses interest and blames the breed for his failure. On the other hand, there is no greater incentive and inspiration for progress than to cooperate with the other breeders and boost your own breed at all times."

ANOTHER WORLD'S RECORD IN MORRIS HERD

Miss Aaggie Acme Burke, the greatest two year old heifer yet developed by A. W. Morris & Sons Corporation, Woodland, has just completed her year's test with 24,338.8 pounds milk and 1,034.44 pounds butter. She freshened at two years and three months of age, and her milk production is a world's record in class, while her butter record is highest in class in California, displacing the former record of 851 pounds held by her three-quarter sister Aralia De Kol Mead 2nd. Miss Aaggie Acme Burke is by Segis Pontiac De Kol Burke, and out of Aaggie Acme of Riverside 2nd, whose strictly official record of 1,331.78 pounds butt r in one year is the highest in the world. This wonderful heifer has a son just past a year old, sired by W. J. Higdon's great buil King Korndyke Pontiac 20th. He was first in class at San Francisco in November in a large class of good ones, and is fast developing into an outstanding buil. He has been consigned to the National Sale to be held at St. Paul in June.

TILLY ALCARTRA COMPLETES HER SEVENTH LONG DISTANCE RECORD

Tilly Alcartra, the greatest food producing machine in the world, has completed her seventh consecutive long distance record. She was carried only 305 days this time, as she is due to calve again within 12 months of her previous freshening and even now will be milking right up to within a week or ten days of calving. In 305 days she made 935.15 pounds butter from 23,684.1 pounds milk, which gives her a total of 180,460.2 pounds milk and 1,076.51 pounds butter, and average of 1,010.93 pounds butter and 25,780 pounds milk, a record that is not closely approached by any cow of any breed in the world.

Not only is Tilly's latest record a wonderful production during the seventh consecutive year of her milking career, but it was made under most extraordinary conditions. It will be remembered that early last summer she was shipped to Carnation Stock Farms, Seattle, Washington, where she was bred to the world famous $106,000 bull Carnation King Sylvia. On her way home she was guest of honor at a luncheon given by the Portland Commercial Club, Portland, Oregon, in one of the leading Portland hotels, and was afterward placed on exhibition for several hours in Portland's largest department store, where thousands of people jammed the store to see her. After coming back to California she was shipped to San Francisco, where she was the guest of the San Francisco Chamber of Commerce at a luncheon at the Palace Hotel. She was then placed on exhibition at the California International Livestock Show, and from there went home to round out her busy year. While the discomforts of travel caused her to drop off in production at times, she always came right back as soon as she was permitted to attend strictly to her life's work of producing milk, and the end of her 305 day test tells the story as to how well she stood up under a program that would have wrecked most cows. She is today in exceilent physical condition, taking on her usual amount of flesh, and is to drop a real wonder-calf on March 30.

The Greatest Food Producing Machine In the World

Tilly Alcartra, the wonder cow, has just completed her seventh consecutive record and now has to her credit a total production of 180,460.2 pounds milk and 7,076.51 pounds butter. Tilly is owned by A. W. Morris & Sons, Woodland.

NOTES OF CALIFORNIA CATTLEMEN'S ASSOCIATION

The membership campaign of the California Cattlemen's Association will open in Southern California with a meeting at Ventura on March 27. This will be followed on April 3 with a meeting at some point adjacent to Los Angeles, not yet selected.

Activities will shift to Imperial Valley on April 10 with a meeting which will be held by Imperial County cattlemen at Brawley. All of the Southern California Counties, and a number from the north will cooperate at the semi annual convention which will follow the Brawley meeting, and will be held in Los Angeles on April 15, 16 and 17. The last day will be given over to a big barbecue. Speakers of national prominence are expected to address the convention.

* * *

The February break in the drouth has saved Northern California cattle, at least temporarily. County secretaries in the Cattlemens' Association, reporting the conditions of the ranges, state that if the March rainfall is normal there will be no necessity of shipping any cattle out of California. From all over the state, however, there have come letters commending the action of the California Cattlemen's Association in preparing for the emergency that threatened. The association's policy of getting ready in ample time resulted in arrangements that would have permitted cattlemen to ship their stock to other pastures outside California the moment the need became apparent. This is the first time in the history of the cattlemen of California that such machinery has been at the disposal of the stock raisers. In other years of great drouth cattlemen have had to rely upon their individual efforts to help themselves, and many delayed until the cattle were so weak that they could not be loaded on trains. One well known cattleman said recently, "The old days of unpreparedness are gone, and it is my fervent prayer that they never will come back." The association's efforts have won it the membership and active support of many producers heretofore outside the organization.

A movement to enlist the support of the government in a campaign for the extermination of coyotes was launched at a meeting of cattlemen at St. Helena, Napa County. A resolution was adopted urging that the department of agriculture secure an appropriation from which to offer a bounty which would be in addition to that offered within the state.

The resolution calls attention to the depredations of coyotes among livestock and points out that the bounties paid by the counties are wholly insufficient to produce the desired results.

LARGE COWS EXCEL IN YIELD

Cow testing records based on 38,532 dairy cows from 110 cow testing associations are being analyzed by specialists of the dairy division, United States department of agriculture. The tabulations have brought out a number of interesting relations between milk production, butterfat test, butterfat production, and income over cost of feed. The larger cows excelled the medium and small cows in production of both milk and butterfat.

The average annual milk production of all the animals was 5,936 pounds per cow, and the average butterfat production 246 pounds. These figures are considerably larger than the average for the United States, indicating that dairymen who are members of cow testing associations either dispose of their poorest cows or else make them more profitable by better feeding and handling.

THE MOUNTAINS

He hath made them the haunt of beauty,
The home elect of His grace;
He spreadeth His mornings on them,
His sunsets light their face.
The people of tired cities
Come up to their shrines and pray;
God freshens again within them
As He passes by all day.

—Jane Taylor.

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 83147 at head of our great herd of brood sows.

HARVEY'S CHOICE
Grand Champion Boar
at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair
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Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

A. E. Harvey, Manager Redlands, Cal.

If you are interested in this very great breed you will find it worth your while to visit the

Ortega-Underhill-Rancho
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Registered Hampshires

Thos. T. Dinsmore, Manager Santa Barbara, Cal.

You will find there some of the best blood in the country and a truly great herd in course of construction.

The Poplars----Hampshire Headquarters

Our reserve grand champion sow Waveiet at the big Los Angeles show is the mother of 8 little Wavelets—a flourishing family. We won 1st on boar and 3 sows bred by exhibitor, also 3 other herd prizes. We were in the money on aged boar, twice on junior yearling boar, and once next the top on junior boar pig. All young stock the get of our great boar, The Harvester Again. Write us your wants.

C. J. Gilbert Lancaster, Cal.

Bred Sows and Gilts

These sows and gilts will give you pigs that will be ready for the high market this fall. They are registered Poland Chinas and bred to our great herd sires. They are priced so you can make money—get into the business NOW. We will be pleased to write you full particulars. Address

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You have size and quality in mind when you think of Berma Poland Chinas.

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Rosebud's Jumbo and Caesar's Buster two premier sires worthy to head any big type herd. When you want big type Poland Chinas write us. Usually something real good to offer.

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Home of King's Big Ben, where he is siring those early developing big type Poland Chinas that are ready for the market at 6 mo. They have size, bone, quality and are from the easy feeding families.

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100,000 FEET OF NEW AND SECOND-HAND PIPE AND CASING

PIPE—Practically all sizes from ⅛ to 15 inches.
CASING—Practically all sizes from 8 to 14 inches.
All pipe and casings have good threads and couplings on each joint.
RIVETED PIPE — 4 to 12 inches, as good as new.
We also carry valves and fittings.
MAIL ORDERS GIVEN PROMPT ATTENTION
Write, phone or wire for quotations.

ADAMS PIPE WORKS
Bay and Mateo Sts. Los Angeles, Cal.

Shorthorn Steers

The Shorthorn steer carlots at the International, Chicago, sold for $25.69 per cwt., the highest average of any breed.

Thos. Johnson, Columbus, O., sold 100 Shorthorn steers last October at the farm for $19 per cwt. They weighed 1,592 lbs. making a gain of 400 lbs. in five months.

It pays to grow Shorthorn beef.

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Chicago, Ill., 13 Dexter Park Ave.

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Crisp lettuce —for instance!

—all you want, and more than you can buy in market for $3.00, in this five-cent packet. Your garden has the right start when you plant Morse's Never-Failing Seeds, the kind professional market gardeners use.

At grocers, florists, drug and hardware stores, etc., everywhere.

(8-f)

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Call on our Service Department. Dehydration experts in charge. We can help with your problems.

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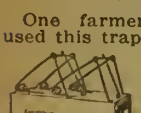

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San Francisco, Calif.
440-442 Sansome St.

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Los Angeles Markets

Los Angeles, March 17, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 59 cents.

Dairy Exchange prices last week on extras:

March	10	11	12	13	15	16
'20 ...	59	59	59	59	59	59

CHEESE

Brokers' prices:

California, lb., 29, price to retail merchants, 29@31.

EGGS

Fresh extras, Produce Exchange closing price, 40 dozen; case count Produce Exchange closing price 35 dozen; pullets, Produce Exchange closing price 34 dozen.

Dairy Exchange prices last week on extras:

March	10	11	12	13	15	16
'20 ...	38	38	38	38	38	40

POULTRY

Price to producers: Hens, lt., 35; heavy, 37; colored over 4 lbs., 38; broilers, 40-44; fryers, 40; roasters, 38; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

LIVE STOCK

Los Angeles, Mar. 16 — Weighed and delivered off cars without food or water: Hogs (hard-grain), 120 to 175 lbs., 14.50; 175 to 225 lbs., 15.50.

Cattle (on foot, gross weight)—Steers, good, 12.00@12.50; medium, 11.50@12.00; cows, good, 10.00@10.50; medium, 9.50@10.00; bulls and stags, 7.50; calves 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, March 9, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Market stronger. New stock: Stockton, Burbanks, special brands, 6.50@6.65. Idahos, Russets, 6.25. Local stock, lugs boxes, 2.00@2.25; local White Rose, mostly 6.50@7.00.

Sweet potatoes: Market strong. Lugs, 1.60@1.75; per cwt., 4.50@5.00.

Onions: Demand and movement moderate; market steady. Homegrown and Stockton: White Globes, per cwt., 7.50@9.00. Yellows and Browns, 6.00@6.25 per cwt.; lugs 2.00; per lb., 6@9. Garlic, lb., 40@45.

VEGETABLES

These are the actual prices obtained March 9, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz. 1.25@1.50.

Asparagus: Local, lb., 18@20; Imperial Valley, 20@22.

Beets: Doz., 40@50; lb., 4@5; sk., 2.60@2.95.

Cabbage: Market strong. Per lb., 3@4; per cr., 3.00@4.00; sacks, mostly 3.00@3.50. Red cabbage, 4@5 per lb.

Carrots: Doz., 40@50; lb., 1½@2; sk., best, 1.40@1.75.

Cauliflower: Market stronger, supply exhausted. Local stock: per dozen, best, 1.25@1.50; field crates, mostly 2.00@3.00.

Celery: Local and Northern: per dozen bunches, 1.50@1.65; crates, 5.30@6.50; fancy shipping stock, 8.00@8.50.

Cucumbers: Hothoues, 3.00@5.00 box, stronger. Per dozen, 35@50; crates, 1.00@1.25.

Peas: Local, lb., best, 8@10; others, 6@7.

Peppers: Floridas: Bells, 40@45 per lb., Chilis, 40@45.

Lettuce: Local Stock: Market slightly weaker. Per dozen, 20@30; mostly 20@25; crates, 60@1.00; poorer low as 50.

Peppers: Local stock: Bells, mostly 18@22; poorer, 15@17. Chilis, best, 15@25 per lb. Floridas: Bells, 30@40 per lb., Chilis, 30@45.

Parsley: Doz., 20@35.

Parsnips: Lugs, 1.10@1.25; sacks, 2.85@3.75; per dozen, 40@60.

Rhubarb: Local stock, bx, 2.00@2.25.

Spinach: Doz., 30@35.

Squash: Hubbard, cwt., 4.50@5.00; lb., 4½@5½.

Tomatoes: Mexicans: crates, best 2.25@2.50; mostly 2.00; lugs, repacked, 2.50@2.75.

Turnips: Per dozen, 50@60; per sack, 3.00@3.75.

FRUITS

These are the actual prices obtained March 9, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: White Pearmans, 2.25@2.75; 4@6 per lb.; Yellow Newtown Pippins, 4-tier, 2.10@2.25; 3½-tier, 2.35@2.50; 5@6 per lb.; ous, fancy, 3.50@3.75; 5@7 per lb.; Hoovers, fancy, 2.25@2.50; Romes, 2.50@3.00.

Bananas, 8½; Red, 10.

Pears: Winter Nells 6½@7½ lb.; bx., 3.00@3.50.

Grapefruit: California and Arizona: per box, 3.50@4.50, mostly 3.50@4.00. Local, 2.00@3.00 per box.

Lemons: San Fernando Valley stock; fancy packed, 4.25@4.50; loose, 3.25@3.50; juice, 2.50. Local stock; packed, 2.50@3.00; loose, 2.00@2.75; some low as 1.25 box: 2@3 per lb.

Oranges: Navels, 3.75@5.25 box; best brands, hx., 5.75@6.50; Local stock: packed, 4.00@5.00; large sizes low as 2.50@3.00. Tangerines, lb., 7½@9.

HONEY

Demand and movement strong, market steady. Carloads f. o. b., usual terms, per lb.; white orange blossom, mostly 19; white sage 19@20; extra light amber sage 18½; light amber sage, supplies cleaned up; light amber alfalfa, 16½. Beeswax, local lots, 40@43.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6, but market falling. Limas, 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

HAY

No changes are noted this week. The trade is watching for New Imperial Valley hay, which will begin coming during the next week and speculating as to what opening prices may be. No prices are predicted but "probably high" is suggested.

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	27.00@30.00
Barley	26.00@30.00
Alfalfa	28.00@32.00
Barley Straw	10.00@13.00

Alfalfa Growers of California, f. o. b. Los Angeles: Choice alfalfa, 38.00@39.00 per ton; choice dairy alfalfa, 30.00@38.00; No. 1 dairy alfalfa, 33.00@36.00; No. 1 alfalfa, 34.00@36.00; standard alfalfa, 33.00@34.00; standard alfalfa, 30.00@33.00.

GRAIN AND FEEDS

Price bid local grain exchange, March 16:

Barley: 3.35@3.40.
Corn: Yellow, 3.25.
Eastern Kafir: 2.52½.
Milo: 2.91¼@2.92½; Eastern, 2.70.
Wheat: Mixed feed, 4.47½@4.65.

San Francisco Markets

San Francisco, March 16, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	63
Prime Firsts	61½

Mar.	9	10	11	12	13	15
'20 ...	61	64	63	63	63	63
'19 ...	..	59	50	56	56	..

Rcts. week ending March 15, 6,223 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	27@28
Cal. Flats	29@33½
Cal. Y. A.	37
Ore. Trips	32

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	45
Firsts	38½
Extra, pullets	39
Undersized	35

Mar.	9	10	11	12	13	15
'20 ...	40	41½	40½	42	43½	45
'19 ...	..	40½	40	39½	40	..

Rcts week ending March 15, 645,190 doz.

POULTRY

Wholesale prices are:

Leghorn, 39@40; small, 41@43; large, 37@38; roosters, young, 43@45; old, 23@25; broilers, 50@55; fryers, 50@54; turkeys live, 42@43; dressed, 51@52.

Ducks, Indian Runner, 30@32; Pekin, 33@35; geese, 30@32; Squabs, 70@75; pigeons, doz., 2.35@2.50.

Belgian hares, live 20@23; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle — Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 11@12; do 1,200 to 1,400 lbs., 10@10½; do, second quality, 8@9; thin, 6@7.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4@5.

Calves—Light weight, 12@12½; medium, 9½@10; heavy, 7@9.

Hogs—Weighing 100 to 150 lbs., 15¼; 150 to 225 bs., 15¾; 225 to 300 bs., 15¼; 300 to 400 bs., 14¼.

Lambs: Milk, 15@16; Yearlings, 13@13¼.

Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle—Good steers, 1000 to 1100 lbs., 12@12¼; top steers, 1100 to 1200 bs., 11½@12; good heifers, 1000 lbs. and over, 9@9½; No. 2 cows, 1000 lbs. and over, 8@8½; canner cows, 5@6; good bulls, 6@6½.

Calves—Light, 13@14.

Hogs—Top packer, hard and well finished; 100 to 150 lbs., 15¼; 150 to 225 lbs., 15¾; 225 to 300 lbs., 15; over 300 lbs., 14; under 100 lbs., 14.

Sheep: Ewes, 9@9¼. Wethers, 11@12. Yearlings, 13@13¼. Milk Lambs, 14@15.

POTATOES

Wholesale selling price:

Per 100 lbs.: Rivers, fancy, 5.00@5.25; choice, 4.50@5.00; Idaho Gems, 5.50@5.75; sweet, 4@5 per lb.

ONIONS

Wholesale selling price:

Onions: Fancy brown, 4.75@5.00; choice, 4.50@4.75; yellow, 5.00@5.25; white, 5.00@5.25. Garlic, China, 14@15; other, 30@35.

VEGETABLES

Wholesale selling price:

Artichokes, No. 1, 75@85; No. 2, 50@65; No. 3, 20@35.

Asparagus: lb., 8@12.

Beans: So., 13; Hothouse, 20@22 lb.

Brussels Sprouts: lb., 8@9½.

Carrots: sk., 1.00@1.35.

Cauliflower, doz., 1.25@1.45.

Cabbage, doz., 40@50; lb., 2½@3.

Celery: doz. bunches, 35@45; cr., 2.50@6.00.

Eggplant: lb., 15@25.

Lettuce: cr., 1:50@1.65; Imp., 1.75@2.00.

Peppers: Fla., 25@30 lb.

Peas: lb., 10@14.

Radish, 7@9 doz bunches.

Rhubarb: lb., 6@10.

Tomatoes: Southern, 1.25@2.00.

Spinach: lb., 3½@5.

DECIDUOUS FRUITS

Apples: Newtown Pippins, old stock, 1.25@1.50; California storage, 4-tier, 2.00@2.25; Oregon, 2.00@2.35; Spitzenberg, choice, 1.75@2.25; fancy, 2.50@3.25; Winesaps, fancy, 3.75@4.00.

Pears: bx., 1.50@4.00.

Pineapples: doz., 3.00@5.00.

Bananas: lb., 7@9.

Strawberries: basket, 25@40.

CITRUS

Box: Lemons, fancy, 3.00@5.75; choice; 4.00@5.00; standards, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00@2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 4.25@6.25; limes, 1.00@1.50 crate; tangerines, 1.50@3.25 per crate.

DRIED FRUITS

Prunes:

Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.

For "practically peeled" add 1½c per pound (any grade).

Prices above are all bulk basis.

For packing in 50 pound or 25 kilo boxes add 1 cent per pound.

25 pound or 12½ kilo boxes, all 1¼c per pound.

10 pound boxes, add 2 c per pound.

Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.

Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.

Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:

Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:

White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:

Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

HONEY

Extracted jobbing prices: Water white and white, 18 and 20 per lb.; light amber, 16@18; amber, 14@16½; comb, 25@28 for white and water white and 20@22½ for light amber.

RICE

The market remains inactive, with prices level. Some activity is expected soon, due to the improved foreign exchange situation and need for several short sellers to come into the market to cover. Spot fancy today is 12.00, April 12.00, May 12.20 and choice 25 less. Market practically bare of brewers and screenings.

BEANS

Jobbing price per cwt.: Small white, 6.00@6.25; large white, 6.00@6.50; cranberry, 6.90@7.00; red Mexican, 8.00@8.25; pink, 6.20@6.35; California Bayo, 9.00@9.25; blackeye, 7.10@7.25; red kidney, 13.00@13.25; lima, 11.00@11.25; Garvanza, 9.00@9.75; Kotenashis (in bond), old crop, @10.50; Kotenashis (in bond), old crop,

Dried Peas—California, 5.25@5.40 per cental for green, recleaned.

GRAIN

Wheat: The prices are based upon federal grades and standards at the terminals in San Francisco Bay and Los Angeles, and are as follows, per bushel of 60 pounds:

Hard White—	Per Bushel	Per Cental
No. 1	$2.20	$3.66 2-3
No. 2	2.17	3 61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.09	3.48½

The above are minimum prices.

For sacked grain add 4½ cents per bushel of 60 pounds to above prices. Deductions of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.20@3.25.

Corn: California yellow, 3.20@3.25 per cental; Egyptian white, 3.80@3.85; milo maize, 3.15@3.25.

HAY

Under date of March 13, Scott-Magner & Miller says:

Receipts past week 871 tons, mostly Oregon and Nevada. Receipts from Ne-

vada chiefly alfalfa hay; from Oregon, cheat hay. This is sown cheat more or less mixed with oats and seems to meet with favor of stock feeders. Considerable of this type hay has been purchased for shipment to this market and no doubt will be in general use as our California stocks are fast reducing and from the present outlook it will not be long before wheat or tame oat hay is all consumed. Barley has been unobtainable for some time past. The rain, which was quite general over the state the first of the week, ranging from one-half to one inch, has been of inestimable value to the growing crops and has given hope that the long drouth is broken. Pasture conditions are improved and grass should be plentiful on the ranges in the near future. This weather, together with the shipments of Oregon hay, have had a tendency to keep hay from going any higher and if anything the market can be reported a little easier. The government is in the market this week for 3,500 tons for overseas shipment. This hay must be double-compressed but at this time it is impossible to report whether contracts will be let in this city or sent to the Northwest.

We quote today wholesale prices in carload lots as appear from dealer's transfers upon the hay market in San Francisco, for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat Hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat or Wheat and Oat Hay	35.00@38.00
No. 2 Wheat or Wheat and Oat Hay	33.00@35.00
Choice Tame Oat Hay	37.00@40.00
Other Tame Oat Hay	33.00@37.00
Wild Oat Hay	Nominal
Barley Hay	Nominal
Alfalfa Hay	32.00@37.00
Stock Hay	29.00@32.00
Oregon Cheat and Oat Mixed	27.00@29.00
No. 1 Barley Straw, per bale	.70@ 1.00

Citrus Markets

Los Angeles, March 17, 1920.

Navels are running to large sizes. There are large quantities of 126's and even many of 80's and 64's. These exceptional sizes are forced to sell at much lower prices than preferred sizes. A long premium is sometimes paid on 150's and 176's. Any f. o. b. sales which are made are usually around the $4.50 mark. Shipments aggregating around 1,000 cars weekly.

The supply of imported lemons continues great so that even high quality Californias are forced down to exceptionally low prices.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 10,715 cars; lemons, 2,199; total, 12,914. To same date last season: Oranges 10,749; lemons, 2,739; total, 13,488. From Central California this season: Oranges, 3,495; lemons, 264; total, 3,759. To same date last season: Oranges, 2,252; lemons, 244; total, 2,496. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

March 10

New York: 12 or., 4 lem. Nav. 2.90-6.90. Tange., halves 2.75-4.05. Mikes, 6.15, Sweets 5.70, lem. 2.20-3.85.

Boston: 4 or., 5 lem. Nav. 3.40-6.70, lem. 3.20-4.10.

March 11

New York: 11 or., 4 lem. Nav. 3.05-7.05, Tange., halves 3.45-5.55, lem. 2.55-4.00.

Pittsburgh: 2 or., 2 lem. Nav. 5.50-6.25, lem. 2.35-3.35.

March 15

New York: 17 or., 6 lem. Nav. 3.15-7.25, Tange., halves 3.60-4.85, Mandarin halves 2.10, lem. 3.05-3.85.

Boston: 9 or., 7 lem. Nav. 4.25-7.45, Tange., halves 4.10-5.15, lem. 1.90-3.95.

Cleveland: 6 or., 1 lem. Nav. 3.50-7.00, lem. 2.60-3.50.

Philadelphia: 3 or., 1 lem. Nav. 3.35-6.10, lem. 1.90-4.40.

St. Louis: 5 or., 2 lem. Nav. 3.10-6.20, lem. 2.85-3.85.

Cincinnati: 1 or., 2 lem. Nav. 3.85, lem. 2.85-3.40.

March 16

New York: 12 or., 3 lem. Nav. 3.95-7.15, Tange., halves 3.30-5.40, Bloods 2.20-2.50, lem. 2.80-3.70.

Boston: 3 or., 2 lem. Nav. 3.05-7.00, lem. 2.90-3.80.

Philadelphia: 1 or. Nav. 3.65-5.80.

FERTILIZERS FOR POTATOES

Near Topeka, Kansas, lives B. H. Pugh, who has been a successful commercial grower of potatoes for 24 years. By request Mr. Pugh prepared an article on potato production for the twenty-first biennial report of the Kansas state board of agriculture. Here is what he says about fertilizers:

"One of the essentials in potato growing, possibly the chief essential, is soil fertility. Seed selection is important, but fertility is, if anything, more important. If our agricultural papers could inspire the farmer to improve the fertility of his acres with as much eagerness as he selects and improves his seed corn, the results would be startling. Fertility is even more important to the potato, because it is a more expensive crop. It cannot thrive on a soil barren of fertility any more than cattle can thrive on a pasture barren of grass.

"The potato plant is a gross feeder. Its root system develops so rapidly that by the time the plant is six inches high the rootlets are meeting across the rows. If fertility is placed within reach, the plant is sure to make quick and vigorous response.

"No fertilizer compares with common barnyard manure in ability to produce substantial crops of potatoes. After experimenting with cottonseed meal and other kinds of commercial fertilizers, using as much as a carload of this goods, the writer has returned to barnyard manure as the most efficient of all, and the most lasting. It should be used liberally, ten to 15 tons per acre—more if convenient. It may be depended upon to produce fine crops for three years and longer, if it is supplemented with crops of green rye planted after potato harvest and plowed under in the late fall or early spring. The persistent use of rye as a green manure crop for potatoes cannot be emphasized too much. It is the cheapest and most vigorous of green manures and produces smooth tubers of good quality. The potato is 78 per cent water and therefore not hard on the soil. It may be grown successively for many years without change, on the same field, if the rye rotation is used. The writer has one field which in 15 years has produced 14 crops of potatoes, the last three averaging 250 bushels per acre.

"No fears need be entertained about the manure producing scab, no matter what the neighbors may say. I am fully aware that there are those that insist that potatoes are made scabby by the use of manure; that it did back in Michigan, or Indiana, where they came from; that they know because they saw it with their own eyes. Likewise, there are some who never think of planting potatoes without getting out the almanac to consult the phases of the moon, fearful lest some incautious move be made that would conflict with the moods of this mysterious orb, and that it possesses some sinister influence by which it breathes damnation upon any crop not planted according to its fitful humors. You may safely ignore the phases of the moon in potato culture, but it is not safe to ignore the use of manure, all that can be had of it, no matter whether fresh or composted.

"Yield is what the grower is after, and the faster the crop grows the larger and smoother the tubers will be. Potato land that will produce 100 bushels per acre under ordinary conditions will easily double in productive ability by the use of this fertilizer. The best seed carefully planted in well prepared land cannot reach large results save in fertile soil, but furnished with this assistance the early potato can produce its crop in an amazingly short time, finishing its growth during the cool nights of spring, and ahead of the summer drouths. On poor soil the crop will drag slowly on in an effort to produce its crop, finally winding up with a small yield of undersized potatoes, to the loss and disgust of the grower. Making the soil rich is not an expense but an investment, and no matter what the crop, it is certain to yield good returns."

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Forage Poisoning

We have a mule colt ten months old that was never sick before but now is not able to get up. She has no control over her legs. Is it auto ataxia? Her mother died when she was six weeks old and she has been raised on calf meal, cow's milk, eggs and sugar. Lately she has had alfalfa hay and a little barley. Has been kept in a small corral. I saw a similar case in the valley a year ago and have been told that it is all right now. What can we do to hasten recovery?—Subscriber, Blythe.

Formerly this trouble was called spinal meningitis because when animals died with it small inflamed spots were found on the coverings of the spinal cord, similar to those found in the true spinal meningitis. But instead of causing violent and painful contraction of the muscles, as we find in the true spinal meningitis, in these cases we find partial or complete paralysis. It has been found that a mold or fungus on the hay is the cause of the trouble, so it is now called forage poisoning and sometimes referred to as ptomaine poisoning. It is always best to change the feed, as that will avoid adding more to what has already been taken. The best remedy for removing what is now in the bowels is a physic of salts, and to increase the action of the salts a little nux vomica should be added. Mix two pounds of epsom salts, one pound of common salt and half an ounce of powdered nux vomica. Mix thoroughly and divide into eight powders. Give two doses the first day and one a day after until all is used. Give the medicine by dissolving one powder in a quart of hot water and when cool give as a drench. This will remove the trouble from the bowels. To remove the poison that has been absorbed into the system, get two ounces of bromide of potash dissolved in one pint of water and give a tablespoon of the mixture in the drinking water twice a day.

STOCKS OF HIDES AND SKINS

Holdings of hides and skins on January 31 were much larger than on the same date last year, but less than on December 31, according to the monthly report of the bureau of markets, United States department of agriculture.

Total holdings for January 31, 1920, were: Cattle hides, 6,549,550; calf skins, 1,570,718; kip skins, 965,336; horse hides, 277,626; horse fronts (whole), 110,778; horse butts (pairs), 317,311; horse shanks, 53,811; kangaroo and wallaby, 788,479; deer and elk, 237,477; goat, 12,849,532; kid, 926,677; cabretta, 1,887,026; sheep and lamb, 8,763,643; buffalo, 488,224; pig and hog skins (pieces), 75,405, and pig and hog strips (pounds), 1,586,271.

"When water becomes ice, what is the great change that takes place?"

"The greatest change, ma'am," said the little boy, "is the change in price."

WEATHER REPORT

San Francisco, California, March 13, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	2.02	15.55	34.69	58	36
Red Bluff	1.14	7.12	19.29	68	36
Sacramento	.54	5.70	15.28	66	40
San Francisco	.95	7.40	17.99	67	45
San Jose	.34	5.65	13.17	74	36
Fresno	.64	4.96	7.22	74	42
San Luis Obispo	.88	9.66	15.70	76	44
Los Angeles	.66	8.59	12.39	80	48
San Diego	.70	6.62	7.95	78	47

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GREATEST OF ALFALFA GROWERS

(Continued from Page 471.)

were sent to Philadelphia, and the whole matter was forgotten by Mr. Miller until a day in early February, when a letter came announcing that Mr. Miller's five acres was amongst the winners. This was highly satisfactory, but rather indefinite. The next information received was a letter containing a check for $1,000 and a package accompanied it containing a gold medal on one side of which was engraved: "Awarded by the Farm Journal of Philadelphia to Nathan Winfield Miller of California as the first prize for an average yield per acre of alfalfa of 7 tons, 748 pounds in the National Prize Crop Contest, 1919."

Notes

This winning field of all American alfalfa fields was seeded with the "ordinary," or Chilean, alfalfa. It was seeded by hand so accurate information as to number of pounds per acre was not available, but Mr. Miller said it would range for the different acres between 15 and 20 pounds.

The broadcasting was done in November or December of 1916. The seed was not inoculated, but native clovers or legumes have grown on the land from time immemorial.

As to fertilizing, none had been given to this land since one of the earlier beet crops, when stable manure was applied. Mr. Miller uses a manure spreader and considers it has paid for itself many times, this not so much because of labor saving as because more efficiency is secured from manure so thoroughly distributed. "It is foolish for any farmer not to supply himself with a good manure spreader."

Another application during the beet cropping period was that of sugar house lime from the nearby factory at Chino. As to soil treatment, the thorough culture necessary in raising beets was all that had been given. As noted, immediately preceding seeding, only disking was given, but the plowing out of the beet crop had called for 12 or 13 inch plowing, and, in addition, the land had been subsoiled with one of the beet crops. The subsoiling was about 18 inches deep.

Report of Supervisors

We, the undersigned, supervisors of measuring and weighing for San Bernardino County, state of California, certify and report the following yield of alfalfa from the five acre tract of N. W. Miller of Chino, in said county and state, viz.:

Date of measuring five acre tract, April 10, 1919; length of tract, 528 feet; width of tract, 412½ feet.

Date of Cutting		Tons	Lbs.
1st—April 12, 1919	Total Weight 1st Cutting for 5 Acres	9	1298
2nd—May 31, 1919	Total Weight 2nd Cutting for 5 Acres	9	275
3rd—July 5, 1919	Total Weight 3rd Cutting for 5 Acres	7	550
4th—Aug. 6, 1919	Total Weight 4th Cutting for 5 Acres	6	290
5th—Sept. 12, 1919	Total Weight 5th Cutting for 5 Acres	2	1900
6th—Oct. 29, 1919	Total Weight 6th Cutting for 5 Acres	2	590
Total		37	903

Samples from each cutting for moisture test being held by Supervisor E. Rhodes. Date of Report, November 25th, 1919.

R. A. Condee, P. H. Wright, Edwin Rhodes, Supervisors of Measuring and Weighing.

Facts as to Soil and Water

Area, five acres.
Soil, sandy silt loam.
Depth of surface soil, about 12 feet.
Depth of water table, from 6 to 12 feet.
Irrigation, none.
Variety, Chilian Alfalfa.
Stand four years old, 1920.
Official moisture content 12½ per cent.

The average rainfall in Chino is 15.63 inches and last year there was only 10.00 inches from July, 1918, to July, 1919, and 3.28 inches since that time or only 13.28 inches in the eighteen months before the close of the contest.

OLD FOLKS

We suppose it is because we meet so many old folks and also because there are so many of them we like that we find ourselves constantly making a study of them.

And as we think the whole thing over we feel that there is just one thing that we would like to see old folks do, and that is to keep their minds young.

When we are old it may well be that we cannot hope to escape the physical infirmities that come with age. Certainly we cannot hope to dance as well as we did when we were young. Nor can we hope to run as fast, to jump as high, or to do a lot of other things that we used to do. But there is nothing to prevent us from keeping our minds young.

The trouble is that when we are old and can no longer step lively and play baseball and shinny, and dance, we permit ourselves to dwell upon the fact. And invariably then we hark back to the time when our legs were limber and our shoulders were straight. And we are eternally talking and thinking of those times.

It is a grave mistake for us to do it. While it is all very well for us to keep tender memories of the past, the joys that once were ours, and the gladness we used to know, it is a mistake to get into a rut like that.

If, on the contrary, we fasten our interests on the things of the hour; if we go to the baseball games even though we can no longer take a hand in them, and hunt up the places where the dances are going on, even though we can no longer trip a toe in them—why, then, don't you see that we are still in it all and as happy as ever.

Darn it all, old folks, don't let the mopes get hold of you.—L. A. Times.

FUNDAMENTALS OF SUCCESSFUL POTATO GROWING

By G. H. Hecke, Director, State Department of Agriculture

Practically the only way to know that your seed stock is good is to know that the fields from which this stock was obtained have been inspected. Plant the variety best adapted for your locality and purpose, that is, whether for late or early harvest. Use solid, ungerminated stock if possible to obtain it. The locality in which the seed was grown is also important. Treat your seed with corrosive sublimate, four ounces to 30 gallons of water. Soak one-half hour. This solution is poisonous and should be handled accordingly, but it is better than formalin for all skin diseases of the potato. Use a wooden container for this solution.

Do not be niggardly of your seed. Remember, the larger the seed piece the greater the crop.

Plow deep and pulverize soil thoroughly. Conserve moisture by shallow surface cultivation. The best part of potato cultivation is done before planting.

Cultivate frequently and where the tuber moth is troublesome keep the potatoes well hilled up and the soil finely pulverized. The tuber moth seldom injures potatoes in the ground if they are covered continuously with a dust mulch.

Irrigate so that the plants will have a continuous supply of moisture. Continuous moisture is more important than a large amount given at irregular intervals.

For growing potatoes on a small scale without irrigation, covering the ground with a straw mulch after planting will conserve moisture, keep the soil cool and produce a much larger and better crop.

Pajaro Valley had a larger output of dried apples last season than any preceding year. 3,000 tons of dried were shipped out of Watsonville.

FOREST FIRE DAMAGE IN CALIFORNIA GREAT

"The report circulated by Secretary Rhoades of the California Forest Protective Association that there were only 19,000 acres of lands in private ownership burned by last year's forest fires for the entire state of California is incomplete and misleading,' says District Forester Paul G. Redington.

"It is unfortunate," he continued, "that such incomplete figures should have been given to the press, particularly at a time when the public is so vitally concerned in the shortage of water, the unprecedented high prices of lumber and the very serious situation in regard to our supply of wood pulp for news print. With such conditions actually upon us, the public has a right to the knowledge of the real damage done by forest fires in California.

"While Hr. Rhoades is correct in his statement that approximately 59,755 acres of timber lands were burned over within the national forests (a figure taken, undoubtedly, from the carefully compiled data secured by our 250 field men), he neglects to add that over 23,000 of these acres were privately owned. This, with the 15,506 acres of private timber lands burned by forest fires outside the national forests, as reported by State Forester G. M. Homans, amounts to over 38,000 acres—more than the area of government timber lands swept by fire and just about double the figures given by Rhoades."

Nearly 56,000,000 feet of timber, worth some $132,000, was the toll exacted by the more than 1,100 fires within the national forests in this state last year, according to Redington, and this in spite of the fact that 880 of the 1,100 fires discovered and fought by forest rangers were kept to less than ten acres each. The Shasta forest in Siskiyou and Shasta Counties suffered severely, with a total of more than 28,500 acres burned, over 12,000 of which was in private ownership. Actual damage to timber was also greatest on the Shasta, for fires here destroyed $34,000 worth of government and $42,000 worth of private stumpage.

The largest burned acreages, according to forest officials, were in the brush country of the Angeles and Santa Barbara forests in Southern California, where over 200 square miles of mountain watersheds were denuded of their vegetation.

That forest and brush cover act as a deterrent to erosion and help prevent premature runoff of melting snow and early rains has, as a result of these enormous burns, been most strikingly demonstrated by the effects following the burns on these southern forests, where heavy erosion is already in evidence and the runoff has been greater during the short elapsing period than has ever been known in the locality before.

Mr. Redington says: "Protection from fire of our mountain watersheds is an imperative duty devolving alike upon the nation, the state and the individual, and it is fully as important as are many of the other splendidly conceived measures now being advocated to help meet the coming water shortage in California.

"Fire protection as afforded by the forest service in California has been by no means perfect. Naturally, for like all large organizations, ours suffered severely both during and after the war—suffered most, as a matter of fact, in those localities where we later had the worst fires. But we are rapidly building up our personnel again and I feel confident that the season of 1920 will find us in better shape, provided the public will cooperate by being careful with fire, than have the past few years. Fire exclusion will be rigidly and impartially enforced on all the national forests in California this year."

Fires outside the national forests destroyed timber and range worth, according to State Forester Homans, more than $386,000. This figure does not include damage to grain and hay, which totaled over $350,000, nor to improvements valued at nearly $190,000. The season of 1919 was considered the worst in California since 1910.

RICKARDS REPORTS ON GRAIN

In a report just issued by J. E. Rickards, field agent, bureau of crop estimates, the reserve stocks of corn in the hands of farmers in California are estimated at ten per cent of the 1919 production, or approximately 287,000 bushels, compared to 506,000 bushels March, 1919, and 360,000 bushels in 1918. Ninety per cent of last year's corn crop was of merchantable quality, compared to 87 per cent one year ago, and the estimated percentage of the crop which is shipped out of the county where grown was 20 per cent, compared to a ten year average of 19 per cent.

Wheat—The reserve stocks of wheat are estimated at seven per cent of the 1919 crop, or approximately 1,143,000 bushels, compared to 531,000 bushels one year ago and 520,000 bushels two years ago. Fifty-eight per cent of the crop grown in the state is estimated to be shipped out of the county where grown, in comparison with a ten year average of 57 per cent.

Oats—The reserve stocks of oats in the hands of farmers are estimated to be seven per cent of last year's crop, or about 368,000 bushels, compared to 728,000 bushels in 1919 and 686,000 bushels in 1918. The percentage of the crop shipped out of the county where grown is about 35 per cent, compared to a ten year average of 43 per cent.

Barley—Estimated reserve stocks of barley in the hands of farmers are eight per cent of the 1919 crop, or approximately 2,400,000 bushels, compared to 6,864,000 bushels one year ago and 4,698,000 bushels two years ago. Fifty-five per cent of the 1919 crop was shipped out of the county where grown, compared to a ten year average of 51 per cent.

The state water commissioner of Arizona has during the past year granted 31 applications for water diversion rights and ten applications for impounding permits. Several of the latter projects involve expenditure of millions of dollars.

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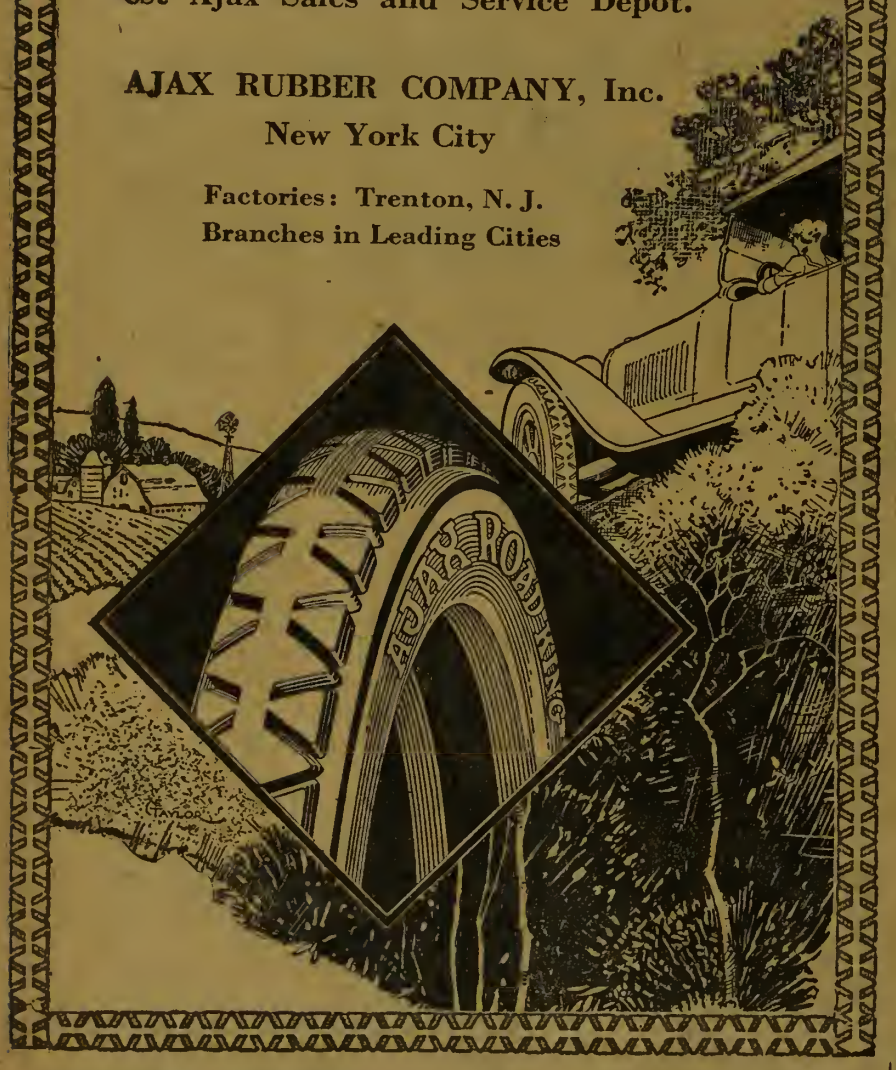

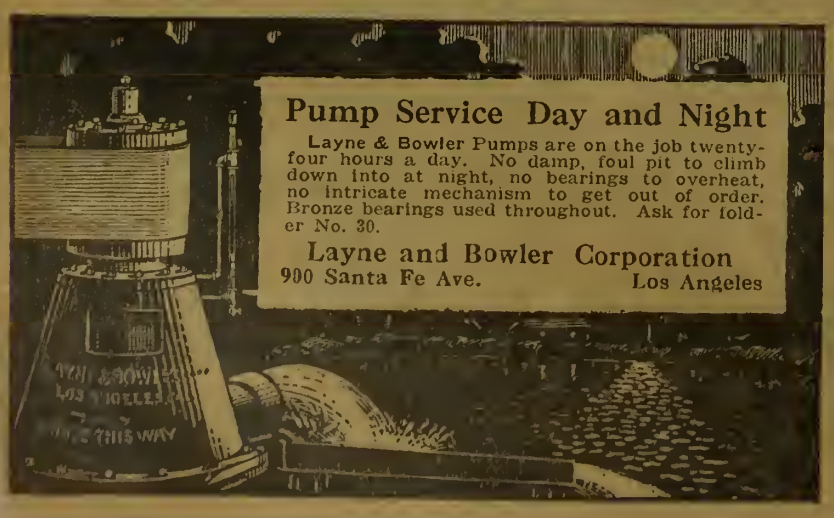

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900 Santa Fe Ave. Los Angeles

Sweet Clover

By F. W. Waite

SOME of the biggest improvements in agriculture come about very slowly and by the time the farmers as a whole become acquainted with them have grown to very large and important industries. Plants that were formerly thought to be of very little value have suddenly sprung in a period of a year or two from small isolated plantings to large acreage over the entire country.

Probably no plant has attained the importance of sweet clover (Melilotus Alba). While the East has long known its value, not only as a forage and a hay crop but as a soil improver, it is only recently that the West has begun to utilize its many advantages over the plants they have been using for the same work.

We are, however, interested mostly in its power to grow and produce large crops under the most unfavorable circumstances. While it is not likely that it will ever displace alfalfa as the principal hay and forage crop of California, it is interesting to know that planted crops on cultivated land have increased from a few acres in 1917 to more than 50,000 in 1920. It is now being grown on land that is too hard and compact to grow alfalfa, land too sandy, too dry, too wet or alkali for not only alfalfa but other profitable forage crops. On the better lands it carries more stock than it is possible to run on alfalfa, and under equal conditions will produce much more hay each year.

In feeding value it ranks very high. Alfalfa contains 49.69 pounds of total digestible protein, carbohydrates and fats to each 100 pounds of dry hay, while sweet clover contains 49.17 pounds per 100. However, under identical field conditions the sweet clover will in the majority of cases increase the butter fat content of milk and will gin to figure in crops of several tons. Sweet clover will in the same time make a much larger root growth; in fact, in the first year it will generally have a larger root than alfalfa six or seven years old. Fields have been noted in different parts of California where the root will have a diameter of from one to two inches at a depth of two and three feet. This root is, however, much softer than the alfalfa root and will decay inside of six weeks after plowing. This large, quick rotting root system is a big factor in soil reclamation, as it not only opens up the most refractory soils but leaves the root channels filled with organic matter for the free circulation of air and water in the soil, thus accomplishing root tillage that not only reaches below the depth possible to obtain with any tools, but thoroughly acrates these soils, establishes a drainage in the case of alkali soils and crcates an immense water holding capacity.

A Husky Melilotus Plant

A summer's growth without irrigation on place of J. C. Huffaker. Photo by Waite.

Melilotus Fields in Imperial Valley

Upper picture on ranch of J. A. Bain, showing the magnificient pasturage afforded by melilotus. Lower photo shows scene on the ranch of J. C. Huffaker taken before planting of sweet clover. The white spots are of white alkali. Notwithstanding this alkali heavy crop of sweet clover is now growing on the land. Photos taken by F. W. Waite of El Centro.

Due to these points, one year of sweet clover, where it is properly inoculated, will show greater gains in the crop following than three years of alfalfa. As a green manure and rotation its equal has never been found. The thousands of acres that are now being planted by the big sugar companies in Southern California show more than anything else its value as a fertilizing plant.

Imperial County had several plantings of the sweet clover made in the condition beef cattle, hogs and sheep quicker and produce a better grade of meat than alfalfa. It has the added advantage of not bloating even sheep when pastured under the most trying conditions.

Figures from the Utah experiment station show growth of 7,700 pounds per acre of sweet clover under dry farming conditions, while alfalfa produced but 2,860 pounds. This is explained by studying water requirements of the two plants. Alfalfa needs 1,068 pounds of water to produce each pound of hay, while sweet clover requires only 709 pounds. This gain soon amounts to a great deal when we be-

spring of 1919 under wide range of conditions.

J. C. Huffaker made a small planting that had absolutely no care or irrigation during the year, but which has proven so successful that this year his plantings will cover more than 60 acres on a 90 acre ranch. He was able to begin pasturing within six weeks from the time of planting.

J. A. Bain, east of El Centro, also made a small planting in the spring of 1919. This clover made a 40 inch growth in 90 days from the time of planting. A planting made December 15, 1919, of ten pounds of sweet clover with 35 pounds of wheat to the acre has carried seven head of cows on less than two acres of ground from January 15 to February 15, 1920. He has stopped pasturing and will harvest a crop of wheat for grain and then use the clover for pasture again during the summer, plowing under the growth in the fall for fertilizer.

Both of these plantings were made on land that was not producing or had made very poor crops heretofore. Other men have the same story to tell and in a short time Imperial, being as it is a large cattle feeding section, will be utilizing the Melilotus Alba more and more. A large acreage that has been planted this year will be used to grow a seed crop the second year (the Alba being a biennial, making seed and dying at the end of its second year's growth), and owing to the price of seed and the large yield, the seed will bring in more than the price of the land per acre outside of the feed obtained during the other 18 months of the clover's growth.

EELWORM AND POTATOES

The most serious phase of the eelworm problem arises through the distribution of diseased potatoes. In this respect California is in rather a peculiar situation. Throughout most of the state the farmers do not grow enough potatoes for their own use. They usually have a small patch, the product of which lasts but a short time. Even if they grow them in large enough quantity for market purposes, the lack of proper storage facilities prevents their holding over a sufficient stock for house use throughout the year. Therefore, during a considerable portion of the year they purchase their potatoes in the open market. Evidently, then, if a large potato producing section of the state or adjoining states ships potatoes infested with eelworms throughout the state there is great danger of valuable farming land becoming infested through the unrestricted distribution of potatoes carrying this pest. The housewife, when preparing these potatoes for the table, pares them and throws the refuse out to the stock or on the manure pile in the corral, and from there they are spread over the fields. If any of the potatoes used on the ranch, therefore, are infested with eelworms, a portion of the worms at least are very liable to be spread over the ranches of the state. When we consider how serious the pest is on many of our agricultural crops, such as tomatoes, cantaloupes, lettuce, beans, peas, etc., when the soil becomes infested, the injury which may arise through the shipment of infested potatoes can be somewhat appreciated. There has come to the writer's knowledge an instance where a farmer discovered eelworms in the potatoes he grew on his ranch and investigation showed conclusively that the only way infestation could have been brought about was through the fact that he had been getting potato parings and other garbage from a hotel in a nearby town for his cows. In this way he unwittingly stocked his land with a serious pest. Not only is there danger of clean land becoming infested through potato parings, but ranchers often use so-called table potatoes for seed purposes and in this way the eelworm is actually planted in the soil.

The eelworm is not generally distributed over the state. Probably it is not found at all in many counties or only in very restricted areas. It is highly important, then, that potatoes affected with this disease be rigidly prevented from distribution. The easiest way to prevent their distribution is to prevent the production of potatoes infested with these worms. This means planting only disease free seed on disease free land.—W. V. S.

Alfalfa On Irrigated Land

The greater portion of California's alfalfa production is on irrigated farms. There are, however, thousands of acres yielding two or three crops and sometimes a half dozen of them on non-irrigated lands. Above scene was taken in Imperial Valley on lands which were absolute desert a little more than a score of years ago.

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Turkeys on the Farm

By Jean A. Koethen

(This is the first of three articles on the rearing of turkeys. The second will deal with feeding and the third with protection from various enemies.)

IN the spring after the hatching of the chicks is well out of the way and the young stock in the weaning coop, the thoughts of the farm woman turn to turkeys. No other crop is quite so profitable, if only the crop can be raised. Last winter the retail price was around 60 cents a pound, with a demand that could not be supplied. The year before it was nearly as high, and there is no reason for expecting lower prices next year. If every farm woman in Southern California should raise a dozen turkeys for the market this year the demand would still not be supplied.

A government bulletin which lies before me (Farmers' Bulletin 791) states that the number of turkeys in the United States decreased in the ten years from 1900 to 1910 from 6,594,695 to 3,688,708, and that it is still "going down," and explains this decrease by the further statement that "the high mortality among young poults, as ordinarily cared for on the farm, the outbreaks of disease, particularly of blackhead, among the turkeys in certain sections of the country, together with serious losses resulting from the presence of predatory animals in other sections, have tended greatly to discourage the turkey industry." This certainly looks discouraging, but the next paragraph raises our hopes again:

"For those who are favorably situated for raising turkeys a more profitable side line can hardly be found. Given plenty of range, turkeys will readily find grasshoppers and other insects, green vegetation, the seeds of weeds and grasses, waste grain and acorns and nuts of various kinds. In this way the cost of raising them is very small and the profit large. Grain and stock farms are particularly well adapted for turkey raising, and it is on such places that most of the turkeys are found. Plenty of range is essential to success in turkey raising. Little has ever been done in the way of raising turkeys in confinement, and when it has been tried the results have been discouraging."

The Ideal Turkey Range

I am not sure that that last sentence is true in California. A good many people do meet with fair success raising turkeys in confinement, though they lose a good many poults. The fact is, range in California is not what it is in the East. If the birds can be kept on alfalfa, as they are in Imperial Valley, well and good. If they are forced to range in the vegetable garden, results are discouraging for the garden. If their only range is dry hillsides, they will not find sufficient insect life or green feed to supply their needs and must be fed almost as if in confinement. Extension Bulletin No. 2 of the Rhode Island station describes the ideal turkey range as "a high, open and somewhat rolling pasture land, bordered on one side at least by woods and having a thin overgrowth of grass, with brush and brier patches along the walls. The soil should be light and well drained, and the area should by preference have a southerly slope. A few low-branched trees, for roosting purposes and shade, and a brook or spring add value. On the whole, better results can be obtained on a small fenced range, not far from the house, than on an unlimited range extending to remote districts. A fenced range consisting of about six acres of field or pasture devoted exclusively to the birds is sufficiently large for the raising of about 100 poults to the age of six months."

Several seasons ago I visited a woman who was having unusual success with her turkeys, and she had raised about 60 on an acre and a half. She took care, however, to make this into real green range by planting grain and letting the cows nibble it off, so that there was always new, tender growth for the poults.

Avoid Inbreeding

Young breeding stock is preferred by most breeders. Early hatched turkeys are usually sufficiently mature for use the following year. Late hatched and slow growing birds should never be kept for breeders. Mate a vigorous, well grown cockerel to early hatched pullets or yearling hens. Yearling toms may be used, but their greater weight and clumsiness makes them less desirable than the younger birds. Older birds are likely to be overfat, with resulting infertility.

Fifteen hens may be safely mated to one vigorous tom. If a larger number of hens are kept, two toms should be used. Some breeders prefer to use two toms with 15 hens in order to insure fertility. When two are used the best practice is to run one with the hens one day and the other the next.

Inbreeding with turkeys is nearly always disastrous and should be carefully avoided. When hatching eggs are purchased make sure that they are laid by hens mated to an unrelated tom. Inbreeding weakens the constitution and makes the young birds, which are delicate at the best, liable to any and every disease. It is quite probable that the decline of the turkey industry is due very largely to inbreeding. The turkey is still too wild in its nature to survive the careless breeding to which chickens have become accustomed.

Feed Breeders Carefully

"Good breeding condition," says Circular 791, "means being well fleshed but not fat. Given free range where there is ample supply of natural feed during the winter and early spring, such as is usually the case in the southern portion of the United States, a good daily feed of grain, preferably oats or wheat, is sufficient to keep the birds in good condition. The natural feed of turkeys at this time of the year consists largely of grass, tender buds, young leaves, insects, and nuts and seeds of various kinds. During the winter northern turkey raisers usually feed twice a day on equal parts of oats, wheat and corn, with vegetables such as potatoes, turnips, beets and cabbage as a substitute for green feed. Free access to grit, charcoal and shell forming material, such as oyster shell, is necessary throughout the breeding and laying season.

Setting the Hen

Turkey eggs may be hatched by turkey hens, by chicken hens, or by incubators. Opinion is divided as to which makes the better mother—a turkey or a chicken hen. The Rhode Island station prefers chicken hens because they are more devoted mothers, in spite of the fact that their very devotion leads them to overfeed the poults if they have a chance. Many breeders prefer to set the first clutch of eggs under a chicken hen and break up the turkey hen when she goes broody so that she will lay another clutch. The average number of eggs in the first clutch is about 18, in the second about 12 and in the third about ten, though there is considerable variation in egg production of different hens. The turkey hen may be set on the second clutch or broken up again and set on the third. A chicken hen can cover from eight to ten turkey eggs, a turkey hen from 15 to 18.

Turkey hens are always set on the ground, and chicken hens should be, if possible. The nest is hollowed out just enough to prevent the eggs rolling out and covered with a thin layer of straw. Over the nest is set a roomy coop to keep the hen from being disturbed and to protect her from sun and rain. Turkey hens do not ordinarily come off for feed and water more than once in two or three days, but should be allowed to come off when they wish. If a hen does not come off herself, she should be taken off every day or so. Whole corn, fresh water and grit should be always accessible.

Whether the sitter is a turkey or a chicken hen, she should be well dusted for lice before she is placed on the nest and once a week for the first three weeks of incubation. Turkey eggs require 28 days for incubation. The ground about the nest should be sprinkled occasionally in dry weather,

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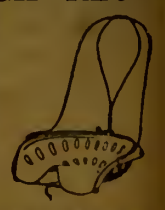

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and the eggs may be sprinkled on the twenty-fourth day. After that the incubator should be kept closed and the hen left to herself.

Breeds of Turkeys

Six varieties of domestic turkeys are recognized by the American Standard of Perfection: the Bronze, White Holland, Bourbon Red, Black, Narragansett, and Slate. Their popularity is in the order in which they are named, that of the Bronze far exceeding all the rest. The White Holland is much liked by those who prefer a medium sized turkey and the Bourbon Red is popular in some localities. Wild turkeys are still found in unsettled portions of the United States, especially in the mountains of Texas, and are in great demand for improving the vigor of the domestic birds.

Poultry Queries

Conducted by J. A. Koethen

Inbreeding Turkeys

Will you kindly tell me in the columns of your valuable paper whether inbreeding in turkeys would cause club feet and a predisposition to disease.—Subscriber, Jenner.

The direct result of inbreeding is a weakened constitution in the next generation, and a weak constitution, or lack of vigor as it is termed in the feathered tribes, predisposes to all kinds of diseases. Whether inbreeding could produce club feet would depend on whether there were club feet among the parent stock. Inbreeding intensifies any weakness or imperfection, but I do not see how it could produce club feet unless there were club feet already in the ancestry. The principles of breeding require the use of the most perfect specimens of their kind as parents, whatever the kind may be, and imperfection in one parent must be offset by perfection in the other as regards any given point. The turkey degenerates so quickly when inbred that inbreeding is never practiced by scientific breeders.

Fatty Degeneration of Liver

In several chickens we have killed we find the liver almost white. What is the cause?—Subscriber, Perris.

Your chickens have either fatty degeneration or atrophy (wasting) of the liver, due probably to lack of variety in the feed, and perhaps also to lack of sufficient green feed. Let them have a mash containing several kinds of ground grain and protein feeds, such as the following, which is recommended by the poultry department of the University of California: 5 pounds bran, 5 pounds shorts or low grade flour, 3 pounds meat scrap, 2 pounds soy bean meal, 5 pounds ground barley, ½ pound charcoal, 1/10 pound salt. Give them as much range as possible, and all the greens they will eat. A dose of Epsom salts once a week (½ teaspoonful for each bird, mixed in moist mash) or 1 to 2 grains bicarbonate of soda daily for each bird in the drinking water may be given to improve the digestion.

Coccidiosis

I was brooding about 1,300 chicks when they were four weeks old. All seemed to go well up to this time except the two or three days previous when they seemed somewhat languid and their combs were not quite as red and there was just a slight indication in the droppings that a few of the birds might develop coccidiosis. This was noticed on Friday 27. The following day 45 died; the next, 180, and the following about 250, and today 40. They all seemed to suffer intensely and would go into convulsions and finally draw their heads far back at the time of death. These chicks had been fed a commercial chick scratch twice a day, morning and night, and were getting about three gallons a day at this time and fed a dry mash consisting of one-half bran and one-half of egg mash at 9:30 and 12:30. They were given lactein altogether as a drink and at this age were getting about a 2½ to three per cent solution. On Friday on account of the evidence of a little cold of a few and their droopy condition they were given permanganate of potash to drink. Then on Saturday on account of the evidence of coccidiosis I gave them a ten per cent solution of lactein. While we have checked the ravages of the disease by the use of a prescription from a local feed man we are wholly at a loss to know what has caused our trouble, hence do not know what to do to avoid a repetition of same. When opened it was found that the entire intestine was inflamed and in some instances the liver was a little dark and the gall so green as to discolor the organs adjoining. My first conclusion was that they had been poisoned by the combination of the permanganate and the lactein. But this theory has been exploded as a neighbor has lost 150 or more in the same way and he had not used permanganate at all and fed the lactein intermittently. All feed given by me had been taken from the same lot from which I had been getting my supply for the previous ten days or two weeks.—Subscriber, Van Nuys.

Dr. Salmon says coccidia are parasitic organisms of microscopic size and "are brought on the premises with birds or with eggs for hatching obtained from infected flocks or by pigeons flying from place to place." I doubt if even the experts fully understand the causes of the disease, but there seems to be only one cure, that is, buttermilk or sour milk. Circular 162 of the University of California, which should be in the hands of every poultryman, says: "Feed a small amount of grain night and morning. Feed mash during the middle of the day, never leaving it before the chicks longer than two hours. Feed greens as usual. Keep buttermilk in fountains constantly before the chicks." If care is taken to give only a little feed, other than the buttermilk, improvement will be noticed in three or four days and all signs of the disease will have disappeared in from two to four weeks. Chicks should be put on new ground if possible and all dishes and utensils kept scrupulously clean.

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Are the S. C. White Leghorns a pure breed of birds? After being trap nested a few years and showing any other color, are they pure?—E.

There is said to be a considerable intermixture of Minorca blood in many of our California White Leghorns. If black appears in the white plumage it can usually be explained as a "throwing back" to the Minorca strain. If any other color appears it would cer-

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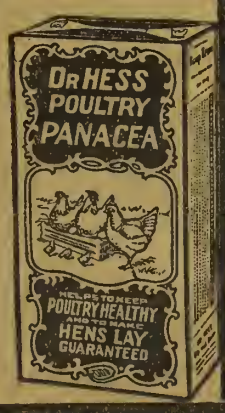

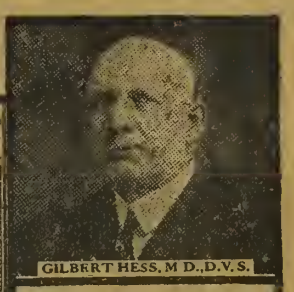

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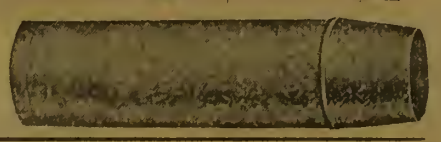

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tainly indicate a cross of some sort, for the White Leghorn has been bred for many years and is unquestionably a pure breed.

Imitation Worms

An Orange reader, Mrs. Geo. E. Osmun, writes: We were much interested in your remarks on page 414 in March 6 Cultivator. Your system is as near that which we have used for several years as may be in case of two parties who have never met nor corresponded. We do not dig the worms—have not time nor strength—but get a little liver, put some on a board with plenty of carpet tacks, hang board up on side of coop and let them go to it. Later get some tougher meat, cut in pieces and watch the tugs of war. Our hatch this year was 96 chicks from 114 tested eggs. Three died, balance are a week old today. We enjoy your remarks from time to time—don't always agree, but—.

New ideas are always appreciated in this column. That is what we are here for. There are as many methods of raising chicks, I verily believe, as there are folks who raise them, and no "best method." Keep them clean and warm and interested, give all possible exercise, feed an abundance of wholesome food, don't let them crowd at night. There you have it in a nutshell. As to the worms, I must admit my time and strength did not last and I had to fall back on beef scrap.

Rheumatism

Two months ago R. I. Red hen's leg swelled from knee to toes. It looks inflamed and is almost a third larger than natural size. It does not seem to be sore to the touch. We tried two kinds of healing salve on it, but could see no benefit. She eats well, is lively, has laid some since affected. The only thing wrong otherwise is one eyelid somewhat swollen. A few days ago we noticed the other leg beginning the same way. We then painted them both with iodine, which does seem to improve them a little, but not much. Will you please tell us what the trouble is and what to do for it?—Subscriber, Lindsay.

Dampness in house or run or exposure to rain or wind is responsible for rheumatism, which is undoubtedly what ails your hen, and the cause must be removed before you can hope for a cure. Put the affected bird in a warm, dry place and feed her mainly on greens and bulky food such as bran. Painting with tincture of iodine twice a day, very lightly, is the best external treatment. Give a dose of Epsom salts, 20 to 30 grains, followed the next day by common baking soda in the drinking water, a teaspoonful of soda to a quart of water. Bathing the legs with a liniment made of half a cup each of turpentine and vinegar with a heaping teaspoon of saltpeter added is sometimes recommended, but the disease is hard to cure and your main reliance must be on improved environment.

Standard for R. I. Reds

Can you tell me the markings and different points of the dark Rhode Island Red roosters and hens; also what would be a fair price for them? —Subscriber, Santa Barbara.

Standard weights for Rhode Island Reds are as follows: Cock, 8½ pounds; cockerel, 7½ pounds; hen 6½ pounds; pullet, 5 pounds. Disqualifications are: Positive enamel white covering more than one-fourth of earlobes; one or more entirely white feathers showing in outer plumage; shanks and feet other than yellow or reddish horn. It is impossible for me to give here all the points, which cover nearly four pages in the 1915 Standard of Perfection, but in general they are: Color: General surface, rich, brilliant red, except the primary wing feathers and primary coverts, which are black edged with red, the secondaries, which are part red and part black, and the tail, which is different in male and female. In the male the main tail is black, sickle feathers black or greenish black; coverts, mainly black, red as they approach the saddle. In the female the tail is black, but the two top feathers may be edged with red. Shape: In both male and female the head is medium size, carried horizontally and slightly forward; beak, medium length, slightly curved; eyes, large, oval, and in the male, prominent; comb, single, medium in size, set firmly on head, perfectly straight and upright, with five even and well defined points, those in front and rear smaller than those in center. In the male it is of considerable breadth where it joins the head, blade, smooth, inclining slightly downward but not following too closely the shape of the head. Neck: Medium length, in both male and female. In the male the hackle is abundant, flowing over shoulders, not too closely feathered. Back: Broad, long, carried horizontally. In the male there is a slight concave sweep to tail, and saddle feathers are of medium length and abundant. Wings: Of good size, well folded, carried horizontally in the male and nearly horizontally in the female. The fronts, in the female, are well covered by the breast feathers. Breast: Deep, full, well rounded. Body and fluff: In both male and female the body is broad, deep, long, straight, extending well forward, giving body an oblong appearance; feathers, carried close to the body; fluff, moderately full. Tail: Male, of medium length, well spread, carried at an angle of 40 degrees, thus increasing apparent length of fowl; sickles, of medium length, extending slightly beyond main tail feathers; smaller sickles and tail coverts, of medium length, well covered with soft feathers. Tail, female, medium length, moderately spread, carried at an angle of 35 degrees. Shanks and toes in the male; shanks of medium length, well rounded, smooth, set well apart; toes of medium length, straight, well spread. Legs and toes in the female: Thighs of medium length, well covered with soft feathers; shanks of medium length, well rounded, smooth; toes, of medium length, strong, straight, well spread.

What is a fair price for fancy stock depends entirely on how many ribbons it has taken. I know of a cock that sold for $75, and there are many higher priced. A blue ribbon bird ought to be worth $25, but it depends on what the competition was in the show where it took the ribbon. Where there is no competition a blue is not worth very much. Most breeders are glad to get $10 for anything but an exceptional bird. If you have no ribbons do not expect a fancy price for your stock.

W. L. Cockerel

Please tell me how old a cock should be before he is used for breeding purposes, if he is a White Leghorn.—Subscriber, Hemet.

A White Leghorn cockerel hatched in early spring should be ready for breeding in the fall. I have had good fertility from a Rhode Island Red at eight months or even a little younger, but it is better not to use a bird for breeding till he is nine months old.

Raising Chicks and Turkeys

Kindly let me know where I can get instructions for raising turkeys and baby chicks.—Subscriber, Santa Monica.

Circular No. 99, published by our own agricultural experiment station at

Berkeley, contains full directions for raising chicks in a brooder and also with hens. I presume it can still be had on request. There is also a very good bulletin (No. 2) of the Connecticut Agricultural College at Storrs, and another (Circular 17) of the Iowa station at Ames, which have also been sent free to all applicants. I cannot say, of course, whether or not they are still in print. For a very helpful discussion of turkey problems write the Rhode Island Station at Kingston, R. I., for Extension Bulletin No. 2 on "The Rearing of Turkeys with Special Reference to the Blackhead Disease." Farmers' Bulletin 791 of the U. S. department of agriculture on "Turkey Raising" also contains a good deal of information. I am hoping to give next month in this department some of the methods of successful California turkey breeders.

NATIONAL EGG LAYING CONTEST

By T. W. Noland

The 300 contest hens at Mountain Grove, Missouri, laid 5,340 eggs during February, or an average of 17.8 eggs per bird. Pen 25, Barred Rocks, New York, won the cup by laying 120 eggs during the month.

Ten Leading Pens for February

Barred Rocks, New York, 120 eggs; S. C. Reds, Alabama, 118; S. C. Reds, Missouri, 116; Barred Rocks, Missouri, 109; S. C. Reds, Missouri, 109; R. I. Whites, Missouri, 109; S. C. White Leghorns, Illinois, 108; Anconas, Missouri, 107; Columbian Rocks, Missouri, 107; S. C. White Leghorns, Missouri, 106.

Ten Leading Pens to Date

S. C. Reds, Alabama, 435 eggs; Barred Rocks, New York, 426; S. C. White Leghorns, England, 410; S. C. Reds, Missouri, 410; White Wyandottes, Missouri, 406; Buff Orpingtons, Missouri, 406; Columbian Rocks, Missouri, 388; S. C. Reds, Missouri, 369; Barred Rocks, Canada, 356; Buff Orpingtons, Missouri, 353.

Five Leading Individuals to Date

Barred Rock, New York, 108 eggs; S. C. Red, Alabama, 103; S. C. Red, Alabama, 103; S. C. Red, Alabama, 103; S. C. Red, Missouri, 103.

Hens Laying 25 or More Eggs

One Barred Rock laid 26 eggs; three Barred Rocks laid 25 eggs; one White Wyandotte laid 26 eggs; one White Wyandotte laid 25 eggs; one S. C. Red laid 26 eggs; six S. C. Reds laid 25 eggs; one R. I. White laid 25 eggs; two Buff Orpingtons laid 26 eggs.

Sales value of eggs average bird for February, 72 cents; sales value of eggs average bird to date, $2.62; sales value of eggs best pen for February, $4.60; sales value of eggs best pen to date, $24.87; average price received for eggs during February, 46 cents per dozen.

USE OF BEST LAYERS TO HEAD BREEDING STOCK

The most certain method of improving the egg production through breeding is to use only males that are the sons of known high producers. Males from hens which have laid more than 200 eggs in one year are of special value in transmitting the high producing character to the pullets. Since the male furnishes half of the blood for the flock, much care should be used in choosing him. Farm poultry keepers can afford to pay a good price for a vigorous male from a heavy laying strain. Unfortunately, not nearly enough males from trap nested stock are available to supply the demand for such birds.

Where a pedigreed male cannot be obtained the next best plan is to choose from a good producing flock an outstanding, scrappy male with strong vitality. No proven method of picking out by physical tests has yet been perfected, but vitality and egg production are closely linked, and no male showing a weak constitution should be tolerated as a breeder. The strongest males can be easily detected by the marked evidences of masculinity, such as gallantry toward the hens, fearlessness in fighting and a persistent tendency to crow lustily. The boss of the hen yard is usually the best breeding male.

A well matured cockerel usually gives better breeding service than an older male, though good results can be obtained with strong yearling cocks. Many breeders use the same males to head the breeding flock for two successive years.

Where a valuable male is secured for the breeding flock it is desirable that he be mated to the maximum number of females. The number of hens that can safely be allotted to each male depends to a certain extent upon breed and vigor of the male. A strong, fully matured cockerel of medium weight breeds such as the Plymouth Rocks, Wyandottes and Rhode Island Reds can safely be mated with from 20 to 25 hens, while with the lighter breeds, such as Leghorns, one male will furnish good fertility when mated with from 25 to 40 hens.

MOVIES IN BABYLON

It sounds almost as contradictory as a snowstorm in August, but it's true. Wherever the British Tommy goes, the cinema must soon follow, and now that the British troops are established in the Near East, the moving picture theater has become a regular institution throughout the Mesopotamian cities. But what a strange turn of the wheel that Babylon, the city of perhaps the oldest civilization of the world—Babylon, which was ancient when Rome was founded, should now be applauding the movie stars.

It would be interesting to stand aside and watch the crowds that surge into that movie place—Jews, Persians, Arabs in all the splendor of their rich draperies, and riotous British soldiers.—Everyland.

NOT SO HARD TO UNDERSTAND

A teacher who believed in cooperating with the parents of her pupils called at the home of a small boy whom she had caught in a number of falsehoods in order to take counsel with his mother.

"I can't see how you can say that," the boy's mother objected. "John never tells me lies. I'm mighty particular about it myself. He's out in the yard now. Annie," she said to his small sister, "you go out and tell him to come right in this minute!"

Annie went, but in a few minutes she returned without the small prevaricator. "He won't come," she announced proudly. "He says he won't."

"Did you tell him who was here?" inquired his mother.

Annie shook her head.

"All right," said the truthful parent. "Go back and tell him his grandmother's here and has some candy for him. That'll bring him!"—Youth's Companion.

A considerable number of farmers in the Salt River Valley are contemplating the raising of broom corn the coming season. It has been demonstrated that this is one of the crops that may be produced successfully and with the present prices ranging from $50 to $400 per ton and two crops per season, some farmers believe that it will be fully as profitable as cotton.

The federal court has ruled that homestead lands within the Salt River Valley reclamation project upon which proof of residence has been accepted, but on which no final certificate of patent has issued, are taxable by the county.

It is reported that a company has been formed in Mohave County, Arizona, for the development of about 60,000 acres of land by irrigation. The plan calls for a dam on the Virgin River near Littlefield.

Yearling steers have been contracted for at $47.50 per head. Probably this is the record price in Arizona.

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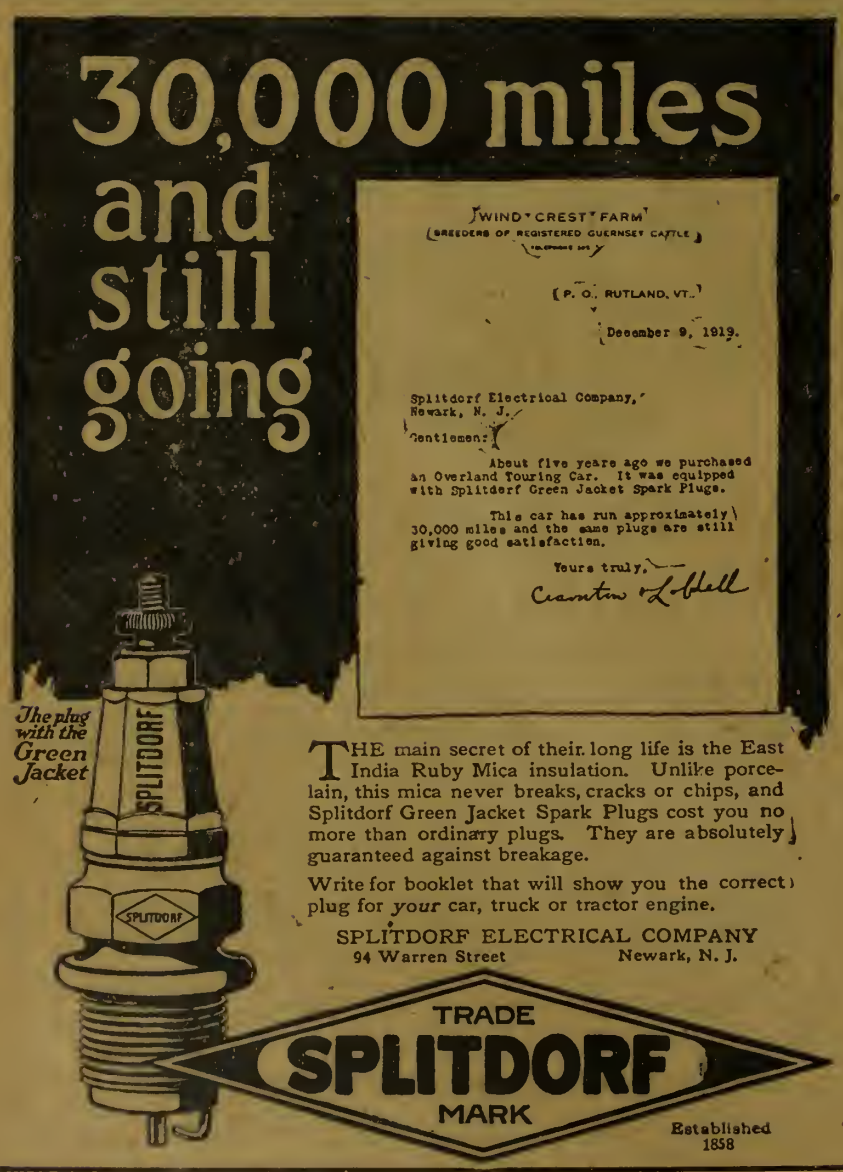
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Watch for Moldy Grain

Many diseases of poultry are brought about by the feeding of grain that is moldy or smutty. The best known of these is aspergillosis, which is caused by the growth of the mold spores which have been taken into the throat and crop with the feed. Young chicks are especially susceptible to it. Dr. Salmon thus describes the course of the disease:

"When the air tubes or lungs are attacked the first symptoms are a slight catarrh with accelerated breathing. Soon the swellings obstruct the passage of air and there is a rattling or croupy sound heard chiefly during expiration. The affected birds mope, separate themselves from the remainder of the flock, or remain in a sitting posture; if made to move it is seen that they are weak and scarcely able to walk, and if they try to run they soon fall from exhaustion. The difficulty of breathing increases rapidly, they gasp for breath and make movements of the head and neck, as if choking; there is fever, diarrhoea, drooping wings, great depression, a tendency to sleep, and finally suffocation and death.

"When the disease is limited to the large air sacs the only symptoms are progressive loss of flesh and weakness. If the small air sacs of the bones are involved, which rarely occurs, there may be lameness, with swollen and inflamed joints. After death the yellowish nodules are sometimes found in the liver and kidneys as well as in the other organs which have been mentioned. The symptoms in brooder chicks are similar to those of white diarrhoea."

I. H. Severance of Cowell, commenting on the answer to a Willows subscriber in the Cultivator of February 14, says: "I saw a case much the same in Kings County, cause, mold in the Gyp corn and smut in the wheat. One hundred sacks of that wheat were taken to the grist mill and ten sacks of dirt were taken out of it. After that there were no more dead hens." In this case there were no such symptoms as have been described above. The hens were apparently in perfect health one day, went to roost with darkened combs that night and the next day were dead. The poison, whether mold or smut or both, worked rapidly.

The only cure for diseases due to mold is prevention. Once the spores have begun to grow, death is only a question of time. Keep your feed sweet and clean if you would avoid such troubles.—J. A. K.

Farm Bureau Egg Laying Contest

The third month of the contest at Santa Cruz ended on the night of February 15. For the month the flock as a whole laid 43 per cent, while the highest pen laid 70 per cent and the highest hen 90 per cent. The average consumption of feed per hen for the month was three pounds of mash and 3.38 pounds of grain. In addition to this the hens consumed approximately 3.5 pounds of greens per hen for the month. For the benefit of those who have inquired, below are given the feeds used and the method of feeding:

Dry mash: 50 pounds mill run, 15 pounds meat scrap, 50 pounds ground oats, 10 pounds linseed meal, 50 pounds middlings, 10 pounds soya bean meal, 15 pounds fish scrap, 5 pounds granulated charcoal, 1 pound fine salt. Grain mixture: Equal parts by weight of wheat, white Egyptian corn, whole barley, cracked Indian corn.

The dry mash is kept before the hens all the time, while at noon each day there is fed a moistened portion of this same mash at the rate of two pounds per 50 hens (dry weight). The grain is fed in a litter of straw at the rate of three pounds at night and two pounds in the morning per 50 hens.

Leading records up to the night of February 21, the end of the fourteenth week, are as follows:

High pens to date: Walls, 584 eggs; Neef, 517; Rose, 516; Enterprise Ranch, 503.

High hens to date: Walls, 86 eggs; Walls, 73; Hollis Peck, 73; Geo. Barker, 71; R. C. Gibson, 71; Enterprise Ranch, 71.

Highest pens for week: Bellows Bros., 53 eggs; Amsbaugh, 50; Wood, 48; Enterprise Poultry Ranch, 47; Rose, 45.

Hints for Rabbit Raisers

Answering request for information as to keeping and care of rabbits, A. C. Freeman writes:

"I take it that doe has been bred two weeks and that she has a hutch not smaller than ten square feet. Place a nest box in one corner of the hutch. In this cut a hole five inches wide and eight inches long, leaving about two or three inches at the bottom so the mother will not drag the little fellows out of the nest after nursing.

"During the two weeks before kindling keep the doe as quiet as possible and give her extra good care. Feed plenty of greens before and after kindling and sparingly a few days after the young are out of the nest, then plenty greens the rest of their lives. This will cheapen your feed bill and is one of the natural feeds for rabbits. We use the automatic hay rack system and keep alfalfa hay before them at all times. At night we feed a mash made of equal parts rolled barley, rolled oats and sour milk. Once a week season with table salt.

"Three days before the doe is to kindle put wheat straw into the nest box and also some in the hutch so she can arrange her nest to suit herself. A few hours before kindling she will line this with hair pulled from her body. At this time be sure to have a good supply of water in the hutch and there will be no danger of the doe eating the young.

"On the second day inspect the young and kill all but six, of course doing away with the smallest ones. This is one of the secrets of good rabbit culture. When the young are 15 days old clean out the nest and put in new clean straw. When they are five weeks old take the nest box out of the hutch, making more room for the little fellows.

"You can again breed the doe when the young are six weeks old and wean at seven weeks, giving the doe three weeks to herself. If the little fellows are to be raised for breeding stock better separate the sexes at this time but if for market this is not necessary.

"Never use a buck or doe under seven months of age and by all means use pure bred stock and you will have very little trouble raising rabbits.

"Now let me impress on your mind that rabbits must be fed regularly, the hutches kept clean and the stock kept from drafts. We find the self-cleaning hutches the best in the long run."

CLUB WORK HELPS BOYS WIN

Club work and club associations uts something into the blood of farmer boys that helps them win, say those familiar with the records of members. In Kent County, Delaware, the farm bureau last year adopted "1,000 members for 1920" as its slogan, and assigned to each neighborhood the number of members it was to obtain. Houston community was the first to exceed its quota of 40. It obtained a total membership of 51. The relationship of club work to this record lies in the fact that 26 of the members were obtained by one farm lad who began his club work in 1915. As a reward for his efforts this boy will have his expenses paid to attend the Delaware college short course. At the last state fair this club member's Holstein heifer won a blue ribbon, and out of 11 entries in the grain and vegetable section he captured ten first premiums, one third, and a state championship.

Household Department

BOOK FRIENDS

Good books are "really truly friends,"
They help us in our play,
They teach us how to live and work
And how to pass the day.

Companions they may always be
Whenever we're inclined,
And by the books we like to read
It's fair to judge our mind.

Some books have memories, oh so long—
They tell us of the time
When knights and ladies walked about
And often talked in rhyme.

They bring us friends we cannot lose
Who come to be so dear
That books who introduce such folks
We look for far and near.

So choose the books that help you live
To make your love more deep,
That after you have read them through
You're glad are yours to keep.
—Ethel R. Peyser in Everyland.

THE TWO PRETENDERS

(Continued from last week.)

By this time Victor was sitting bolt upright, listening as hard as he could. But there was a long pause.

Then the Interne went on. "When he told me that yarn about his mother—"

"That's nothing," Miss Jimmy interrupted, "I've written letters to her."

"The deuce you have!"

At that Victor flopped down and buried his face in the pillows and pulled the covers up over his head.

So Miss Jimmy had known it was a lie, and the Nicest Interne and everybody. His mind was in wild confusion. This old gentleman was his grandapa, and his own brave papa had been a liar. Worst of all, he himself had lied to his granpapa.

"If Jacques was here," he confided to his pillow, "He'd know what for me to do."

He lay there a long time trying to think. His pillow grew hot and wet, and in his mouth was the bitter salty taste of tears. In his heart one definite desire was shaping itself—to escape from them all and to go back to Jacques, for this about his grandpapa concerned Jacques, too. And Jacques never told lies. At last the awful thought came to him that perhaps it was morning already, morning when his grandpapa would find out how he had lied and lied. So very cautiously he uncovered his head and peered out. Everything was quiet. The exit lights made dim pools of red in the duskiness of the corridor. Outside the open window the stars blinked down at him coldly. Something bright on the table caught the light.

Then he remembered—it was his splint, his new brace, and the strange, frightful thing on the chair by the table, that was his clothes! Miss Jimmy had put them there so she could help him dress in the morning. A plan flashed into his brain.

"I will run away!"

It took so long to unfasten the weight from his leg and to lower it gently to the floor, so it would not bang, that he was almost in despair. Surely it would be daylight before he could dress himself. With feverish haste he slipped his trousers and coat over his nightshirt, put on his shoes and was just tugging at the straps of the new brace when he saw Miss Jimmy coming. He dived under the covers and lay very, very still. As soon as he dared, he slipped out of bed, found his crutch, and dragging it with him, crept slowly on his hands and knees toward the stairway. A board creaked once, and it set his teeth to chattering so, it seemed to him everyone would be crying out to know what was the trouble. Still on he crawled, down the long stairway.

As he reached the foot of the stairways, there was a subdued commotion. There must have been an accident. An ambulance had brought some injured people to the hospital. Victor had barely time to dart into an alcove and flatten himself against the wall, when the hall was suddenly busy—nurses, porters, internes, hastening here and there. At the sight of Dr. Coles, a lump came in his throat and for the fraction of a second he doubted the wisdom of his adventure. But he peeked out of the alcove, and saw that the door of the operating room was closed, and all was quiet again. Stealthily he made his way to the great door, raised himself up, balancing with difficulty, and tried the knob. It turned, and he let himself out, holding his breath until the door was closed.

He felt very small, very lonely. The lights in front of the hospital shone down on him mercilessly. A cold wind cut through him, but he must hurry, hurry. He never knew just what happened as he started down the steps—there were five of them—somehow he stumbled or slipped, and with a thud he landed in a heap on the pavement. The noise sounded as terrifying as the thunder of a cavalry charge—he knew that his cause was lost. But strangely enough, no one heard him. After a moment of anxious waiting, he commenced to take account of the damage the fall had done. He was bruised and battered and his beautiful new brace was broken. He picked up his crutch and hobbled away. If he could reach the depot and take the six o'clock train for Basalt, he would be back with Jacques before evening. His return ticket, of course, was in his coat pocket. He felt for it, then he remembered that Miss Jimmy had put it away for him. Everything went black around him.

It was not until Miss Jimmy came to take his temperature, at six o'clock, and found his little white bed empty, that he was missed. Then there was hurrying and scurrying and searching. Presently there was telephoning, and a policeman, and a regular detective, but all in vain. There was the Old Aristocrat, crosser than ever, and suspecting everyone of foul play. There was Miss Jimmy, with a sob in her throat, and swollen eyes, and Dr. Coles, so nervous and puzzled that no one dared to speak to him.

The morning of the third day Jacques appeared at the hospital. Jacques, clear-eyed and confident, with the sureness of success that belongs to a boy of twelve.

"Aw, I'll find him all right," he told Dr. Coles. "I'll find the kid before night."

But by evening Jacques did not feel so confident. He had hunted all day long, but never a sign of Victor could he find. He came back to the hospital, his shoulders drooping, his forehead tied in a knot. They asked him to eat with the nurses, but the food all tasted like dust and ashes, and he choked when he tried to swallow, so he slipped away from the table and wandered out on the front steps. Then Dr. Coles came out, and when he saw Jacques, he held out his hand. Jacques took it, and Dr. Coles pointed to his large brown car, just in front of them.

"Come with me," he said, "I'm going to the smelter—there's a man hurt, and I am going to patch him together again."

It was several miles to the smelter, but the car seemed to eat up the road in a minute, and Jacques was left with only his own black thoughts, and what was fast becoming wild horror in his heart. Dr. Coles soon came back to the car.

"The man wasn't badly hurt," he told Jacques. "I glued him together in no time."

But Jacques was in no mood to be amused. It was drizzling. How did he know but Victor was wandering around in the rain, wet, hungry, cold? Never in his life had Jacques felt so lonely before, so utterly hopeless. Even when his mother was dying, she had turned to him with a smile and whispered, "Jacques, now it will be for you to take care of your brother."

So, mixed with his sorrow was pride because she had trusted him. For two years he had been faithful to that trust, and the task had kept him so busy he had never guessed that he deserved either pity or praise. But the years had left their mark on him—he looked too shrewd, too much a man of the world, until he smiled. Then you saw that his mouth could be infinitely tender. But tonight Jacques was in an ugly mood, and he jerked his cap over his eyes and hunched down in the seat, shivering. The drizzle had turned to rain, and the road, which an hour before had been ankle deep with dust, was getting treacherous. The car wasn't flying along any more.

"Might I will never to find Vic, and then I'd rather be a dead one myself," groaned Jacques.

"Huh?" asked the chauffeur, and all at once the heavy machine skidded and swerved from the road like a

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Coming Thro' the Rye
America
Home, Sweet Home

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Baldwin unconditionally guarantees every instrument produced. We can do this because every Baldwin-built piano and player-piano is made in its entirety in our own factories. We *know* that it is right before it goes to you. You know what you are getting when it comes from Baldwin. The Baldwin line consists of the Baldwin, Ellington, Hamilton and Howard Pianos—and the Manualo, "the player-piano that is all but human". There is a Baldwin dealer near you.

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Send me your free song book "Songs of Long Ago."
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Street or R. F. D.....
City and State.....
Would you like to have a piano or player-piano?.....

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There is no mystery to Mohawk mileage. It is the most natural mileage possible.

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The fabric in Mohawk tires is the toughest fabric made from the strongest cotton it is possible to buy. Most sizes of Mohawks contain an extra ply of fabric.

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There will be a Serious

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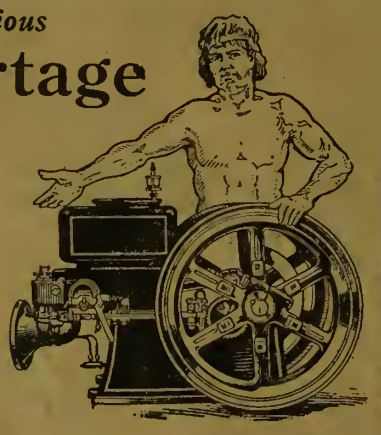

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SAN FRANCISCO — TAFT — LOS ANGELES

"SOME MILES"

WHO ITHS TA BLAME NOW DADDY!?
BABY HAS A NEW TOOTH,
AND ANOTHER ONE IS COMING,
SHE CUTS HER TEETH ON "HORSE SHOE TIRES"
BUT IT DON'T KEEP THEM FROM RUNNING!
Smith

For a long hard run—use Horse Shoe Tires

When Writing Advertisers, Mention the Cultivator.

crazy thing. It woke Jacques from his moping like the crack of a whip. He was alert, steady. He knew in a flash that he had been a coward to think of giving up. He wanted to live, to hunt all over until he found his brother.

Every detail of the landscape was impressed indelibly on his brain. Above them, on the hillside, was an old tumbled down shack, with a crooked little column of smoke coming from the rickety stovepipe. A child was peering out of the half-open door, as though he, too, were looking for his brother.

All this passed through Jacques' mind in one instant, for the car, as it swerved, seemed to gather speed, and before anyone had a chance to realize what was happening, it leaped across a ditch and up a little embankment and against a fence with a crash. The boards of the fence splintered, but a stout cedar post held, and with a quiver and a groan the car stopped. But Jacques was thrown far from the car, and lay, a limp little heap, among the rocks, with the rain beating down on his still, white face. Another second and Dr. Coles was kneeling beside him. The chauffeur was kneeling there, too, looking not at Jacques, but at the surgeon's face, trying to read there the answer to the question he could not bring himself to ask. So neither man saw the little figure slip from the doorway of the shack, and like some timid rabbit creep down the hill, coming closer and closer to the wreck of the car, and straining his eyes through the dusk, to see what lay huddled beyond.

The sound of an auto horn and a sudden flash of light from out the smelter road, and the little rabbit burrowed for cover, under the edge of a convenient boulder, while Dr. Coles straightened up.

"Allan," he said to his chauffeur, "tell them to stop. We will take this boy to the hospital."

He stooped down and lifted Jacques gently, deftly, and carried him to the road. The little rabbit bobbed up again.

It was when Dr. Coles was lifting Jacques into the car that the watcher in the shelter of the boulder saw what he had been waiting for. With a fierce cry he made a dash for the road, but the cry was drowned by a gust of wind and the racing of the engine. He found himself standing alone in the muddy road, looking at the lights on the rear of the fast disappearing car.

Not for a second did he hesitate. Down the road after it he went, hobbling, hopping, trudging, jerking along—a woebegone, brave little figure. Often he fell down, but always he clambered up and pushed on, never making any outcry, or stopping to brush away the tears that rolled down his cheeks. His white teeth were set hard together. One hand gripped his crutch, the other was clenched so that the finger nails dug into the palm.

A mile is a long way when your heart is all but dead within you and you see no hope ahead. But at last, even before the hospital lights came into view, the familiar smell greeted his nostrils—that indescribable mixture from which you can sometimes identify the sickening sweetness of ether and the unbelievable pungency of iodoform. Victor sniffed it eagerly, and in a minute had stumbled up the steps and was ringing the bell furiously. He pushed past the boy who opened the door, no thought of decorous conduct in his mind. One glance down the hall and he spied the Nicest Interne. He tried to shout to him, but his voice was scarcely a whisper.

No one heard what he said, but in two strides the Nicest Interne was beside him.

"Old man, Vic, old man," he cried, "you've come back!"

Jubilantly he swung the mud-covered boy upon his shoulder, regardless of the immaculate freshness of his white clothes.

Then came the husky little voice in his ear, demanding fiercely "Where is Jacques? Oh, I want Jacques!"

Before the Interne could answer, he went on, "But can't you to understand? He is my Jacques—even if he is dead yet—might you could tell me where he is?"

There's nothing the matter with Jacques," answered the Interne, steadily. "He's up in your grandfather's room."

"You mean," Victor interrupted him, "you mean when the automobile broke and all—it didn't to hurt Jacques?" He laughed incredulously. "But I saw him, I tell you, so pale and dead!"

"Stop! He's all right—he only sort of fainted. We'll go up and tell everybody that you've found yourself."

They were halfway upstairs when suddenly Victor's tense little body relaxed.

"Wait!" he implored. "My grandpapa knows yet that I am a liar, does he? There isn't nothing but hate left in his heart—"

"Listen!" cried the Interne. "There is pride in his heart. He knows now and we all know, about your brave father—"

They had reached Twenty-eight. There stood Dr. Coles and Miss Jimmy but all Victor saw was Jacques, wrapped in his grandfather's purple silk lounging robe—not dead, but sitting in a big chair, drinking something out of a glass. The Old Aristocrat's face glowed when he looked at Victor, just as though a lamp had been lighted within it, and he began to blow his nose ostentatiously. Miss Jimmy made a queer little noise in her throat and held out her arms. Then the Nicest Interne handed Victor down to her and she remembered his eight year old dignity barely in time to keep from kissing him. Jacques was the first to speak.

"Hello, Vic."

"Hello, Jacques."

Miss Jimmy put Victor in a chair and knelt down to take off his wet shoes, but the rest began to talk all at once, asking eager questions.

"But Doc-tor," Victor answered, "I can to tell you. I said to myself, 'I will go to Jacques.' But Miss Jimmy you have my ticket. Then I say, 'I can walk with my crutch,' but my splint is broken, see, Doc-tor and Basalt is a long way."

"You didn't try to walk home, Vic?"

"Yes, Jacques, but before it was morning, even such a nice house it was I find, like nobody lived in it—but no, Dannie lives there by himself—"

"And you've been staying with him old man? But why?"

"Yes, sir, I stayed there. We're pardners. When I told Dannie how our family never has no place for a liar—I told him how I had lied so awful to my own grandpapa and everybody—"

"Stop!" cried the Old Aristocrat "You have made a mistake. Is a soldier lying, Victor Dubarre, because he smiles when he is starving? Was your papa lying when he fought on and on even though he was wounded and—dying?"

The old gentleman was pacing back and forth across the room. Now he stopped with one hand on Jacques' shoulder and looked down at Victor The little wrinkles around his eyes were twinkling.

"Victor," he went on thoughtfully, "a gentleman, I think, often needs to be a pretender. But I am tired of pretending—pretending that I did not love your father, you know—pretending that I had forgotten." Then he laughed and held out his hands.

"You and I, we are just old pretenders. Will you shake hands, Victor? Shall we be friends?"

"Oh, but Grandpapa, yes!" shouted Victor, almost upsetting Miss Jimmy as he flung his arms around the Old Aristocrat's neck and gave him a mighty squeeze.

After awhile, when Victor had been bathed and fed and was in his tilted bed once more, Miss Jimmy pushed his hair back and rumpled it as she always did when she told him goodnight. But this time he did not shut his eyes. He reached up and seized her hand in both of his and smiled at her. Then she leaned over and kissed him lightly on his forehead, just as he had always made believe she did.

"Oh, but Miss Jimmy, dear," he whispered, "all the time, now, my grandpapa and I—we tell the truth" Then he chuckled.

"Everything is now so grand, might I never will want to pretend any more!"—Successful Farming.

The value of life is to improve one's condition.

The Wonderful Green Carpet Dye

SUPERGREEN

"WITH THE POWER"

Applied with a scrubbing brush—without taking up carpet. In use in California's finest tourist hotels, apts., clubs, dept. stores, bungalows, etc. Dye your old faded, worn carpet to a beautiful rich dark green. $1.00 size does large rug. Send direct to us. Agents wanted everywhere.

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The Cultivator Patterns

BE SURE TO SEND SIZE

2917. A Pretty Gown. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5⅛ yards of 44 inch material. Width of skirt at lower edge, is about 1⅝ yards. Price, 10 cents.

3148. Girl's Dress. Cut in 4 sizes: 8, 10, 12 and 14 years. Size 10 will require 3 yards of 44 inch material. Price, 10 cents.

3145. A Simple Apron. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. A Medium size will require 4 yards of 36 inch material. Price, 10 cents.

3139. A Dainty Negligee. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. A Medium size will require 3¾ yards of 36 inch material. Price, 10 cents.

3131-2818. A Stylish Combination. Blouse 3131 Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 2818 Cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. To make the dress for a medium size will require, about 6 yards of 30 inch material with 1½ yards for the overblouse. The skirt measures about 1 2-3 yards at lower edge. Two separate patterns, 10 cents for each pattern.

3142. A Pretty Frock. Cut in 3 Sizes: 12, 14 and 16 years. Size 16 will require 4¾ yards of material 27 inches wide. Price, 10 cents.

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3149. A New Skirt. Cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. A medium size will require 3⅞ yards of 27 inch material. The width of skirt at lower edge, with plaits extended, is about 1⅞ yards. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and adreess plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest Chicago styles, all patterns orders are filled in Chicago. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

THE CARE OF THE BEDROOM

By A. M. H.

Many housekeepers are so anxious to have their rooms present a neat appearance early in the day that they spread up the beds before breakfast and thus all the impurities ejected through the pores of the human body are well tucked in. If the covers are all thrown back, the exhalations from the body will escape instead of being absorbed by the bed and bed clothes. An hour's airing each morning is sufficient, and this is easily and quickly done by placing two chairs at the foot of the bed and throwing the covers back over them and opening up the windows. In view of the fact that the average person spends about one-third of his or her lifetime in sleep, we should be extremely careful as to the place in which we are to pass this time. We must never forget that while the mind is dormant and the muscles of the body inactive during the period of sleep, the lungs are not so, and therefore we should always sleep in a pure atmosphere and everything about the room should be washable. As nearly as possible the room should be kept free from anything that would tend to contaminate the air.

To keep all receptacles for waste water in a sanitary condition wash out often with hot suds made with dissolved borax soap chips as this cleans well and is a fine disinfectant. All towels and wash cloths are kept soft and white as long as they last by washing and boiling in this hot suds and it is excellent for all cleaning in the bedroom. If feather pillows have been used for a sick person, they can be thoroughly cleaned by putting them in hot soap chip suds and rubbing on the washboard as if washing clothes. All bed coverings, either of cotton or wool, come out soft, clean and of good color by washing in this suds and rinsing and drying in the sunshine. Some persons are so afraid of fresh air and believe it is so injurious that they shut it out entirely from the bedroom at night, but with fresh air in the room the sleep would refresh and strengthen, whereas it is often restless and worrying.

KEEP THE LAMPS SHINING BRIGHTLY

A good many industrious and cleanly disposed housewives, like Aladdin of old, believe in rubbing their metal lamps. Aladdin got what he wished for when he rubbed his glim producer, but the housewife generally gets, in the course of time, what she doesn't want; namely, a shabby appearing lamp, for it doesn't take long to rub the lacquer off metal.

Lamps wouldn't be permitted to remain shabby very long if housekeepers knew how simple a process it is to re-lacquer or re-enamel them. Paint dealers, druggists and dealers in plumbing supplies sell the lacquers and enamels in small quantity containers. Directions for applying usually come with them.

If desired it is possible to make a lamp look like a new one. For instance, a plain brass lamp may be enameled in white or ivory by using the proper undercoating. Other preferred effects are as easily obtainable. So while Aladdin could get something with his lamp that the women of the present day cannot get, they may console themselves by the thought that they can do things with their lamps that he couldn't do.

HOUSEHOLD QUERIES

Mutton Tallow for Shortening

Answering query as to what to mix with mutton tallow to make a good cooking compound, Mrs. W. D. Kendall of Lakewood writes:

"We use one pound tallow rendered separately to one pound pure leaf lard, not bacon grease. Pour together while hot in stone jar or glass fruit jar. Add pinch salt while hot, seal and place in cool place. This makes excellent shortening and will last indefinitely."

TAINT'S RIGHT

Park Orator—An' I tell yer that all them millionaires' money is tainted—all on it.

Unconvinced Person—'Ow d'ye mean "tainted?"

Park Orator—Well, 'taint your'n an' 'taint mine, is it.—London Sketch.

You May Not Know Pianos But You Do Know The Piano Dealer

Few people have the expert knowledge to enable them to distinguish between one piano and another. To be sure they can tell a good tone, but they are not able to determine whether the Piano is worth the price asked. Naturally you will go to a Piano Dealer whose standing in the community is the very highest. There are always good dealers and unscrupulous dealers in every city. It is an easy matter to know the good Piano dealers. If those dealers hadn't been giving "value received" for years, they would not be known as good dealers. Your greatest satisfaction lies in the recommendation of a good Piano Dealer or House.

We invite you to call at any of our stores—or write us asking for illustrated catalogs and prices.

Dealers in Steinway and Other Pianos, Pianola and Duo Art Pianos, Aeolian Player Pianos, Player Rolls, Etc.

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Kearny and Sutter Streets, San Francisco
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Fitted With Ring Oiling Bearings

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We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

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50000 Myrobolan
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Suitable for lining out in nursery and budding this season

Wire or Write for Prices

FANCHER CREEK NURSERIES
FRESNO, CALIFORNIA

ALWAYS RELIABLE

Gombault's CAUSTIC BALSAM

SURE IN RESULTS

THE ACCEPTED VETERINARY AND HUMAN REMEDY

A RELIABLE, safe and active blister and counter irritant--is used successfully by the very best stockmen everywhere. The very fact that it is both "reliable and safe" for anyone to use is of particular interest especially to those who are not veterinarians or within reach of one; and when you consider that many of the veterinary surgeons are buying and using it, you can well believe it is a valuable and reliable veterinary and household remedy.

NOT ONLY SEE WHAT OTHERS SAY, BUT SATISFY YOURSELF BY TRYING IT

CAUSTIC BALSAM
AS A HUMAN REMEDY IS
Penetrating — Soothing — Healing

It is generally true that an external remedy that is good for the animal is also good for the human body, and **Gombault's Caustic Balsam** is no exception to this rule. In fact, we sincerely believe that there is no liniment or external remedy on the market that is as good or as safe and reliable to apply to the human body as **Caustic Balsam.** We can safely recommend it in all cases where an external application could benefit. It is also cheaper according to cost because it requires very little and that little is effective.

A Safe and Reliable Germ Killer

Caustic Balsam, applied at once to any bruise or flesh wound, as soon as it stops bleeding and is thoroughly washed, will prevent blood poison and cause it to heal at once with scarcely any soreness. Persistent, thorough use will cure many old or chronic ailments, and it can always be used on any case that requires an external application, with perfect safety, and good results.

Veterinary surgeons use Caustic Balsam. Many recommend it. Why? Because it is a safe remedy for their customers to use and it brings satisfactory results.

Never Failed To Do Its Work

I am in the saw mill business and keep from twenty to thirty head of stock all the time. I have been using your Gombault's Caustic Balsam for the last ten years and I have tried it for every known lameness and it has never failed to do the work yet. I have cured sweeny and never take them from the wagon. I have tried it on oxen's necks with good results. Hoping this will be some benefit to some stock owner,
Clarence J. Henley, Maplesville, Ala.

Information on special cases freely given. The accepted Human and Veterinary Remedy of the World.

Sure Cure For Rattle Snake Bites

Have used Gombault's Caustic Balsam for years and wouldn't be without it. It will not only do what is claimed for it, but it is also a sure cure for rattle snake bites, if taken in time. We have saved two horses and one cow with it. Thought you might want to put this in your list of cures, as so many use Canstic Balsam, It might save them a horse or cow some time if they knew about it.
S. H. Felt, Hartford, Michigan

Caustic Balsam will absolutely remove all poisonous secretions and create a healthy action.

Caustic Balsam Does More Than Claimed for it.

Enclosed please find draft for which send me one dozen bottles of Gombault's Caustic Balsam. I have been using your Caustic Balsam for four or five years and it does more than you claim for it. A neighbor, Mr. Seegar, had a horse with a bad case of sweeny. He could not sell the animal for $25.00. I advised him to use your Caustic Balsam and he did so, curing the horse, and has since refused $100.00 for her. My niece had her knee badly injured by falling from a wagon. The doctors failed to effect a cure and she began using Canstic Balsam. She is now practically well. I have also known it to cure neuralgia and stop tooth-ache. It is one of the finest medicines for man and beast. H. D. Sweazy, Beecher City, Ill.

Does Away With Firing

TO WHOM IT MAY CONCERN:-
I have made many fine cures with Gombault's Caustic Balsam. I have cured bowed tendons, capped hock, splints, ringbone, sidebone, shoe boil, quitter, poll-evil, fistula of withers and many other long standing cases. It is either a mild blister or a fine counter irritant; does away with firing.
E. L. Seltzer, Shelltown, Md.

Caustic Balsam Does More Than Guaranteed

I have used Caustic Balsam for the last seven years and found it just as it was recommended, and even more, because it will cure where other medicine fails and I can prove it. I can certainly recommend it. J. T. Sullivan, Chehanse, Ill.

Twenty Years Success With Caustic Balsam

After using Gombault's Caustic Balsam for twenty years I can say it has never failed to do all you recommend it to do. While it seems high to one that has never tried it, once a customer always one. I have used it for twenty years and use no other but it. W.A.McCaulcy, Malone, Tex.

Good For Any Cut or Bruise

I recommend your Caustic Balsam for any kind of rusty nail or barb wire cut and has also cured had cases of blood poisoning. I am a veterinarian and surgeon and I recommend to any man this Caustic Balsam as a cure of what I said.
F. Max Scheibe, V.S., Dulce, N. Mex

Gombault's Caustic Balsam
As a Liniment for the Human Body has no Equal

A Liniment that benefits; it kills pain. A home remedy for the Human Family

ALL TESTS prove the wonderful efficiency of **Gombault's Caustic Balsam** in relieving human ailments, such as Rheumatism, Neuralgia, Sprains, Sore Throat, Sore Lungs, Chest Cold, Backache, Lumbago, Diphtheria, all Stiff Joints. It is penetrating, soothing and healing, and for Old Sores, Bruises or Wounds, Felons, External Tumors, Cancers, Boils, Corns or Bunions **Caustic Balsam has no equal. It removes the soreness and strengthens the muscles**—in fact aids all troubles where an external application is necessary. **We would distinctly say to all who buy it that it does not contain a particle of poisonous substance, and therefore no harm can possibly result from its use.**

THIS GREAT REMEDY literally works wonders! It removes bunches on horses and other livestock, thereby increasing the value of the animal fully 50 percent. A successful treatment for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Windpuffs, all Skin Diseases or Parasites, Thrush, Diphtheria, Pink Eye, and Lameness from Spavin, Ringbone, and other Bony Tumors; also all obstructions in circulation, and imparts new life and vigor. It is a peerless remedy for all Throat and Bronchial Troubles.

WHY! Because Caustic Balsam can be applied by anyone with safety, will do its work well and in no way injure the horse, while other blisters need daily attention and care and then are liable to leave a blemish.

If you have a lame or unsound horse, YOU CAN WELL AFFORD TO TRY A REMEDY THAT IS SO HIGHLY RECOMMENDED.
Information on special cases freely given on request.
It is FAR SUPERIOR, MORE ECONOMICAL, and a PERFECTLY SAFE, RELIABLE and PROMPT Remedy to use as compared with any other remedy used for like purposes.
The demand is produced strictly by its merits.
IT SUPERSEDES ALL CAUTERY OR FIRING
IMPOSSIBLE TO PRODUCE ANY SCAR OR BLEMISH
IT IS THE SAFEST AND BEST BLISTER

CAREFUL FARMERS
USE CAUSTIC BALSAM
A Safe and Reliable Anticeptic

Do you turn your horses out for the winter? If so, we want to call your attention to a very important matter. Horses which have been used steadily at work, either on the farm or road, have quite likely had some strains whereby lameness or enlargements have been caused. Or perhaps new life is needed to be infused into their legs. Gombault's Caustic Balsam, applied as per directions, just as you are turning the horses out, will be of great benefit; and this is the time when it can be used very successfully. One great advantage in using this remedy is that after it is applied it needs no care or attention, but does its work well and at a time when the horse is having a rest. Of course, it can be used with equal success while horses are in the stable, but many people in turning their horses out would use Caustic Balsam if they were reminded of it, and this article is given as a reminder.

Found Nothing That Equals Caustic Balsam

Kindly permit me to express my deep appreciation of Gombault's Caustic Balsam. I have cured sprains, ringbone, strained tendons, sweeny, poll-evil with it in fine shape and do not see how a better liniment could be manufactured. I have used many things for removing puffs from horses but have never found any that would equal Caustic Balsam. I also had a cow that had lump jaw. I used Caustic Balsam and cured it.
John H. Wallgren, Logan, Kansas

Bunches on horses or any other livestock are unsightly.

Caustic Balsam Prevents Blood Poison

We have used Canstic Balsam for several years and have found it to be unequaled for horses or people. My husband ran a rusty nail in his hand and blood poison set in. We used two applications of Caustic Balsam and the swelling and fever left his hand and arm and it healed up without any more bother. It is also as efficient for snake bites and we would not think of being without it.
L. H. Globe, Forest Grove, Mont.

Caustic Balsam is good for that sore feeling after baseball or football games.

A Splendid Human Remedy

I think your Caustic Balsam a splendid human remedy. We use it for cuts, burns, sores, swellings, sore throat and lameness and find it very beneficial. We expect to keep it on hand ready for any emergency.
Mrs. Roht. B. Newton, Columbus, Miss.

The world's greatest and surest veterinary and human remedy. Has imitators, but no competitors.

Worth Its Weight In Gold

I have used Gombault's Caustic Balsam for my own horses and for others, and it has never failed yet. My little girl had rheumatism for a long time. Nothing did her any good until we used Caustic Balsam and she is all right. My wife had throat trouble and used Caustic Balsam with great results. It is worth its weight in gold.
Dr. Ira Le Dunlap, V.S., Rochester, Pa.

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The Lawrence-Williams Co.
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Gombault's Caustic Balsam

MAY HAVE IMITATORS, BUT HAS NO COMPETITORS

PRICE $1.75 PER BOTTLE AT ALL DRUGGISTS OR SENT BY PARCEL POST.

THE LAWRENCE-WILLIAMS CO.

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MAR 30 1920

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — March 27, 1920 — No. 13

Motor Truck Big Factor in Modern Farming

By C. B. Messenger

NOW comes cooperative trucking. To buy a heavy tired auto truck these days takes a pile of long green almost as big as a stack of hay. Hence, cooperation. Sometimes cooperation of a neighborhood in the use of the machine only, more often in sending daily to market a five ton or smaller truck loaded to the guards and in the hands of a practical business man who gets the best prices on the market and very probably returns with the truck loaded with implements, fertilizers or supplies needed on the farms.

This is different from the good old days when each individual producer and marketer loaded the gatherings from his own farm and between midnight and morning plodded in to reach the early market. It's a modern day method. The department of agriculture has canvassed the situation and estimates that cooperative associations are now marketing annually $1,500,000,000 in commodities. Rather, that is the estimate made in 1919; today's commodities, with increase in value and increase in magnitude and number of cooperative associations, would doubtless double the figures of last year.

The outlying producing sections have been brought vastly closer to the large consuming centers. Truck crops and fruits a score or two score of miles out are readily delivered for the early morning market. Even the San Joaquin Valley is daily sending over and down the sides of the Tehachapi into Los Angeles products of creameries and orchards. The northern San Joaquin Valley and all of the Sacramento Valley, which formerly used almost exclusively barges on the river or rail transportation, are today utilizing the truck.

There are in California something over 12,000 heavy tired large trucks. There are of the lighter delivery truck, or sometimes made-over-auto truck, over 22,000, and the number of trailers is legion. The national council of defense made a survey of the state of California and remarked upon the extensive use of motor trucks for passenger, freight and express haulage. In 1918 "over 136 separate lines were found, some traversing routes as long as 125 miles, this on daily trips. Large quantities of farm produce are handled and charges are made according to published rates. The excellent highways of California made it possible for these lines to develop rapidly. The council would encourage this type of transportation because

"Food production is stimulated since the regular outlet to market encourages many farmers to expand production which they would not be justified in doing if they were obliged to transport their own produce to market.

"Shortage of labor is greatly offset from the fact that the system leaves the farmer on the farm and his time is not consumed in trips to market.

"There is immediate improvement in the efficiency of the farm since supplies, machinery, and repairs can be secured promptly from city distributors of fertilizers and farm machinery."

From the national standpoint these routes aid in several ways:

"They relieve the railroads of local freight which permits carload lots of materials and foodstuffs from distant points to enter the terminals."

This leads to just a word about good roads. California boasts, and not unduly, of the great mileage and high quality of the roads it has constructed, but there is many a highly productive section which needs this added encouragement. The state, the nation and various counties are uniting in extending highways. Speed the work.

Secretary Houston in closing his last annual report has this to say about it:

Good Roads

"Good roads are essential to the prosperity and well being of urban and rural communities alike. They are prerequisite for the orderly and systematic marketing of farm prod- (Continued on Page 535).

Overland

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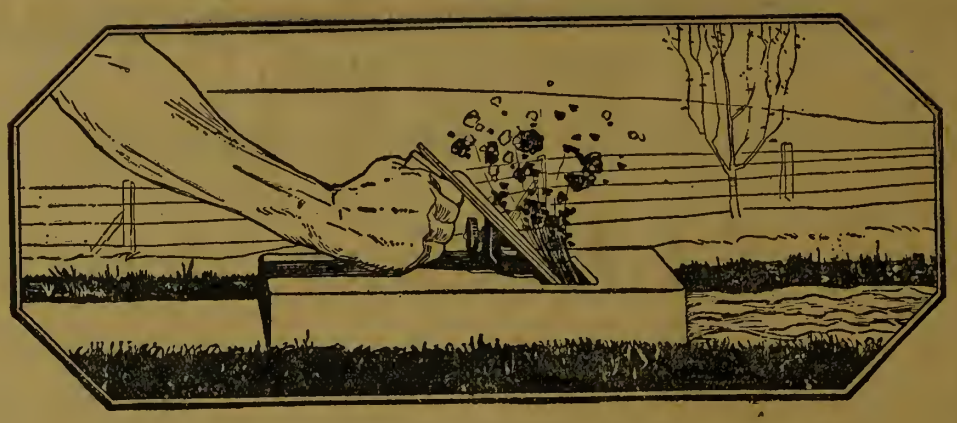

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These springs give heavy car comfort and road steadiness together with the economy of light weight. Fuel is economized—tires wear longer!

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California Cultivator

Vol. LIV, No. 13 Los Angeles, March 27, 1920 One Dollar Yearly

More Scared Than Hurt, but Hurts Just the Same

By C. B. Messenger

NO greater injury was ever suffered by any California industry than that which has come to the olive industry because of the recent food poisoning cases. Tragedy after tragedy has been recorded and the sensational methods of Eastern papers in playing up "news," often in wood type across the top of first pages, have given California ripe olives a blow from which it will take years to recover.

The Cultivator, and practically every other California paper, at first took the position that after all these years of eating California olives, with never a case of poisoning reported prior to last August, it seemed that the physicians had made some terrible mistake. Scientists have, however, been making investigation and three of the cases have been traced directly to one or two small lots of bottled olives in which the botulinus germ has been discovered. Health boards and other scientific bodies have examined tens of thousands of tins of olives and there has been no case where such fruit has proven infected. This has brought many statements similar to this from Michigan:

Food and Drug Department
Lansing, Dec. 16, 1919.

California Olive Association,
528 Higgins Building,
Los Angeles, Cal.

Gentlemen:

The work done by the State Board of Health laboratories on olives was done at our request on samples furnished by us and was used as a check on similar work that was being carried on at the same time in our own laboratories. Will say that we did not find any trace of botulinus or anything else that was in any way dangerous in these products.

I am convinced that those cases of poisoning that have been reported were isolated cases that might develop once in a million times in any product and in no way indicates that this brand of olives as a whole is dangerous.

This department has not condemned any of these olives and has released all those that we asked the merchants to hold, while examination was being made. Hoping that this answers your inquiry satisfactorily, I am,

Yours very truly,
Fred L. Woodworth,
Food and Drug Commissioner, State of Michigan.

Californians as a rule have not the faintest idea of the treatment which has been given these cases in the Eastern papers. We have seen literally thousands of clippings from papers from every state in the Union, and, unfortunately, the great majority show that Eastern papers have grasped the opportunity to give California producers advertising which is far from desirable. For instance, here is one from the Hartford, Connecticut, Courant:

"The Malevolent Olive.—Cases of poisoning, frequently resulting in death and caused by eating ripe olives, and which had been canned somewhere on the Pacific Coast, continue to be reported. Two weeks ago, or less, dispatches told of a family in South Paris, Maine, the members of which had been rendered extremely uncomfortable through eating these evil disposed plums, and yesterday we were told of a more serious case in Memphis, Tennessee, for in this instance several members of a family have died because of eating canned ripe olives.

"Physicians are interested and are, possibly, wondering why the poison in this fruit is of such a deadly nature. Suggestions have been made to the effect that cans of this delicacy should be brought to the boiling point before they are opened for use, which process is sure to put an end to the bacilli should they chance to be present in the can. As 'The Courant' has already said, a more simple and equally satisfactory method consists in shunning canned ripe olives altogether.

"There is no statute making the use of ripe olives mandatory upon anyone, whether the fruit is canned or otherwise, and it is not one of the necessities without which no meal is complete. By declining to eat the ripe olive and buying the pickled green ones instead, one has a good chance of finding his days long in the land."

Fortunately, this editorial writer shows his prejudice in favor of the importer of olives, for he still has a good word in favor of the green pickled olive which, of course, means the imported olive.

Shut our eyes to the situation as we may and state simply the truth that the hysterical treatment which is given by nearly all the Eastern press is unjust and even used in such a way as to convey an untruth as to the worth and safety of one of California's finest food products, the fact remains that the consumption of California olives is today probably not one-half that of a few months ago. Orders are being cancelled and an industry involving nearly $5,000,000 annually is jeopardized. The California Olive Association, comprised of the majority of the largest olive packing concerns in the state, is employing some of the country's best chemists and scientists and gathering data as to the situation and best steps to take. It has, however, taken one step which will help to restore confidence. It has been recommended that large bottled olives which were sterilized at temperatures of 212 and under be recalled and only stock known to have been treated so there is no question of its purity and safety is to be allowed to remain on the market. The factory equipment is to be overhauled and improved so that sterilization will be so thoroughly accomplished that the consumer will be assured that one of California's finest foods is as safe as any other.

This matter of food poisoning has come up at intervals for many years. The first cases were ascribed to the poison being carried in sausages. This gave the name botuline (botulus—sausage) and because of that this definition found its way into the dictionary: "Med. a poisonous ptomaine found in spoiled sausages and canned or tinned meats." But later there came cases of poisoning from home canned fruits, canned corn and other vegetables, and especially canned string beans. In each of these cases it has been found that the poison is easily prevented by thorough sterilization by the use of heat. The olive has been thought to be entirely exempt. It is now taking its turn, and the only procedure is to create conditions which prevent the poison from ever securing entrance into a can or a bottle, and then, so far as possible, informing the consumer of the value of this product.

California produced last year nearly 8,000 tons of olives. The coming year's output cannot be safely predicted so early in the season, but as the past three years crops have been light, many are anticipating an exceptionally large output this year, and by large is meant 12,000 to 15,000 tons. There are nearly 2,000 growers in the state; there are 30 packing plants employing hundreds of people. The state cannot consent to seeing this great industry endangered as it is being by our shutting our eyes to the real condition of things. The efforts of the packers and the larger growers must be supported. They have enlisted the cooperation of our state university, state department of agriculture, United States department of agriculture, and boards of health.

Speaking of the situation, J. J. Hoey, editor of the Fig and Olive Journal, also secretary of the association, says:

"For 16 years the packers and growers of olives in California have labored diligently, persistently and in the face of a multitude of discouraging factors in order to establish an industry that has added luster to the fair name of this state, given to our people a new and typically American product, and bade fair to become in a few years one of our largest and most valuable food producing enterprises. The ripe olive, most delicious and healthful of foods, is the basis of our industry, and on that foundation we seek to build a business that will utilize our incomparable natural resources in this state, create employment for our citizens, profit for our growers and manufacturers, and give to the people of this country a food product unexcelled for flavor and nutritiveness.

"We have nearly 40,000 acres planted to olives in California and Arizona. Thirty factories process and pack the product from this acreage. Our industry represents an invested value of nearly $20,000,000. Our annual output in a favorable season is valued at nearly $5,000,000. It is possible for us to increase this output, through the development of wider markets, until its value will be $50,000,000.

"This great industry, founded on the costly experiences of the pioneers and builded on the sacrifices of those whose confidence in the future greatness of the ripe olive business overcame all obstacles to its growth, is today facing a crisis. Its future development is seriously menaced; its present stability indeed is threatened—and this because of the unfortunate happenings in the past few months in which several persons in this country lost their lives through botulinus poisoning, said to be caused by eating olives that had become spoiled."

The University of California is giving particular attention to the olive situation. It has issued the following written by Prof. W. V. Cruess, zymologist:

"Ripe Olives a Safe Food

"In recent years a number of cases of botulinus poisoning have resulted from the use of home canned fruits and vegetables, notably from home canned apricots and string beans. More recently, two jars of olives from one small lot of ripe olives were responsible for two outbreaks of the above nature in Eastern states. This fruit had never been known to be the cause of botulinus poisoning during

(Continued on Page 532)

Many a California Landscape Is More Beautiful Because of the Olive Orchards

Agricultural News Notes of the Pacific Coast

Northern California

The state is taking a hand in control of water supply for the coming year.

Governor Stephens is appealing for greater gardening activities during 1920.

Recent rains were greatly appreciated by livestock men and all producers.

Alameda County's farm adviser will have a permanent branch office at Livermore.

Sonoma County Fair Association is planning for an agricultural fair the coming fall.

The Pea Growers Association at Hayward, Alameda County, has begun shipment of green peas.

An effort is being made to set aside a tract of land including the summit of Mt. Lassen for a national park.

The farm bureau at Orland has purchased a sawmill and is prepared to supply members with building material.

The Alameda County farm bureau will appoint a financial secretary to handle the marketing business of the bureau.

Mendocino County wine grape growers held two meetings on Sunday, March 14, one at Ukiah and one at Hopland.

Well irrigators are meeting in Glenn County and discussing means of providing against the water and power shortage.

The Chico Enterprise announces that at least 25 septic tanks will be built on ranches near Chico the coming season.

The farm bureau of Livermore, Alameda County, is planning a stock judging contest in connection with its May Day celebration.

Wine grape people are very active in providing means of disposal of wine grapes, syrups, unfermented juices and other products of the grape.

A superior judge in Alameda County has set aside the real estate transactions in which a Japanese nurseryman was securing title to land for nursery.

The California Rice Growers Association is pointing out that owing to water shortage it will be necessary to greatly reduce rice production this season.

At a largely attended meeting of water and power users at Willows, Glenn County, on March 10, a committee was appointed to confer with the railway commission.

The California Cattlemen's Association, which was prepared to ship cattle out of the state to pasture land, has cancelled its arrangements because of the recent rainfall.

The Ehmann Olive Company is building fine large packing plant which will be ready for the 1920 olive crop. The old plant, now to be abandoned, was the first of its kind built in the state.

Butte ranchers have filed suit to prevent the Sutter-Butte Canal Company from furnishing water for irrigation to 14,000 acres of new rice land in Sutter County. Contract for this water service was made last year.

The Happy Valley irrigation district in Shasta County has just made sale of $100,000 of its bonds, being the last of the issue. The storage dam is completed and in shape to supply irrigation water for the coming season.

Central California

Madera farmers are talking cotton.

Fresno has voted $4,800,000 for good roads.

Tulare is shipping eggs direct to New York.

Bishop, Inyo County, recently held a tractor demonstration.

Many wine grape vineyardists are planning for drying plants.

Japanese control more than 5,000 acres of Stanislaus County.

Watsonville's precipitation in the recent rain totaled three inches.

The tonnage of wine grapes next season will be not far from 300,000.

The seasonal precipitation in middle San Joaquin Valley is around six inches.

Buyers in Turlock, Tulare County, district are offering $40 per ton for grapes.

The farm bureau of Santa Cruz County will organize a marketing department.

Europe is economizing and California dried fruits are in lighter demand for export.

Elkhorn Grange, Santa Cruz County, recently initiated a large number of new members.

Tulare made its first carload shipment of eggs to New York the first week in March.

Reedley will have a branch packing house of the California Prune and Apricot Growers.

California Associated Raisin Company shipped over 322,000,000 pounds raisins last year.

Several new grape dryers are to be built at Lodi, San Joaquin County, to care for the wine grape crop.

A sorghum club was organized in the Hughson high school by Farm Adviser Jungerman. Each member will cultivate one acre of sorghum.

The newly organized Fig Growers Association is reported to be considering joining in the marketing organization with the Peach Growers.

H. E. Patterson, secretary of the Fresno County chamber of commerce, has been appointed general manager of the Raisin Day celebration, April 30.

Under the chairmanship of J. W. Schmitz of Madera County the state farm bureau federation is conducting a campaign for improvement of livestock.

The Fresno County farm bureau has decided to cooperate in every way with the state wool pool as outlined by the marketing department of the California Federation of Farm Bureaus.

The Fresno County Historical Society is taking steps to preserve the ground surrounding the grave of Smith of Smith's Ferry, an old historic spot on the Santa Fe trail to San Francisco.

The California Associated Raisin Company has discontinued its policy of making sales on the "firm at opening price," which furnished a point of attack by jobbers and independent growers against the company.

Santa Cruz County has enacted a drastic bee ordinance. It vests in the bee inspector absolute power to declare quarantine against importation of any bees or bee products. The ordinance is similar to the one in effect in Imperial County.

Southern California

Apricot growers are fighting bacterial gummosis.

Dates for San Diego County fair, September 22-25.

Imperial Valley wheat growing prospects fair for the coming season.

Antelope Valley, Los Angeles County, squirrel drive March 31-April 3.

Imperial County shipped 1,127 carloads of fresh vegetables in February.

Nuevo, Riverside County, is planning the erection of a $3,000 community hall.

Ranchers of Westminster, Orange County, met March 17 to discuss drainage problems.

Well up towards 100 cars of lettuce sometimes leave Imperial Valley in a single 24 hours.

The Orange County farm bureau is trying to secure the June citrus institute for Santa Ana.

The cannery proposed to be erected at San Jacinto, it is now thought, will not be put in this year.

The annual meeting of the San Diego County farm bureau was held in San Diego last Saturday.

Ventura County fair anticipates that $17,000 will be necessary to finance the coming season's show.

Farm bureau meetings will be held in Los Angeles County at Downey, April 5, and Glendora, April 12.

Fruit growers of Victor Valley recently met at Victorville and discussed forming a marketing association.

The California Cattlemen's Association will hold its semi-annual convention at Los Angeles, April 15 and 16.

Offices of the Los Angelels County farm bureau have been moved to more commodious quarters in the court house.

A squirrel drive for the west side of Antelope Valley, Los Angeles County, has been planned from March 29 to April 3.

The directors of the California Lima Bean Growers Association have found that the market justifies a stiffening of price.

The California Lima Bean Growers Association reports large Limas showing slight advance; baby Limas holding steady.

A new cannery at Riverside, made possible by the efforts of the farm bureau, will mean much to fruit growers of the county.

County Commissioner Sharp of Riverside recently detected one large shipment of peach trees from an eastern state infested with peach yellows.

Imperial Valley board of supervisors recently opened highway paving bids. A big campaign of road improvement is contemplated for the entire valley.

Members of the farm bureau in Antelope Valley, Los Angeles County, will receive cotton seed from the United States department of agriculture for experimental plantings.

Manager P. T. Marbie of the walnut house at Goleta, Santa Barbara County, has invented a walnut cleaning machine that will enable the association to dispense with several hands.

Secretary Van Pelt of the Southern California Fair Association reports materially increased facilities for handling the coming fall fair at Riverside. The fair will open October 13.

The Coast and General

Portland will hold her 1920 rose festival, June 24 and 25.

Lane County, Oregon, is working for $2,000,000 good roads bonds.

Stevens County, Washington, will hold its county fair September 22-24.

A marketing association has been formed by the fruit growers at Skagit, Washington.

The Arizona cotton growers are plowing and fitting seedbed for next season's crop.

Movement is under way to organize the wheat growers of Washington, Oregon and Idaho.

A pure bred hog sale will be held on the fair grounds at Walla Walla, Washington, this week.

Wheat growers of the Inland Empire of Washington are signing up in a cooperative marketing association.

Sugar beet growers of Walla Walla, Washington, will greatly increase beet acreage, perhaps double that of last season.

The American Jersey Cattle Club has appropriated $1,000 for premiums at the 1920 Pacific International at Portland.

A silo campaign which will touch every county in Oregon is planned by the farm bureau and state agricultural college extension service.

Chief of the animal industry division, Philippine Islands, recently purchased 100 Hereford bulls and a number of heifers from Texas breeders.

Cold storage for at least 200,000 boxes of apples will be provided by erection of a new plant by the Fruit Growers Association of Peshastin, Chelan County, Washington.

Sweet potato growers meeting last week in Dallas, Texas, subscribed $5,000 toward an advertising fund to create a market for Southern sweet potatoes in the North.

Apple growers and shippers of Hood River are combining to secure return to more attractive standardized pack. It has been allowed to deteriorate during the last two years.

At the meeting of the Arizona Cattle Growers Association recently held in Tucson the K. and K. bills for regulating the big packers were under hot discussion, but no resolutions favored or disfavored.

With the signature of 106 fruit growers pledging 4,251 acres, representatives of the Oregon Growers Cooperative Association have announced that that organization will operate in the Rogue River Valley in 1920.

California rice millers have shipped 15,000 tons of rice to Sumatra, within hailing distance of the largest rice producing area in the world. This was caused by the crop shortage in Siam and adjoining countries of Southern Asia.

The Apple Growers Association at Hood River, Oregon, has closed its pools on the 1919 pear crop, the total returns for which reached $164,847.18. The total tonnage was 60,741 boxes. The Boscs, the highest priced pears, sold for $2.32 each.

The Snohomish County, Washington, Dairymen's Association has adopted a resolution making it impossible for any more Asiatics to become members of their association. Several Japanese now in the association will be permitted to retain their membership.

Land Settlement Plans at Delhi

THE legislative committee of the American Legion has taken interest in the state land settlement at Durham, especially in view of the fact that the land settlement commission has announced that, other things being equal, ex-service men will be given preference in locating on these lands. The legislative committee feels that steps should be taken by the next state legislature, or possibly through the initiative to make future land settlements open only to ex-service men and, in addition, that the present $1,500 capital requirement should be revoked and the service men accepted without this preliminary payment which has been required of all settlers at Durham and will be required of those at Delhi.

This proposal called forth an open letter from Dr. Elwood Mead, chairman of the state land settlement board.

We believe Dr. Mead's position will be supported by the farmers and taxpayers of California. Dr. Mead so clearly defines the advantages which it is hoped to secure from this land settlement plan and explains the intent of the act and the working details of the settlement at Delhi so clearly that we quote largely from his letter:

* * *

By Prof. Elwood Mead

"The 51 farms and 24 farm workers' allotments which form the first unit of the Delhi settlement will be open to inspection by settlers for four weeks from March 23. The second unit will be opened to settlers as rapidly as the farms can be made ready. The land is in the Turlock irrigation district and all of the farms have rights in the district canals. Some of them can be supplied from the canals by gravity; others will be irrigated from concrete pipe lines supplied by pumps.

"When the board acquired this land much of it was not provided with water and practically none of it had been prepared for irrigation. Since then a large number of men, teams and tractors have been at work. Settlers will find 200 acres seeded to alfalfa, 160 acres planted to grapes and 500 acres seeded to rye. Four of the farms have houses. Plans are being made for other houses and a pamphlet of house plans has been prepared to help settlers decide what they desire.

"This settlement is crossed by the Southern Pacific railroad and the concrete state highway. The farms surround the town of Delhi which has a fine natural location. It will be an important market center and is one of the gateways to Yosemite. Professor J. W. Gregg of the university has prepared the town plan. It is greatly admired by all who have studied it and these include practical railway men, intending settlers, and expert town planners.

"Thirty-eight farms vary in area from 20 to 70 acres. Thirteen are poultry farms and vary in size from four to 10½ acres. The latter are close to Delhi, have a sandy soil, and poultry experts consulted believe they are well suited to this purpose. The 24 farm workers' allotments have areas varying from two to 37 acres. All are near Delhi and steady work at good wages on the farms or in the town seems assured.

"The prices of the farms will vary from $75 to $300 an acre. This includes the cost of the land, which varied from $92.50 to $150 an acre, the cost of the concrete pipe lines for irrigation, the estimated outlay for interest and taxes before the land is sold, and the expenses of administration until the money is paid back to the state.

"The farm workers' allotments vary in price from $150 to $350 an acre. The settler is given 36 years in which to pay for the land and 20 years in which to pay for improvements.

Nation Wide Interest in Settlement

"Interest in this settlement is widespread. For months the board's office at Berkeley has received from 20 to 50 inquiries daily. Thousands of people have said they desire to obtain farms under the act. They live in every state in the union. A large percentage are ex-service men. This is the first American state to help soldiers secure farms, but this is not an exclusive soldier settlement. The original act was passed to help worthy landless men obtain homes in the country and to create the kind of rural life the state needs.

"The act was amended in 1919 to enable this state to cooperate with the federal government in providing farms for soldiers which it was then thought would soon be a national policy. Under the amended act, for any farms made available in cooperation with the United States government, ex-service men were to have a preference, but congress has not acted. The settlement at Delhi is a state settlement. The act in such cases authorizes the board to give preference to ex-service men who are citizens of California, and the board has announced that dealing with applicants at Delhi it will give such preference, and there is every reason to believe that all, or practically all, of the settlers in the first unit will be ex-service men.

"This act only requires the settler to make a first payment of five per cent of the cost of the land, and at Delhi that includes the cost of pipelines to water the land. The state, therefore, lends the settler 95 per cent of the cost of the irrigated farm. No country that requires all the money to be repaid gives more generous terms. Denmark requires the settler to pay ten per cent of the cost when he takes the farm and there is a growing opinion that it ought to be one-fifth of the cost. The board is clear that that five per cent payment should be made and that no one who has not the money to make it should be accepted, and the statute requires it.

"The board, under the statute, can lend a settler $3,000 with which to build his house and barn, prepare his land for irrigation, buy livestock and implements, but under a board rule, approved by the governor, it can only loan 60 cents of every dollar of the cost; the settler must put up the remainder. The settler must, therefore, have $400 to be able to borrow $600.

"This loan of money at five per cent interest with 20 years' time on improvements and 36 years' time on land are generous helps, but they are made greater by the service that the board extends in getting farms in shape. The settlers at Delhi who secure the farms already seeded to alfalfa have an income assured for the first year. The settlers who get vineyards planted buy their grape vines for $30 a thousand because the board bought the raisin grape vines in lots of 100,000. If the settler had to purchase those vines in small lots he would have to pay three times this cost and he would come on the ground too late to plant them this year.

"The board helps the settlers to organize to buy and sell together. The 50 feet by 100 feet warehouse now going up at Delhi is to make it possible for settlers to buy in carload lots for cash and so get wholesale prices. The story of what has been done in Durham in the buying of dairy cattle and the selling of milk is a story of money saved in starting the farm and a large increase in the money that comes from the farm.

"The board has studied the records of state aided settlement in other countries and does not know of anywhere settlers secure as large farms as at Delhi with a capital of less than $1,500. Some tried it with less and found it was a mistake both for the settler and to the state. The settlers at Durham believe that a $1,500 limitation is too low, that the board ought not to accept anyone with less than $2,500 or $3,000, and that they have just been through the mill and know how they felt when they saw their money going out and were afraid there was not enough to go through. The board therefore feels that to accept a settler with less than $1,500 would be going contrary to experience and to its own judgment. It will accept settlers with $1,500 on the smaller farms, but on large farms like those of 56 and 70 acres, the settlers ought to have more capital and the applicants with more capital will be the ones that will be accepted.

"I believe it is to the interest of all home seekers that all settlements under this act should repay with interest the money the state provides and the law requires this. They will do this so long as the present requirements of character, capital and experience are maintained. This does not, however, exclude men without capital. The farm laborer can get a 2 acre block by paying five per cent of its cost. No question is asked about his capital. Payments can be saved out of wages. The semi-annual interest bill is far less than rent. The farm laborer's allotment is, therefore, the stepping stone to the farm. The children of farm laborers at Durham and Delhi will be farm owners in the next 20 years.

"The board has prepared a short statement of the conditions of settlement which will be mailed to posts or to individual applicants. We hope many who do not want farms now will visit the settlement during the 30 days it will be open to inspection. Geo. C. Kreutzer, superintendent at Durham, will be there to give applicants the benefit of his experience on two continents in this kind of development. I want you to see the preparation being made for opening the second unit to settlers; this includes the planting of four tons of peach pits and the planting of one million grape vines as stock for the future nursery.

"Before the land was bought and as a preparation for its subdivision into farms, the soil was examined and a soil map made by the soils division of the University of California. There is being mailed you with this a bulletin prepared by the university for these settlers. It represents the studies on the ground of five professors of the college of agriculture and deals with land, irrigation, grapes, orchard fruits, melons and sweet potatoes, this practical advice at the outset helping settlers to avoid mistakes and loss of time and effort. It is this kind of homely helpful aid rendered by the college of agriculture, the state department of agriculture and the board which makes the California land settlement act so fruitful of results and creates the widespread desire for homes on these settlements.

"I have had a number of talks with members of the committee about amendments to the act which it is proposed to initiate and have received a number of resolutions adopted by different posts on this subject. Some of these amendments, I hope will prevail. Some I am confident the Legion will modify when more fully informed.

"One amendment which is heartily approved provides for two ex-service members on the board, either by increasing the number of members or displacing two of the present members. If the latter plan is followed I would be perfectly willing to give way to an ex-service man whenever this is desired by the governor.

"Changes which are regarded as unwise are those which would do away with any requirements as to capital or payments of settlers when taking possession of the land. I do not believe such amendments could be made without incurring serious losses. In considering such radical financial changes, it must be remembered that this act is not an experiment. For more than a quarter of a century other countries did the experimenting. The Irish land settlement act, the Danish land settlement act, the German land settlement act and the Australian and New Zealand land setlement acts went through an evolution until they reached a practical agreement as to what the state could safely and wisely do and if an attempt was made to do more, failure would result. When the California act was written, the accumulated experience of these countries was before our lawmakers. The endeavor was to make it as generous as is could be made and keep it solvent, but not to include features which would involve losses and require the taxpayers of the state to settle the bill.

"The financial changes proposed would cast aside all the act's financial safeguards. Such action is not regarded as necessary by nine out of ten of the members of the Legion with whom I have talked. They feel that they can meet the requirements of the act, that its opportunities are broad enough as they now exist.

"This applies to the members of the Legion who are in good health. They all believe, however, and I share in the belief, that there is need for a separate soldier settlement act to provide for men injured in the war or to give training to men who lack experience needed to meet the payments under this act. Such an act would be entirely different from this measure. It would provide training farms for beginners. It would fit the size of farms and the conditions of agriculture to the needs of those who want a farm as a means of restoring their health and strength. It would not be expected to pay its way. The state would gladly meet the losses incurred as a measure of gratitude and recognition of services rendered and sacrifices and suffering endured. Such a measure

(Continued on Page 532.)

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL.

—hundreds of varieties on 1500 acres

Experience gained in the actual growing of practically every improved variety of orchard fruits qualifies us to advise you what to do when trouble crops out.

The Silva-Bergtholdt Co. wants every grower to feel at liberty to ask for any advice that might prove of value in restoring ailing trees to health, or keeping normal trees at full vigor.

Replacements will not be necessary if intensive cultivation is practiced, with occasional irrigation during the dry spell. Do this, and you will have a good stand on your planting of this year.

Trees must be perpetuated. No effort is too great if it means the survival of the tree until nurserymen's stocks are back to normal size.

For you to lose a tree now is a calamity. Our experience, coupled with yours, may be just what is needed to eradicate all trouble. Consult us promptly; such helpful suggestions as we may offer will obligate you not at all. Just write. "A stitch in time saves nine."

On account of the poor germination of fruit tree stock last year throughout the United States, the supply of trees for the planting season of January and February, 1921, will not be over 60 per cent of normal. The enormous prosperity of the California fruit grower and the absolute assurance of future profits in horticulture will create a 200 per cent demand for next year's 60 per cent supply. You know what that means.

Write us now concerning your next season's wants. The prices at which you can buy now are less than they will be next Fall. A large proportion of next year's supply of trees has already been booked.

We are affiliated with the California Nurserymen's Bud Selection Association, an organization whose efforts will be devoted to the selection of the best and the elimination of undesirable types of fruit.

Our foot-hill location, in which we grow hundreds of varieties on 1500 acres of orchard and nursery, affords a natural advantage resulting in well branched, fibrous root systems for our trees, and freedom from disease. We spare no effort, cost or labor to deliver the best trees that can be grown.

J. E. Bergtholdt
Secy. and Mgr.

SILVA - BERGTHOLDT CO.
Nurserymen and Fruitgrowers
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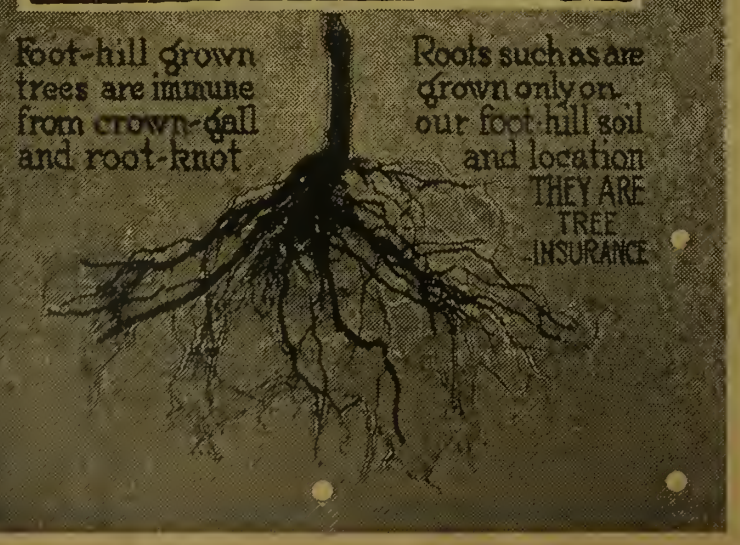
Foot-hill grown trees are immune from crown-gall and root-knot
Roots such as are grown only on our foot-hill soil and location THEY ARE TREE INSURANCE

Plowing in Cover Crops

By Ernest Braunton

A SUCCESSFUL citrus grower at Whittier recently said: "If I were sure we have had our last rain I would turn my cover crop under, but I would prefer to leave it until after the last rain, if we are to have more." And that is the attitude of many, for cover crops are late this year and most of them would be of greater value if they could grow for a month yet.

In order to find out the relative proportion of the several crops used, the writer visited eight orchards in Los Angeles County at each of three points —Covina, Glendora, and Whittier, all showing a good soil cover. The whole 24 were of melilotus. Some orchards had no crop except a volunteer, generally of mallows and nettles, but in a total of about 50 observed all those sown in the fall of 1919 contained melilotus except one, and that one was sown to barley. The amount of seed sown varied from ten pounds to 25 pounds per acre; generally, but not always, dependent upon the size of the trees. One orchardist having a heavy rich soil and comparatively young trees sowed but ten pounds, for many mallow plants were six feet high and other weeds were present in proportion. Ten pounds of melilotus seed was entirely sufficient, but it would have paid the owner had he run over the tract with a mower and cut the weeds down early so the legumes could have developed better.

Malva Makes Good Green Manure

Note by white line the height of the malva. Melilotus is likewise a heavy crop in this orchard.

Value of the Crop

So late is the crop and so copious and sufficient the late rains that the melilotus is doubtless now more than three-fourths water, so that less than 20 per cent of the plant is organic matter. This is representative of the best crops, for where the plants are less succulent the crop is light and stunted, due in most cases to lack of preparation before planting. Where the most thorough preparation was made, there the best crop may be found—always. This is especially marked on the heavier soils where disks did not sufficiently overturn to a good depth.

It is evident that many orchardists do not get full value of the cover crop because plowing is not deep enough. In heavy, close soils after two diskings the melilotus is lying for the most part on top of the soil, chopped up ideally for chicken feed, but neither covered nor incorporated with the soil. One rancher said two more diskings, or four in all, would put nearly all out of sight and the soil would show clean and black. But he is evidently deceiving himself, for sun and wind will soon wither and dry the chopped up plants of 80 per cent water and little would show after the fourth operation, even though lying on top. On heavy soils the single furrow mold board plow is doing the best work and is doing it well.

Do Not Delay

While many are delaying the turning under until the crop "sizes up," those most experienced in citrus growing have already finished the work and strongly advocate early plowing, especially if the cover crop is a heavy one. Early plowing not only makes the crop early available to the trees but time is necessary to get the soil in proper condition for summer's irrigation. A heavy crop turned under late, if not followed by rains, especially in soils well drained, does not augur well for the next fruit crop.

With these late plowers the trouble comes mainly from late sowing and lack of soil preparation before sowing. Melilotus needs about five months to develop in a normal season and as much soil moisture is needed no pains should be spared to put the soil in a receptive condition for the expected rains. On naturally poor or impoverished soils the application of fertilizers at time of planting is advisable, but it is not the general practice. Care in preparing the seed bed will bring a heavy crop and every ton turned under is equivalent to turning under a ton of barnyard manure. The keynote to success, then, is to grow a good crop, and if this may be done by soil preparation no fertilizer amendment is necessary. Whether or not the purple vetch will displace the Melilotus Indica remains to be seen, but it is evident that at present the latter is the best winter cover crop for a wide variation in soils. Yet all should experiment with this promising vetch who can get even a small supply of seed. The practice of summer cover cropping is also rapidly gaining in favor.

ROADWAY PLANTING

Because trees have been set in stiff, exact rows along the waysides for ages, the possibility of there being any different and better way is apparently never even thought of.

Consider nature's way of grouping her trees and plants: there are no straight lines and no uniform and exact spaces between growing things of her setting, and she attains far better and more artistic results in her work than the man with the straight edge and measuring line, and there is no end to her ever changing combinations and artistic effects.

In place of rows set the trees in clumps, as a rule of but a single variety in a clump. Let the clumps vary in size and natural grouping to fit the place, from three to 30 in a bunch; the distance apart of the trees and the number in a clump to depend upon the size and growth, habit of the tree and the distance between the clumps to depend upon the lay of the land, the soil, moisture, exposure, and other conditions.

The grouping of the trees should be the work of landscape artists, the best available. Their work would add much to the beauties of the landscape that took in such roads. Some clumps might extend two or three trees deep into the roadway, and, with the consent and cooperation of the landowner, some might also project back into the fields. Others, like the tall straight lombardy poplar and eucalyptus globulus, would be effective in straight strings of about five in a line. The setting of the stakes for the clumps and for each tree in the clump should be the result of intelligent, artistic consideration given to each particular group. The spaces between clumps should be, probably, from 50 to 200 feet. By this way of treating the waysides much better results can be obtained. The view of the road from a distance would be vastly more attractive, and the view from the roads would be much more enjoyable than to have it alternate every second or two by trees cutting off the view.

The roads would have more sun to dry up the summer as well as the winter rains, which would be an economic feature of importance enough to be taken into account, and there would be numerous shady places under which to alight and enjoy the vistas.

Much more might be said upon this subject, but this is enough to show that this way would be a great improvement.—Monthly Bulletin, California Department of Agriculture.

More Than Anyone Else YOU Need What This Trade Mark Stands For

THREAD-RUBBER W

Because you haven't a battery service station just around the corner to call on in a hurry when things don't go just right—

Because you can't afford to be without your car any more than you can afford to be without modern farm machinery—

Because you operate your car not for pleasure but as an essential to your business and you want upkeep cost as low as possible.

There are a good many other reasons why you ought to be more particular than anybody to see that you get a Still Better Willard with Threaded Rubber Insulation.

Threaded Rubber has this particular advantage over any ordinary insulation: It does not have to be replaced, whereas the ordinary kind is usually replaced at least once during the life of the battery.

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It's easy to do away with this trouble and this chance of shortened battery life by saying "*I want a Still Better Willard with Threaded Rubber Insulation.*"

Ask the nearest Willard Service Station for particulars about Threaded Rubber and what it means in added battery life and better battery service.

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Threaded Rubber Insulation performs the important task of separating each positive plate from its negative neighbor, and prevents short circuits which would soon ruin the battery.

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Built for hard, gruelling work and long years of service, yet it is the most easily controlled disc on the market today.

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Once over with this engine double disc and your fields are in prime shape for planting. A time saver and money maker as is every tool that bears the world famous trade mark--"Roderick Lean".

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Has heavy, one-piece angle steel frame with extra runner plates to prevent wear, long spring teeth of special steel, and special adjustable tooth fastening device. Good clearance and light draft.

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The first steel spike tooth harrow ever built, and the best known and most widely imitated. Every ounce of special steel. Every section surrounded by strong channel steel frame, braced at two corners and center. Cannot twist.

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Furnished in 5, 6, 7 and 8 ft. sizes for use with lighter tractors. Built extra strong for power use. Operated from tractor seat by two levers within convenient reach. Adjustable hitch suits any standard light tractor.

MORE SCARED THAN HURT, BUT HURTS JUST THE SAME

(Continued from Page 527.)

the many centuries that olives have been used and we may safely assume that it will never occur again from the use of ripe olives, because the germ responsible is very rare and because the packers have taken steps to prevent a recurrence of the Eastern cases. Professor Bioletti has made a calculation based upon the ripe olive output of California and the known number of cases of botulinus poisoning from olives, and finds that one would have to eat one quart of olives daily for 3,000 years to even have a slight chance of being poisoned. In other words, commercially canned or bottled ripe olives are as safe as any canned food and safer than some home canned fruits. Cheese has been responsible for a number of fatal cases of botulinus poisoning, and sausage is a frequent carrier of this poison. If we are to continue eating at all we shall have to take a slight risk of an unexpected and painless journey to the Great Beyond through eating food containing the botulinus toxin, because practically any food product may contain this toxin under suitable conditions.

"This poison is formed by a germ known as Bacillus botulinus, whose exact habitat or origin in nature is unknown. It has been known to occur on fruits and vegetables, but fortunately very rarely, and is also known to form spores which are extremely resistant to heat. These spores correspond in germs to the seeds of higher plants. Under certain conditions, such as in vegetable canning in the household, these spores will withstand three hours boiling and still be active enough to germinate in the jar of vegetables and produce the toxin. In fruits, however, the spores are easily killed if the fruits are sterilized in the jars in boiling water for 20 minutes, because the fruit acid aids sterilization. It is only improperly home canned foods that are dangerous and even from these it can be seen that the danger is very slight when one considers the billions of cans of canned foods used annually without injury to health. The writer feels that the present hysterical fear of canned foods existing in certain localities is entirely unfounded, and believes, further, that the use of canned olives or other canned fruits is no more dangerous than riding on a street car. Nevertheless, this fact should not prevent our taking every precaution to prevent poisoning from botulinus toxin.

"The bacillus (germ) itself is not infectious and cannot grow in the animal body. It is only the poison formed by this organism under anaerobic conditions (i. e., in the absence of air) that is dangerous. The poison is easily destroyed by heating the canned product to boiling after the can or jar is opened for use.

"Thus we have two methods of eliminating the even remote possibility of this type of food poisoning. We may kill all of the spores of the bacillus (should by any chance they be present) in the can or jar of food by thorough sterilization at the time of canning; or we may boil the food before use to destroy the toxin (poison). In practically every case, so far reported, the infected can or jar of food has given off a sour or rancid odor when opened. Such food should, of course, never be used. In cheese and sausage the presence of the toxin is not so easily noticed.

Prof. Cruess then gives information as to gathering, pickling and details as to factory methods. Touching upon sterilization, he says:

"The sorted and graded fruit is filled into cans or jars by weight. A dilute brine (2½ to 5 per cent salt) is added. Cans are exhausted by passing them through a steam box at 185 degrees Fahrenheit to 210 degrees Fahrenheit. The heated cans are sealed in sanitary can double steamers. Jars are exhausted and sealed under special vacuum sealers.

"The sealed containers in nearly all factories are sterilized in large steam pressure retorts at 225 degrees Fahrenheit to 240 degrees Fahrenheit, temperatures well above the boiling point of water and which are high enough to insure thorough sterilization. A few factories use boiling water for sterilization, but for a period of time several times greater than that given any other canned fruit.

"Erroneous statements from various sources have appeared recently in the press to the effect that canned olives are not heated. This statement is at variance with the facts. Ripe olives are sterilized at high temperatures."

LAND SETTLEMENT PLANS AT DELHI

(Continued from Page 529.)

might well be administered by ex-service men only.

"Another proposed amendment which I hope will not prevail, would make this act apply to soldiers only. Nothing could be more unfortunate than to narrow the operation of the act from its original purpose. It was passed in the first place as a means of lessening the growing dangers of tenantry, to help keep boys and girls on the farm, to introduce cooperation and a better social life in country neighborhoods. The results at Durham show that all these benefits can be secured. The causes that led to the original act still exist. Ex-service men will be numerous and valuable members of these neighborhoods, but the door of opportunity ought not to be closed on the girls and boys who are coming into womanhood and manhood and which the state will need on the farms. This act ought to remain what it is now, a beacon of hope to every industrious and aspiring person who is willing to pay to the state every dollar it spends to help him. If it is to be kept on that basis, there is no limit to the amount of money which the state can safely and profitably expend and no cause to limit the number of people that should be and can be helped. We will have better country neighborhoods if the test is the fitness of people to make the cost of the soil and climate and to build up there a sound and progressive rural life. The land settlement board feels and has declared that if he is a good farmer he will be given a preference because he was a soldier. But if he is not a good farmer he should not be given such preference.

"I have written quite fully about this because I believe the Legion has before it a great opportunity to strengthen the movement begun in this state to create here a high rural civilization and to relieve the state of certain things that menace rural life all over this country. The operation of the California Land Settlement Act has already been an incentive to other states. Since it was adopted, South Dakota has passed, and has in operation, a similar act. The governor of Kansas hopes to secure the enactment of one at the next session. The Legion can best serve the state and the interests of its own members by broadening the scope of this act rather than through its restriction."

AMERICA'S PLACE IN FARMING

The American farmer leads the world in individual production of crops. Belgium and some of the countries in Europe where intensive farming is practiced exceed America in the yield per acre. Each American farmer, however, produces two and one-half times as much actual food as does the Belgian farmer; two and three-tenths times as much as the British farmer; three and two-tenths times as much as the French farmer, and three times as much as the Italian.

Our broad acres furnished the incentive to American ingenuity in the development of labor saving farm machinery. These machines used on our vast stretches of rich land make it possible for America to excel in the production of food per man. It is likely that America will always maintain her lead in production per man because of soil and social conditions.

As the population of America increases the production per man will undoubtedly become smaller, but the production per acre will become greater. It is even possible that America may at no distant date approach the Europeans in the yield per acre, and at the same time keep the size of farms sufficiently large to warrant the employment of labor saving machinery, thus making certain our continued lead in production per man —Nebraska Farmer.

5 Things Worth Remembering about a MAXWELL Truck

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2. It hauls 1½ tons; 75% of all loads carried by horse or motor are 1½ tons or less.
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4. It is very simple in design (more brains than metal have been used in its construction); it travels faster than a larger truck. 16,000 have supplied abundant evidence of its economic transportation.
5. A comparison with other 1½ ton trucks shows a saving of $300 to $400 in the original investment in a Maxwell.

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More miles on tires

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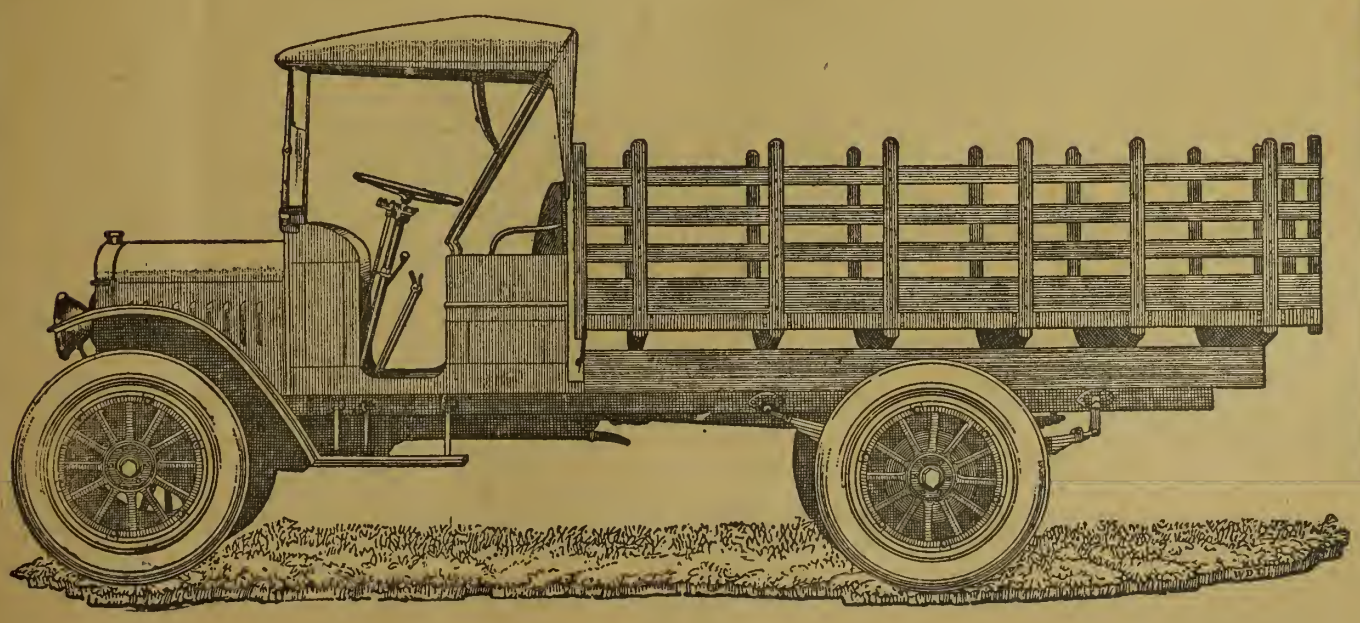

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultvator 1916

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Saturday March 27, 1920

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We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

ARISTOCRATIC

Potatoes have now joined the aristocracy. In the stands they are arranged alongside oranges and apples—"Five cents each. Take your pick."

A REAL RAIN

"Now is the winter of our discontent made glorious summer" by the finest and largest rain of the season.

It has been spotted, at times raining heavily in some places and not at all in others, but sometime during the storm every section of the state has had its drenching. The clouds are still promising, and already since the storm began on Saturday there has been precipitated between two and three inches in producing sections. The fall of snow in the mountains has also been extremely heavy, and it is hoped the power shortage will be relieved.

TAXES

Second, or final, payment on our tax for the support of the counties will soon become delinquent, and this, in connection with the income tax just paid. helps to remind us that government appeals for greater thrift—personal thrift—may well be supplemented by county, state and national thrift. If it's well for the farmer to let the hired man go and put in a few extra hours of hard work, it is well for some of the useless tax eaters to be passed on to more productive jobs.

Meantime, there is another tax, with some—a very few—payable the year round—"Idleness and pride tax with heavier hand than kings and parliaments."

CONSUMERS TAX

Consumers are watching with no little interest the effort in Washington to repeal the income tax law, or at least the excess profits portion of it, and put the entire burden on the consumer. The claim is made by friends of the movement that the manufacturers and dealers place on goods a price sufficiently above cost so that the consumer is forced to pay the excess profits tax in any case, and in order to cover with safety they are inclined to allow altogether too wide a margin. However, the consumer prefers to take his chances and let the excess profits care for themselves rather than have the entire cost put upon matches at one cent per hundred and other articles in proportion.

HOUSE THE IMPLEMENTS

Only a short ride on California good roads is necessary to convince even the casual observer that Californians as a rule do not give sufficient attention to machinery and implement conservation. Time and again we have seen the harvester, and even sometimes a combined harvester and thresher, standing in the field where left nearly a year ago. Cultivators, plows, even tractors, are often given similar treatment. They are heartless things and have no nerves, but today's prices make their preservation necessary. More farmers should consider the wisdom of shed room to protect implements when not in actual use. Besides, overhauling, cleaning and repairing is made possible on rainy days.

SUPPORT LOCAL PAPERS

If our readers will pardon the hint—which isn't strictly agricultural—we would like to say one word in favor of local country papers of California.

The man who buys white print paper these days on which to chronicle the events of the community and aid in its upbuilding has a problem which calls for hearty support if it is to be solved. White print is not only enormously high in price, but at times next to impossible to secure. Ink, type, labor—but we need not go farther—it is the same old story, only it is especially aggravated in the printing trades. The large city papers, and possibly the farm papers, are giving service for a lesser sum than the local papers can possibly do it, but the local paper is essential to the welfare of every community.

DAYLIGHT SAVING

Again the question of daylight saving is causing contention between the city folk and rural folk. Congress revoked the daylight saving enactment so that nationally it is presumed the question will not come up again this year. It will be recalled that the first bill repealing the former daylight saving law was vetoed by the President and later passed over his veto without any particular effort. This because of the campaign which had been originally made by farm organizations of the Middle West.

But a peculiar situation confronted California when it was feared the water shortage might call for every possible saving of electrical power. Gov. Stephens expressed himself as in favor of saving, if possible, by pushing the clocks ahead one hour. But this is calling forth more opposition than was shown by California producers under the national enactment. Now the farmers are making appeal to those who wish to save one hour of daylight to do so, but to leave farming operations to be conducted, as they necessarily must be, according to the time arranged by Old Sol.

GROW SORGHUM

Sugar is still up; it is going to remain up; at least, our guess is that we will never again be tiring our arms with lugging home 20 pounds of sugar for which we paid one dollar, excepting in memory, as we sing, "Them Was the Days." The American's sweet tooth is well developed and must have the sweet. Why not grow it ourselves? The sweet sorghums offer the opportunity. They grow to perfection in California, and now comes the cooperative sorghum syrup mill.

The home supply can be secured in this way and the market built up for special trade in jugs of sorghum molasses. Some don't like it; more do; in any case it is a good, healthful sweet. Sorghum growing is having a real revival in many Eastern points. The extension service of the Minnesota agricultural college is urging more general planting and giving suggestions for establishing cooperative factories. The first point in starting a cooperative sorghum syrup industry is an assured acreage.

ORDER OF MERIT

Americans are a bit inclined to decorate with medals, badges and ribbons and to pay great honor to the winners. One of the departments at Washington is in fact accused of being rather free, or, again, rather close, in giving out medals for war services—the freeness or closeness according to relationship or viewpoint. But if medals are in order it seems to us the French have a fine custom of conferring recognition on persons who have distinguished themselves in agriculture. Those who have conspicuously aided progress in agricultural practice are awarded "The Order of Agricultural Merit." There is one objection to the French custom, however, and that is that a good stiff fee seems to be necessary to secure this decoration. We have heard no charge made, however, that the awarding commission is influenced by this fee.

In America the University of Illinois has what is known as The Hall of Fame, in which portraits of great agriculturists are displayed. A national badge has been suggested but never as yet accepted. Meantime the American farmer is doing pretty well without any decorations.

WHY UNIONIZE THE FARM?

The labor union is making another effort to induce farmers to affiliate with it in order to make more effective the demands of farmer or laborer. In urging the wisdom of the step in an article in The American Federationist, Samuel Gompers says:

"The strike is a right which must be maintained by the workers of the United States in the interests of human progress. It is a right which must be maintained for the progress of the farmers as well as for the progress of the workers in mills, mines and railroads." "The strike is a resentment against the imposition of tyranny and injustice."

This latter statement may have been true in certain instances; there have been other instances, however, where strikes have resulted in the imposition of even greater tyranny and injustice.

Since the strike of the Boston policemen where unionism proved stronger than loyalty and the oath taken by officers to enforce the law was set aside by the oath to stand by the union, strikes have not been in good form in the United States. In addition, they are proving, as they always have, desperately expensive, not only to empolyer and empioye, but more so to producers who have goods to market, and in the final payment of bills the consumer gets his share. It is a fearfully expensive method of settling quarrels.

The farmer is not taking a hand at that game.

EAT MEAT

On Monday begins Meat Week. It is not to be a week's campaign to induce greater consumption of meat so much as to induce consumption of the cheaper cuts of meat. The department of justice at Washington, D. C., has issued this statement: "The department feels that this campaign, while undertaken primarily in the interests of the consumer, will also be beneficial to the livestock producer by broadening the demand for all parts of the meat animal. As you know, there is a large group of persons who, when the price of choice cuts of meat goes very high, reduce their consumption of meat instead of turning to the less expensive cuts. This checks consumption, which in turn checks production."

The present week, March 22-27, is Meat Week in New York, Pennsylvania, Ohio and other states as far west as Iowa. Next week, beginning on Monday, March 29, will be Meat Week in Maine, Vermont, Connecticut, New Hampshire, Rhode Island, Massachusetts and the three states bordering the Pacific. The following week, beginning April 5, will be observed in Missouri and other Southeastern states, while other Southern and Middle Western states end the campaign the week beginning April 12.

Why the department of justice enters into this campaign we are not fully informed, but so long as it is making a good fight in a good cause, here is welcome. It is very probable that the fierce campaign made during war days against consumption of so many things that were really liked has started a habit which has induced us to refrain from normal consumption of some of the most healthful of foods. Meat is healthful; it is energy giving and it is right that all should encourage the industry which at this moment is in a trying situation. Europe is finding American goods at American prices altogether too high, and staples which were shipped across the Atlantic are now being reshipped and sold at prices higher than can possibly be secured on that side of the water. Besides, for years long before the war all Americans have been almost a unit in demanding the higher priced cuts. There is as much nourishment and, properly cooked, as much satisfaction, in eating some of the more common cuts. We may well try it for one week, at least.

From Seed to Feed

By Ernest Braunton

WHEN cotton is ginned there is removed from the seed all that the grower wishes to sell as staple cotton. For though much lint still remains clinging to the seeds, it is so short that were it included it would reduce his cotton to second grade. So after the gin separates the seed from the lint the grower hauls his cotton away and sells the seed to the gin, for it cannot be profitably handled in less than carload lots.

Nor do the seeds long remain at the gin for no equipment is there to use them in any way whatsoever. They are sold and shipped to the mills, to be converted into cottonseed oil and oil meal, and the raw hulls are sold for stock food before being processed in any way except to clean them of dirt and rubbish. The seed itself goes through some interesting changes before it reaches the consumer, one part of it going to feed the human family and the other for consumption by the lower animals.

At the Mill

When the seed arrives at the mill each car with its contents is weighed and unloaded into screw conveyors which force it to the top of gigantic storage warehouses where it is piled 40 feet high. It is then fed to cleaners that remove sticks, dirt and other debris, after which it is run through the linters and fairly cleaned of the lint or cotton adhering. These cut from 70 to 125 pounds of lint from each gross ton of seed. This by-product in times of war went to make ammunition; in times of peace it is made into mattresses. Thus on November 11, 1918, it passed from the explosive action of war to the somnolence of peace. To the curious it may be stated that gun cotton, a high explosive, is made by drying this cotton at 100 degrees and soaking it for 24 hours in a mixture of one part nitric acid to three parts of sulphuric acid, cooled and washed with water.

In the oil mill the seeds are hulled and broken and the meats separated from the hulls. The hulls go into storage for the time being or may be shipped direct to stock yards or dairies for feeding to cattle or other domestic animals. The meats pass on to rolls such as are found in all roller flour mills and are ground to powder or flour. This finds its way into steam kettles, where it is warmed and moistened for one hour and is then formed into cakes an inch or two thick, one foot wide and two feet long, wrapped in mats of camel hair cloth and put into presses. These presses subject the cakes to a pressure of 2,500 pounds to the square inch and the oil fairly gushes out.

Oil Leaves Mill

The oil is then shipped in tanks to the refinery and after refining goes into salad oils or compounds, being put to various uses. But the cakes remain behind and as they dry become so hard that they cannot easily be broken by the hands, for the pressure undergone was sufficient to solidify anything possessed of adhesive properties. These cakes are thrown into crushers similar to rock crushers and broken into pieces less than an inch square. These are in turn fed into the grinding mills and come out as cottonseed meal, a stock food high in protein and much in demand at both fattening stalls and dairies. In feeding cattle this meal is often mixed with cottonseed hulls for roughage, generally 25 or 30 pounds of hulls to six pounds of meal. The hulls hold the meal in better distribution than bean or cereal straws, being "woolly," while the latter are smooth and glassy and allow the meal to slip through to the bottom of the feed trough. More than two-thirds of the value of cotton seed lies in the oil, the remainder in lint and foodstuffs for livestock.

Interesting Figures

In a food survey published by the federal government it was shown that on the first of January, 1918, there were 34,383,879 gallons of cottonseed oil in the United States. For comparison, on the same date we had 3,921,877 gallons of olive oil. In 1917 there was much more cottonseed oil and much less olive oil.

In "Feeds and Feeding," by Henry and Morrison, the digestible nutrients in 100 pounds of cottonseed meal is given as follows: Crude protein, 38.4 pounds; carbohydrates, 24.3; fat, 7.9; total, 80.5. In 100 pounds of cottonseed hulls: Crude protein, 0.3; carbohydrates, 33.3; fat, 1.5; total, 37.0. Little cotton seed is fed before the oil is extracted, both on account of the value of the oil and because cottonseed meal gives better results. The cake is often fed finely broken in bits, especially out of doors, where the meal would be blown about and scattered by the wind. Care should be taken not to feed cattle too much cottonseed meal or for too long a period, but mix well with other foodstuffs, though it is one of the most valuable and most economic of stock foods.

The writer is indebted to T. W. McDevitt and J. P. Conduit of the California Cotton Oil Company, Los Angeles, for the courtesy of a "personally conducted" trip through their oil mills, which have a capacity of 120 tons of crude cotton seed per day.

IF YOU—CAN

Young Hopeful (to his sister): "I say, Nell, pass me the butter."

Nell (in a ton of sisterly reproach): "If what, Johnny?"

Johnny (goaded to desperation by the delay): "If you can reach it."

MOTOR TRUCK BIG FACTOR IN MODERN FARMING

(Continued from Cover Page.)

ucts, for the establishment of satisfactory rural schools, and for the development of a richer and more attractive rural life. Recognizing these facts the federal government, through the passage of the federal aid road act in 1916, inaugurated a policy of direct financial participation in road building operations in the various states. This act appropriated $75,000,000, to be matched by an equal amount from the states, for the construction of rural post roads over a period f five years, and $10,000,000—$1,000,000 a year for ten years—for roads within or partly within the national forests."

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Nearly all motorists are familiar with the many imitations of Michelin Red Inner Tubes, and with the fact that such imitations have been unsuccessful except as regards color.
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To protect against substitution examine the box carefully being sure that it is sealed and that you are actually getting a Michelin Tube.
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Dealers in all parts of the world.

After the Cutworms

By L. V. Bonner

WITH the renewal of the activity of the vines the grape grower must again pay careful attention to them in order to obtain a maximum crop. As soon as the vines are starting to sprout or sometimes even before the buds are swelling they are susceptible to attack by cutworms. When the worms are very numerous and the vineyard very cleanly cultivated so that no weeds are available for the pest, the hungry worms climb on the vines to eat the soft tissues that can be found. Sometimes the buds are destroyed before they swell and the damage is not seen until late when the vines sprout very irregularly. The damage caused by such an early infestation is considerable, as most of the buds fail to grow at all. So where cutworms are present every year it is very important to watch them about the time of sprouting of the vines, especially when the soil is without weeds. The injured buds show a small hole and when cut through the middle the tender central part has entirely disappeared.

If the attack occurs at the time of sprouting, it is more easily detected than when it happens before, but the loss of crop may also be serious.

Severe attacks are periodical. The cutworms seem to increase slowly in number for two or three years, when suddenly they appear in large numbers, causing great damage to vineyards. Then they disappear naturally through the parasitism of small insects or perhaps also because of insufficient development resulting from scarcity of food.

The methods of control are varied. As the cutworms do not feed ordinarily on vines and when weeds are abundant the damages to vines are negligible an apparently logical method of preserving the vines against the attacks of cutworms is to grow a green manure crop in the vineyard until late. This method appears very promising from the two points of view of preventing injury to vines and of increasing the humus content of the soil. In localities where there is plenty of water for irrigation, this method can give good results.

When an infested vineyard has been cultivated in the winter and no weeds are present, it is necessary to combat the pest by direct means. In small vineyards traps consisting of small boards or flat stones can be placed on the ground around the stump of the vines. Cutworms will hide beneath them during the day and it is easy to kill them. In large vineyards poisoned baits are used and may be supplemented by arsenical sprays. A satisfactory poisoned bait is made as follows: 40 pounds of bran, two gallons of cheap molasses and five pounds of arsenic. A sufficient quantity of this bait should be put right at the base of the stems to encircle them.

When the vines have sprouted an arsenical spray can be used with advantage. Five pounds of lead acetate to 50 gallons of water is a good formula. Paris green at the rate of one pound to 75 gallons of water is another efficacious spray.

Water, Power and Prosperity

ALL of California is asking: "How are we going to do it?" The opportunity is here for the state's greatest crop production, but there is one serious handicap—so serious, in fact, that it appears it will be almost impossible to overcome. Still, the state has been forced to solve bigger problems.

Gravity water from the hills will flow less freely this season, and this means not only direct loss of irrigation waters but loss of power to lift other water from the gravel beds.

We cannot create, but we may at least conserve. Every suggestion along this line is worth considering. Here are some so valuable, by I. W. Alexander, in the recent issue of the Associated Grower, that we present to Cultivator readers:

* * *

By I. W. Alexander

In view of the present short water conditions as the result of three years of less than normal rain and snowfall it is interesting to survey the economy that is practiced by hydro-electric companies in the use of water and the huge benefits that result.

The tremendously increasing demand for electricity throughout the San Joaquin Valley, and the entire West for that matter, is spurring the big power companies to mighty development efforts that would have been undreamed of a few years ago. The gigantic project of the San Joaquin Light & Power Corporation on the North Fork of the Kings River, which will develop more than 300,000 horsepower by means of reservoiring in the higher altitudes, and the additional development of the Southern California Edison Company on the South Fork of the San Joaquin River, are two striking examples at our very door.

These big developments will be a blessing to the public. First, because of the additional electric power to be developed; secondly, because they are performing a valuable public service in the conservation of waste waters during flood seasons for use at later times when badly needed for irrigation. A double economy and conservation is performed in this respect. At the time the proposed great gravity irrigation projects will be in need of their reserve water supply the power companies likewise will be compelled to operate to capacity. This will mean the releasing of the stored up waters in the higher altitudes for the generating of electricity. Once released the waters pass through the several power houses, thence back into the river channel and on to the lower elevations for use in gravity irrigation.

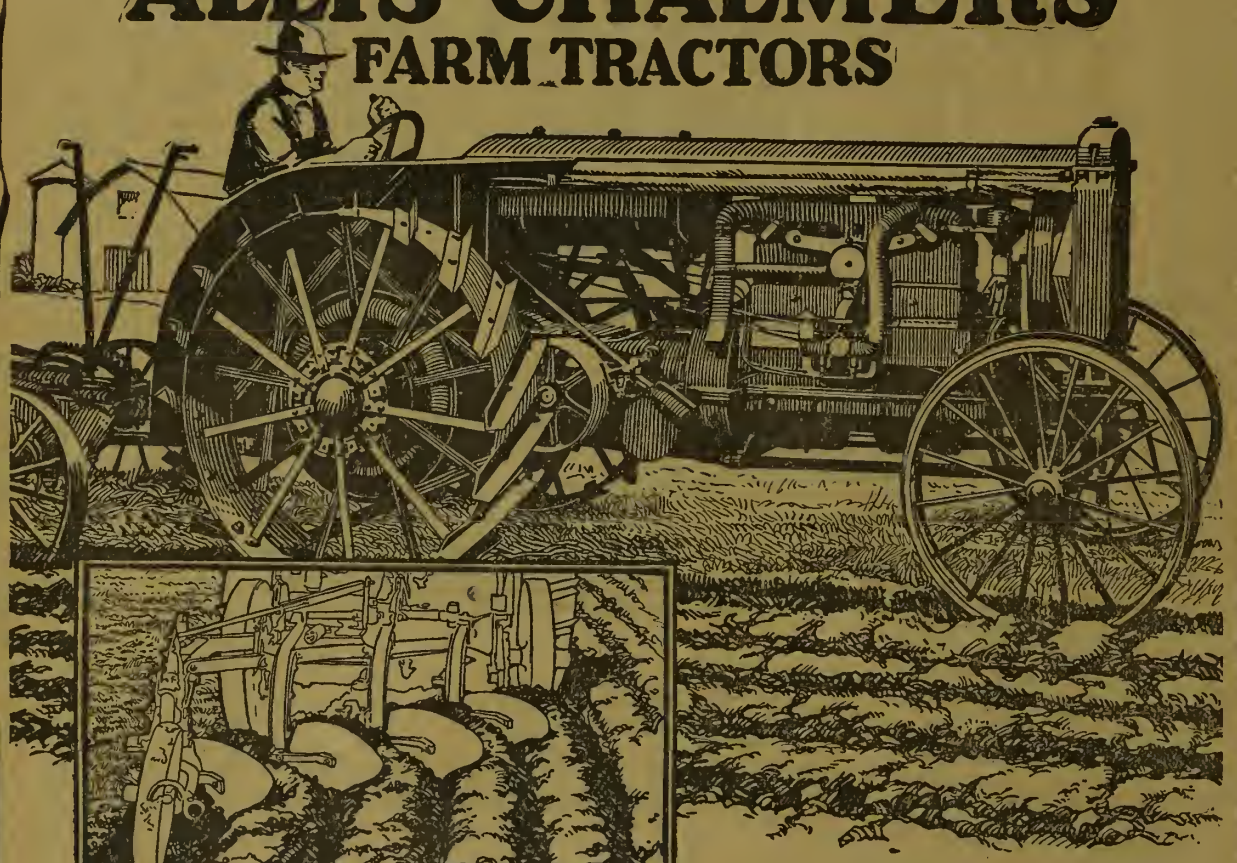
Electric pumping and gravity irrigation will go hand in hand in the ultimate development of the San Joaquin Valley. One will not perform its maximum service without the other, and together they will enable the conservation and utilization of the water supply of this great valley to its fullest extent.

All of the tremendous hydro-electric developments now in progress or under contemplation provide for the reservoiring of the flood waters in the higher mountain elevations, much farther up than the locations at which gravity irrigation districts only can with profit reservoir. This, of course, will enable the ultimate conservation of far more water than if the irrigation districts alone were commissioned with the reservoiring. This additional stored water will be released during the low water periods, when electric power is needed and when additional water is needed for gravity irrigation.

The passage of water through the electric power generating plants does not diminish the supply of water. It is returned to the river channel in its original quantity, after having produced the power that is transmitted over miles and miles of slender copper wires to light our homes, propel our street cars and elevators, cool our rooms, cook our meals and, the most important of all, raise to the surface of the earth again, for purpose of irrigation, the very same water that has heretofore made all this possible.

In the final performance of water conservation and irrigation, gravity systems will irrigate the lands along the higher levels; pumping will be resorted to to put the water upon the lower levels. This will enable a double service with the same amount of water and further enable the reclamation of thousands of acres, at present water logged, by the readjustment of unequal water levels that will be brought

ALLIS-CHALMERS
FARM TRACTORS



16 Acres a Day—10 Hours Work

Owners of Allis-Chalmers 18-30 Farm Tractors are reporting 2 gallons to the acre kerosene consumption plowing 16 acres a day with four 14-in. bottoms.

Where disc plows are used the 18-30 pulls six discs.

Fuel and oil costs of 35 cents to the acre are reported from many sections.

One distributor canvassed 35 owners of the 18-30 and received a 100% rating for economy—efficiency—service—cooling.

These facts are more important to you than all the specifications we could give or all the claims we could make.

They prove that the Allis-Chalmers pulls four plows cheaper than most others pull three—and does 30% more work.

5 Acres a Day With the 6-12

Where a one man tractor is wanted—the Allis-Chalmers 6-12 will turn over 5 acres a day pulling two 12 in. bottoms—it will pull two 24 in. discs.

The operator sits over the implement or on the implement seat with any standard implement.

Clearance is 26½ in. for pulling two row cultivator.

The 18-30

3000 pound draw bar pull at high speed of 2.8 miles an hour.
30 H. P. at the belt.
20% surplus power over rated capacity.
Removable cylinder sleeves.
Allis-Chalmers Radiator, fin and tube, extra large capacity.
Extra large water jackets.
Double bowl, kerosene burning carburetor.
Force feed lubrication with sight feed lubricator.
Magneto ignition, impulse starter.
Allis-Chalmers Centrifugal governor.
Allis-Chalmers expanding shoe clutch.
Allis-Chalmers transmission, special heat treated gears, two forward speeds.
Allis-Chalmers rear axle and enclosed gear final drive.
Transmission brake.
Adjustable, swiveled draw bar.
All working parts dust proof.
Connecting rod bearings easily reached through large hand hole plates in motor base.
Three point suspension with hollow square, pivoted front axle.
Frameless construction, with steel motor base, clutch and transmission housing and rear axle housing firmy bolted together.

The 6-12

1000 pound draw bar pull.
12 H. P. at the belt.
Belt pulley removable when not in use.
Allis-Chalmers fin and tube radiator.
Magneto ignition.
All parts readily accessible.
Adjustable hitch for any standard implement.

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For 65 years known as one of the largest manufacturers of high grade machinery in the world.

Distributors: Triangle Motors Co., Bloomington, Ill.; Triangle Motors Co., Indianapolis, Ind.; Murphy Mach. & Supply Co., St. Louis Mo.; Murphy Mach. & Supply Co., Memphis, Tenn.; Barton Mortor Co., New Orleans, La.; G. W. Brown Co., Jacksonville, Fla.; F. B. Smith, Santa Ana, Calif.; Northwest Tractor Co., Everett, Wash.; H. W. Moore & Co., Denver, Colo.; Hawkeye Tractor & Implement Co., Des Moines, Iowa; Hulseman Bros., Kansas City, Mo.; The Motor Co., Winston-Salem, N. C.; J. J. Tabor Co., Fargo, N. Dak.; Bard Motor Co., Sioux City, Iowa. Branches at Dallas, Louisville, Minneapolis, Omaha, Toronto.

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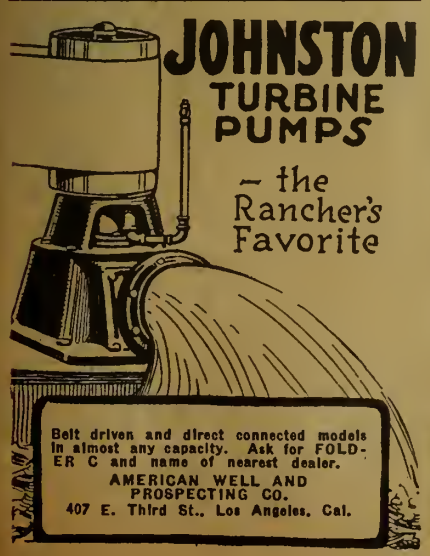

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407 E. Third St., Los Angeles, Cal.

about ultimately by increased surface pumping.

In pumping territories more attention will be devoted in the future to the planting of crops that will return the greatest income for the cost of production. Pumping of water for alfalfa growing is many, many times more expensive than the cost of pumping for fruit growing, because on the average four times as much water is required to irrigate alfalfa. Furthermore, the return per acre on such high class products as grapes, raisins, table fruits, dried fruits and vegetables is as much as five or six times, and there are cases of it being ten times, greater than from alfalfa. Therefore, anyone growing alfalfa in a fruit country is unquestionably wasting his time and valuable water. Educational methods will correct this condition and at the same time perform a valuable public service in conservation.

OAK ROOT FUNGUS

New South Wales has her sorrows with Armillaria but is finding partial relief in iron sulphate. We note in the Agricultural Gazette:

"A treatment which is claimed to have saved many apple trees from armillaria is practiced by Messrs. Sim of Capertee. The fungus, it may be remarked, will sometimes remain about the roots of a tree for a long time before it makes sufficient inroads to produce marked manifestations in the tree of its presence. The ingredient used in the protective treatment referred to is sulphate of iron, in the proportion of one pound to two gallons of water. The orchardists above mentioned replied to an inquiry from the department as to the application of the treatment as follows:

"The quantity applied to the trees depends upon the area affected. Our method is to bare the roots, scrape the affected parts and pour on the solution from a watering can. In bad cases the soil in the vicinity of the parts attacked is saturated as a safeguard against reinfection. A gallon of the solution may be necessary in a severe case and its use would be in no way harmful to the tree."

INVENTORY IN MAKING INCOME REPORT

From various and seemingly authoritative sources many farmers have received the information that they are not allowed to use their inventories in making their income tax report. This apprehension should be dispelled at once. The rulings are very plain on this point. The farmer who takes an inventory of his livestock and crops at beginning and end of the year can and should use it in making his report, says W. E. Foard of the University of Missouri college of agriculture. The inventory value of all livestock and crops on hand at beginning of year (January 1), plus all farm expenses for the year, should be subtracted from the sum of all farm sales and inventory value at end of year. The difference is net income. From net income the farmer takes personal exemptions and church contributions to find the income on which he is to pay tax. Inventories should be taken now and dated January 1 in order to start the year 1920 aright.

By figuring income on the inventory basis, one gets around the difficulty where two crops may be sold the same year, thereby instead of having to record two years' income in one, it properly distributes the income in the year in which it was actually made. This principle holds true for stock that may be carried over from one year to another. The inventory method protects the man who may have a sale and sells off a lot of livestock and feed. A man will pay $210 more income tax on $8,000 income when this is all paid in one year as compared to paying on $4,000 for each of two years.

A farm record properly kept will save the farmer many times its cost in income tax alone because the inventory and record will reflect the proper income. Without the record the farmer will almost invariably report an income larger than he really has. Get a farm account book now and start your record for 1920.

THE SAME SHAPE

Traveler, in country store—"What have you in the shape of automobile tires?"

Clerk—"Fresh doughnuts."

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Put a Cletrac on the job. Sturdy, powerful, rugged and sure-footed, Cletracs are the ideal all-purpose farm tractors. Easy to run—working every day, 24 hours a day if necessary. Lays its own endless track. Travels lightly over any surface, no matter how soft or slippery, with a strong, steady pull and without packing the soil.

The Cletrac operates perfectly and economically on "gas," distillate or kerosene. Costs less to operate than any similar power unit or the six to eight horses it replaces.

The Cletrac's widespread popularity has led to a bigger output and lower manufacturing costs. The result is our offer of an *improved Cletrac with a larger motor, an 8-inch-wide single-grouter track, an exclusive steering device and a special water clarifier, at a reduction in price from $1585 to $1395 F. O. B. Cleveland.*

Order now to insure prompt delivery.

Write today for that interesting booklet, "Selecting Your Tractor." It's free.

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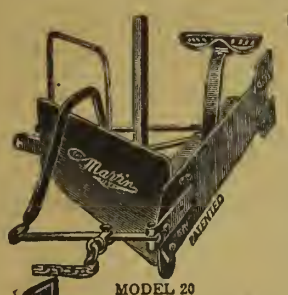

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When carried on in the usual manner—plow, scraper, pick and shovel—ditching is a tough job. Many thousands of the country's best farmers have found an easy, quick and economical way. The purpose of this ad is to get in touch with those who still dread the job.

The "MARTIN" is the easy way

It does the work of many men; it does a better job in far less time. It is a simple, all-steel, reversible and adjustable implement, built to last a lifetime. Works in any soil, wet or dry, hard or soft, on hillside or level. Has many other uses other than ditch-making and cleaning.

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Look for this mark on the ditcher you buy. It is our guarantee of satisfaction TO YOU!

Hoover on "Agriculture" and "Industry"

THE outstanding feature of civilization during the last century has been the increasing growth of industry as distinguished from agriculture. Many states have stimulated this side of national life until they have built up their populations far beyond the capacity of their land. We have the most profound instances of this in England and Germany. In these states the population is today dependent upon the import, mostly from overseas, of from 30 to 70 per cent of different food commodities through the exchange of industrial products. The very life of their people is thus dependent upon maintaining open the free access to overseas markets. From this necessity have grown the great naval armaments of the world and the burden that they imply on all kinds and classes of population. Such nations of necessity have engaged in fierce competition for markets for their industrial products. They have thus built up the background of world conflicts. The titanic struggles that resulted have endangered the very lives of their people from starvation. Their war tactics have in large degree been directed to strangle food supplies.

One other result of this development has been the terrible congestion of populations in manufacturing areas. All such congested populations are periodically subjected to low standards of living, of housing, and other conditions of life that make for physical and moral degeneration. In times of industrial prosperity the standard of living increases in these manufacturing areas, but in times of industrial depression they only maintain themselves by the practical sweating of the workers. Beyond this there is another jeopardy which has received too little attention; in times of industrial depression, whether brought about by war or by the ebb and flow of world prosperity, these populations, oppressed with misery, turn to political remedies for matters that are beyond human control. They naturally resent the lowering of their standards of living and they inevitably resort to industrial strife, to strikes, and disorder. Their productivity, upon which the very life of the nation depends, again decreases, and their ability to buy food from abroad decreases in train with their fallen productivity because they decrease the production of goods to send in exchange. One other result of large industrial development is that in times of industrial prosperity when the standard of living rises in general industry it attracts into its radius the agricultural population and immediately creates inroads into agricultural production. To some extent this is a natural balancing of forces which tends to stabilize itself in time. But there are social and political phases more important than sheer economic balances.

Years ago our predominant export was food. Then we turned to importing mouths for an expanding industry and our net export food surplus diminished to a low ebb until the beginning of the war, when it received a special and temporary stimulus. By and large our industries have been in a high state of prosperity. More favorable hours, more favorable wages, are today offered in industry than in agriculture. The industries are drawing the workers from our farms. If this balance in relative returns is to continue we face a gradual decrease in our agricultural productivity. If we should develop our exports of industrial commodities during the next five years as rapidly as we have during the past five years we shall by that time be faced with the necessity to import foodstuffs.

Some economists will argue, of course, that if we can manufacture goods cheaper than the rest of the world and exchange them for foodstuffs abroad, we should do so. But such argument again ignores certain fundamental social and broad political questions. These dangers have become more emphasized by experience of the war. From dependence on overseas supplies of food, we shall, by the very concern that will grow in the public mind as to the safety of these supplies, soon find ourselves discussing the question of dominating the seas. Our international relations will have become infinitely more complex and more difficult. Unless the League of Nations serves its ideal we shall have to burden ourselves with more taxation to maintain great naval and military forces. But of far more importance than this is the fact that the social stability of our country and the development of our national life depends upon our farms and villages. These are the sources that have always supplied our country with its true Americanism, its new and fresh minds, its physical and its moral strength. Industry's real market is with the farmer; it benefits by an increase of his standard of living. We want our exports to grow in exchange for commodities we need from abroad, but we want them to grow in tune with our social and political interests, and to do so they must grow in step with agriculture.

Therefore, when we sit down to consider our reconstruction policies from the war, when we sit down to plan the future development of our country, our first thought should be of the state of our agricultural industry. For the last three months I have been a member of the Industrial Commission at Washington, endeavoring to find some solution for the conflicts and social wrongs that have grown up in our industrial community. Great as is the need for constructive thought with regard to its weaknesses the need for similar thought and similar activity is still greater with regard to agriculture.

The prime problem is to make the agricultural industry economically attractive so that it draws into its service its full proportion of American life, so that it can keep pace with industry in its rapid development. When we come to the consideration of practical measures we soon arrive at two primary facts. The first is, the farmer's main production must find its market either in the great industrial centres along the Atlantic seaboard or, alternatively, in export to Europe. In either case the prices in normal times are made primarily by competition with the other great sources of the world's food supply. His prices are thus only remotely regulated by the cost of production. Strict economists will argue that if the prices are unprofitable to the farmer this will ultimately correct itself by diminished production and consequent general rise in the world level of prices. Amid the complex flow of economic forces today these results come very slowly and in the meantime the actual result is mainly a decrease in the standard of the farmer's living. For the farmer must plant and gamble in advance on the demand. He cannot decrease his production to meet such contingencies with the facility of organized industry. Whatever the economic argument may be the outstanding fact is that for all practical purposes the farmer's level of prices is made by the world prices of food as interpreted at the point of delivery, and during wide periods of time he is underpaid. On the whole he has not been underpaid during the war, but recently the tide has begun to turn against him.

The second great fact that would be developed is that the American farmer receives a less proportion of the consumer's purchase price for his product than the farmer in most other civilized countries; that is, the margin between the farmer and the consumer is the widest in the world. This margin comes partly out of the consumer but predominantly out of the farmer, for, as I have said, the prices to the consumer in the great food commodities in normal times are fixed by world forces. If we assume the basis of price is not to be remedied the line of practical remedy to the farmer lies in decreasing the cost of placing his products into the hands of the consumer. Every cent that we can decrease this cost contributes to the consumer, but even more largely to the farmer.

If we analyze the weaknesses of our system of distribution we can for purposes of discussion divide it into three phases: transportation, manufacture

From Nothing to Independence
In Less Than 5 Years
In Northern Imperial Valley

W. H. Young, of Calipatria, four years ago had difficulty in securing groceries. Today his financial statement shows upward of $70,000. He has made his money by farming the same kind of land we are now offering for only

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Water Stock—$20 per acre, payable $5 down and $5 annually or $17.50 per acre cash

These lands are ideal for long-staple cotton, now worth about $1.00 a pound. They are also unexcelled for grapefruit, winter vegetables, cantaloupes and field crops. The water supply is adequate and everlasting. Our farmers know no drouths.

Another Typical Example of Farming Success

John T. Collins arrived in Calipatria 5 years ago with a few hundred dollars. Today he is worth between $50,000 and $60,000. Collins, too, has made his success because of the unequalled growing conditions, inexhaustible soil and plentiful water supply that have "Taken the Gamble Out of Farming" in Imperial Valley.

You Can Do Equally As Well

These typical stories of success SPELL OPPORTUNITY FOR YOU. Many investors, too, have made enormous profits in Imperial Valley. Land values are rapidly on the increase. Cash rentals range from $20 to $55 per acre. We do not ask you, however, to buy land "on paper." Visit our property and our salesmen will show you the most astounding sights—every-day accomplishments in this Valley of Miracles. Of one party of nine "prospects" who visited our lands recently, eight purchased from 30 to 320 acres. This land, positively the last big tract in Imperial Valley to be subdivided, is GOING FAST. Call, phone, wire or write NOW for literature and complete information.

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PHONE 10345
FOURTH FLOOR METROPOLITAN BLDG. FIFTH AND BROADWAY

General Manager: H. H. CLARK, in charge of Valley Office, Calipatria, California

Imperial Valley Farm Lands Association, Owners

KILL CITRUS PESTS

Get rid of red spider and aphis with one operation. Use Nico-Sulphur Dust prepared from the special formula by Prof. E. Smith of the University of California. We are exclusive distributors.

For best results use a Niagara Dusting Machine

WITH NICO-SULPHUR DUST

Germain Seed & Plant Co.
Established 1871
N. E. Corner Sixth & Main Sts.
Opp. P. E. Depot
Los Angeles, Cal.

Diener's Sweet Fodder Sudan

(August Photo, Tulare County Field.)

New production; tremendous producer of sweet, soft, palatable fodder, superior in quality to all standard fodders; high seed yield greatly increases value for silage or direct feeding. The coming fodder crop. Originated by Richard Diener, noted plant breeder.

Sold by Morse Seed Co.,
Special Agents, San Francisco, or by
D. J. Whitney, Exeter, Cal., Grower

Dairymen, Pork Producers and Poultrymen write for circular.

Price:
$1.00 lb; 10 lbs. 9.00; 100 lbs $80.00

In preparation for the consumer, and agencies of distribution.

Our transportation has been under continuous discussion for 40 years with ever tightening regulations. I believe the great majority of our people are opposed to nationalization. Nevertheless I doubt whether there is anyone in the United States who is not completely seized with the necessity of rigorous regulation. We are about to return the railways to private ownership under generous terms and, as I have said elsewhere, private ownership is now on its final trial. The proprietors have now to demonstrate their initiative; that they can maintain a right relation to their employes; that they can maintain their administrative efficiency; that they can keep out of national and local politics; that they can conduct these operations in the sense of complete service to the community. If it shall fail in this latter respect our people in reaction will probably be prepared to sacrifice something of its ideals in other directions for the supreme test of efficiency is human service.

I wish to point out one weakness in our present railway situation as bearing upon the farmer. Everyone knows of the annual shortage of cars during the crop-moving season. Few people, however, appreciate that this shortage of cars often amounts to a stricture in the free flow of commodities from the farmer to the consumer. The result is that the farmer in order to sell his produce, often unknown to himself, makes a sacrifice in price, owing to a local glut. The consumer is compelled at the other end to pay an increased price for foodstuffs owing to the shortage in movement. In proof of this, on one occasion a study was made under my administration into the effect of car hortage in the transportation of potatoes, and we could demonstrate by chart and figure that the margin between the farmer and the consumer broadened 100 per cent in periods of car shortage. Nor did the middleman make this whole margin of profit because he was subjected to unusual losses and destruction and took unusual risks in awaiting a market. The same phenomenon can be proved at times of shortage of movement in corn and other commodities.

The usual remedy for this situation is insistence that the railways shall provide ample rolling stock trackage and terminals to take care of the annual peak load. This, however, imposes upon the railways a great investment in equipment for use during a comparatively short period of the year when many commodities synchronize to make the peak movement. It imposes a burden on the entire cost of transportation. This burden of extra equipment will probably always be held to such low dimensions that we will never escape the annual delays in transport and stricture in market. Aside from this question of a peak load we have no doubt fallen behind in the provision of even normal railway equipment during the war.

TRACTOR TESTING

Facts, not promises, will be studied hereafter by the Nebraska farmer who is preparing to buy a tractor, says the Popular Mechanics Magazine. For the state has decreed that all tractor types to be sold within its boundaries must first undergo official tests to determine their actual ratings. Reports of these tests will be at the disposal of the prospective purchaser, who will thus be enabled to make an intelligent choice. Necessary buildings and machinery have now been completed by the state. With the coming of spring, all types and makes of tractors in local use will be rated.

In all, nine tests are given in the course of the searching examination.

PLANT AND FERN COLLECTORS

Have you an intrenching knife of the kind formerly used in the United States army? If so, you have an instrument that will be found useful in the field collection of flowering plants and ferns. Ordinary garden trowels are much too weak for field work, according to Department Circular 76, "Directions for Collecting Flowering Plants and Ferns," which has just been issued for free distribution by the United States department of agriculture.

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"Before you decide Take a Briscoe ride"

Touring Car
$1185
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Test out the easy riding of the 1920 Briscoe over the roughest roads in your vicinity.

You'll be delighted at the way in which every road-bump and hollow smoothes itself out under the extra-long special Briscoe springs.

You'll find, too, that the famous Briscoe economy unit power-plant eats up the miles, but not the gasoline.

And the Briscoe is the envied car, too—for no car at any price surpasses it in appearance. There's a Briscoe showroom near you. Or we will send handsome descriptive catalog free on request.

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The LEADER OF LIGHT WEIGHT CARS

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Napier or Elephant Grass

Price	Per Doz. Postpaid	100 Postpaid	500 F.O.B. here	1000 F.O.B. here
Dormant Joints	$ .75	$4.00	$12.00	$20.00
Rooted Sprouts	1.00	5.00	18.00	30.00
Divided Crowns	1.25	6.00	24.00	40.00

WRITE FOR CIRCULAR

Now is the time to establish

SMILO PLANT CROWNS

Per 1000—$4.00

Complete Catalog Now Ready. Write

Aggeler and Musser Seed Co.

620 So. Spring St. Los Angeles, Cal.

Potato Planting

By W. V. Shear, State Department of Agriculture

The recent rain was just what the farmers needed to make the soil moist enough for potato planting. Throughout the early potato districts of the state the work of cutting and planting the tubers has gone forward rapidly. Should a season of wet weather occur at this time there are some important facts to be considered to prevent losses to the potato growers.

We have always advocated treating the seed before cutting and cutting large seed pieces, that is one and one-half to two ounces. The one outstanding fact which has appeared in all potato experiments is that the larger the seed pieces the greater the yield. This is the result when planting conditions are favorable and exceptionally true when unfavorable conditions arise. With an extended season of wet, cool weather, small seed pieces are very likely to decay before planting or to rot in the ground without germinating. A small thin seed piece absorbs the water from the soil and fungous and bacterial diseases develop before the buds or eyes can grow. If the plants do manage to get through the soil they are small and weak and a greatly diminished yield results. The writer has seen great losses occur through the cutting of potatoes into small pieces through unfavorable weather during the planting season.

Treat your seed potatoes by soaking them one and one-half hours before cutitng, in a solution made by dissolving one ounce of corrosive sublimate to every eight gallons of water required. Unless the potatoes are to be planted immediately they should be emptied out and allowed to dry before cutting. This treatment destroys all fungous and bacterial diseases on the surface of the tubers. Nothing pays better than to be liberal with your seed. Insist on having it cut into pieces weighing at least one and one-half ounces — two ounce seed pieces are better. This means ten to 12 sacks of seed to the acre. A little sprinkling of air slaked lime or powdered sulphur over the cut potatoes will cause the wounds to heal over quickly and prevent the entrance of diseases either before or after planting. Seed handled in this way can be kept, if so desired, for a week or two before planting, or if unfavorable weather develops after planting such seed will remain sound in the soil until favorable growing conditions return.

By handling the seed in this way the men can be kept busy during the rainy weather and much time saved as potato cutting is usually the operation which delays planting. If planting is necessarily delayed for considerable time after cutting, the sacks of cut potatoes should not be piled on top of each other and they should be handled over occasionally to prevent heating and consequent decay. They should be kept in a cool, well ventilated place, an open shed being preferable.

CABBAGE WORMS

Every year cabbage worms are more or less prevalent and frequently cause serious damage to cabbage. "These losses may be entirely eliminated," says Professor C. A. Jones of the Colorado agricultural college, "by the use of some arsenical poison such as paris green or arsenate of lead. The poisons may be applied either in dust or spray form. Spraying is probably the most effective and should be prepared at the rate of two pounds of poison to 50 gallons of water to which two to four pounds of laundry soap has been added. The soap acts as a sticker and unless added to the mixture the spray will roll off the wax leaves of the cabbage."

There are several rules that should be followed in spraying for this pest and are as follows:

The spray should be applied when the worms first make their appearance and not after serious damage is done, and should be repeated whenever necessary, as when the various broods appear, which will be about a month apart. The spray should be constantly stirred to keep the poison from settling and applied in a fine mist in order to thoroughly coat the plants with poison.

There is no danger of the consumer being poisoned by eating cabbage poisoned with any arsenical spray if the plants are properly trimmed. Cabbage grows from the inside and any poison that might adhere to the outside layer of leaves is removed.

RICE STANDARDS

Commenting on the standards recently established by the bureau of markets, the Rice Journal says editorially:

"The establishment of official government standards for milled rice is a very radical step in rice marketing, but one which will mark the longest stride made in many years in the industry. Like most radical steps the change must properly be brought about gradually. Rice grades have been discussed for a considerable length of time, and they were applied in a practical way on the government purchases of rice during the season of 1918-19. It is necessary that the millers and the buyers of rice become gradually accustomed to this new method of marketing, so that they will not be materially damaged by misunderstanding the grades or the methods used in their enforcement.

"Appreciation of the importance of the change has been shown by the bureau of marketing of the department of agriculture, and they have not forced a hurried change in the system which has always been in use in the rice trade, i. e., selling by sample.

"Hearings are now to be held in different milling and trade centers, after which the official standards will be adopted and enforced by the government the same as they are now used in marketing other grain. Some changes have already been made from the first tentative standards and the hearings will no doubt bring out the necessity of still others.

"This step means that rice will in the future be sold on the same economical basis as other grains. There will be no necessity for sending type samples and this will eliminate a considerable expense of marketing and at the same time facilitate the operations so that a carload of No. 1 rice may be sold by wire with the buyer knowing just what he is going to get. If he doesn't get No. 1 rice he will have recourse to authorities who will pass on it and determine its grade. The whole thing will be much simpler than the present method, once the buyers and millers become familiar with the grades, though they must not expect to do this without some trouble. No such a revolution in marketing methods can be accomplished over night or without inconvenience and perhaps some loss due to misunderstanding of grades. But the benefits of the new methods will be so great that temporary inconveniences will soon be forgotten and rice will for the first time go on the market the same as other grains, putting the industry and trade on a much more stable and profitable basis."

SHE KNEW

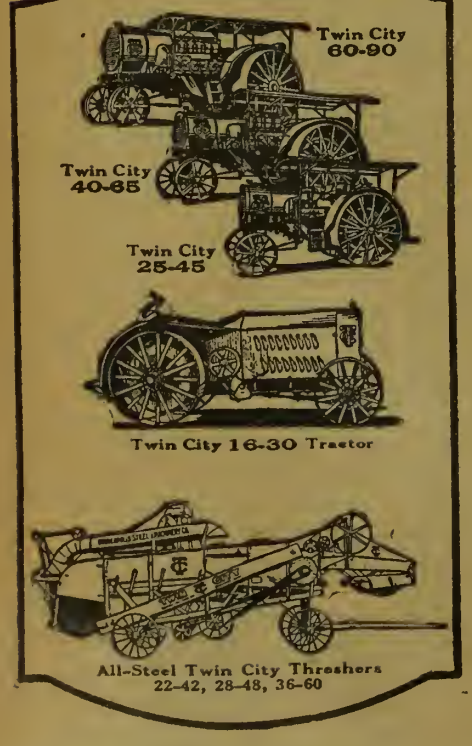
Five year old Freddy was using his fists on three year old Helen. "Freddy, stop!" commanded his mother. "Don't you know that a gentleman never strikes a lady?"

Instantly Helen stopped crying. "They do too," she contradicted.

"Why, Helen," said the mother, "when did you ever see a gentleman strike a lady?"

With an air of convincing proof the little maid quickly replied: "Daddy spanks me."

"We Can Break That Old Alfalfa Field With Our Twin City"



THE toughest going in the old alfalfa field won't halt the Twin City 12-20, for it has built into it the surplus power to take the plows straight through and the surplus strength to stand up under continuous load.

Farmers everywhere know the performance of the Twin City 12-20 Tractor. Many of them know the engineering science—in design and construction—that makes this performance possible.

Sixteen (Valve-in-Head) Engine for perfect kerosene burning; removable cylinder head and cylinder walls, for easy access and quick adjustments; counterbalanced crankshaft for reduced vibration; transmission, direct on both forward speeds, mounted on Hyatt roller bearings; gears drop forged, steel cut and case hardened, running in a dust-proof oil bath.

The result is a surplus-powered tractor of great strength, light weight, low operating cost and thorough dependability—*built to do the work, not to meet a price.*

Write us today for full particulars of this Twin City 12-20. Also ask about the all-steel Twin City Threshers.

TWIN CITY COMPANY, Minneapolis, U. S. A.

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12-20 Kerosene Tractor with 16-valve engine

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Farm Ditcher, Terracer and Road Grader

A machine that will completely solve your drainage problem. It cuts a V-shaped ditch to the depth of four feet. Sides of the ditch slope at an angle of 45 degrees and will not cave in or wash to any extent.

The Austin Farm Ditcher also grades roads and keeps them in repair, backfills ditches and terraces hillsides.

Reversible blade of all steel construction. You will find the Austin Farm Ditcher the most useful implement on the farm.

Write today for free literature.

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Citrus Growing In California

A 5/16 of an acre plot of Orange Trees at Corona, fertilized with

NITRATE OF SODA

and acid phosphate at 320 lbs. of each per acre, yielded at the rate of 411 boxes of high quality fruit. A plot alongside, fertilized without Nitrate, gave a rate of yield of only 322 boxes per acre of inferior fruit. This difference of rate of yield of 89 boxes per acre shows an increase in value of produce equivalent to $324.85.

100 lbs. of Nitrate of Soda in this case added a rate of profit to the grower's income of $101.52 per acre.

CHILEAN NITRATE COMMITTEE
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Place Your Order NOW for Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or ex steamer to arrive.

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WITTE ENGINES
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Stationary and Portable, can now be ordered with
STANDARD BOSCH
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PLANT NOW Growers making $1,000 and over per acre annually. Splendid results in six months. Also berries and small fruit, etc. Write for catalog and price list to the originator, J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Calif.

THE FARM BUILDINGS

In the building of manufacturing plants one of the first considerations is the position, arrangement and relation of the several or many buildings. The arrangement of them is not left to the architect but some practical authority dictates their proper relation from an economic point of view. There is no haphazard setting of buildings for mere sake of appearances, though the latter is a factor in the determination.

The farm is a manufacturing plant and the buildings are the mediums through which the products find their way to the market; they are the executive center. Storage of crops has a definite relation to the feeding and housing of livestock, for example, and buildings must be so placed that the most economic use may be made of them. In general, climate is one of the most important factors. But in California many have become careless in arrangement because protection of men and livestock against cold is not of such vital importance as in other states. To this may be ascribed much of the indifferent placing of buildings, which leads to waste of both time and material. And climatic considerations should still dictate. We need protection against the cold winds of winter, yet an encouragement to free passage of cooling breezes in summer. The direction of prevailing winds must not be ignored. To the thoughtful the proper arrangement of farm buildings in California is as much of a problem and as necessary of solution as it is in less favored climes.—E. B.

PAINT ON THE FARM

Fresh paint on buildings gives an air of prosperity to the farm that nothing else can supply, and the value of the property is thereby greatly enhanced. This matter of appearance is a vital one in every walk of life.

A great and successful manufacturer was asked to deliver an address before a graduation class in the local university. To the boys he said: "If on leaving school I had but $20 I would buy a suit of clothes, get a hair cut, shave, and my shoes blackened; even if I had to walk to find a job." Early the next Monday morning a young man presented himself, all spick and span, and said: "Mr. Blank, I followed the advice you gave us last Friday; I had but $22 left, and I want a job." In telling of the incident afterward, the manufacturer said the young man was one of the ablest and neatest employes he had at present. There is a premium on good appearances.

A coat of paint sometimes works a wonderful transformation. Increased beauty is of itself a sufficient reason for the free use of paint, yet it is not the main reason or purpose for applying it. Protection and preservation are the chief reasons for its use. Nothing so arrests decay in wood or so protects against checking, cracking and splitting as a liberal coat of good quality paint. After such wood deterioration has taken place it is in vain that we paint and repaint in the hope that it will replace the ravages wrought by time and weather. It has also been clearly proven that paint is a protection against fire, so much so that all insurance companies note the surface condition of buildings for which insurance is sought. In spite of all the good reasons for painting the writer firmly believes that improved appearances—added beauty—that atmosphere of prosperity which it carries, is sufficient reason for the free use of paint on the farm.—E. B.

WHAT PRUNING DOES

Pruning facilitates orchard operations by removing limbs that will hinder cultivation, spraying and picking.

It gives mechanical strength to the plant by preventing the formation of weak crotches or a willowy growth.

It corrects poor habits of growth.

It produces new wood, which will be proportional in amount to the severity of the pruning done at this season.

It induces fruitfulness.

It opens up the tree to sunlight and air which are all important factors in the coloring of fruit.

It facilitates the combating of plant diseases and insect pests. It is often necessary to prune affected trees to an open top in order that diseased portions may be readily removed.

plant Germain's proven Seeds!
Study our big, beautifully illustrated FREE 1920 catalog for best varieties to plant. It contains full cultural instructions; also gives valuable information on the feeding and care of poultry, rabbits and pet stock; use of fertilizers, spray materials, etc., etc.
For immediate reply address Dept. B.
Germain Established 1871 Seed & Plant Co.
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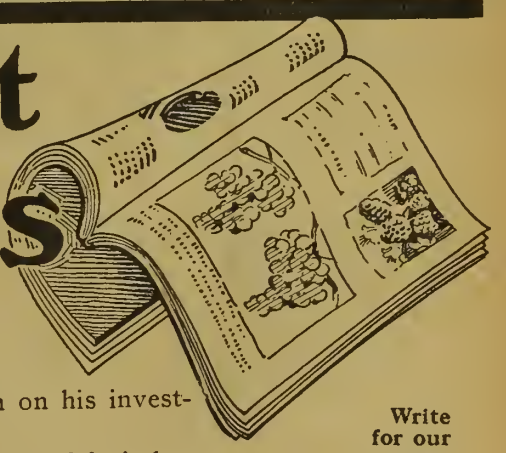
Los Angeles, Cal.
WOOD

-fruit TREES



The man who plants fruit trees improves the value of his land and gets a good return on his investment.

The demand for all kinds of fruit has been good and prices high.

We can still furnish a limited quantity of trees in some varieties.

Write for our new Catalog

Let us know your requirements.

Fresno Nursery Co.
P. O. Box 615C Fresno, Calif.

CAPRIFIGS

The J. C. Forkner Fig Gardens, Fresno, has a good supply of mamme and profichl caprifigs for this season. Mamme crop for colonizing caprifig trees ready the latter part of March. Profichl crop ready the first week in June. Orders given prompt attention. Address or see

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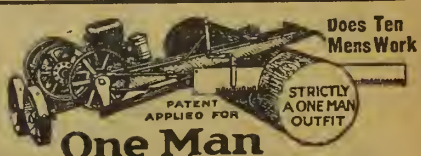

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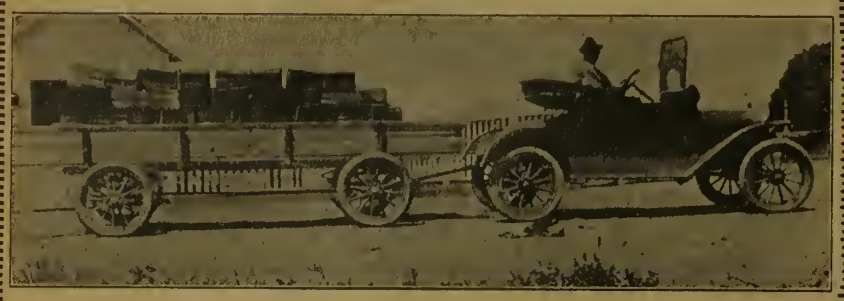

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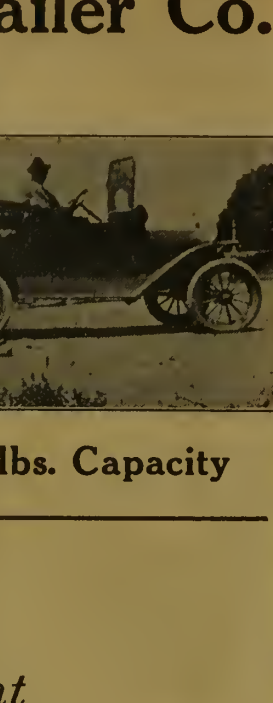
Wonderful New Hay Crop
SUDAN GRASS

First introduced into the U. S. in 1909 from the Sudan in Africa. Tests by the department of agriculture have proved it to be of the greatest value in the Southern and Western states, where rainfall is deficient.

Culture—Sudan Grass is strictly an annual. It may be drilled or broadcasted. If drilled 8 to 12 lbs. per acre is ample; for broadcasting 15 to 25 lbs. should be used. It grows 8 to 10 feet high and yields from 3 to 8 tons per acre. You are sure of two cuttings, and if irrigated three or four cuttings.

Sudan Grass for Pasture—During the months of August, September and October all other grasses are dry, then is the time Sudan is most valuable for fall pasture, and by having it fenced in small fields it will yield food for six times as much stock as any other forage will without irrigation. For milk cows and hogs, there is no better and more abundant pasture than Sudan Grass. It will solve the hay proposition as nothing else can or will do in this climate. A good silage and balanced ration. This seed was grown on our own farm, and is free from Johnson Grass.



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10 lb. lots, 25c 100 lb. lots, 20c
250 lb. lots, 19c 500 lb. lots, 18c
1000 lb. lots, 17c

Bowman's Hardware and Implement Company

721 J. Street Sacramento, Cal.

"SOME MILES"
WHO HAS TH BAME NOW DADDY?.
YOU HAVE WORKED OFF EVERY THING ON ME, FOR A TIRE, BUT GARDEN HOSE!
POOR OLD ROBINSON CRUSOE! WE WONDERED HOW THEY COULD DO SO, THEY SOLD HIM A TIRE, THAT SURE RAISED HIS IRE, WHEN WE KNOW THAT HORSE SHOES WON'T DO SO!
For a long hard run-use Horse Shoe Tires

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Security for Larm Loan

My wife and I each hold title to separate pieces of property upon which we expect to apply for federal farm loan. Under the farm loan plan would separate mortgages from each of us be necessary as security on which to issue a loan to one or to both jointly? One of the parcels is the separate property of my wife, the other is homestead property for which I received United States patent after residing thereon with my family for the required time.—Subscriber. Valley Center.

There is no particular rule of law in respect to answer of such a question. It is merely a question of management on the part of the farm loan bureau. As to the separate property of the wife, it will be legally possible for her to give the mortgage without the husband joining. Upon the homestead, it will be necessary for both to join. A single mortgage could be given upon both properties, both husband and wife joining in it without the necessity of any conveyance of title to the respective properties.

Joint Tenancy

In California, can a husband and wife be joint and several owners of real estate so that in case of the death of either party the property would belong to the survivor without legal process after said decease?—Subscriber, Valley Center.

The term joint and several is exactly contradictory. The property may be deeded to two parties to hold as joint tenants with right of survivorship. In the case of the death of either of the parties, the survivor succeeds to the whole interest in the property. In such case, in order to perfect the chain of title, a proceeding of the probate court is necessary so that the fact of the death of one of the tenants may be established of record. Such proceeding is however very inexpensive. The term several ownership of land simply means, as far as it means anything, that the person holds the whole title to the land without further interest.

Assessment on Water Stock

I bought a piece of unimproved land with 15 shares of water stock. The land is not as yet connected for the use of water but the company some time since voted to make assessments for the purpose of developing more water, which development is to be done on my land and of which I was not notified. Can I be held for this assessment?—Subscriber, Long Beach.

If the stock was issued to you at the time of the levy of the assessment unquestionably you would be subject to the process of law for the collection of the assessment. Such assessment is levied by the board of directors under the provisions of the by-laws You should, however, have been given notice of such action, but a complete answer could not be given on this question without a particular examination of the by-laws and organization of the company in question, as different concerns have different means of notifying stockholders and there are different by-laws in respect to matter of assessments on water stock.

Developing Water

Land which I purchased from a water company has located upon it a portion of the water supply of the company. Can I develop water for my own use upon this land?—Subscriber, Long Beach.

Whether or not you could develop water upon the land would be entirely determined on the question whether or not there were any restrictions or reservations contained in the deed or contract which was issued to you by the water company upon the sale of the land. If such deed or contract contained no such reservation and was a straight deed, then it would seem that there could be no objections to your developing the water.

Bar Examinations

Where would I obtain information as to the entrance examination for the bar of the state of California?—Subscriber, Escondido.

Under the last legislature a board of examiners was appointed to conduct examinations for aspiring lawyers. They from time to time issue the requirements as to reading and time of taking examinations at Los Angeles, San Francisco, and Sacramento. In order to obtain detailed information you should write to Clerk of the District Court of Appeals, Los Angeles, California, and you will undoubtedly be furnished with the complete information which you request.

Age of Majority

Under the law of Kansas a girl reaches majority at the age of 21. In California she attains her majority at 18. Can a girl 18 years of age residing in California give a binding deed to real estate located in Kansas?—Subscriber.

This question is one wherein the authorities are more or less conflicting. In the early stage of the law it was held that the law of the domicile of the infant at birth governs the state and condition of the person as to minority or majority into whatever state or county he may remove. But the better rule and that supported by the great weight of authority is that the law of the place where the contract is made or the act done governs in determining whether a party is or is not an infant. Under such latter rule, if the deed is fully executed and delivered in the state of California by a girl past 18 and not yet 21 who resides in the state of California, it would be a legal and binding contract and not subject to disaffirmance.

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Trapping Mole

What is the best way to get rid of moles? Have tried to trap but it is not a success. What do they eat mostly, and would there be a chance to poison them? — Subscriber, Anaheim.

It is a most impossible to poison moles. They live on insects or worms infesting the ground and to that extent are beneficial. On the other hand their injury in lifting young plants and disturbing the ground compells us to eradicate them. The trap is usually very successful. The kind we have used we do not know the name of but it is the ordinary mole trap with a pair of jaws on either side of the trap or trigger. With the foot one presses down the soil which has been raised by the mole and the trap is set so that the trigger comes directly above this pressed down soil. No matter which way the mole comes if the trigger is sprung the jaws are released on either side. The kind of trap with sharp

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Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References. The leading breeders in the state. Write or wire for dates and terms.

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This corn has made Big Money for others and will for You. It's a Real Result Getter. Two-thirds of my business so far this season are reorders for Larger amounts from customers of the past two years. They are highly satisfied or they would not reorder and in Larger Amounts. The business is booming. Now is the time to get in right.

Let me send you my handsome photo illustrated booklet. Shows how this Corn will benefit You — how You can make More Money than you ever dreamed of. The booklet is free. Send for it now—Today.

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The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

blades or prongs driving straight down from above has not been as satisfactory.

Trees on Line

How close to the property line is it lawful to set trees for a windbreak?—Subscriber, Owensmouth.

There is no law directly touching upon this subject. One may set the trees as close as he pleases to the line but of course if it damages adjoining property the amount of the damage may be collected. If the trees are set close enough so that they ultimately cross over the line then they become the property of both real estate owners and we believe may not be cut without the consent of both parties.

Nematodes on Citrus

Is it safe to plant citrus nursery or orchard trees on land so infested with nematodes that it is impossible to grow tomatoes or most vegetables?—Subscriber, Glendora.

Nematodes infest citrus trees. But whether they are the same pests which infest vegetables we could not answer, so referred this question to D. C. Milbrath, of crop disease investigations, U. S. D. A., located at Alhambra, and Mr. Milbrath answers:

"The nematode causing destruction in vegetables and some fruits is Heterodera radicicola. The nematode which has been associated with root infestation of citrus trees is Tylenchulus semipenetrans, an organism differing morphologically from Heterodera, the root knot nematode. In 1889 Dr. J. C. Neal reported Heterodera as occurring on lemon, orange and bitter-sweet orange, while a similar report is made by Tavergne from Chile in 1901. Dr. E. A. Bessey spent three years investigating nematodes in Florida and failed to find Heterodera on citrus species in sections where that organism attacked severely other plants. My own experience in Florida confirms Bessey's. In all recent researches, citrus species have been considered not susceptible to the attacks of Heterodera radicicola. There is a possibility of error in Neal's and Lavergne's diagnosis. It is highly probable that Tylenchulus semipenetrans is not in the soil which you have in mind to plant to citrus stock."

Weeping Mulberry

Please tell me if a weeping mulberry tree should be cut back to two buds of last year's growth or allowed to remain as it is.—W. P. S.

You may prune the tree to suit yourself; you cannot injure it. But if pruned at all it should be with purpose. What you wish to do with it ultimately is the question. If you simply wish a weeping shrub, leave it alone; do not prune at all. I once set an inch pipe in the soil next the trunk of one, had a giant wheel built on top and tied the many branches, equally distributed, around the edge of this wheel. In summer it made a fine small arbor to sit under and each year grew more beautiful.—E. B.

TRUCK SHOW

Beginning Saturday this week and continuing until April 3, there will be staged in Los Angeles at Praeger Park the first exclusive truck and trailer show in the Southwest. A large tent has been erected and an extensive exhibit of nearly every type of motor truck has been installed. President Power of the association states that interest of San Francisco dealers is shown by a very liberal exhibit which has been sent down from that city. There will be several models not heretofore shown in the Southwest.

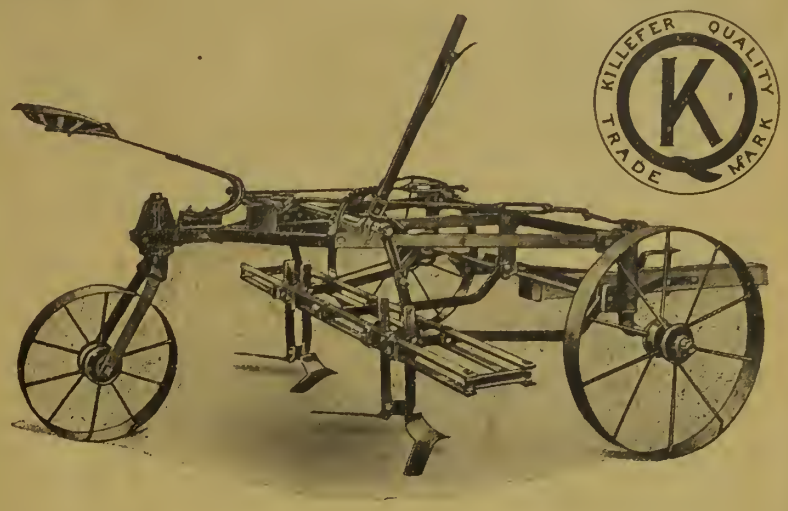
The most complete accessory exhibit yet made is arranged, and power is supplied for keeping many of the exhibits in operation. All space was engaged nearly two weeks ago. Parking space for visiting autos has been arranged.

Two Row Bean Cultivator

Catalog No. 262

KILLEFER QUALITY

KILLEFER EFFICIENCY



This Cultivator has been developed like most of our implements, at the suggestion of ranchers, for a strong, simply controlled cultivator, capable of doing their work better than with a lighter made tool.

The frame is made from one piece high carbon steel without joints to work loose or sag and holds the wheels always true and in line with the rest of the machine.

The double frame bar gives ample clearance between the standards and eliminates the tendency to clog in trashy ground. This frame bar has a double lifting device which holds it rigidly on both sides. A man's weight on extreme end of frame bar will not spring it out of line.

The seat is set far enough back to give an unobstructed view of the rows and the foot control is very easy to operate.

An important item for the ranchers' consideration, is that all parts and repairs are quickly obtained as we carry a supply on hand.

Owing to the shortage of steel products you should place your order as soon as possible. Write for catalog and price list.

The Killefer Manufacturing Co.

2209-21 Santa Fe Ave. **Los Angeles, Cal.**

Perforated Tree Protector

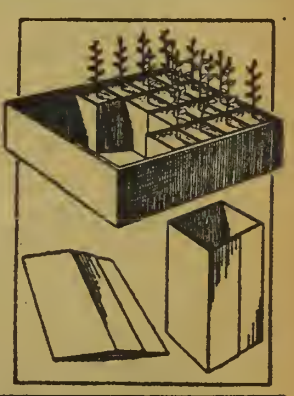
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus, Olive Cuttings. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.

THE EXPAN CO.
935 East Central Ave. Redlands, California



PACIFIC NEW AND RE-NEWED PIPE SAVES MONEY

Renewed screw casing costs from one-half to two-thirds less than standard pipe. Large savings on standard pipe, fittings and valves; special fittings made to order. Pacific Pipe is thoroughly tested and guaranteed for 150 pounds working pressure; asphaltum dipped; serves every purpose. Let us save you money. Write

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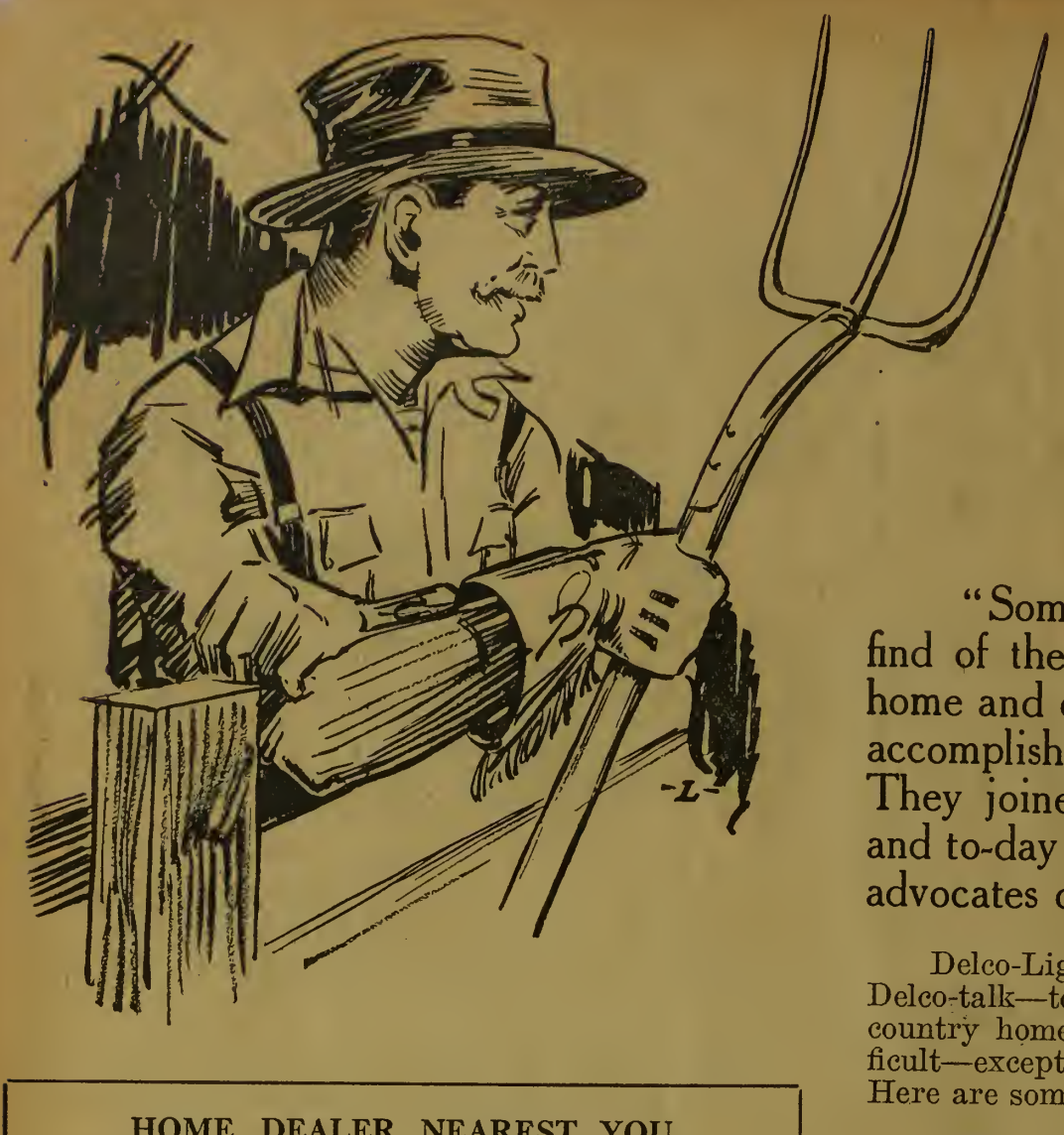


What's A About DE

"Somebody" said four years—when Delco-L find of the age. "Somebody" was the first farme home and outbuilings and furnish power for labor de accomplished in his own household. Soon, a thous They joined in the talk and started this story that and to-day there are more than 100,000 satisfied us advocates of this time-tested light and power plant

Delco-Light Distributors have strived faithfully to analy Delco-talk—to find what features of this light and power unit for country homes, pleased owners most. Frankly, the task has prov ficult—except that talks of "savings and new profits" is always Here are some of the samples:

James J. Brennan, Loomis Place, Calif., says that "next to Liberty Bonds, Delc is the best investment a farmer can make. It saves me forty hours a week."

Joseph Black, Oroville, Calif., writes: "I would as soon give up my water suppl be without my Delco-Light."

Leland F. Forbes, Loomis, Calif., says: "By installing the Delco-system, we are about 700 more eggs daily."

From Fred G. Anderson: "My Delco plant has been in use for about 18 months, date not even an adjustment has had to be made."

Mrs. W. J. Hawkins, Vacaville, Calif., says: "To say that I am pleased with our Light is just putting it mildly. I would not be without if for double its cost."

And that's the way it goes—the many trends of Delco-talk.

The ease with which DELCO-LIGHT is installed in any home—its l life—its use of kerosene for fuel at a cost of a few cents a day—its simpli of operation (any member of the family can run the plant)—are among features that furnish talking points for satisfied users.

It's a fact that housewives contribute as much to Delco-talk as their h bands—or more. They delight in the Delco-way of washing, ironing, vacu sweeping, churning, separating, milking, etc., with power furnished by t Delco plant. They take a new pride in the home FILLED WITH BRIGH NESS; the home INSURED AGAINST FIRE hazards that were pres with open flame lights; the home FREED FROM DRUDGERY form imposed by so much hand-labor.

Farm bred men who designed Delco-Light began with the det ation to hitch up electricity in a simple, practical harness. They convinced it could be made to lighten and brighten labor on far moved from power-supply sources. Electricity had proved invalu city homes for years. How could it be installed on any farm? spent five years on the problem.

Then they introduced the Delco-Light plant.

They backed it with a guarantee of efficiency. That guaran emphasized today. That guarantee is as follows:

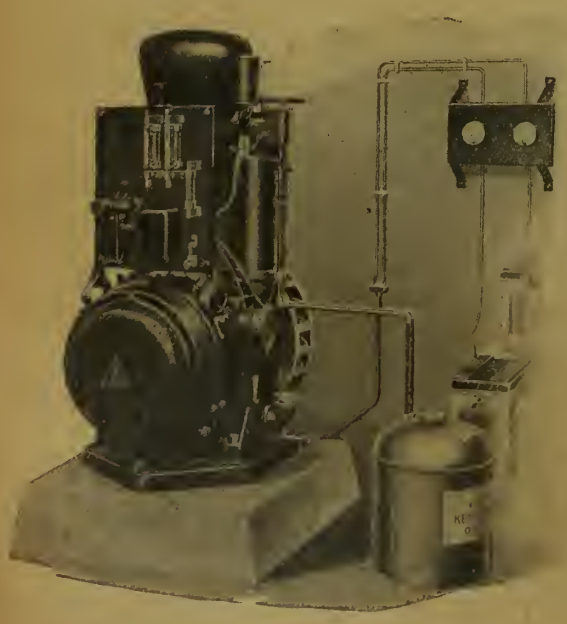
You can have a Delco-Light plant installed in your home at put it to a 30-day test and if it isn't ALL-satisfying, it will be tak without expense to yourself and your money will be refunded chec

HOME DEALER NEAREST YOU

C. L. Anderson, P. O. Box 43, Woodland, California.
Anderson & Doyle, Salinas, California.
L. E. Atkinson, Sonora, California.
J. E. Bartlett, Yreka, California.
Brennan & Son, Loomis, California.
Howard Bowles, P. O. Box No. 336, Santa Maria, California.
Cia. Electrica Internacional, P. O. Box No. 127, Nogales, Ariz.
M. B. Charles, 39 E. San Antonio St., San Jose, Calif.
deJongh & Cochran, 880 Mission St., San Francisco, Calif.
deJongh & Cochran, 129 East 6th St., Los Angeles, Calif.
deJongh & Cochran, 715 Broadway, Fresno, Calif.
G. C. Egelston, 715 Broadway, Fersno, Calif.
Harry Dolan, Yerington, Nevada.
Richard Eaton, 914 12th Street, Sacramento, California.
W. R. Dodge, Chico, California.
Electrical Installation Co., 26 West Carillo St., Santa Barbara, Cal.
Electric Service Co., Ukiah, Calif.
C. J. Fulcher, Lookout, California.
G. C. Hopkins, 405 East Main St., Visalia, Calif.
Harris Brothers, 131 North 1st St., Phoenix, Ariz.
Hawaiian Electric Co., Honolulu, T. H.
Roy LeMasters, care Hughson Hotel, Modesto, California.
T. L. Laereman, 645 Main Street, El Centro, California.
Lincoln Highway Garage Co., Ely, Nevada.
MacRostie Brothers, Bishop, Calif.
H. E. Montague, 4261 Arista St., San Diego, California.
Macondray & Co., Inc., Manila, P. I.
C. C. Norris, 1436 W. Fourth St., Riverside, Calif.
H. H. Powell, P. O. Box No. 421, Stockton, California.
R. D. Pelton, Willows, California.
Paul R. Sprague, Quincy, Calif.
T. W. Smith, P. O. Box No. 176, Eureka, California.
W. H. Starbuck, 456 "B" Street, Santa Rosa, California.
T. A. Talley, P. O. Box No. 46, Elko, Nevada.

Call Him—He Will Come

100,000 of These DELCO-LIGHT Units



Valve-in-head Motor

Runs on Kerosene

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Used Daily in Satisfied Homes

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ll This Talk LCO-LIGHT!

vas introduced—that it would prove to be the farm
o installed a Delco-Light plant---to illuminate his
He talked about successful results—results actually
the country were using Delco-Light and power.
ow become nation-wide. Four years have passed,
Delco-Light and power, all of them earnest, gratified
as made farms city-bright throughout the land.

Cleaning Lamps—3 hrs.

Washing Machine—3 hrs.

Ironing—2 hrs.

She Saves 8 hrs.

At 40c. per hour this weekly saving by use of Delco-Light and power on the average farm amounts to the total—15½ hrs. per week or

Pumping Water—4 hrs.

Turning Separator —3 hrs.

Running Grindstone—½ hr.

He Saves 7½ hrs.

$332.40 Per Year

The Actual Saving on the Average Farm in Time and Money

Above is illustrated the actual saving on the average farm in time and money made by employing Delco-Light and power for six jobs—only six, mind you, of the 50-odd devices for which Delco plants are adapted. Satisfied users furnished these records—made by themselves on their little or large farms equipped with Delco-Light.

Figure out for yourself the savings you can make by putting a Delco-Light plant to work on your farm—and consider the joy it will bring by flooding your farm with brightness; filling it with power. Figure your operating costs on a cent-a-day basis.

Delco-Light is so simple that anyone can operate it. Starts itself on the turning of a switch—stops automatically when batteries are full. Gas engine and dynamo for generating the current are combined in one compact unit.

Delco-Light has been developed by the same engineering and manufacturing ability that has made Delco cranking, lighting and ignition for automobiles the standard of the world. Within its four years of tested merit, Delco-Light has become the world's standard for farm use.

3,000 Delco-Light Plants on Pacific Coast

There's a Satisfied User Near You

Cochran

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San Francisco
880 Mission Street

Clip and Mail This Coupon To-Day	deJongh & Cochran, 880 Mission St., San Francisco, 129 East 6th Street, Los Angeles. 715 Broadway, Fresno. Please send me without obligation, your latest Delco-Light booklet, "It Pays For Itself," and other literature. Name ..... Address .....

WISE BOY

"Another ha'penny, please, my boy. Bread's gone up a ha'penny today."

"Then I'll take one o' yesterday's, please."

A Flowing Well On Your Farm

Attach the

Fuller & Johnson Farm Pump Engine

to *your* pump, and have a flowing well on your farm. Winter or summer, rain or shine, wind or calm, you will always have plenty of water.

Everywhere farmers are using this engine and are gladly recommending it to their friends. Why?

Read Catalog No. 17-A and you will see. Write for it TODAY.

Fuller & Johnson Mfg. Co.
Established 1840
Builders of Farm Engines
80 Cone Street
Madison, Wis.

Fits Any Pump

Ormondale Ranch Gets Imported Bull

California Shorthorn Interests have been greatly strengthened through the purchase by Ormondale Ranch, Redwood City, of the imported bull, Boquhan Guinea Stamp. This bull, a roan two year old, was secured from the select importation recently made by William Hartnett and is counted one of the best in that notable collection.

The blood lines back of Boquhan Guinea Stamp leave little to be desired and his individuality is indicated by the fact that he was second in class at the Highland Show to the Prince of Wales' entry that was first at the Royal Show at Cardiff. He was third in class at the Perth Show and the statement has been made that many good judges thought him the best stock bull at Perth.

The Ormondale herd is generally conceded to be among the better herds of this state and has been responsible for many high class Shorthorns, the most notable of which is Little Sweetheart owned by T. S. Glide, Davis, and grand champion at the 1919 International. California breeders will await with interest an opportunity to see Boquhan Guinea Stamp.

The price paid for the new Ormondale herd bull is said to have been $12,000.

J. M. MacDonough is the owner and James McDonnell manager of the Ormondale herd.

Boquhan Guinea Stamp

Recently added to the Ormondale Herd. Boquhan Guinea Stamp was shown successfully at a number of the leading British shows and is regarded as one of the good bulls imported in recent years.

Livestock Auctioneers---Hammond, Bradley and Johnson

Our big 2 days sale at the Fuller Bros.' Ranch (cattle, mules and implements), Imperial Valley, March 5-6, was the biggest and most successful sale of its kind ever pulled off on the Pacific Coast.

At the R. L. Vorhles sale of 82 dairy cows at Artesia, March 17, we broke the Pacific Coast record on prices for grade cows—$530 being the top price for the day. Write or wire for dates, terms, etc.

Office 1053-55 South Main St., Los Angeles **Phone 63545**

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Federal Black "Traffik" Tread

FEDERALS give you *all* the mileage you ordinarily get from tires *plus* the many miles the Double-Cable-Base saves from rim-wear for *miles on the road.*

Try these rim-safe tires once and you will use them always.

Federals cost no more and go farther.

THE FEDERAL RUBBER COMPANY, *of Illinois, Factories, Cudahy, Wis.*

Manufacturers of Federal Automobile Tires, Tubes and Sundries, Motorcycle, Bicycle and Carriage Tires, Rubber Heels, Fibre Soles, Horse Shoe Pads, Rubber Matting and Mechanical Rubber Goods

CALIFORNIA CATTLEMEN'S ASSOCIATION NOTES

Fred H. Bixby, president of the California Cattlemen's Association, has issued the following statement to define the association's attitude toward cattle loan companies:

"While I am president of the California Cattlemen's Association, the association will never ally itself in any way with any one cattle loan company. We want as many cattle loan companies and as many banks loaning money to catflemen as we can possibly get; competition means a reasonable rate of interest for stock raisers. The California Cattlemen's Association is keeping its ship in the middle of the stream as far as cattle loan companies are concerned."

* * *

The California Cattlemen's Association wired to Attorney General Palmer offering him the association's cooperation in the save on meat campaign which the attorney general has launched all over the United States and which is to have a week in each state. In California this starts March 29.

The association has suggested to the attorney general that he change the slogan of this campaign to eat meat intelligently, as it is feared the present slogan may be misinterpreted to mean curtailment of meat consumed.

The attorney general's idea was to popularize the cheaper cuts of beef, and as this fits in with the interest of all those concerned in beef production and marketing it is expected to lead to a joint campaign by cattlemen, packers, wholesalers and retailers of meat. This will take the form of recipe contests for housewives, moving picture demonstrations, carcass cutting exhibits in the large cities and the service of dishes made from the cheaper cuts in restaurants and hotels throughout the state.

* * *

Successful meetings of cattlemen have been held within the last few weeks at Mariposa, Oakhurst, Hat Creek, Merced, Nevada City and Santa Ynez. Everywhere the cattlemen are showing enthusiasm for the work of the association, and the association membership is increasing at a satisfactory rate.

UNIVERSITY SECURES CATTLE RANGE

The college of agriculture of the University of California has just taken over on a long lease 2,000 acres of winter range in El Dorado County, together with 1,800 acres of summer range. The range will be utilized in conducting extensive beef cattle experiments. Breeding, feeding and management problems will be given attention. Supplementing the range operations the college is arranging to construct at the university farm, Davis, one of the most modern cattle feeding plants in the country. To date little or no work has been undertaken to investigate beef cattle problems in this state, but the time has come when this important branch of the livestock business must be accorded the same effort that has been given other branches of livestock production.

Several hundred head of cows are now on the range and the institution has recently purchased a number of high class bulls to be used in the grading up process.

JAMES' TASK

"Now, I want all the children to look at James' hands and observe how clean they are, and see if you cannot all come to school with cleaner hands. James, perhaps, will tell us how he keeps them so nice."

"Yes'm, ma makes me wash the breakfast dishes every morning."—Life.

The Whole Story

of silos is contained in a single sentence taken from Circular 138, Agricultural Experiment Station, University of California:—

"Silos with thin, flimsy walls, or built of plain staves admit considerable air to the siloed mass, and although cheap in first cost are the most expensive silos, owing to the excessive fermentative losses that occur therein."

The staves of the "Simplex" Silo are cut from Clear Oregon Pine (Douglas Fir) in one piece lengths the entire height of the silo, with heavy tongues and deep grooves, eliminating end joints and leakage of air—giving smoothness to the inner surface.

Steel hoops and the patented Interlocking Anchorage System bind the staves and base together so rigidly that nothing short of a cyclone can wrench them apart.

The Crisell Tangent Top automatically keeps the "Simplex" in a true circle no matter how often it may be necessary to tighten or loosen the hoops.

These are features designed to comply with scientific requirements. They make the "Simplex" Silo scientifically correct; they insure the greatest economy. Are not these two facts alone worth your consideration?

Built of Clear Oregon Pine
"Scientifically Correct"

Let George Do It

is a poor principle to follow if you want a job done right.

It is just as necessary to fill your own silo as it is to do your own plowing, planting and spraying.

Because of its sturdy construction, low up-keep, and mechanical perfection of its working parts, the Papec Ensilage Cutter is the right cutter to do the job right.

Before buying an ensilage cutter compare the Papec with any other cutter made, part for part, feature for feature. It is because the Papec has proved its capabilities by actual performance that we invite this comparison.

MAIL THIS COUPON

SANTA FE LUMBER COMPANY,
16 California St., Dept. A, San Francisco, California.

Please send me folder describing Simplex Silos; also information about Papec Ensilage Cutters.

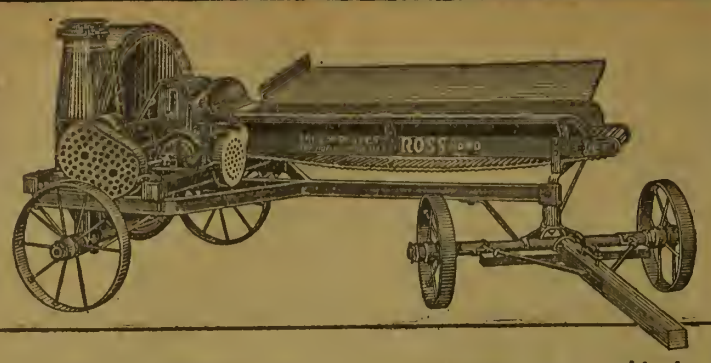
Name .....

Address .....

"It Throws and Blows"

Santa Fe Lumber Co.

16 California St. **San Francisco**



BETTER silage--at lower cost! That's what you get with the Ross Ensilage Cutter. *Clean-cut silage*--from the first hour's operation right straight through the heaviest silo-filling job, and year after year of the same high-class low-cost service.

Better Silage--at lower cost. Do you want to know why? Walk into the store of the dealer who sells

Ross Ensilage Cutters

and ask him to show you the special *Ross Ball-Bearing End Thrust* and *Extra Knife Adjustment* which forces the knives right up against the shear bar *and holds them there*--absolutely preventing shredded silage or "chewed" silage--and keeping the rich juices in the corn, where they belong--*by cutting every piece slick and clean.*

Rockwood Fibre Pulley

Note that Ross Flywheel Cutters are equipped with genuine Rockwood Drive Pulleys. These pulleys *grip* the belt perfectly and *absolutely prevent slippage.* No wasted power and no jerking--no matter how heavy the load.

Low Speed — Light Draft

The staunch, sturdy Ross is built for hard work and lots of it. Requires minimum power--and hums right through the toughest job at a steady, low speed. *No straining or racking.*

Six-Fan Blower--Wish Bone Steel Mounting. Babbited, Self-Conforming Bearings on Main Shaft. Angle Steel Frame

Study the Ross carefully. Compare it--part by part--with any other cutter on the market, selling at any price. Ask about the Ross Warranty which *guarantees absolutely satisfactory service.*

We Match Your Power

Ross Ensilage Cutters are especially designed for use with gasoline and kerosene engines. You don't need a special engine. *There is a Ross to match your present power*--from four horse-power up.

Write today for Descriptive Literature and Prices

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511 Warder St., Springfield, Ohio
Fairbanks, Morse & Co., Los Angeles and San Francisco and 19 Other Leading Shipping Points in U. S. A.

"FEEDFINE" FEEDS

	are scientifically compounded in proper proportions for dairy and all livestock feeding, of the following ingredients with the most economical results always in view.
YEAST	A concentrate high in PROTEIN and FAT content, sterilized and predigested.
CANE MOLASSES	The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.
ALFALFA MEAL	Gives body to the ration and supplies the mineral matter which is absolutely essential to all animals.
	The greatest known combination for health, strength and productiveness.

YEAST, CANE MOLASSES and ALFALFA

Mason By-Products Co.

No. 2 Pine Street
SAN FRANCISCO

Factory:
Sausalito, Cal.

Have all Breeds of Registered

Draft Stallions and Mammoth Jacks

Shorthorn and Hereford Bulls

Registered and Unregistered.

All Animals Sold Under Guarantee.

Merritt-Bowers Co., TULARE, CALIF.

California Cultivator

Costs $1 per Year

Rice Bran for Stock Feed

W. B. WISE, secretary of the Rice Millers Association, speaks a few good words for rice bran in the Rice Journal of Texas. He says:

"Before going into a discussion of the merits of rice bran as a stock feed it is important to know just what it is and how it is secured. Rice bran has been properly defined by the Association of Feed Control Officials of the United States as 'The cuticle of the rice grain with only such quantity of hull fragments as is unavoidable in the regular milling of rice.'

"The rice grain is covered with seven rather distinct layers of bran cells, with the oily germ near one end. Commercial rice bran is a by-product of rice milling which is composed primarily of the outer three of these bran layers and the germ, which constitutes the richest part of the kernel. When rice is milled harshly the bran may also include the fourth and even a part of the fifth bran layer. This by-product is secured by a process exactly the opposite of that by which wheat bran is made in the manufacture of flour. Instead of crushing the entire kernel and separating the bran by sieving or bolting, as in wheat milling, the rice grain is exposed to a more or less severe scouring. In practically all of the rice mills this scouring off of the bran is done in two and sometimes in three steps, so as to lessen the breakage of the grain. The cleaned threshed rice is hulled between heavy stones, the hulls removed by fans and the hulled grain is conducted into the series of scouring machines for the removal of the bran. Rice kernels are never uniform in size and in commercial practice the stones are adjusted to hull the average sized kernels, so some of the largest and plumpest are broken and degerminated and many of them also lose a part of the bran in the hulling operation. Such bran and germs are separated from the partially milled rice by means of a fine meshed bran reel. This material is known in the mills as 'stone reel' bran, and constitutes the first part (about 26 per cent) of mill run bran. Rice bran found on the market is composed of 26 per cent stone reel bran, 35 per cent from the first scouring machine and 39 per cent from the second scouring machine. These three parts are blended as they are produced, and the final product is brown in color, mealy in texture, full of invigorating vitamines, and with a fresh sweet odor of bran bread.

Composition

"Considered chemically the stone reel bran shows a relatively high percentage of total ash and ash insoluble in hydrochloric acid, and also contains a relatively high percentage of crude fiber. There are present correspondingly low percentages of protein, fat and nitrogen free extract. This composition is caused by the presence of a trace of finely divided hulls which can not be separated in commercial milling. The writer wishes to emphasize the fact that, contrary to some expressed opinions, the stone reel bran if fed alone is a perfectly safe stock feed, and when mixed in the proportion of one to three with the rich scouring machine products the infinitesimally small percentage of hulls present is of no importance. The rice bran from the first and second scouring machines contains a relatively low ash and crude fiber content, and a high percentage of protein, fat and nitrogen free extract. Since these three parts of commercial bran are not marketed separately, we are interested primarily in the composition of their mitxure as it comes from the mill. This is found to vary considerably, because rice milled under different conditions of moisture, in different mills, and even in the same mill, but with different adjustments of the machinery, will yield bran of varying compositions, and the same is true to a greater extent when different varieties of rice are milled. The United States department of agriculture Bulletin No. 570 is authority for the following average composition of commercial rice bran, in which the figures for only the important feeding factors are quoted here: 'Protein, 13.70 per cent, fat 14.75 per cent, crude fiber 11.28 per cent. The Louisiana state experiment station Bulletin No. 191 gives the composition of rice bran as: 'Protein 13 per cent, fat 13.1 per cent, crude fiber 12 per cent,' and the Texas agricultural experiment station Bulletin No. 191 gives on this subject the following figures: 'Protein 13.63 per cent, fat 14.78 per cent, crude fiber 11.69 per cent.' A majority of the states in which this feedstuff is used extensively require for registration minimums of not less than 12 per cent for protein and for fat, and a maximum of not more than 12 per cent for crude fiber. Pure commercial rice bran will in practically all cases come within these requirements, and in most cases will show on analysis a composition considerably above these limits in food value.

Digestibility

"In considering a stock feed, the average chemical composition is of importance only as indicating, but not as proving, the real value of the feed considered. Its food value and fattening qualities depend upon its palatability and digestibility. Rice bran is eaten greedily by livestock when fed alone or in any combination. It contains approximately eight per cent digestible protein and 65.8 per cent total digestible nutrient, as compared with 12.5 per cent digestible protein and 60.9 per cent total digestible nutrient in wheat bran. The most modern method of judging a feed is to consider it on the basis of its productive value. The productive values of various stock feeds have been worked out by the Texas agricultural experiment station, and the figures given not only indicate the quantity of fat which a feed will produce upon a fattening animal, but also indicate the relative value of a feed for work, milk production, energy, etc. Rice bran with a digestible protein content, according to the above authority, of 7.88 per cent, has a productive value of 17.2 per cent, while wheat bran, containing an average of 12.5 per cent digestible protein, has a productive value of only 12. Wheat gray shorts, which is a very expensive and concentrated feedstuff, has a productive value of 18.9, or only 1.7 greater than rice bran.

Feeding Experiments

Many experiments have been conducted with both cattle and swine in which rice bran was used alone and in combination with other feeds. It was found to be not only very palatable when fed alone, but its mealy texture and palatability caused it to be well adapted for mixing with corn chops or with coarser feedstuffs for cattle, or with raw or cooked mash for swine. The Texas agricultural experiment station Bulletin No. 151 gives the result of a 91 day test in which three pens of six hogs each were fed respectively 1,535 pounds of rice bran, 1,082 pounds of peanuts and 111 pounds of corn chops. According to the gains made in this experiment by the animals fed on rice bran, hogs may be fattened on it at the present price at a cost of 6.2 cents per pound gained, which is considerably less than the cost if either of the other two feeds were used. As a feed it is considered a concentrate, and in the production of fat, milk or energy yields the best returns when fed in combination with such feed as corn chops, in which the ash and fat content is too low for a maximum profit. Because of its palatability it is often used with less palatable feeds to insure the consumption of the mixture by the animal.

ANNUAL HEREFORD ROUND-UP SALE

The third annual Hereford Round-up Sale held at the Kansas City Stock Yards, Kansas City, Missouri, March 1, 2 and 3, was one of the largest and most important events in Hereford af fairs. More animals were sold than were ever before offered in one sale. The 600 cattle were consigned by 115 breeders from 11 different states. They were bought by 127 buyers from all parts of this country and from South America. South American buyers bought 18 bulls and four females, 22 in all.

The sale was conducted under the auspices of the American Hereford Cattle Breeders Association and was especially designed to furnish a me-

dium in which the smaller breeders could place their sale cattle before a large group of buyers. That the sale supplied this want is evidenced by the fact that more than 1,000 breeders attended the sale and many buyers who were in the market for bulls in carlot quantities were able to fill their orders.

The sale served as an educational factor in that it demonstrated the advantage of having cattle well grown and in fair sale condition. Animals consigned to this sale that were undersized and in thin condition sold at prices less than they would bave commanded had they been sold for beef on tbe open market, while cattle that were well grown and were presented in good condition sold for long prices that paid a good premium for the work and expense involved in the preparation of those cattle for the sale. The following summary clearly illustrates the point in question:

370 bulls, $111,740; average, $302. 230 females, $84.525; average, $367. 600 head, $196.265; average, $327. 50 top head, $65.625; average, $1312.50. 100 top head, $89,190; average $892.

FATTENING ON SILAGE

I know a feeder near Tucson wbo recently marketed 21 head of steers that had been fattened on a ration consisting chiefly of silage. These 21 head weighed 13,400 pounds, or an average of 638 pounds per head, when they came off the range. They were started off on the following ration: 15 pounds silage, one pound cottonseed meal per head per day with all the alfalfa hay they could eat. The silage ration was gradually increased to 30 pounds per head per day and during the last two weeks two pounds of cottonseed meal per head was fed daily.

The alfalfa hay had been damaged by rain and was not first class; the steers consumed probably eight to ten pounds of hay per head daily.

At the end of 60 days of feeding the entire lot of 21 head were marketed and weighed 15,890 pounds, or an average of 756 pounds per head, after a four per cent shrinkage had been deducted. The average daily gain per head was slightly under two pounds at an average cost per head per day of 25 cents. The steers cost $48 per head which was a good price according to tbe market at that time. With the steers selling for 11 cents per pound, cbarging the cottonseed meal to them at $70 per ton and the alfalfa hay at $20 per ton, it is not hard to see that silage is a valuable feed as a base for fattening cattle, to say nothing of its value as a maintenance ration for range cattle during a dry season.

If the steers had been from good stock a higher return on tbe feed would bave been made.—C. U. Pickerell, University of Arizona.

GARLIC FLAVOR IN MILK—HOW TO PREVENT IT

Dairymen and creamerymen in many states are troubled every spring by garlic or onion flavor in tbe milk. Tbis is due to the cows feeding on garlic or wild onion, one of the first plants to start in the pasture in the spring. The trouble from garlic is not likely to last very long, as this weed is soon cropped off and the grass becomes plentiful enough for the cattle to feed on it in preference to the onion.

Garlic flavor in milk can be removed by heating the milk to 145 degrees Fahrenheit and forcing air through it at this temperature for 30 to 60 minutes, according to Farmers' Bulletin 608 of the United States department of agriculture. As this metbod requires a certain amount of equipment it is much more satisfactory for the average dairyman to keep the odor out of milk by a few simple precautions in herd management.

Tbere are two ways of protecting the milk from garlic flavor. First, prevent the cows from obtaining garlic, and second, manage the herd on garlic pasture so that there will be the least possible chance of getting the flavor in the milk. Often the garlic is found only in one patch in the pasture, and this can be temporarily fenced off and pastured with other animals not producing milk. Where garlic is scattered all over the field it will be impossible to keep the cows away from it, but by removing them to some other field three or four hours before each milking the flavor will be reduced to a minimum. The odor in milk is strongest from cows whicb have just eaten garlic, and the odor is reduced as the time between the eating of garlic and milking is increased.

In case no garlic free pasture is available it would be advisable to drive the cattle to the barnyard tbree or four bours before milking and feed them on hay and silage. As the season for garlic trouble is short, tbis should not cause much inconvenience. The best plan for avoiding trouble from this weed on the dairy farm is to kill it out completely.

THE FARMER'S PART IN THE TUBERCULOSIS ERADICATION CAMPAIGN

It is a well known fact that the large meat packing concerns make a practice of paying prices lower than tbe prevailing market quotations to owners of hogs in certain districts. The packers have found that from these districts they get a higher percentage of tubercular swine witb greater loss by condemnation. In some of these cases tubercular swine have been raised on tbe same ranch with cattle that are known to be tubercular.

The use of unpasteurized skim milk probably may be largely accountable for this condition, but more so is tbe fact that frequently pigs are allowed to run in the same corrals with cattle. The droppings from tubercular cattle are generally very infective.

Where pasteurization of milk is required by law or the cows tuberculin tested the disease sbould be rare in hogs. This, however, is not true, due to the fact that many large hog raisers ship only the cream, tbe skim milk being kept on tbe ranch and fed raw. This milk should be pasteurized on the farm before use. To the average man this sounds like a formidable performance, but in reality it can be done quite easily, especially since most large dairies now have a steam boiler in operation for general sterilization purposes. A can of milk may be brought to 160 degrees Fahrenheit in a very few minutes by inserting a hose from the boiler. By then cutting down the steam to but a few bubbles a minute, the temperature can be held nicely for the proper length of time, 20 to 30 minutes.

It should also be remembered that many breeding boars and sows are tubercular and that such animals can undoubtedly spread the disease in an otherwise clean drove.

Briefly, the following points should be emphasized:

Pasteurize skim milk before feeding to calves, hogs or chickens.

Keep tubercular cows or cows not tuberculin tested separated from hogs.

When purchasing hogs for breeding purposes ascertain if they have been in contact with tubercular cattle or if hogs have died occasionally in a suspicious manner or from an unknown cause.—J. G. J.

RICE BRAN

The American Miller says:

"Both rice bran and rice polish make excellent finish feed for hogs, though continued feeding of them is not to be considered; rather, they should be alternated with corn and oats.

"The rice bran excels the polish in protein and fat content. The polish is high in carbohydrates and is fed as a mash, mixed with bran, to secure the best balance. The darker varieties of the rice bran have been found to be the most nutritious.

PROVIDE FOR SEWAGE DISPOSAL

The two greatest conveniences of the home are a system of running water and a sanitary method for disposing of sewage. A sewage disposal system changes the farm from an unhealthy to a healthy and pleasant place to live—a place where the disease breeding fly will cease to flourish because its food supply will have been taken away.

A Boar to be Great

must stamp his individuality upon his offspring and they must measure up to a high standard of excellence.

The get of Vaughn's Jones court comparison with the get of any boar in the state. Come and see them, they will please you.

A. J. Van Cleef Riverdale, Cal.

Lendorris Liberty Bond and Young Jumbo

assisted by BUSTER LEN comprise our battery of herd boars

From the standpoint of popular bloodlines and individual excellence they are unexcelled.

Our sow herd is worthy of mating with our three good boars. The young stock for sale have the size and feeding qualities so much desired.

We solicit your correspondence.

W. L. Haag and Son Hanford, Cal.

Giant Bob, Grand Champion

and the son of a champion, assisted by Golden West King and Blue Valley King are three reasons for the popularity of our herd and indicate why you should join our rapidly growing list of customers.

These three boars are siring the class of pigs the public demand. Write us regarding your wants. We feel confident we can please you.

A. Buckland & Son, R.F.D., Fresno, Cal.

The Grand Champion Giant Bob

highest priced boar in the West heads my herd.

He is ably assisted by The Sequoian, a young herd boar of great promise. These two boars are siring a fine lot of big growthy pigs. They are the right type. Spring pigs, both sexes, $25 and up.

Z. M. Dickey Dinuba, Cal.

Aviator A boar of outstanding individuality and one that is proving to be a sire of unusual merit. His pigs find a ready market. Order yours today. Satisfaction assured.

CROSS BROS MERCED, CAL.

King's Big Bone Leader

is siring the big stretchy kind of Poland Chinas so much in demand. Giant Bob 2nd is justifying our expectations as a young boar of great possibilities.

These boars and their get will meet with your approval.

Les McCracken Ripon, Cal.

Trewhitt's Big Type Poland Chinas

are found in many of the leading herds on the Coast where size and quality predominate. Select your Poland Chinas where the big type ONLY are bred. When you secure a Trewhitt bred Poland China you get something better—not just ordinary.

W. D. Trewhitt Hanford, Cal.

I AM OFFERING

exceptional values at present. A few bred gilts left. Some choice pigs ready for shipment. Write for prices, they are reasonable. Full description sent on request.

Eugene Miner Lodi, Cal.

Satisfied Customers

are my specialty. Recent sales to old customers prove to me that Forrestview Bob, a son of Caldwell's Big Bob, is siring the class of pigs that have made this great family of hogs famous.

Write me your wants. I strive to please.

J. H. Cook Paradise, Cal.

For easy feeding, early maturing Poland Chinas,

Secure the Get of Model Big Fellow

He was Reserve Grand Champion

at the last state fair and is a sire of remarkable worth. I solicit your patronage.

J. F. McSwain Merced, Cal.

McCune's Quality Herd

of BIG TYPE POLAND CHINAS

attained their prominence only by constructive breeding and careful selection as to type, size and quality. This should be the deciding factor in seeing that your next Poland China comes from this herd.

H. D. McCUNE, Lemoore, Calif.

Facts in BLACK & WHITE

Purebred Holstein Cows Lead

After a 6-year study of dairy operations on over 20 farms in three different parts of Minnesota, Prof. Cooper of the State Experiment Station finds that dairying is most profitable in the "Holstein Section" of the state.

In 1905 the average profit per cow was only $10.10. In 1909, it had increased to $38.45 per cow, or 43 per cent. on capital invested. Increase was due to improved herds, purebred Holsteins having been substituted for grade beef breeds. As soon as dairying is put on a systematic basis, the Holstein cow comes to the front. If facts and figures mean anything to you, send for our illustrated literature.

THE HOLSTEIN - FRIESIAN ASSOCIATION
120 Hudson Street
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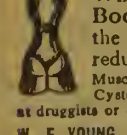
GUERNSEYS



$546 Was The Average Price
paid for all Guernseys sold at public auction in 1919. This figure indicates the buyer's high estimation of the value of the breed. Let us tell you WHY Guernseys lead in popular favor.

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Price dormant joints, 75c per doz.; $4 per 100 or $20 per 1000.

Rooted Sprouts, $1 per doz.; $5 per 100 or $30 per 1000.

Divided Crowns, $1.25 per doz.; $6 per 100 or $40 per $1000.

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TRADE MARK REG. U.S. PAT. OFF.
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Registered Shorthorns
and
Berkshires---Both Sexes
H. L. & E. H. Murphy
Perkins, Cal.

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

April 20, Bonita Stock Farm, Lodi.

April 27-28, Southern California Consignment, Clearwater.

May 5, W. J. Higdon, Tulare.

May 6, R. C. Sturgeon and others, Tulare.

May 12, Leeman & Kilgore, Dispersal, Ripon.

Shorthorns

March 30-April 1, Central Shorthorn Breeders Association Show and Sale, Kansas City.

June 17, C. W. Anderson, Burkbank. Dispersal.

Poland Chinas

April 3, Kings County Pig Club sale, Hanford.

April 24, W. T. Dice and Harrold Waltz, Hanford.

Holstein interests will be interested in the following information contained in a letter from Stalder Bros., proprietors of the Rosamaines Rancho, Riverside, concerning the performance of the daughters of their herd bull, King Pontiac Netherland Segis 3d: "We now have on test the twentieth daughter to freshen of this great young sire, Aralia Netherland Segis, who calved at the age of two years and one month. She has just made a record of 18.15 pounds of butter in seven days and a seven day milk record of 441.7, or an average of 63.1 pounds per day; best day, 64.9 pounds. This milk record is the best by a small margin of any of these daughters, several of whom have beaten 60 pounds per day. She has six sisters, however, who have surpassed her in butter, the highest producer, Minita Segis Pontiac, having a seven day record of 22.47 pounds butter. The average production of these 20 daughters at an average age of two years and two months is 17.70 pounds butter in seven days, showing the wonderful consistency, as a sire of producing cows, of this young sire, himself still under six years of age. This fact is still further exemplified by the performance of the only five of these daughters to come in with a second calf. The highest of these, Mamie Pontiac, made 25.37 pounds butter in seven days at the age of three years and two days, with an average for four heifers of nearly 23 pounds, while the fifth, only four days on test, is going at the rate of 24 pounds in seven days, at the age of three years and one day."

Alex M. Wilson, superintendent of the swine department for the Italian Vineyard Company of Guasti, reports business excellent and that it is hard for them to produce enough Berkshires to fill the demand. Several choice sows bought in the East have excellent litters by some of the best boars in the country, those sired by Real Type showing especially well. If Mr. Wilson carries out his present plans, he will have quite a show herd at the fairs the coming season.

Announcement has just been made that the senior three year old Holstein heifer, Hollywood Lilith Pontiac, owned by W. J. Higdon, Tulare, has made a seven day record of 36.207 pounds butter from 514.4 pounds milk. She is still on test and it is more than likely that the above record will be increased although the above butter production places her at the front of her class in this state. She was sired by Hollywood Lilith Palmyra, the sire of Lilith Marcena, with a recent record of 38.88 pounds butter in seven days. Her dam is a 21 pound granddaughter of Pontiac Korndyke. Hollywood Lilith Pontiac will be sold in the Higdon sale to be held May 5.

The Winsor Ranch Duroc-Jersey herd at Bonita, San Diego County, is in excellent condition. The spring litters by Winsor Giant Orion and Great Sensation 3rd are showing up in great shape. Most of the litters are ten to 12 pigs each. A good bunch of yearling gilts of Orion, Pathfinder and Sensation breeding are grazing on the alfalfa and will be in fine condition for the big sale in July. The Winsor Ranch is one of the best equipped hog plants in the state and has every facility for producing high class breeding animals on a large scale.

George Stingle of Lark Meadow Ranch, El Monte, is steadily improving his herd of Berkshires and has some outstanding spring litters. In addition to booking orders for spring pigs, Mr. Stingle has a few bred sows and gilts and two boars of serviceable age that are priced at very reasonable figures.

Fred Hall of Perris reports the best business he has ever had with his Shorthorns and Berkshires. His trade has taken all his bulls of serviceable age and he could sell many more if he had them. He has also sold all the Berkshire gilts he can spare at present. His young herd boar, Model Leader 3rd, is one of the best candidates for the senior yearling class at the state fair we have seen. He is siring the right sort of pigs, which is the real test of any herd header.

Thos. Harrison, proprietor of the Santa Rosa Stock Farm, Santa Rosa, writes that owing to the fact that he is forced to relinquish his lease of the Santa Rosa fair grounds he finds it necessary to dispose of a large part of his herd of milking Shorthorns and that he contemplates holding a public auction when he will offer between 40 and 50 head, including a number of prize winners. The Harrison milking Shorthorns are known throughout the Pacific Coast section, having been prominent in Western show rings.

W. T. Hollingshead and son, Orland, have recently sold Durocs to the following purchasers: A bred gilt to C. B. Cunningham, Orland; a bred gilt and a service boar to B. J. Bills, Orland; a bred gilt to Arthur Erickson, Orland; bred gilts to J. M. Ashley, W. E. Beason and Smith and Hurni of Orland. T. W. Mayhew and C. Judges of Willows have each taken two bred gilts. Messrs. Hollingshead report that one sow in their herd has farrowed 16 pigs.

Miss Konigen Pontiac, a senior three year old daughter of King Pontiac Konigen, owned by the Bridgford Holstein Company, Patterson, has just been given a seven day record of 31.47 pounds butter and 772.3 pounds milk, and a 30 day record of 125 pounds butter and 3,235.5 pounds milk. The 30 day milk record is claimed to be the world's record.

Plans are being made to organize an association to hold an annual county fair in Stanislaus County. The movement has the backing of the city of Modesto and Stanislaus County as well as the support of all the livestock interests. Modesto plans to purchase a tract of 70 acres for the site the county expects to erect the buildings on and the livestock breeders will build a show and sales pavilion.

J. F. Simmonds of New South Wales, Australia, recently visited a number of the leading Holstein herds of Sacramento Valley. Mr. Simmonds expects to return to this state later and will probably make selections of breeding stock for shipment to Australia. Simmonds says that there is a growing field in the South Pacific and it is his opinion that California is the logical source of supply.

The American Polled Hereford Breeders' Association announces that a breed promotion sale will be held at Fresno, May 5. It will be remembered that the association held a promotion sale at Sacramento last year. It is planned to sell about 30 head and the association states that the quality will be much better than last year.

H. E. Spires of Hilcrest Farms, writes: "Some seven day records made lately in the Victory herd are: Dora Hamilton Korndyke, three years, milk 515.0 pounds, butter 20.048. Liela Korndyke Hengerveld, three years, milk 576.6, butter 27.015. Victory Pietertje Pontiac, two years, junior, milk 394.6, butter 18.73. Victory De Kol Mary Pontiac, two year junior, milk 282.2, butter 13.112.

THE REASON WHY

Diner—That man at the round table gets much better food and attention than I do. I shall complain to the manager. Where is he?

Waiter—He's the man at the round table, sir.—London Opinion.

WATCH THIS SPACE

A Sensation in Black and White

¶ ¶ ¶ ¶

This Column in Ensuing Issues Will Carry
ANNOUNCEMENTS
of the Greatest Interest
To California Holstein Breeders

¶ ¶ ¶ ¶

It Will Mark an
Epoch in the Holstein History
of the State

¶ ¶ ¶ ¶

Of Special Interest to those wishing to purchase small Foundation Herds

WATCH THIS SPACE

Modesto Holsteins to New Men

One of the largest crowds ever seen at a California auction attended the first sale held under the auspices of the Stanislaus County Holstein Breeders Association. It was estimated that over 1,000 men and women were about the sale ring at one time. Indeed, the parking space for cars reminded one of the state fair.

The sale consisted of 39 females and eight bulls selected from eight of the leading herds of that banner dairy county and, with few exceptions, all were taken by new men who are turning from grades to pure breds. The sale furnished abundant proof that California buyers of pure bred dairy cattle are no longer satisfied with animals that have not been tested. The buyer now insists that his purchases must be backed by official records or come from herds where the producing qualities of the cattle have been established by testing. Prices for untested stuff rule but slightly higher than grade values.

Bridgford Holstein Company, Patterson, topped both the female and bull divisions. Pansje Hengerveld Buttergirl, a three year old daughter of Segis Bergsma Butter Boy, that is by the same sire as Miss Aaggie Acme Burke, and out of Pansje Hengerveld De Kol with a record of 27.54 pounds butter in seven days, topped the females. She was taken by R. L. Holmes of Modesto for $775. Agawam 2d, a 25.45 pound daughter of Dutchland Colantha Sir Ormsby, consigned by Bridgford, sold to C. L. Morse of Modesto for $625. Hermana Mechtilde Ciruela 4th, with a record of 18.88 pounds butter, went to W. M. Way of Modesto for $530. Mr. Way was one of the heaviest buyers of the better lots. A. B. Sayers of Manteca, another good buyer, secured Lady Ulrika Bonnie De Kol from the Peterposten consignment at $500 and Hermana Mecthilde Ciruela 3d from the R. L. Holmes consignment at $435. H. A. Stammerjohn of Turlock made a number of very excellent selections from among the tops.

A. B. Sayers took the top bull, Valdessa Pontiac Alcartra Prilly, for $650.

The 39 females averaged $325 and the eight bulls averaged $243—satisfactory prices in view of the number of untested things and the age of many.

A number of buyers from a distance were present, but did not succeed in securing many.

A feature of the sale was the barbecue lunch provided by the Modesto Business Men's Association and the contributors to the sale. The event was managed by C. L. Hughes of the California Breeders' Sales and Pedigree Company, Sacramento. Col. Ben A. Rhoades of Los Angeles was the auctioneer and was assisted by Col. Cy N. Clark of Modesto.

The detailed list of sales follow:

Consigned by E. E. Freeman, Modesto

1, Fanny Pietertje Hengerveld De Kol, Aug., 1911, 16.54 pounds; W. L. Choisser, Riverdale, $500.

2, Inka Ignaro Princess, May, 1915, 21.27 pounds; A. A. Pearson, Patterson, $475.

Consigned by A. M. Bibens, Modesto

FEMALES

3, Hermana Mechtilde Ciruela, Jan., 1919, 18.88 pounds; W. M. Way, Modesto $530.

4, Europa Josephus, Oct., 1913, 15.42 pounds; W. H. Bryon, Patterson, $220.

5, Lola May Josephus, June, 1916, 14.81 pounds; W. M. Way, $220.

6, Europa Pietertje, May, 1916; Joe F. Machado, Modesto, $265.

7, Bessie Mechtilde Josephine, April, 1914, 12.12 pounds; J. D. High, Modesto, $450.

Consigned by R. L. Holmes, Modesto

BULLS

9, Segis Alcartra Spring Brook, Sept., 1917; W. M. Way, $425.

10, Prince Abbekerk Aralia Walker, Dec., 1916; C. H. Hobart, Sacramento, $430.

FEMALES

8, Welch Pietertje, April, 1917; W. M. Kirkle, Modesto, $175.

11, Angie Escalon De Kol, March, 1915; H. A. Stammerjohn, Turlock, $160.

12, Golden State Segis Aaggie, May, 1919; H. A. Stammerjohn, $385.

14, El Dorado Helena, Feb., 1919; Joe F. Machado, $205.

13, Hermana Mechtilde Ciruela 3d., Nov., 1909, 22 pounds; A. B. Sayers, Manteca, $435.

15, Buena Alta Queen Bracelet Ormsby, Oct., 1916, 13.44 pounds; John F. Silveria, Modesto, $225.

16, Jennie Karen Sarcastic, March, 1914, Ben Durrer, Martinez, $300.

17, Prince Gilbert Madrigal, Feb., 1919; J. F. Silveria, $80.

Consigned by C. L. Morse, Modesto

FEMALES

19, Jewel Pasha Colantha 2d, May, 1919; J. F. Machado, $185.

20, Pauline Pasha Girl Colantha, Sept., 1916; W. M. Way, $290.

21, Jewel Pasha Colantha, Nov., 1916; W. H. Bryon, $200.

22, Pauline Pasha Girl De Kol 2d, Dec., 1914; W. H. Bryon, $205.

23, Julia Wayne Colantha, Nov., 1916; J. F. Machado, $215.

24, Mabel De Kol Wayne, Aug., 1914; H. Nlestrath, Lathrop, $260.

25, Mabel Wayne Korndyke 2d, Sept., 1912; H. Nlestrath, $315.

26, Paulne Pasha Girl De Kol, Sept., 1911; Bill Anderson, Modesto, $160.

27, Georgie Pasha De Kol, June, 1911; W. H. Bryon, $225.

28, Pauline Pasha Girl Korndyke, Feb., 1919; J. F. Machado, $190.

29, Mabel Wayne Korndyke, May, 1919; M. M. Lopez, Pleasanton, $200.

BULLS

30, King Pontiac Colantha, June, 1919; P. J. Winter, Ione, $95.

31, Colantha Dutchland Aaggie, Aug., 1919; Ben Durrer, $90.

32, King Pontiac Korndyke, June, 1919; E. B. Lawrence, Modesto, $100.

33, Dutchland Wayne, Nov., 1919; Clover Leaf Dairy, Modesto, $80.

Consigned by E. Peterposten, Modesto

FEMALES

34, Heil Careme, July, 1908; W. M. Way, $210.

35, Lady Ulrika Bonnie De Kol, Oct., 1916, 10.03 pounds; A. B. Sayers, $500.

36, Ulrika Bonnie De Kol 3d, July, 1914, 14.25 pounds; J. D. High, $275.

Consigned by Macomber & Son, Modesto

FEMALES

37, Sylvan Iris Pet, April, 1919; R. Stevens, Stockton, $180.

38, Korndyke Posch of Sylvan Iris, March, 1919; R. Stevens, $250.

39, Korndyke of Sylvan Iris, Aug., 1917; H. A. DeWolf, Ripon, $300.

40, Lady Korndyke of Sylvan Iris, Aug., 1918; R. L. Holmes, Modesto, $205.

41, Reality of Sylvan Iris, July, 1918; R. P. Meily, Modesto, $250.

Consigned by H. E. Cornwell, Modesto

42, Esther Hengerveld of Linwood, Aug., 1915, 15.96 pounds; H. A. Stammerjohn, $500.

43, Pauline Pietertje Ciruela, March, 1917, 12.04 pounds; H. A. Stammerjohn, $510.

Consigned by Bridgford Holstein Co., Patterson

BULLS

44, Valdessa Pontiac Alcartra Prilly, Dec., 1918; A. B. Sayers, $650.

FEMALES

45, Princess Autun, Sept., 1913, 21.27 pounds; H. I. Marsh, Modesto, $220.

46, Pauline Artis Sadie Vale, Feb., 1917, 16.14 pounds; M. M. Lopez, $510.

48, Agawam 2d, Nov., 1912, 25.45 pounds, C. L. Morse, Modesto, $625.

49, Pansje De Kol Alban Dun 2d, March, 1916; R. L. Holmes, $775.

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Value of Swine Futurities

By V. F. Dolcini

THE Duroc futurity is on the mind of every Duroc breeder at present and the question now is whether or not he will make an entry for the national futurity. To that question there is but one answer and that is "Yes." Every breeder, large or small, should enter in the futurity by all means and show if possible.

Now the question arises, Is it a good thing to fit young pigs? That question has been definitely decided by proven facts. The fact that most all national associations are promoting futurities and that they have been constantly on the increase since their origin some ten years ago is proof enough of their value and benefit, but when we stop to consider what futurity pigs have done in the sale rings and breeding pens, there is no argument left as to what the advantages are. The highest priced sow in Kern's recent world record sale (and she sold for $5,600) was a first prize futurity winner at the Iowa state fair last fall. Her litter brother, Choice Wonder, was also first and junior champion and sold at public sale for $3,300 (the highest price for a boar of his age at that time). Another litter brother, Choice Wonder 3rd, sold in the same sale for over $1,000. These, with another gilt that went to make up the winning litter, were all sired by Wahaska Wonder, a son of Great Wonder. Then there was the first prize futurity gilt at the National that sold in Kern's sale for $3,400. Getting back to our own state, the gilt that topped the recent Tulare sale, selling of $1,125, was shown in the futurity and was well up in the money. The fact that the leading breeds will pay such prices is proof of what these youngsters will do for them.

Getting back to the breeding pen, I will say from my own experience and what I know of others, that I have never known a gilt to be injured in any way, because of fitting for a futurity. I have never had a winning gilt farrow and raise less than six pigs, and several have farrowed and raised as many as eleven.

Heretofore I have referred only to the under-six-months futurity, which is the only futurity we have had in California up to this time. This year the national Duroc Jersey Record Association, together with the state fair association and the Duroc-Jersey breeders, are planning to put on a senior pig futurity, which I believe will be of as much benefit to the breed as the one for younger pigs has proven, and any breeder having fall pigs that he did not care to force can go ahead and fit them for this senior pig class.

This special class is open to all breeders who comply with the rules and regulations of the futurity and is a class where all breeders, young and old, rich or otherwise, meet on practically the same footing.

The advantages of a futurity show are many: First, a breeder with one sow that farrows a litter after March 1, or between September 1, 1919, and March 1, 1920, can take the litter to the fair and meet the man with a herd of from 20 to 100 sows on practically an equal footing. One need not put a lot of money into his herd before feeling that he can go to the shows and make an exhibit. A start can be made with one good sow or gilt bred to a good boar. The reason I say all are more or less on an equal footing is because the rich man cannot buy a bunch of futurity winners, as the show these pigs will make will depend largely on the care they have since they were farrowed, and pigs that are changing hands will not do as well as those that are handled under the same conditions and on the same feed for the first six months.

Second: In fitting for a class of youngsters one is not wasting any feed, but is putting this feed into bone and muscle to make them worth more money than those that are not grown out so well. There is absolutely no feed wasted in feeding young pigs, as there is in the case of fitting mature animals.

In the third place, the more animals of one breed that are shown, the more value it is for the breed, because it attracts and impresses those interested and encourages more men to make a start with the breed.

In the fourth place it is a big educational factor, as it helps those interested by showing and having a competent judge place their animals as he thinks they will mature. That means that if a man is not thoroughly familiar with the way hogs will grow out, he can get the benefit of the expert's judgment without waiting a year or more to see how his pigs will develop.

And last, but not least, there is the premium money which all are interested in. There are more liberal premiums paid in the futurities than in any other class, and there are eight places in each one of three classes, which means there is a good chance for anyone who has anything that is at all worth while.

The time is at hand and one will have until April 1 to nominate his herd, which will make it eligible for this great show.

If one is going to show, now is the time to start in with the pigs. First see that the sows are getting enough feed to supply the pigs with plenty of milk. As soon as the pigs are old enough to eat, which is usually about three weeks, build a little creep for them and feed them a little slop to get them started eating.

This creep should be built in or adjoining the pens where the pigs are kept. Make a small trough and put in it thin slop of middlings, fine ground barley and oats. Coax the little pigs to eat just as early as possible. As the pigs get to eating well, gradually increase their feed and feed at least twice a day and if possible three times a day. In addition, a self feeder of tankage and bone meal should be kept before them. When the pigs are eating well, as they will be at eight to ten weeks of age, they can be weaned, and if they are getting plenty to eat there will not be much danger of a setback at weaning time. After weaning feed them in much the same way, and if possible allow them to run on an alfalfa pasture. This will give them exercise, keep them in good physical condition and they will make better and more economical use of the feeds fed.

TEST YOUR COWS

"It isn't always the man who is doing the most work that makes the real money with dairy cows," says E. M. Harmon of the college of agriculture, University of Missouri. "Too many men have among their herds cows which not only are not paying but which are actually eating up the profits made by the rest of the herd.

"We are continually finding examples of this over the entire state. One man said recently that when he joined the cow testing association last June he was milking 50 cows. With the aid of the association he eliminated 26 and is making more profit from the remaining 24 than he made on the whole 50. In addition to that he reduced his labor by one-half. A neighbor of his started in a year ago with a herd of 37 milkers. He has reduced that number by 14 with the same result—more profit from fewer cows.

"One man in a cow testing association recently sold a cow which he said was annually losing him more than it cost him to have his entire herd tested.

"After allowing a fair amount for labor and interest in addition to feed it was found that 36 per cent of the cows in the county association last year were losing their owners money. It is safe to say that the cows in this association were well above the average cow. But even using these figures as a basis and granting that only 36 per cent of the 800,000 cows in the state are losing money we find that over 330,000 of them are kept at a loss. In other words the farmers will feed and milk over 330,000 cows tonight and pay those cows for the happy privilege of doing so. There is one way to find out which ones are making the money. That is the use of milk scales and the Babcock test and a cow testing association."

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Daughters of 40, 37, 30 pound sires.

Daughters of cows with records up to over 30 lbs. butter in 7 days.

A 31 pound son of King Korndyke Sadie Vale.

Offering includes complete dispersal of the W. D. Millard herd.

Burr Farm will sell some of the highest producing cows in their herd.

P. H. Krick, Stalder Bros., Chas. Harrington, W. T. McAlister, Agee Bros., Bost & Johnstone, and others will consign some of their best bred animals.

Watch for details in later issues. It is one of the good offerings of the season.

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C. L. Hughes, Sales Manager, Sacramento, Calif.

Auctioneers: Col. Ben A. Rhoades, Harold B. Rhoades.

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55—Outstanding Cows, Heifers and Bulls—55

Semi-Dispersal of the famous W. J. Higdon Herd, Tulare, Cal. Wednesday, May 5, 1920

Mr. Higdon is faced with the necessity of plowing up his present ranch and of securing additional land before even a herd of the present size can be maintained satisfactorily, and very reluctantly decided to offer at public sale his entire herd except the young daughters of King Korndyke Pontiac 20th, and possibly a very few of the youngest daughters of Prince Riverside Walker.

King Korndyke Pontiac 20th will be sold!

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COOPERATIVE CITY MILK PLANTS

There is a growing interest in the movement to reduce the costs of marketing milk through cooperative city distribution. Increasing sanitary requirements of city milk inspection departments and mounting costs of market distribution have given a considerable impetus to this movement. Cooperative milk plants are now being operated in cities ranging in size from 15,000 to over 600,000 in population, but generally the cooperative idea applied to city milk distribution has gained adherents more readily in the smaller sized cities where private initiative had failed to develop a satisfactory system of milk marketing. Action has usually been initiated by local dairymen who sought to obviate unnecessary costs by erecting a pasteurizing and bottling plant. These plants furthered more economical city distribution, either through routes operated by the association itself or through sub-dealers to whom it might sell.

Reference to index pages of trade publications would indicate that probably one of the first successful efforts along this line in the United States was that of the Erie County Milk Association of Erie, Pennsylvania. In 1899 approximately 50 local dairymen retailing milk in Erie organized a stock company for the purpose of engaging in the cooperative distribution of the milk produced by its members. At the outset this association consolidated the deliveries made from 65 routes into 23. Although the original amount of stock issued ($30,000) had not been increased up to the year 1917, the current market value of this stock had increased to approximately $150,000.

Since the organization of that pioneer cooperative milk distributing company a considerable number of associations have been organized for a similar purpose in other cities.

MORE GOOD HORSES NEEDED

The thing most needed in the production of work horses for American farms is greater care in the selection of the stallion and the brood mare, say animal husbandry experts of the United States department of agriculture who have been studying the present situation with respect to horses. Not only was there a net decrease of approximately 373,000 in the number of horses on farms on January 1, compared with a year ago, but the experts are of the opinion that there has been an even more marked decrease in the number of mares bred during 1919. The extent of this decrease can not be accurately determined until the colt crop of 1920 is estimated. However, if the decline in breeding is as great as conditions now indicate, the country will be confronted with a seriously depleted supply of good horses within the next few years.

Many farmers are using up their work stock without making any provision for the future. Such a policy is short-sighted and will have serious results. The present need is to increase the percentage of efficient horses by careful selection of parents. One of the principal factors from which the market is suffering is the breeding of too many low grade work animals. There is a strong demand for high class horses at good prices.

WOOL PRICES ON DECLINE

Since November, 1918, the prices of wool have declined in comparison with the same month of the preceding year. The highest average price reached was 60 cents per pound in March and April, 1918, since which time the prices fell to as low a figure as 47.9 cents in April, 1919. In January, 1918, the average price was 58.1 cents; January, 1919, 55.2 cents; and in January, 1920, 53.3 cents. The producers' price of 16.7 cents per pound in 1913 advanced to 58 cents in 1918, and fell to 51 cents in 1919.

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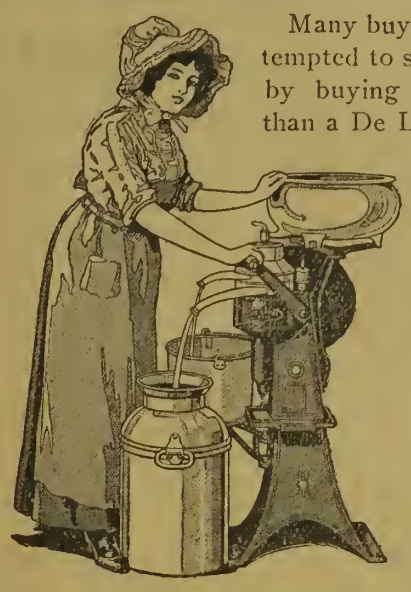

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Newton Poultry Farm — White Leghorn Baby Chicks from our well known, carefully selected stock. Best strain. Big plant. Order now, any number, and get them when you want them. Los Gatos, California. Dept. 2.

"Watch Us Grow" Baby Chicks. Booking orders now for January and February deliveries. Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch. Route 1 Box 246, San Jose, California.

For Sale—Very gentle Pea fowls. Price $25.00 per pair at 2 years old. $17.50 at 1 year. Will contract to raise for Nov. delivery at $10.00 per pair. Eggs $1.50. Peacocks have full tails at 2 years. A. Everett, Moorpark, California.

For Sale—Thoroughbred Rhode Island Red eggs for setting, $1.50 a setting of 15 eggs, absolutely guaranteed as Rhode Island Reds. Address Mrs. C. J. McCullah, Hanford, Calif., R. F. D. A, Box 40.

"Eastman's Bred-to-Lay" trap-nest Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS

We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

Sly's Single Comb Rhode Island Reds—Winners and layers. Surpassing all competitors at Los Angeles shows, winning many ribbons and three silver cups. Hatching eggs from these birds correctly mated, $3.00, $5.00 and $7.50 setting. Descriptive folder free. Albert Sly, 1642 E. Middleton Place, Los Angeles.

Thoroughbred S. C. White Leghorn Chicks, 100 or 1000 lots from Hoganized and Trapnested Stock. Inventors and Distributors of "Forbros" Poultry Separator and Trapnest (combined). Write for circular. Forster Brothers, 2918 Otis St., Berkeley, California.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Buff Orpingtons, Black Minorcas, Anconas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306. San Jose, California.

For Sale—Thoroughbred White Wyandotte settings, $2.50 for 15 eggs, also, choice White Wyandotte cockerels from $5.00 to $8.00 each. Apply Gordon O. Tetley, 190 Edgewood Place, Riverside, California.

Day Old Baby Chix—From mature hen eggs. White Leghorns, $15.00; Barred Rocks, Black Minorcas, Rhode Island Reds, $20.00 per 100. Terms. One-third cash with order. T. C. Hawley, 504 E. Elm St., Lodi, California.

Cappel's White Plymouth Rocks—Highest exhibition quality. Unexcelled laying qualities, hatching eggs. Choice breeding cockerels for sale. Write for mating list. Shamrock Poultry Ranch, San Diego, California, 4015 Iowa St.

Buff Wyandottes—Buff Orpingtons — My strain were winners at last Pasadena and Los Angeles shows. Eggs setting or 100 lots. Chicks, also breeding pen Wyandottes. Mrs. W. O. Johnson, 1817 Summit Ave., Pasadena, California.

Baby Chicks and Hatching Eggs from Standard S. C. White Leghorns. We sell only strong, hardy chicks from heavy laying parent stock. Tacker's Poultry Ranch and Hatchery, Escalon, California.

Eggs—For hatching from Silver Spangled Hamburg hens and Fawn and White Indian Runner ducks. Thoroughbred stock. Chas. I. Wellington, Box 49 N. Route 3, San Diego, California.

Conklin's Heavy-Laying Strain R. I. Reds, S. C. Light and Dark Brown Leghorns. Eggs reasonable. EVA V. CONKLIN, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

Rhode Island Whites — Hatching Eggs, Chix from best matings possible. Free mating list. Phil. Lehrbach, 1608 N. Ave. 56, Los Angeles.

For Sale—Guaranteed Day Old Pullets, S. C. White Leghorns. March delivery. One ranch here buys 20,000 a year. Eureka Hatchery, Petaluma, California.

Purebred Chicks from selected bred-to-lay White Leghorns, Barred Rocks, Rhode Island Reds. Price right. Maxwell Hatchery, Madera, California.

Purebred Buff Orpington Eggs — Heavy laying strain, choice stock, setting $2.50. Mrs. M. Lopez, Box 436, Manteca, California.

White Minorca Baby Chicks and Hatching Eggs—Dark Cornish and Silver Campine Eggs. Folder. Leech Poultry Yards, Baldwin Park, California.

Baby Chicks, thoroughbred White Leghorns. No weak ones charged for. Schellville Hatchery, Schellville, California.

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S. Reservoir, Pomona, California.

Beautiful Ringnecked Pheasants—Mated pairs $10. Eggs $5 setting. White Holland Turkey eggs 50c. PAUSE PHEASANTRY, Box 176, Fair Oaks, California.

Baby Chicks, standard varieties, high quality, low price. Catalog now ready. Can fill large orders. Madera Hatchery, Madera, California.

Fowler's Reds — Win—Lay—Pay. Cockerels and eggs for sale. Send for mating list. Duarte, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C, Ceres, California.

White Orpington Hatching Eggs for sale, $10.00 per hundred. Also limited number of baby chicks. Mrs. S. D. Koons, P. O. Box 186, Orland, California.

Pit Games, Cocks, Stags, Hens, Eggs. R. H. Crane, Route 3, Santa Rosa.

Single Comb Red Hatching eggs, $2.00 per 15. W. M. Marquam, Bishop, California.

POULTRY

Spring Baby Chicks For Sale—400,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) Stock. Price during May and June, 25, $5.00; 50, $9.00; 100, $14.00. Special prices 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition; no money in advance, pay on delivery. Shipped safely anywhere west of the Rockies. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., PETALUMA, CALIF., 438 Seventh St.

Barred Plymouth Rocks—"Nothing Better in Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Vodden, Los Gatos, California.

White Leghorns—Chicks and hatching eggs from Curtis heavy layers. Our stock has orchard range which in connection with most modern methods assures heavy producers with excellent vitality. All chicks hatched from our own stock exclusively. Progressive poultrymen demand the best. Write for folder. O. B. Curtis & Son, Route 1, Box 29, Gardena, Cal.

Santa Cruz Chicks—We specialize on very best White Leghorns, hatching many thousands each week; also Brown and Buff Leghorns, Anconas, Minorcas, Wyandottes, Orpingtons, Barred Rocks and Rhode Island Reds. Write for folder. B. W. Archibald, Soquel, Santa Cruz County, California.

White Plymouth Rocks — Fishel strain direct. Five years' select breeding. Eggs $5.00 and $1.50 for 15. Mammoth Bronze Turkeys. Large, vigorous birds, heavy boned and beautifully bronzed. Guaranteed free from disease. Bertha M. Jesch, Fallon, Nevada.

Finest Hatchery in the World—Chicks, White Leghorns, Rhode Island Reds. Settings, 100's, 1000's—hatched right in $60,000 Brick and Concrete Hatchery from our Quality Heavy Layers. Reasonable prices. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Baby Chicks — Every week, White and Brown Leghorns, R. I. Reds, Barred Rocks, Anconas. Also Baby Ducks. All strong youngsters. Safe arrival guaranteed. Write for free circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

White Leghorn Baby Chix. Heavy laying. Hoganized stock. May and June delivery. $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

White Leghorn Baby Chicks—We get our hatching eggs from a flock of 1,500, two year old Walter Hogan hens that have been carefully Hoganized by an expert. Buy the best—all from one flock. Lyon Hatchery, Gardena, California.

For Sale—Rhode Island Red Baby chicks from our carefully selected matings for size, color and egg production. $20.00 per hundred; also White Leghorns, $17.50 per hundred. Williams' Poultry Place, R. I., Box 563, San Gabriel, California.

Baby Chix from heavy layers. Barred Rocks, R. I. Reds, Black Minorcas, Buff Orpingtons, Brown Leghorns, White Leghorns. We prepay express charges. Willow Glen Poultry Yards, 580 S. 9th St., San Jose, California.

Chix or Eggs—Hoganized W. Leghorns—also limited quantities of Buff Leghorns, Buff Minorcas, B. P. Rocks, L. Brahmas, Reds. S. Martina, R. 2 —627, Santa Cruz.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

Buff Minorcas, R. I. Reds—Great layers, size and color. None better, few as good. Get full particulars and price on EGGS. Mill's Poultry Farm, Box 2, Parlier, California.

For Sale—Pure bred Buff Orpington eggs $3.00 per setting of 15; incubator lots $10 per hundred. Mrs. M. L. Trewhitt, Rt. B, Box 47, Hanford, California.

White Rock Baby Chix from heavy laying strain, $.20 each, $18.00 hundred. Eggs, $1.50 setting; $8.00 hundred. C. M. Sebastian, Wasco, California.

White Wyandottes — Prize winning and heavy laying stock; eggs $3.00 and $5.00 per 15. Baby Chix. Cockerels. R. W. Stawetski, Route B, San Jose, California.

LIVE STOCK

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Next sale all breeds, second week in August at ranch. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale—Four well bred mammoth Spanish Jacks 1 to 6 years old, also five Jennets 1 to 6 years. Tennessee ancestors. Price $1200.00 for the lot. A. Everett, Moorpark, California.

For Sale—Pure bred Dorset ram, 3 years old; registered. Robert S. Clyde, Yucaipa, California.

Carruthers Farms—Live Oak, California. Shorthorn cattle and Berkshire swine of quality and select breeding.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Padlands.

DUCKS

For Sale—Ducklings, Pekin and Indian runner, also several hundred laying Pekin Ducks, heavyweight stock, immediate delivery. Beresford Poultry Farms, San Mateo, California.

White Pekin Baby Ducks—White Pekin Duck Eggs for hatching. 152 East Spruce St., Inglewood.

White Muscovy Ducklings, week old, hen hatched. Free circular. Caldwell Farm, Box 274-E, Los Angeles, California.

White Mammoth Pekin Ducklings—Ten days old 50c each. Eggs $1.00 a dozen. A. Surtman, Petaluma, California.

DUROC-JERSEYS

Pathfinder Wonder—Is son of Great Wonder I Am, the largest boar that ever lived, out of a daughter of PATHFINDER. He is one year old and measures 66 inches from his eyes to the root of his tail. We have a fine bunch of yearling gilts of King's Col. and Model Col. breeding that we will breed to him and sell at reasonable prices. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Special Sale of pure bred Duroc-Jersey weanling pigs (registered). Sired by First Prize Boar of Grand Champion breeding. Marked down in price to advertise our stock. Also a few choice bred and open gilts at slight advance over pork prices. Green Canyon Ranch, Fallbrook, San Diego County, California.

Duroc-Jersey Swine for Sale — Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Registered Durocs—Two bred sows farrow soon, $90 each. Bred gilts at $75. Fall pigs, $30. Weanlings, $16. Big type champion stock. El Dorado Duroc Association, Placerville, California.

Priced Right — Sept. boar pig, Orion Cherry King stock. He will make you money. El Bendito Rancho, Lancaster, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K Walker.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Wondergerst, California's leading Poland China sire—big himself, bred big and his pigs show the same qualities. His dam was Giantess Wonder, his sire Big Jones—both big, both winners—a combination of the greatest blood of the breed. Breed big type Polands. Start right by using this blood. Write for special offer. A liberal consignment made to the Tulare Poland China Associated Breeders' sale held Tulare, October 21st. OXBONE Herd Poland Chinas, Tipton, California.

For Sale—Three pure bred Poland China pigs, large type, from an old sow and sire. These are the "Superba" strain of breeding, and fine individuals. Farrowed Jan. 13th, 1920. $25.00 each if sold soon. M. A. Packer, 141 N. Pepperson St., Riverside, California.

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price, $75.00 and up. J. H. Crawshaw, Hanford, California.

The Pacific Herd—Has fall pigs, both sexes for sale. Satisfaction guaranteed. Nettie E. Andrews, Rt. 1, Box 46, Modesto, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Guaranteed growthy big type Poland Chinas, not pampered, selected for general farm conditions. Stock all ages. Walter Ficklin, Box 946, Fresno.

Tohoqua Big-Type Polands—Young pigs to sell. Champion big-type breeding. Ferguson & McKaig, Orland, California.

Big Type Polands—Herd boar Belle's Hanford Boy. A. R. Doctor, Van Nuys, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES
Orland, California.
BRED GILTS FOR SALE.

3 Long, Stretchy Boar Pigs farrowed in July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St. at Third, San Francisco. In charge of Natomas Land Sales.

Bred Gilts—Sired by Mayfield Rookwood 2nd, a Grand Champion Boar, and out of 600-700 lb. Sows, all bred to "ACHIEVER" our English-blood Boar, the Sire that puts more bone and pork-making qualities into his Pigs. Priced reasonable and absolutely guaranteed. Castleview Ranch, Santa Rosa, California.

Grape Wild Farm Berkshires—Guernseys—spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. B. Humphrey, Prop., Escalon, California.

Lark Meadow Ranch Berkshires. Choice gilts and sows safe with pig to noted boars. Priced for the rancher. Papers furnished promptly. Geo. A. Stingle, El Monte, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

FARM LANDS FOR SALE

For Sale—The below properties must be sold within thirty days and prices are made to move within this time and upon a basis of doing business direct with buyer; no commission. The lands are all in crop, abundance of water. Citrus, Nuts, Deciduous, Alfalfa, Dairying, Hogs, Poultry and general farming; land suitable for all these lines. A climate for all the year, the peer of anything in the state; twelve miles to ocean. Two miles from town, (state highway). Citrus adjoining two sides. The properties all adjoin. Prices guaranteed to be below anything of equal value either in this district or in Southern California.
No. 1— 45 Acres at $125.00.
No. 2— 45 Acres at $175.00.
No. 3— 45 Acres at $310. Improved buildings.
No. 4— 90 Acres at $138.00.
No. 5— 90 Acres at $229. Improved buildings.
No. 6— 90 Acres at $244. Improved buildings.
No. 7—130 Acres at $165.00.
No. 8—126 Acres at $150.00.
No. 9—136 Acres at $180. Improved buildings.
And over $1500.00 personal property free. This is about your last chance to buy desirable property in Southern California at a price so that you can afford to use it. Will consider small property as part payment on ninety acres or over. Get on the ground and investigate quickly. C. E. Howland, Owner, Fallbrook, California.

FOR SALE
One hundred and sixty acres at $275.00 an acre, four and half miles northwest of McFarland. Hog fenced all around and cross fences, 80 acres in alfalfa, 40 acres in barley, 20 acres in pasture, one acre in family orchard and the remainder under cultivation. Two pumping plants and 1200 feet of irrigating cement pipe, good house of six rooms and bath, plastered; one four room tank house, one big horse barn, cement cellar, blacksmith shop and garage. First class improvements for dairy, cow barn for 60 cows; cement floor, good dairy house and outerbuildings for calves and pigs. Shade trees also, horses and implements can be bought also if wanted. For information address owner. P. Grattoni, Route A, Box 98, McFarland, California.

For Sale—In Mariposa Co., 1080 acre stock ranch at $40 per A. All under hog tight fence, 125 acres now in grain, over 400 acres can be farmed. Estimated 40,000 feet of wood. Good barn, house, garage and out buildings. Will put in 25 head mixed cattle, 50 head of hogs, 6 head horses and colts. Silo 10 by 30, hay press, Case threshing machine, mower, rake, wagons, oak timber is worth the price of this ranch. Write owner, F. R. Frisbie, Ben Hur, California.

For Sale—44-A. level bottom, 30 years in vegetables, alfalfa and beans. Plenty irrigating water, shallow lift; 1½ miles from school, P. O. on rural mail route. $300 per acre. Terms. 244-A. rolling hills in grain, beans and pasture, fenced and cross fenced. All necessary buildings; ½ mile from store, P. O. Both places on highway to be paved, $60.00 per acre. Owner, D. E. Jones, San Luis Rey, California.

For Sale—By owner, 1000 acres of land fenced and cross fenced; 250 acres under cultivation; plenty of water, young family orchard, young fig orchard, 130 head of cattle, grade Herefords and Durhams, 10 horses and mules, modern 6-room house with running water, 2 large barns, corrals, windmill, tank, necessary implements; 2 miles from railroad and high school. Write A. L. Footman, Box 2, Madera, California.

FOR SALE AND EXCHANGE
10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.
FOR SALE
Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

ANTELOPE VALLEY.
Buy cheap, good alfalfa and fruit land in the easy lift water district near improved dairy and hog ranches. $50 to $75 an acre, one-fifth cash. Send for circulars. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

For Sale—20 acres APPLE and PEAR Land; 5 acres planted to Bartlett Pears, 15 acres in grain. Located about 1½ miles from town in a proven pear and apple district. Price $4250.00. Mortgage of $1270.00 due Feb. 1, 1921. Jos. A. Haubrich, Tehachapi, California.

For Sale—Finest Cattle Ranch in California. Drough does not affect it. Great abundance of water for irrigation, 2,500 acres delta land 45 miles from Sacramento. 2,000 head of Cattle now pasturing on the land. $125.00 per acre. F. N. Chaplin, 531 Argonaut Hotel, San Francisco.

For Sale — 50 acres fine land in Shasta County, California, under irrigation; ditch on property; about 30 acres cleared; adapted to fruit and berries, alfalfa or rice; for 30 days at $2,250. Address owner at 1026 Butte St., Redding, California.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of Lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

Lake County Land for Sale—Bearing pear and prune orchards, dairy and stock farms. Alfalfa and grain land and other properties. Address Joe Hyman, Lakeport, Lake County, California.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

For Sale — Ten acres, improved, large house, modern conveniences. Good terms. J. B. Guerard, R. 2, Box 26, Merced, California.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

GOVERNMENT LAND

100,000,000 Acres FREE Gov't Land—Send for free booklet telling how to obtain all necessary information about acquiring these lands. Address The Homeseeker, Dept. M, Los Angeles, California.

MACHINERY

USED RANCH MATERIAL
WE SELL FOR LESS, SEE US.
WHY PAY MORE?
SURFACE IRRIGATING PIPE
550 Ft. 7-in., 3,000 Ft. 3-in., 1,400 Ft. 4-in.
SPECIAL BARGAINS
Plows, $5 to $12; 3-4 gang disc plows, 4 gang Stockton, $28; bone grinder, $8; mower, $48; potato planter, $65; walking potato digger, subsoilers, hillside plow, 10 in., $12; beet planter, $30; bean cultivator, $35.
WINDMILLS
8, 10, 12 FT. SIZES
USED REDWOOD TANKS, ALL SIZES
NEW, USED GALV. TANKS, ALL SIZES
New 1000 gal., $43.75 2000 gal., $59.75
PUMPS
Plunger, Centrifugal pumps. Fine No. 3 AMES double acting, deep well plunger pump, cost $1000 for $350; 6-in. horizontal cent. Gould, $160; Duplex boost pump, $80; new double geared windmill and power pumps, $32.50; diaphram pump, $28; double acting Rotary, $35; 2½ in. blower, $9; 4-in. blower, $12.50; Pomona single acting pump, $87.50. Have you anything for sale? Material guaranteed as represented or money back. Demmitt Co., office upstairs, 120 N. Main, Los Angeles.

For Sale: Sandusky Tractor and P. & O. 3 Disc Plow. Used for one season. Have quit farming and will sell these implements at right discount. Inquire, Alberhill Coal and Clay Company, 604 Pacific Electric Bldg., Los Angeles.

Brand New Beeman Tractor—Must sell on account of change of plans. Will discount, terms with good security. R. R. 11, Box 649, Los Angeles, or call at Sunland, northeast corner of First St. and State Highway.

For Sale—Tractor—C. L. Best 30 Horse Power—$2200.00. Been used less than 10 days since being fully overhauled by manufacturer. Can be seen at the Leffingwell Walnut Orchard, East Whittier, California.

For Sale — Bean Tools—4 row Ventura Planter, 2 row Killifer Cultivator, 2 row Caledonia Cutter, 8 ft. Cyclone, Small American Thresher. Chas. Young, Route 1, Whittier.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

Agency Discontinued—New floor sample S.25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros. Co., Carpinteria, California.

MISCELLANEOUS

Learn Auto and Tractor Business—Operating and repairing all makes thoroughly taught. Positions while learning. Special tuition rates in classes now forming. Write for circular. Automobile Engineering Co., 742 S. Olive St., Los Angeles.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company. 1316 Washington Building, Los Angeles, California.

Peanut Hulls—The brown skins—for feed. Write for analysis. Price $25.00 per ton. F. O. B. here. MARSTON-GREENING CO., 1271 E. 6th St., Los Angeles, California.

For Sale—Or exchange lot on High Street, Melrose, Oakland, Cal. For particulars address Post Office Box 7, Santa Cruz, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale Cheap—Five 10,000 and nine 5,000 gallon redwood tanks. Apply OLD HERMITAGE VINEYARD, 1623 No. Main, Los Angeles.

For Sale—300 nurseryman's flats 18x18, redwood bottoms. Second-hand and cheap. Call or write H. A. Phelps, Sherman, California.

Your Name—One line printed on 100 White Cards $.75 postpaid. G. E. Hogeland, 6137 Mesa Ave., Los Angeles, Calif.

TURKEYS

For Sale—Turkey Eggs, Mammoth Bronze and Wild Domestic, crosses; raise more poults, introduce wild blood into your flock. Get hardy, vigorous poults. With each order we send you formula for raising close to 90% of those you hatch and special feeding instructions. Will be worth many dollars to all turkey raisers to know the real way. Pamphlet tells you all. The WILD & DOMESTIC Turkey Home, R. D. Box 26 A, Hemet, California.

Mammoth Bronze Turkey Eggs — "Gold Nugget" and other prize stock. Flock shows enough wild blood for vigor and fine breeding has added size. NO EGGS sold from other than our own stock. Hints given for feeding and care. Turkeys have range. Guarantee fertility. Prices reasonable. Carrie Andrews, BO-K-HAUNT, Hemet, California.

Giant Bronze Turkey Eggs for hatching from the famous Gold Nugget strain. Range raised, insuring strong poults. Phone city agent Lincoln 333. Mrs. A. H. Aiken, R. F. D. 13, box 315, Los Angeles.

For Sale — Thoroughbred Mammoth Bronze Turkey Eggs, and Toms. Robinson Turkey Ranch, San Dimas, California. Mention California Cultivator.

WANTED

Wanted—Man with experience in the scientific feeding and care of Hogs, on Ranch near Oakland. Address references and detail account of experience. Standard Gas Engine Company, Employment Department, Oakland, California.

Wanted—A good practical Orange tree pruner. Several months' work to the right man. See or write E. E. Campbell, Orange, California.

FERTILIZERS

The Gypsum You Need — Best agricultural lime, complete fertilizers. H. B. Matthews, 1010 N. Madison, Pasadena.

TREES

Shade Trees for chicken yards or roadside planting. Hicks Everbearing Mulberry, 8-12 ft., $1.00, smaller, 50c. Grafted Pecans, four kinds, 6 to 8 ft., branched, $2.00; Arizona Ash, hardy, 7-8 ft., 40c.; 6 ft., 35c; Catalapa, 8-12 ft., 75c; smaller, 50c. Angers Quince Trees. 8-9 ft., heavy branched, 50c; 4 ft., 35c. Special prices large orders. Pioneer Nursery, Monrovia, California.

For Sale—20,000 Sour Seedlings, year old; 1000 Eureka Lemons, 500 Small W. Navels, Supply Co.'s buds; several hundred Rangpur Limes; the mother tree yields a revenue $20.00 to $40.00 yearly. Fruit sticks tight—like the Valencia—the only Lime that sticks. Get in while they last. $1.50 each; $14.00 100. Budding cloth 70c yd. Cyrus W. Wilhite Citrus Nurseries, Glendora, California.

Eureka Lemon Trees—2 years, also 1 yr. No. 1 stock; 200 Naval Orange Trees, open root, extra fine stock. One and two year Valencia Orange trees; three to four foot Bartlett Pears on Japan root; Manzanillo and Mission Olives, four years old. Deciduous Fruit Trees. Prices reasonable. Los Nietos Valley Nursery, Downey, California.

100,000 Florida Sour Orange Seed Bed Trees; 100,000 Sweet Orange Seed Bed Trees. Valencias, Grapefruit. Kadota Figs, Olives, Umbrella trees. Southland Nurseries, 1941 East Colorado Street, Pasadena, Phone Colorado 6352.

Washington Navel, Valencia, Marsh Grapefruit, Eureka and Lisbon Lemon trees. Sour stocks. One year old buds. We used "Supply Company" buds only. Nurseries Riverside, Puente. Frank A. Tetley & Son, 405 Eighth Street, Riverside.

Grapevines, Cornichon, $1.50 dozen, $6.00 hundred; $50 thousand. Number Two grade, light, half price. Eastern Concord and other Eastern Grapes. 35c each, $3.00 dozen, $22.50 hundred. Ten other varieties California grapes. Write for price. Pioneer Nursery, Monrovia, California.

For Sale—Placentia Perfection and Eureka walnut trees, also Eureka Lemon and Almond trees. These are all high grade stock. Ketscher's Nursery, 1101 E. 4th St., Santa Ana, California. Phone 572WK

For Sale—Scions, Eureka and Placentia Perfection from choice grafted orchards. The WALNUT NURSERY, W. A. Litten, Prop., Whittier, California. Phone Home 6294.

For Sale—Olive Trees, Pichalen Roots; 5,000 Mission ¾ to 1 inch very low figure. Roseville Nursery Co., Roseville, California. PLACER COUNTY GROWN TREES.

For Sale—Washington Navel, and Valencia late orange trees; Marsh Seedless grapefruit and Eureka lemons. Fine large trees, reasonable prices. H. H. Ford, Redlands, California.

Avocado Trees—Mathers' Avocado Nursery. Home of Field Grown Trees. P. O. Box 585, Pasadena. Nursery Phone Colorado 6044.

For Sale—3,000 select orange trees. Also 3,000 lemon trees; first class trees: 20,000 seedbed stock. A. R. Rideout, Whittier.

For Sale—Orange seed bed stock. Nursery Colorado and Huntington Drive, Lamanda Park. Paul B. Magee, R. F. D. 2, Pasadena.

Fruit Trees—Brandywine Strawberries, $2.00 per 100; $10 per 1000. Seeds 6 pkts., 25c. Milk Goats. Cash Nurseries, Sebastopol, California.

Walnuts—Send in your orders now for grafted and budded walnuts. 1921 delivery. J. G. Grundel's Walnut Nursery, Oakdale, California.

Fine Stock Valencia Orange trees, budded Placentia and Eureka Walnuts on black root. A. R. Marshall, 1212 Ross St., Santa Ana, California.

For Sale — Several hundred Washington Navels, Valencia and Eureka Lemon trees. B. L. Byer, Upland, California.

Place Your Orders Now for all kinds of Citrus Stocks. Butler's Morningside Nursery, Lamanda Park, California.

Citrus Seed Bed Stock — Budded citrus trees. L. A. Tuttle, R. 2, Box 404, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Rooted Olive Cuttings (Mission). Write for prices. Kavan Nurseries, San Bernardino, California.

For Sale—4 Year Old Manzanillo and Mission olive trees. E. E. Barnes, Highland, California.

Tulare Co.—Washington Navel, Valencia trees, 2 year buds, a fine lot of trees. A. C. Ogilvie, Orange Cove, California.

10,000 Registered Eureka Lemons. L. A. Tuttle, R. 2, Box 404, Pasadena.

RABBITS

The Only Exclusive Rabbit and cavy magazine published in California. One year for 25 one cent stamps. Pacific Rabbit and Cavy Breeders, Eagle Rock, California, Dept. CC. "Tell them your troubles."

For Sale—Pedigreed New Zealand Red Rabbits, fine breeding does and bucks at $3.50, $4.00, $4.50 each, fine healthy stock. Armstrong's Rabbit Farm, Petaluma, California.

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beeching, 1578 W. 46th Street, Los Angeles.

Caldwell's Rabbit Remedies—Cure guaranteed. Free circular. Caldwell Rabbit Farm, Box 274-E, Los Angeles.

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WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

SALESMEN WANTED

Men With Spare Time—Ranchers especially, can find excellent remunerative proposition, salary guarantee, working for an old reliable California company. Turn your spare time into cash. Write J. H. Yetter, 115 North Broadway, Los Angeles.

SEEDS AND PLANTS

Cotton Seed For Sale—Mebane and Durango seed, ginned from our crops, grown West Side San Joaquin Valley, which gave generous production, grading excellent staple and color. Quantity limited. Shipped in new sacks weighing approximately fifty-five pounds. If ordering less than ton state number of sacks wanted. Should plant approximately twenty pounds per acre. Prices: seven one-half cents per pound; in lots of ten tons or more to one consignee, seven cents per pound. All quotations f. o. b. Southern Pacific Westhaven. Boston Land Company, Westhaven, Fresno County.

Mammoth Blackberry, Himalaya Blackberry, Mersereau Bush Blackberry, also three kinds Red Raspberry, $1.00 dozen, $6.00 hundred. Loganberry, Phenomenal Berry, Blackcap Raspberry, $1.50 dozen, $9.00 hundred. Cory's Thornless Blackberry, $2.50 dozen, $18 hundred. Asparagus Roots, 30c and 50c dozen, $1.50 and $2.50 hundred. Prepaid if cash with order. Name second choice. Pioneer Nursery, Monrovia, California.

For Sale — Millions of Stone Tomato plants, grown on new land, from seed saved by myself and guaranteed. Eggplant, pepper, cabbage, cauliflower, rhubarb and other plants. Write for prices and order early. Ran short last year. Reference: Chamber of Commerce, or any bank or business man in Pomona. L. C. Johnson, 795 West Seventh St., Pomona, California. Phone 2987.

Rhodes Grass—Is making Imperial Valley famous and will make any other section famous, if it is planted, especially if the soil is hard or alkali. Write Imperial Valley Seed House for Literature. El Centro, California.

Strawberry Plants—Americus everbearing. Strong, healthy plants. Do well in California. $2.50 per 100, $5.00 per 250. Postpaid. Catalogue free. F. I. Moffet, Ellensburg, Washington.

Seeds—Alfalfa Seed 40c f. o. b. San Francisco. All varieties Vegetable and Flower Seed. Write for special prices. Bay Counties Seed Co., San Francisco, California.

Grow Your Own Melons. Secure a package of seed, 25 cents. The world's finest musk melon "Casad's Special." Roland C. Casad, Covina, California.

For Sale — Ever-bearing Strawberry plants, Progressive, $1.50 per hundred; Superb, $2 per hundred; postpaid. G. M. Hawley, La Mesa, California.

For Sale — Giant Himalaya Blackberry Tip plants from bearing vines. Immediate delivery. Sylvan Grove Farm, R. D. 1, Box 147, Santa Cruz, California.

Tomato Seed—New Improved Stone, San Jose Canner, 25 cents ounce, $3.00 pound postpaid. Money order or stamps. Dana Walden, 4711 Mascot St., Los Angeles, California.

Berry Plants — Ettersburg Strawberries, Blackberries, Dewberries and Raspberries. M. J. MONIZ, Berry Specialist, Sebastopol, California.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc. Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

Cory's Thornless Blackberries—Postpaid, 4 for $1.00; 10 for $2.00. Citrus, olive trees, rhubarb plants, etc. Bishop's Nursery, Highland.

Write amount and kinds of seed wanted. Four kinds of alfalfa, 25c and up; free samples. Box 501, Fowler, California.

Stock Beet Seed—Any variety. Write for prices. Aurora Seed Mill, grower, Stockton, California.

Kentucky Wonder Bean Seed for sale, 12½c per lb. Chas. L. Beltz, Route 2, Box 799A, Santa Cruz, California.

For Sale—Yellow Sweet Potato plants, $4 per 1000. W. L. Lutz, R 3, Santa Ana.

CATTLE

For Sale—One of the best bred registered Holstein bulls in California. McAlister & Son of Chino, breeders. His dam at two years old made nearly 21 lbs. butter in 7 days and at three years 31.48 lbs. The dam and grand dam of his sire averaged over 35 lbs. butter in 7 days. He was three years old last Dec. Is half black and white. Price $500.00. A. Everett, Moorpark, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome. Information cheerfully given. T. T. Miller, Hollister, California.

Registered and Grade Dairy Cows and Heifers on time notes. When winter is over in the East Europe will take all. Geo. R. Mokel Cow Co., Lock Box 1137, Los Angeles.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

4 A-1 Registered Shorthorn Yearling Bulls; 4 Registered Yearling Hampshire Bucks. (Imp. stock.) Apply Wm. Bond, Newark, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

To Make Room for Guernseys will sell 10 or more fine Jersey cows. Cox Ranch, San Marcos, San Diego Co., California.

Reg. Shorthorns—Fair Oaks Ranch, Willits California.

HE KNEW

The good man was shocked when the little boy asked him for a match.

"Do you know where little boys go when they smoke?" asked the good man.

"Yes, sir," replied the boy. "Back of Smith's lumber yard."

Beet Growers in National Convention

In reviewing the recent convention of beet growers of the United States, held in Denver, the magazine Sugar says:

"Beet growers of the United States in their first national convention voted to demand from all sugar manufacturers in the country a sliding scale of prices for beets ranging from a $12 minimum to $21 per ton, the exact figure depending upon tho price for which the season's sugar output sells at seaboard.

"The minimum of $12 is based on nine cent sugar, and for each advance of one cent in the sugar price the beet growers demand an additional $1.50 per ton of beets. The basis is now laid for negotiations with the Great Western and other companies throughout the country. The Great Western recently announced a $12 flat rate contract for 1920 beets. While the national organization will stand behind the higher demand, state organizations may compromise with the sugar companies on a lesser price in case a deadlock is reached, according to announcement from the convention.

"The demand of the Mountain States Beet Growers Association, a constituent member of the national association, was originally for $1 per ton more than the scale adopted in the convention, which in itself represented a compromise by representatives from every beet growing state on the price and contracts committee.

"Another decision reached was to increase tho wages of labor in the sugar beet fields 15 per cent during 1920. This means an advance of about $4 a month per acre cultivated. The percentage will be divided, five per cent on thinning and ten on pulling and topping.

"R. V. Clark, chairman of the price committee, declared in his report that the 'interests of the beet grower, manufacturer and the public must be considered in fixing a scale of prices for sugar beets.' He asserted that in demanding a scale which averages about $4 a ton more for beets than Colorado growers have ever received that it does not necessitate any advance in the price of sugar to the housewife.

"As stated above the scale adopted by the convention is based upon the selling price of sugar at seaboard. The scale is as follows:

Sugar Price	Beet Price
9 cents lb.	$12.00
10 cents lb.	13.50
11 cents lb.	15.00
12 cents lb.	16.50
13 cents lb.	18.00
14 cents lb.	19.50
15 cents lb.	21.00

"The beet growers do not anticipate sugar dropping below nine cents at the factory in 1920 and their minimum demand for beets is $12 per ton. The present factory price is 12 cents."

The magazine adds: "The claim of some beet growers that they have been losing money on their crops simply proves that they are unfit to raise beets, and probably would do much better hiring out by the day to more efficient neighbors," and gives instances wherein long returns have been made by growers in different states.

BUILDING DIKES AND DITCHES WITH A TRACTOR

By W. H. Goodwin

Dikes with a system of ditches for surface drainage purposes are very important on land which is flooded for rice or fields which are low and are covered by tidewater or river overflows.

Low dikes can be readily made by plowing a ridge or back furrows with a good gang plow so that the furrows overlap each other and are raised above the normal level of the field. By plowing a width of some ten to 15 feet on either side of this back furrow enough soil can be secured to form a dike. After the first plowing a ditcher or similar implement can be used for pushing the loosened soil towards the crest of the ridge. By pushing from opposite sides the dike can soon be raised from one to three feet above the normal level of the field. Sometimes it is necessary to plow a second set of furrows after the soil is pushed towards the crest of the dike, going eight to ten inches deeper than the land is normally plowed.

Where the land is very wet and soft, the crawler type tractor with its large tractive area will successfully operate under very adverse conditions and will also deliver close to its rated drawbar pull under these conditions and do the work in a surprisingly short time.

Where the rice fields are level, with not much more than six or eight inches difference in level between the opposite ends or edges of the field, these dikes with long, sloping banks enable the harvesters or binders to pass directly over the dikes without interference or trouble in crossing them.

Where large dikes of considerable width and height are necessary, they are more readily built by using the plow and a wheel scraper with the tractor as the motive power. With the crawler type tractor it is possible to handle the largest sized wheel scrapers and to build dikes very rapidly.

Dikes or embankments should be built in the fall, allowing the winter and spring rains to settle them, thus forming a much more effective and permanent embankment than when built shortly before they are used. Where the flood waters or the river currents affect the banks by washing, it is sometimes necessary to stake the brush with long, slender stakes, so that it will not be washed out of position. This is also very effective in confining small streams where the flow of water is not large except during flood periods.

IRRIGATION PUDDLING

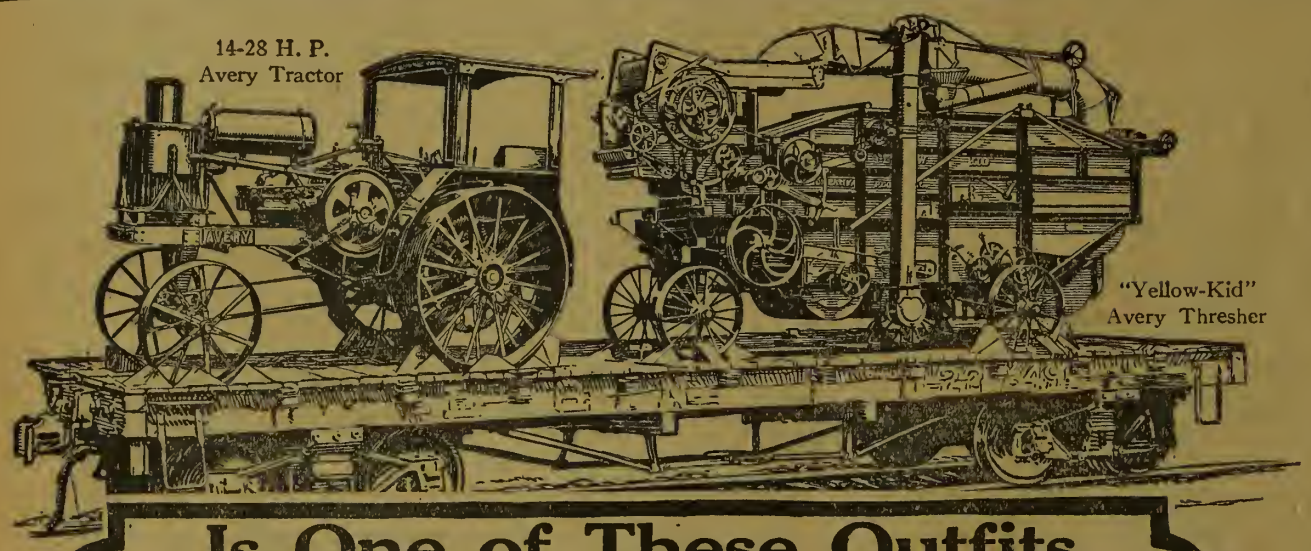
Wild flooding naturally is easier than check flooding, but the inevitable puddling due to the current of the water with the former method is bound to grow worse with each successive watering. Sand and other coarse soils naturally are not greatly affected, but the best of irrigated lands are fine textured and these suffer most.

The remedies and preventive treatments that may be used for puddling are, first, to keep in the ground as much organic matter as possible; and, second, to keep down the motion of the water. It is the decided flowing movement that runs the particles of soil together and not the mere floating of the particles which takes place during any proper saturation.

Check flooding is easily done on level areas, though the bother of throwing up the furrows is considerable. The same result can be secured with wild flooding and without levees by blasting the under soil. The condition created by this treatment is that three feet, four feet, or five feet of soil permits the rapid percolation and distribution of water, without permitting the setting up of any current. The soil particles are lifted, but not carried along.

In handling this system the blasting must be done when the ground is thoroughly dry, even at the depth the charges are to be placed. Charges must communicate, and if they are sufficiently close so there is no decided ridge of unbroken ground at the lower reach of the gases between blasts better results will be obtained. Just enough water should be let in to fill the soil to within six inches r a foot of the surface, but this supply should be fed as fast as the loosened ground takes it. It will filter through at a surprising rate.

In addition to eliminating puddling (and that without levees), this system keeps tho water definitely under control and does away entirely with washing. One blasting should serve for a number of seasons when tho crop rotation and surface cultivation is right



Is One of These Outfits On the Way to You?

DO you realize what this 14-28 H. P. Avery Tractor and Avery Thresher could do for you? With it you could Averyize all your farm work. With the tractor you could do your spring plowing *on time*—get your seed bed in condition for a bumper crop. You could use the tractor not only for plowing but also for pulling harrows, drills and similar tractor-drawn tools. Later you could use it for pulling the binder and operating the thresher. Also for filling the silo, sawing wood, grinding feed, pulling road graders, etc. You could use this Avery Tractor profitably *every month* in the year.

This is one of the six sizes of Avery Tractors built with "Draft-Horse" Motors, renewable inner cylinder walls, adjustable crankshaft bearings, kerosene gasifier, etc., and "Direct-Drive" Transmission which gives you the greatest percentage of the power at the drawbar and *all* of it in the belt, and which is always in direct-drive in high, low, reverse or in the belt.

With this Avery Thresher you could do your own threshing. Not only thresh when you are ready and at a lower cost, but you can also be sure of saving your grain with this thresher, for it made the champion grain-saving record of 99 9-10%, which beat even the government tests.

All Avery Threshers are equipped with "Guaranteed-for-Life" Cylinder Teeth, Avery I. X. L. Grain-Saving Device and Roller Bearings which mean an extra light-running, steady, long-lived machine. And they are backed by the strongest definite grain-saving guarantee given with any make of separator.

This motor farming outfit is exactly what you need to hold down your farming expenses. Replace hired help and animal power with motor power this year and raise bigger crops at lower costs. See these and other Avery machines at your nearest Avery dealer's.

The Avery Line

includes tractors for every size farm. Six sizes, 8-16 to 40-80 H. P. with "Draft-Horse" Motors and "Direct-Drive" Transmissions. Two small tractors, Six-Cylinder Model "C" and 5-10 H. P. Model "B." "Self-Lift" Moldboard and Disc Plows, Listers and Grain Drills, "Self-Adjusting" Tractor Disc Harrows. Also roller bearing Threshers, Silo Fillers, etc.

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Motor Farming, Threshing and Road Building Machinery

Advantages of Grading Farm Products

By H. A. Lyon, Idaho Bureau of Markets, at Northwest Potato Growers Conference, Spokane

THE two most important factors in the future of agriculture are farm management and better marketing of farm products. Handling the farm business and knowing the cost of production are vital, but nothing interests the farmer so much as marketing his products at a maximum price. For years we have been advised and instructed how to raise more and better crops. We have also been advised how to combat diseases and pests, but very little help has been given the producer in obtaining the top price for what he has raised. The middleman has been the marketing agency. He has given the producer his market information. And it has been the shipper or middleman who has graded our farm products.

In speaking on "The Advantage of Grading Farm Products," I do not present a new subject. Your products have always been graded by someone. When you have sold your wheat, pigs, hay, etc., the buyer has told you that they were good, fair, or poor and paid you accordingly. The people of Idaho have felt that it would be preferable to have an impartial state official grade their product and for some months a rigid inspection service has been maintained. Practically every car of hay, potatoes or fruit shipped from Idaho has been inspected and a certificate of grade issued. The increased returns to Idaho, because of its well-graded products, must be measured in thousands of dollars.

Our inspection service is only a few months old. It is so new that we from Idaho are sometimes startled at its growth and the benefits are so decided that they surprise even us. A very few years ago, California oranges—then ungraded—arrived on the Chicago market, showing 30 per cent to 40 per cent decay. And now the quality of an orange is never considered only by grade.

I'll take you into a secret—Idaho has had the poorest potatoes to market in her history and yet they have topped the markets of the country in 1919. Our apples were badly diseased and we hate to think of the reputation which would have been sure to come without a rigid inspection. There is no argument against grading farm products and it has taken but a short time to convince us in Idaho.

And now let us summarize the benefits to be derived from grading the products of the farm. In the first place, quality always sells and official grades and grading place the quality beyond dispute. A satisfied customer is the best asset any business man can have and when the consumer gets a box of Washington or Idaho apples and is pleased, the label on the box impresses him.

Official Grades Beyond Dispute

The middleman has a sound business when he can buy your product on an official grade for the contract is made on that grade and it is left to an impartial official to decide that grade which tends to eliminate the friction between buyers and sellers, that dispute which we are all so familiar with. And then, too, the producer can ship his crop to a far-off market with considerable security because of the certificate of grade which accompanies the bill of lading and the car. And just here, let me say that the Idaho department of agriculture will fight to protect its certificates.

In times past the shipper has bought the commodities of the farm and often knew little about the contents of the car only that it contained apples, spuds, etc. He has been a gambler and has awaited returns with anxiety. Thousands upon thousands of tons of products which should never have left the farm have been shipped over the country, the freight has been paid by someone and much needed freight cars have been wasted by the shipment of junk. You may say that you are not interested in the middleman, but until you have some better method of marketing you must accept his service. And to the middleman you carry life insurance against unexpected death, fire insurance against the unexpected fire, but is there a more practical insurance against the purchase of a poor product and the shipment of the same to market where it brings you financial loss and the loss of your reputation?

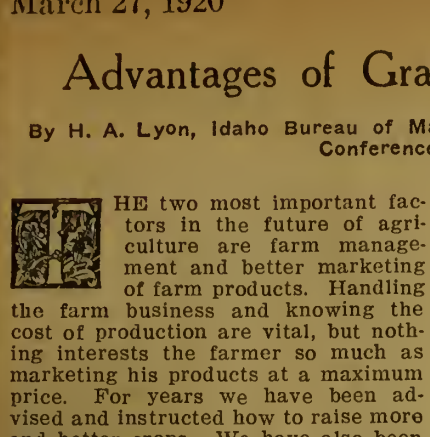
The establishment of official grades and an efficient inspection service is the biggest factor in better marketing. It tends to stabilize the farming industry. Let us remember that the product which we sell, the product which reaches the market bearing the name of our state tells to the world the character of our people and the character of our state's agriculture.

A REAL ELEVATOR

Visitors to the Yosemite national park in the near future will not be compelled to remain on the floor of Yosemite Valley because of the dangerous roundabout trip to the summits of the cliffs above. Instead they will enter an elevator, to be quickly hoisted through 3,164 feet of solid granite and step out on Glacier Point at an elevation of 7,214 feet above sea level, according to the April Popular Mechanics Magazine, where the undertaking is fully described and illustrated.

This elevator was planned several years ago, but the actual construction was regarded as an almost impossible feat of engineering. Work is to begin at once, and it is expected that the elevator will be in actual operation within a year. The plan also calls for the erection of a power house near the foot of the shaft, where hydro-electric power will be developed from the Merced River for the operation of the lifts.

Quality Kept Up



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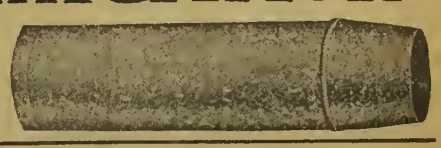

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DR. J. A. ROBERTS LABORATORIES
Hollywood, Cal.

Los Angeles Markets

Los Angeles, March 24, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 62 cents.

Dairy Exchange prices last week on extras:

March	17	18	19	20	22	23
'20 ...	62	62	62	62	62	62

CHEESE

Brokers' prices:
California, lb., 29, price to retail merchants, 29@31.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 38 dozen; case count Produce Exchange closing price 35 dozen; pullets, Produce Exchange closing price 35 dozen; pewee pullets, 29.

Dairy Exchange prices last week on extras:

March	17	18	19	20	22	23
'20 ...	40	40	41	41	40	38

POULTRY

Price to producers: Hens, lt., 35; heavy, 37; colored over 4 lbs., 38; broilers, 40-44; fryers, 40; roasters, 38; old roosters, 20; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 20.

LIVE STOCK

Los Angeles, Mar. 23 — Weighed and delivered off cars without food or water: Hogs (hard-grain), 125 to 175 bs., 15.50; 175 to 225 lbs., 16.00.

Cattle (on foot, gross weight)—Steers, good, 12.00@12.50; medium, 11.50@12.00; cows, good, 10.00@10.50; medium, 9.50@10.00; bulls and stags, 7.50; calves 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, March 23, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Market strong, New stock: Stockton, Burbanks, fancy, 6.65@7.00, mostly 6.90@7.00. Idahos: Russets, 6.75@7.00, mostly 6.90@7.00. Local stock, lug boxes, 2.00@2.25.

Sweet potatoes: Market strong. Lugs, 2.00@2.35.

Onions: Demand and movement moderate; market steady. Homegrown and Stockton: White Globes, per cwt., 9.00. Yellows and Browns, 6.50@7.00 per cwt.; lugs, 2.00; per lb., 6@9. Garlic, lb., 45@50.

VEGETABLES

These are the actual prices obtained March 23, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.00@1.35.

Asparagus: Supplies moderate. Delta section, 13@16; Imperial Valley, 15@20 per lb.; local, 20 @30 per lb., mostly 25.

Beets: Doz., 40@55; lb., 4@5; sk., 3.00

Cabbage: Market steady. Per lb., mostly 3@3½; some best, 4@4½; per crate, mostly 3.50@3.65; some best, 4.00@4.50; sacks, mostly 3.00@4.00; red cabbage, 4@6 per lb., mostly 5.

Carrots: Doz., 45@50; lb., 1½@2; sk., best, 1.75@2.00.

Cauliflower: Supplies practically exhausted. Local stock, per dozen, best, 1.50@1.65; others low as 1.00@1.25; field crates, scarce, 2.65@3.00; pony crates, 1.75.

Celery: No carlot arrivals. Market steady for good stock. Local and northern per dozen bunches, 1.50@1.65; crates 5.50@6.50; fancy shipping stock, 8.00@8.50; poor stock low as 3.00 crate.

Cucumbers: Illinois: Hothouse, wide range in price, 3.50@4.50 per dozen, according to size.

Peas: Local, lb., best, 9@11; others, 6@8.

Peppers: Floridas: Bells, 40@45 per lb., Chilis, 40@45.

Lettuce: Local Stock: Market firm. Per dozen, 20@30; crates wide range in quality and condition; best 65@1.00; poorer, low as 45.

Parsley: Doz., 20@30.

Parsnips: Lugs, 1.10@1.25; sacks, 2.90@3.25; per dozen, 45@55.

Rhubarb: Local stock, bx., 2.00@2.25.

Spinach: Doz., 20@30; lb., 2@3.

Squash: Hubbard, cwt., 4.50@5.00; lb., 4½@5½.

Tomatoes: Mexicans: crates, best 2.25@2.50; mostly 2.00; lugs, repacked, 2.50@2.75; lb., best, 6@8.

Turnips: Per dozen, 50@55; per sack, 3.00@3.25.

FRUITS

These are the actual prices obtained March 23, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: White Pearmains, 2.10@2.75; 4@6 per lb.; Yellow Newtown Pippins, 4-tier, 2.00@2.50; 4@6 per lb.; Romes, 2.50@3.25.

Bananas, 8@8½; Red, 9.

Pears: Winter Nells 6½@7½ lb.; bx., 3.00@3.50.

Grapefruit: California and Arizona: per box, 4.00@4.50; other, 3.50@3.75. Local, 2.50@3.00 per box.

Lemons: San Fernando Valley stock; fancy packed, 4.25@4.50; loose, 3.50@3.75; juice, 2.50. Local stock; packed, 2.50@3.00; loose. 2.00@2.25; some low as 1.25 box: 2@3 per lb.

Oranges: Navels, 4.75@5.25 box; best brands, bx., 6.00@6.50; Local stock; packed, 3.50@4.50; large sizes low as 2.50@3.00. Tangerines, lb., 7½@9.

HONEY

Demand and movement strong, market steady. Carloads f. o. b., usual terms, per lb.; white orange blossom, mostly 19; white sage 19@20; extra light amber sage 18½; light amber sage, supplies cleaned up; light amber alfalfa, 16½. Beeswax, local lots, 40@43.

WALNUTS

Net prices have been named by California Walnut Growers' Association.
No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6, but market falling. Limas, 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats .....27.00@30.00
Barley .....26.00@30.00
Alfalfa .....28.00@32.00
Barley Straw .....10.00@13.00

Alfalfa Growers of California, f. o. b. Los Angeles: Choice alfalfa, 38.00@39.00 per ton; choice dairy alfalfa, 30.00@38.00; No. 1 dairy alfalfa, 33.00@36.00; No. 1 alfalfa, 34.00@36.00; standard alfalfa, 33.00@34.00; standard alfalfa, 30.00@33.00.

GRAIN AND FEEDS

Price bid local grain exchange, March 23:
Barley: 3.10@3.25.
Corn: Yellow, 3.25; Egyptian, 3.40.
Eastern Kafir: 2.55.
Milo: 2.90; Eastern, 2.56@2.70.
Wheat: Mixed feed, 4.42½.
Bran: 4.50.
Shorts: 6.00.

San Francisco Markets

San Francisco, March 23, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:
Extras 63½
Prime Firsts 61½

March	16	17	18	19	20	22
'20 ...	63	63	63	63	63	63½
'19 ...	57	57	60½	61½	..	61½

Rcts. week ending March 22, 2,633 centals.

CHEESE

Dairy Exchange quotations:
Jack, full cream .....28@30½
Cal. Y. A. 35

Ore. Trips 32

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 44½
Firsts 43½
Extra, pullets 39½

March	16	17	18	19	20	22
'20 ...	43½	44	46½	47½	46½	44½
'19 ...	42½	42½	43	43	..	44

Rcts week ending March 22, 449,155 doz.

POULTRY

Wholesale prices are:

Leghorn, 39@40; small, 41@43; large, 37@38; roosters, young, 43@45; old, 23@25; broilers, 50@55; fryers, 50@54; turkeys live, 42@43; dressed, 51@52.

Ducks, Indian Runner, 30@32; Pekin, 33@35; geese, 30@32; Squabs, 70@75; pigeons, doz., 2.35@2.50.

Belgian hares, live 20@23; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle — Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 11@12; do 1,200 to 1,400 lbs., 10@10½; do, second quality, 8@9; thin, 6@7.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4@5.

Calves—Light weight, 12@12½; medium, 9½@10; heavy, 7@9.

Hogs—Weighing 100 to 150 lbs., 15¼; 150 to 225 bs., 15¾; 225 to 300 bs., 15¼; 300 to 400 bs., 14½.

Lambs: Milk, 15@16; Yearlings, 13@13½.

Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle—Good steers, 1000 to 1100 lbs., 12@12½; top steers, 1100 to 1200 bs., 11½@12; good heifers, 1000 lbs. and over, 9@9½; No. 2 cows, 1000 lbs. and over, 8@8½; canner cows, 4@6; good bulls, 6@6½.

Calves—Light, 13@14.

Hogs—Top packer, hard and well finished; 100 to 150 lbs., 15¼; 150 to 225 lbs., 16; 225 to 300 lbs., 15¼; over 300 lbs., 14; under 100 lbs., 14.

Sheep: Ewes, 9@9½. Wethers, 11@12. Yearlings, 13@13½. Milk Lambs, 14@15.

POTATOES

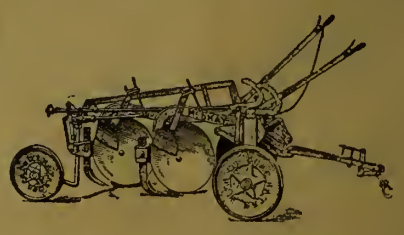
Wholesale selling price:
Per 100 lbs.: Rivers, fancy, 5.00@5.25; choice, 4.50@5.00; Idaho Gems, 5.50@5.75; sweet, 5@5½ per lb.

ONIONS

Wholesale selling price:
Onions: Fancy brown, 4.75@5.00; choice, 4.50@4.75; yellow, 5.00@5.25; white, 5.00@5.25. Garlic, China, 14@15; other, 30@35; Green onions, 1.50@1.75 box.

VEGETABLES

Wholesale selling price:
Artichokes, No. 1, 65@75; No. 2, 50@



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60.
Asparagus: lb., 8@12.
Beans: So., 13; Hothouse, 20@22 lb.
Brussels Sprouts: lb., 8@9½.
Carrots: sk., 1.00@1.25.
Cauliflower, doz., 1.25@1.45.
Cabbage, doz., 40@50; lb., 2½@3.
Celery: doz. bunches, 35@45; cr., 2.50 @6.00.
Cucumbers: Eng. doz., 2.75@3.00; hothouse, bx., 3.00@3.50.
Eggplant: lb., 15@25.
Lettuce: L. A., 1.50@1.75 cr.; Imp., 2.00 @2.25.
Peppers: Fla., 25@35.
Peas: lb., 6@13.
Radish, 7@9 doz. bunches.
Rhubarb: bx., 3.25@3.50.
Tomatoes: Southern, 1.50@2.25.
Spinach: lb., 1@2½.

DECIDUOUS FRUITS

Apples: Newtown Pippins, old stock, 2.15@2.25; California storage, 4-tier, 2.00 @2.25; Oregon, 2.00@2.15; Spitzenberg, choice, 2.50@3.00; fancy, 2.50@3.25; Winesaps, fancy, 3.75@4.00.
Bananas: lb., 7@9.
Pears: bx., 1.50@4.00.
Pineapples: Doz., 3.50@4.50.
Strawberries: basket, 30@40; cr., 5.25.

CITRUS

Box: Lemons, fancy, 3.00@5.75; choice; 4.00@5.00; standards, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00@2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@ 2.50; oranges, navel, 3.00@6.25; limes, 1.00 @1.50 crate; tangerines, 1.50@3.25 per crate.

RICE

The California market generally remains practically level, although there are a few lots available slighty under the market. Export inquiries continue to come into the market. The trade firmly believes that the next two weeks will see large orders being consummated.

BEANS

Jobbing price per cwt.: Small white, 6.20@6.25; large white, 6.00@6.35; cranberry, 6.90@7.00; red Mexican, 8.00@8.25; pink, 6.20@6.35; California Bayo, 9.00@ 9.25; blackeye, 7.10@7.25; red kidney, 13.00 @13.35; lima, 11.00@11.25; Garvanza, 9.00 @9.75; Kotenashis (in bond), old crop, 5.25; new crop, 5.75.
Dried Peas—California, 5.25@5.40 per cental for green, recleaned.

HAY

Under date of March 20, Scott-Magner & Miller says:
Receipts past week 840 tons. Most of these receipts were cheat from Oregon and alfalfa from Nevada. Very little California hay is moving this way owing to the fact that stocks are fast becoming exhausted and dealers are turning their attention to outside points for supplies. Choice wheat hay and especially choice red oat hay are very scarce and demand top prices. As the Oregon product from the Willamette Valley is selling at about $10 per ton less than our California hay, many consumers are taking to it.
The recent gentle rains have had a most beneficial effect on growing crops, especially in the Bay sections and grass is growing very rapidly. As the grass feed improves the demand for hay is becoming less. The entire market can be reported as easier.
We quote today wholesale prices in carload lots as appear from dealer's transfers upon the hay market in San Francisco, for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat Hay (light 5 wire bales)	38.00@40.00
No. 1 Wheat or Wheat and Oat Hay	35.00@38.00
No. 2 Wheat or Wheat and Oat Hay	33.00@35.00
Choice Tame Oat Hay	37.00@40.00
Other Tame Oat Hay	37.00@40.00
Wild Oat Hay	Nominal
Barley Hay	Nominal
Alfalfa Hay	32.00@37.00
Stock Hay	29.00@32.00
Oregon Chea. and Oat Mixed	27.00@29.00
No. 1 Barley Straw, per bale.	.70@ 1.00

Citrus Markets

Los Angeles, March 24, 1920.
The orange market has been a bit shaded. There has been some little difficulty with puffs, more with the excessive proportion of large offs. Sweets and Mikes, partly because of sizes, have been favorites.
On the other hand lemons are looking up a bit. There are 130,000 foreign lemons in port. This is a much greater supply than last year but not as great as two years ago same date.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 11,881 cars; lemons, 2,303; total, 14,184. To same date last season: Oranges, 11,617; lemons, 2,959; total, 14,576. From Central California this season: Oranges, 2,528; lemons, 292; total, 3,800. To same date last season: Oranges, 2,265; lemons, 249; total, 2,514. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

March 19
New York: 14 or., 1 lem Nav. 3.85-7.05, Tange., halves 2.70-4.20, lem. 2.45-3.15.
March 22
New York: 20 or., 3 lem. Nav. 3.45-6.70, Navelencias, 5.95-6.70, Mikes, 2.40-6.30, Tanges, halves 2.40-5.15, Bloods, halves 2.75-3.40, Sweets 5.10, lem. 2.55-3.65.
Boston: 16 or., 5 lem. Nav. 3.75-6.90, Tange., halves 3.30-3.35, Bloods, halves 2.55-3.45, lem. 2.65-3.75.
St. Louis: 7 or., 1 lem. Nav. 4.00-5.75, Seeds 455-4.90, lem. 2.80-3.15.
March 23
New York: 20 or., 2 lem. Nav. 3.20-6.40, Tange., halves 2.90-3.50, Bloods, halves 3.15-4.95.
Boston: 14 or., 3 lem. Nav. 4.25-6.90, Navelencias 6.15-6.95, Bloods, halves 2.65-5.40, Tange., halves 3.40, lem. 2.30-3.85.
Philadelphia: 3 or., 2 lem. Nav. 3.25-5.00, Mikes 5.80-6.50, lem. 2.65-3.40.

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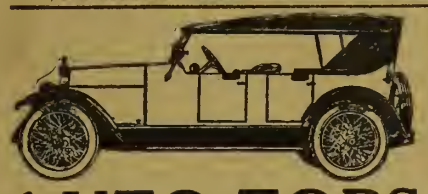

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WEATHER REPORT

San Francisco, California, March 20, 1920.

Stations	Rainfall Wk.	Rainfall Season.	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	1.42	17.87	36.23	66	38
Red Bluff	.41	7.53	20.04	66	36
Sacramento	.20	5.90	15.96	68	38
San Francisco	.01	8.04	18.62	64	43
San Jose	T	6.05	13.77	70	34
Fresno	.16	5.12	7.70	74	40
San Luis Obispo	.44	10.10	16.63	66	34
Los Angeles	.36	8.95	13.06	74	45
San Diego	.18	6.80	8.34	64	43

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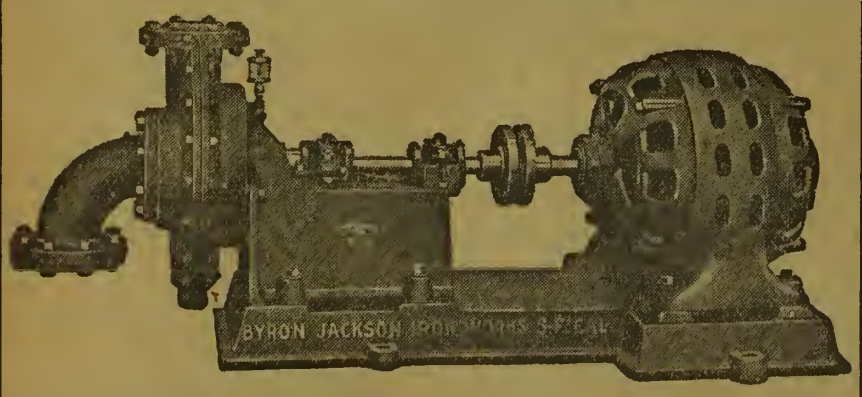

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Poultry Producers' Business Under Full Steam

By J. H. Barber, General Manager

ASSOCIATION egg receipts made a big jump in January, averaging 5,136 cases a week as compared with 3,310 in December, an increase of 55 per cent. Operating expense per case consequently decreased considerably, being 44 per cent less. The expense for January exceeded the one per cent per dozen allowance, but this will be offset by the larger volume of business in the spring months.

Total receipts of eggs at San Francisco for January were six per cent less than last year, but the direct shipments from Petaluma were very much heavier. As there is no record of last January's shipments, an exact comparison is impossible.

Members will be interested to note that during January and February we have shipped to New York just 60 carloads of eggs containing about 30,000 cases, or 360,000 dozen. This is not far from half the total New York shipments from Petaluma and San Francisco during the two months. With the exception of two cars, every car sold to date has made a profit. In other words, the eggs sold for more in New York (after deducting the expenses) than they would have brought if sold here instead of being shipped. We stated in our letter of February 14 that the additional amount realized by selling in New York, after establishing a reserve fund to provide for possible losses on future shipments, will be distributed to the members quarterly on the basis of their deliveries. The directors set aside $20,000 for the reserve, as appears on the January 31 statement, and from present indications when all the returns are in there will also be a good sum to distribute on March 31.

Checks for the dividend of six per cent on stock are being mailed to the stockholders. Fractional stock balances are also being refunded to members desiring it. Quite a number have preferred to pay in the difference and get another share of stock. This is very gratifying, as it shows confidence in the stability and permanence of our organization.

With the packing season opening on March 1 the question of the price of eggs for storage becomes a matter of immediate concern. The poultryman who is paying more for feed and for everything else than he was last year, naturally feels that he should get more for his eggs. The question is, can he get it? If the matter began and ended right here in California we wouldn't bother to ask the question, but we are all well aware that it is the price in the great egg producing Middle West that will determine our price, as well as that of every other section of the country. What we can do, however, to a considerable extent, is to see that our price represents the full value of our eggs in relation to the Eastern markets.

The difficulty is that our packing season in California begins a month ahead of the East and Middle West, so that both dealers and producers here have to rely on their judgment at the opening of the season. There is some guidance to be had in the prices at which contracts for April delivery have been and are being made in Chicago. Such prices represent the judgment of operators as to what the actual price will be in April. Contracts have been made, we are told, at prices varying from 44½ cents down to 40 cents for Chicago firsts, April delivery. One of the largest handlers of eggs in Chicago told us recently that he believed that Western firsts ought to go into storage at 35 cents. This gentleman cheerfully admits that he is a bear on the market, and also says that he hasn't sold any futures for less than 41 cents.

If the export situation could be cleared up by some adjustment of foreign exchange rates we would cease to worry. There would be nothing to worry about. Without that adjustment it seems likely that we Americans will have to eat more of our own eggs this year. Even a return to normal exchange would not now absolutely insure us the export business we want. There has lately developed a possibility of Russia opening up, and Russia has always supplied a large proportion of the eggs used in England and other countries of Western Europe.

So the situation is full of possibilities, the best of which is that there is still a profitable demand in New York which seems likely to continue well into March. Taking this into account, with the sales of April futures in Chicago, makes us feel quite hopeful of storage prices at least as high as last year, if not higher. We ourselves feel that we can well afford to store our eggs at last year's prices with a reasonable certainty of not losing anything on them.

POULTRY PRODUCERS SECURE CLAIREMONT EGG PRESERVING PROCESS

Those who read the market reports will remember frequent and favorable mention of "processed eggs," especially during the last year. The process referred to is the Clairemont process for sterilizing eggs, which has been found to stand the test of time and to be all that was hoped for it. And now, of a piece with the usual enterprising and progressive methods of that corporation, the announcement is made that the Poultry Producers of Central California, Inc., the big growers' organization which handles about half of the eggs produced in the central portion of the state, has just acquired the patent rights for California to the Clairemont process.

The process was invented some years ago by Victor Clairemont, a well known figure in the egg world, and after a long and exhaustive series of experiments was patented by him in its present form. Its use on a large scale by the poultry producers association will mark an epoch in the conservation of one of our most important foods—fresh eggs.

Like all great discoveries, the process itself is quite simple but thoroughly effective. It preserves unaltered for an indefinite period the pristine freshness of the new laid egg The process consists essentialy in subjecting the fresh egg to a high degree of heat for a few seconds only. This rapid application of intense heat completely sterilizes not only the outside of the egg but also the small amount of air that exists inside the shell of a fresh egg. Simultaneously the outside of the egg is coated with an absolutely neutral preservative substance which seals up the pores of the shell, preventing the access of other air and also preventing evaporation of the contents of the egg. The entire process is accomplished in a few seconds by an electrically operated, automatic machine, and takes place so rapidly that the delicate contents of the fresh egg are not in the least affected. Both the white and the yolk remain absolutely unchanged and, best of all, their freshness and their unrivaled nutritive qualities are conserved indefinitely by this remarkable sterilizing process.

In the use of this process by the Poultry Producers of Central California, Inc., even the heat will be applied electrically and controlled by delicate thermostats to a fraction of a degree. Only absolutely fresh eggs of the highest quality will be used, delivered daily by the producers at the association's packing plant at Petaluma—the biggest egg packing plant in the world. Specially made cases will be used for the delivery of these eggs and the process will be conducted throughout with perfect sanitation so as to secure an absolutely pure product.

The Clairemont process is not a new thing. It is long past the experimental stage. Eggs conserved by this process have been marketed for several years by two of the most fastidious egg dealers in San Francisco, but only in a small way for the simple reason that they were not able to obtain a large supply of the high quality eggs which are necessary for the perfect sterilized product.—Petaluma Poultry Journal.

Poultry Queries

Conducted by J. A. Koethen

White Pekins

Does it pay to raise green ducks? If so, how are they raised, that is, as to most economical feeding methods and care?—Subscriber, Los Angeles.

This question was referred to J. W. Deyoe and he answers:

"The best breed for production of young ducks for table use I consider the White Pekin. You will note they bring from three to five cents more a pound than any other breed. Age for marketing depends uopn the manner in which they are fed. If properly fed and cared for they will market in from eight to ten weeks. However, they will continue to grow until about three months, at which time they should be nearly full grown. As to best method of feeding, baby ducks should be fed hard boiled eggs for the first two days, third day hard boiled eggs with an equal amount of bran and about 25 per cent of sand, fourth day and up to two weeks, bran 50 per cent, corn meal 25 per cent, sand 25 per cent. After two weeks reduce the amount of sand to about 15 per cent and continue this feed until they are ready for market, with all of the green they will use from the time they are first put in the brooder house.

Bloody Droppings

Can you tell me what makes my growing chicks eat their droppings? Sometimes the droppings are pure blood and the chicks soon prefer them to other feed. Sometimes the chicks that have blood in their droppings get thin, otherwise the flock seems perfectly healthy.—Subscriber, Wasco.

Those bloody droppings are an almost certain indication of coccidiosis. Pick out the affected chicks if you can and give them the following treatment: If you cannot segregate the sick ones give the treatment, which is recommended by our own experiment station, to the whole flock. Sour milk or buttermilk is the only cure that has been found for coccidiosis, but it must be made a very large part of the ration in order to be effective. Feed a small ration of grain morning and night, and keep mash before the birds for an hour or so in the middle of the day only. Keep the milk before them in fountains all the time. The droppings will be thin after they are on this milk ration, but the blood will disappear gradually, and a cure may be looked for in about three weeks. The well chicks must not be permitted to eat the bloody droppings. Clean out brooders and coops thoroughly in the morning, and put all the chicks on range if you can manage it in any way. If you cannot, you will have to keep cleaning up the droppings and spading the ground in their run.

Moving Sitting Hens

This has been considered a difficult matter, but Mrs. B. P. M. writes as follows: "I had a hen due to hatch on the 8th of February and we moved her the 6th of February a distance of 163 miles. All the eggs hatched and nine chickens are alive and doing well."

That was a good hen, Mrs. M.; some hens would have given up the job. Doubtless she was tactfully managed, as well.

Making a Start

I am a novice, having just decided last winter to make a start with chickens, and shall be grateful for a little information. (1) We are planning a double laying house, each section 10 by 20. How many mature birds will such a house accommodate? (2) A setting of bantam eggs, which the hen had taken 24 days to lay, has just come off two days late. Only three good lively chicks were hatched from the eight eggs, though all the eggs were fertile, and all the chicks lived till hatching time, but could not break the shell. What was the matter? (3) I plan to plant seven or eight fruit trees in the chicken yard. What kind are best? (4) Would fruit trees do well in the alfalfa patch? (5) What does "Hoganize" mean? (6) Do you think trap nests would be practical for a woman with a house and little children to look after as well as her chickens?—Subscriber, Madera.

1. Allowing four square feet of floor space to each hen, you could keep 50 hens in each section of the house. Many poultrymen keep more than this when the hens have yards to run in, but as you are a novice I think you will find 50 hens better than more. If I were you I would not try to fill them both this year. Fifty hens are a lot of work and if you make them do their best, keeping them and their house clean, and feeding them with care, they will keep you busy.

2. Yes, the age of those bantam eggs was largely to blame for the poor hatch, but not altogether, probably, for the fact that the hatch came off two days late shows that the temperature was too low. Some hens have not the requisite amount of heat in their bodies to be good hatchers, and I suspect the bantam is one. But hatching eggs should not be more than ten days old, and two weeks is the very limit. Next time mark each egg with the date when you bring it into the house, and do not set an egg that is more than two weeks old.

3. Peaches, plums and apricots are all good in the chicken yard. Figs are perhaps a little better than either if you can pick the fruit before it falls. Oranges are better still if you keep them cultivated and watered.

4. You can plant trees in the alfalfa if you leave room around them for cultivation, but I believe the walnut is the only tree that really thrives under such conditions. Walnuts should be planted 50 feet apart, they say, so there is a good deal of room for other things.

5. "Hoganize" means to measure the hens' capacity according to the Hogan system. If you can put a certain number of fingers between her keel and her pelvic bones, and the pelvic bones themselves are sufficiently thin and elastic, you may expect that the hen, if she is properly fed, will lay a certain number of eggs in a year. The Hogan system picks out, in a general way, the better layers in a flock, but it does not select the best nor tell you how many egsg they have laid.

6. I think you could put eight or ten of your earliest layers in a house by themselves and trap nest them without much trouble, and you would get a good deal of fun out of the work. It is not necessary to trap nest all the flock nor to trap nest all the year. The only difficulty is, that some one must always be at home to let the hens out, that is, in the forenoon. Very few hens lay in the afternon.

Sick Baby Chicks?

There is only one way to deal with baby chicks and that is to keep them well. Doctoring a hundred or more chicks is mighty discouraging work.

It's pure carelessness to lose more than 10 per cent of chicks, from hatching to full growth. Many lose 40 per cent to 60 per cent, and even more. No profit in that.

Our book, "Care of Baby Chicks" (free) and a package of Germozone is the best chick insurance. WITH BABY CHICKS YOU MUST PREVENT SICKNESS—NOT ATTEMPT TO CURE. "I never had a sick chick all last season"—C. O. Petrain, Moline, Ill. "Not a case of white diarrhoea in three years"—Ralph Wurst, Erie, Pa. "Have 800 chicks now 5 weeks old and not a single case of bowel trouble"—Mrs. Wm. Christiana, Olive Ridge, New York. "Two weeks after we started last spring we were a mighty discouraged pair. Every day from three to six chicks dead. A neighbor put us next to Germozone and we are now sure if we had had it at the start we would not have lost a single chick"—Wm. E. Shepherd, Scranton, Pa.

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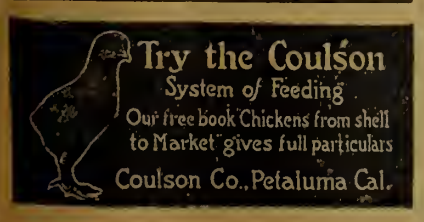
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Any poultry raiser can easily double his profits by doubling his egg production. Feeding **Milkoline** with other feed greatly assists assimilation, keeps digestive organs vigorous and is a wonderful appetizer, tonic and bowel regulator. **Milkoline** contains nutritive elements vital to egg production and not found in grain rations.

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Jas. E. Keyes, Petaluma, Calif., says: "After feeding **Milkoline** for eighteen months to 2,500 hens, I find that worms cannot exist in poultry where **Milkoline** is used. I reduced mortality with laying hens 10 per cent. I increased the egg production of my flock **thirteen thousand eggs** in one year. Feeding **Milkoline** to laying hens keeps them in splendid health thereby preventing disease and derangements of all kinds."

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Many feeders say **Milkoline** lowers feeding cost one-third, because their hens assimilate all feed they eat. Our liberal **Guaranteed 30 Day Trial Offer** enables you to try **Milkoline** at our risk—to prove that it will make you mighty good money.

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has a base of modified buttermilk with essential fats and acids added. **Milkoline** comes in condensed form. Will not mould, rot or sour. Keeps indefinitely in any climate. **Milkoline** is simply **"Good Buttermilk Made Better for Feeding."** Flies don't bother it.

Prevents Disease

Milkoline is not featured as a cure for anything or a preventative, but due to the acidity in the buttermilk it is a germ destroyer and helps keep poultry healthy, which is the best preventative against disease. **Milkoline** is invaluable as a life saver for baby chicks.

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15 Gal. Keg	16.50
32 Gal. Barrel	32.00
55 Gal. Barrel	49.50

Prices on smaller packages given in booklet. Buy in barrel lots—it saves you money.

Only 2c a Gallon

For feeding mix one part of **Milkoline** to 50 parts of water (small feeding 5 tablespoons to gallon of water). Feed either with water or mash feed. **Milkoline** keeps their appetite keen and its action is highly essential to normal egg production. When fed as directed **Milkoline costs only 2c a gallon** or less. Trauhaft & Newman, Lankershim, Calif., say: "We would not go back feeding straight buttermilk at any price."

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Milkoline has been producing so many amazing results and we are so certain of what it will do for you that we will ship you 1 Gallon for $2.25, **express prepaid.** Take 30 days—feed half to your poultry. If not entirely satisfied simply return unused portion and we will refund every cent you paid us. No charge for portion you have used. **Milkoline** is legally guaranteed to be satisfactory. You are always the judge. We suggest ordering larger quantity—you get the benefit of lower price—you risk nothing—you must be satisfied or we refund every cent you paid us. **Make this test now.** The sooner you begin using **Milkoline** the quicker you will be making money.

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Los Angeles

Household Department

AN EASTER SONG

Sing a song of Easter,
A song of happy hours,
Of dashing spray and shadow play
And lovely spring time flowers.
Of birds come home again to build
Beside the cottage eaves,
Of waking buds and rushing floods
And dance of rustling leaves.

Sing a song of Easter,
A song that means a prayer,
Of want and love to One above
Who keeps His world in care;
A song for all on this green earth,
For dear ones passed away.
Sing clear and strong the joyful song,
The song of Easter day.

Sing a song of Easter,
A song of pure delight,
A song that starts in merry hearts
And swells from morn till night.
An Easter song that children lift
Without a jarring chord,
That thrills afar from star to star,
To praise the children's Lord.
—Harper's Young People.

THE MESSAGE OF THE BULBS

SHE had planted the bed on the sunny side of the house, beneath the sitting room windows, thinking to please the child himself. But, alas, how much may happen between the planting and the springing of a flower!

It was in the last days of mild September when Margaret Quimby set the crocuses in lettered lines that she hoped the sturdy five year old would be able to read when they emerged. It was early December when the boy died from the swiftest and most terrible of children's diseases.

After that Margaret gave herself up to hopeless grief and George Quimby, her husband, began to go often to the village. They avoided looking into each other's eyes lest either betray to the other the weight of sorrow that rested upon both their hearts.

Long ago they had drifted somewhat apart, though it was hard to tell why, for they had started out with as much love for each other as is possessed by the average untried young couple. But Margaret had been under 19 when they were married and had found the duties of a farmer's wife none too easy, and perhaps George had not been as considerate as he might. There was considerable debt on the farm and he found it required a struggle to make both ends meet. Possibly neither had managed very well, but while the baby lived he had been an effective bond and a perpetual inspiration.

It was for him that they had rebuilt the house—that Margaret had raised more chickens yearly that she might furnish it neatly and clothe him well—for him she had planted shrubs and flowers, and for him George tilled the ground with unusual care and tried to improve his stock.

They knew, of course, that the boy could not possibly appreciate these things, yet his presence with them urged them constantly to do their best in every particular. Unconsciously they realized his future judgment of them and governed themselves accordingly, and as the child grew older, more observant and able to express himself, he controlled their actions to an even greater degree.

They gave up the habit they had formed of nagging each other, because when such conversation occurred before Charlie he was sure to turn to his father with a puzzled look and the inquiry:

"Mamma c'oss, Poppie?" Or to his mother with the question:

"Poppie mad, mamma?"

Margaret donned a fresh afternoon dress of cheery color as often as possible because Charlie always greeted it with a clapping of hands and the cry of—

"Pity co'es, pitty co'es," and George gave up his pipe because the youngster had once made himself sick sucking a rank old stem. Once, too, when he had dropped an ugly word in the child's hearing the baby's clear voiced query:

"What you say, Poppie?" had made him turn aside with an embarrassed laugh and vow inwardly never to use such language again.

He "hitched up" weekly and took his family to church because the boy seemed to enjoy it and displayed great pride at being allowed to join the infant class at Sunday school.

Other children had been denied them, but they were well content with their treasure until, between two days, the dear form stiffened and the baby spirit ventured alone behind the darksome curtain that enshrouds so much of hope and happiness, when existence became purposeless for them and utterly unprofitable.

Each believed the other the least afflicted by their mutual trouble.

"If she felt as I do she couldn't put everything belonging to the child out of sight and keep on as she does," George thought.

For Margaret toiled harder than ever with a feverish activity that secured her sound sleep at night, while he lay awake for hours tossing in nervous despondency. He would have liked to talk of the child, but at the first word Margaret always stopped him with a forbidding gesture. She dared not give way to the storm of emotion she knew such mention would bring upon her.

He chanced to find a paintless jumping jack, over whose loss the boy had grieved a few days before his death, and hid it away behind a beam. Sometimes when his loneliness grew unbearable he touched the foolish thing and it seemed to comfort him. When this failed he fled to the genial society of the hotel bar-room.

He was not a loafer by nature, but any place was better than the one where every nook of field or barn, house or shed, cried out its emptiness of the chief thing that had made life bright, and the ready, cheerful chatter of the hotel group, composed largely of traveling men, drummers and agents from the bigger cities filled his mind to the exclusion of other thoughts, while their liquor "treats," in which he shamefacedly shared, occasionally took the place of the heartless seeming meals that Margaret prepared so regularly at home.

"If he had any feelings he couldn't hang 'round with that drinking gang down there," she judged.

Once or twice when he had come back with unsteady footsteps and loosened tongue she had turned upon him a look of withering disgust from which he shrank even in his befuddled state, and so the breach between them widened daily.

When spring came she had put the house in order and raked the yard long before he had set a plow in his fields. But the farmer's instinct is hard to kill and the springtime wakens it as surely as it does the northward impulse of the birds. One Saturday morning Margaret saw George harness his team and start his "pulverizing." The sight encouraged her a little, for food must be eaten and interest paid whatever happens, and if George's idleness became confirmed the out-

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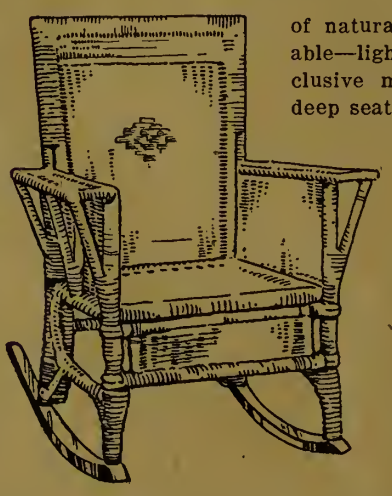

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Roomy, Substantial, Comfortable Chairs

Seats are 18 in. deep and 18½ in. wide. Height of back, 23½ in. Height over all, 37 in.

Suitable for any room of the home or for porch or garden. They are light enough to be moved about without exertion.

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look for doing either was poor.

She started a better dinner than usual, but toward noon, after the rural carrier had passed, she saw her husband tie the horses and walk toward the mail box. She supposed he would be coming to the house to leave the daily paper and get a drink at the pump, but when she looked again she saw the harrow deserted at the headland, while George, his team transferred to a light wagon, was driving rapidly toward town.

"Must be hard up for whisky," Margaret commented bitterly. She set the dinner things away and for once spent the afternoon in brooding. It occurred to her that it was Easter Saturday and she remembered how busy she had been other years coloring eggs for Charlie. It was through tear-swollen eyelids that she saw her husband returning late in the afternoon.

She noticed that he staggered a little as he came from the stable after putting up his team, but his face was too pale to suggest intoxication, and a fear of fresh misfortune seized upon her as he entered the kitchen and laid before her two narrow strips of written paper.

"There's our finish, I guess," he said hoarsely.

Mechanically she read the papers. They were notes, each calling for the immediate payment of $30, and signed waveringly and unmistakably by "George Quimby."

"Maybe I was boozy," he confessed, when she lifted dully questioning eyes to his downcast face, "but I thought it was all right when that fellow asked me to sign some recommends for the Burdick binder, because it is a good one. But there must have been blank spaces above my name and they've written the notes there. I've been to see Judge Grantly and he says it's a common swindle but the notes have been sold and I'll have to pay. I can't prove anything against 'em."

She rose up blazing with sudden anger. "You fool!" she cried. "You've let yourself go till you're no better than a drunken sot and now you've ruined us. Do you s'pose I'm going to stay here and help pay such debts as that?"

He turned upon her with equal fire. "Do you s'pose I care what you do? I see how much you think of me or anything else. I'm goin' to sell out. You can have anything that's left after the debts are paid. All I want is enough to take me so far that I'll never remember I had a home."

He flung out of the house and did not return to it that night. At the barn he took out the jumping jack and threw it far from him into the gathering twilight.

"I might's well," he said to himself. "Everything else is gone."

Margaret sat long that evening pondering her future course. She knew that George meant to do as he had said and she had no wish to oppose him. She would go to her sister in the city—conditions would be easier there, she thought—and find work. She could never be happy again, of course, but the prospect of almost any change was a relief after so many weeks of sodden despair.

Strangely enough, George's face was the first image her mind presented when the Easter sunshine streaming [illegible] the room woke her next morning [illegible] filled with downcast bitterness [illegible] had seen it last night, or stupid [illegible] misery as it had been at the funeral, but brightened by the smile with which he had used to greet her during their courtship. She thought of how good he had always been to the boy and how generous he had sometimes been to her. She wondered what would become of him after the break up.

She opened the windows and set water to heating, then wandered out of doors. The sky was blue and cloudless, a soft breeze brushed her forehead, down in the village a church bell rang clearly insistent, robins and song sparrows trilled near at hand, from the pasture bars a meadow lark called that it was "Spring o' the year." Lilacs were budding and the maple at the gate was a glory of golden blossom. At the side of the house she stood breathless as before a miracle.

George, soberly currying the horse that had drawn his family so often to meeting on Sabbaths like this, was thinking of her. She had not seemed so heartless when she had yielded to his wooing. He remembered how she had looked when he had first seen her with the baby in her arms. Certainly she had loved the child during its lifetime. Probably much of their trouble had been his own fault. But there was no use trying to make up now. Of course Margaret wouldn't.

Glancing toward the house, he saw her fall to her knees and crouch there curiously. He hurried toward her and paused motionless himself. There before them was plainly traced in silken petaled flowers of yellow, blue and white the letters of their son's name.

"Charlie!" His bright curls seemed to wave before them, his laughing eyes peeped from the cerulean chalices, his innocent soul looked forth from the snowy one—reproachful, questioning, yet wholly loving.

George had known nothing of the bulb planting. Margaret had forgotten it. The floral wonder was equally startling to both. The woman uttered a stifled cry and rushing into the house threw herself upon her bed. Thither George came to her a little later bearing a cup of tea. She stretched a hand to him.

"Maybe I hadn't ought to go," she whispered.

"Maybe he'd want us to take hold an' try it again," George breathed.

"We could sell the colt and a cow or two to pay the notes," Margaret planned practically.

"An' maybe we could find some homeless little kid—not to take the place of ours, of course, but just to remind us of him. I believe Charlie'd like us to have a little fellow 'round," George dreamed.

"Anyway, we'll have each other," Margaret concluded, and after that they were silent while the balm of the Easter morning soothed their troubled minds and the healing message of the blossoms renewed their souls.—Farmer's Wife.

CONCERNING EGGS AND EASTER

Eggs are so connected in our thoughts with the celebration of Easter that the origin of their use in this connection seems lost in the dawn of history. And in truth it is, for the custom of giving eggs at Easter can be traced to the theology and philosophy of the ancient Egyptians, Persians, Gauls, Greeks, Romans, and so on, among whom an egg was emblematic of the universe, the work of the Supreme Divinity.

Among Christian people eggs have been used time out of mind at this season as an emblem of the Resurrection, because of an egg's retaining the elements of a future life, for the chicken entombed, as it were, in the shell is, in due time, brought to life. The coloring of Easter eggs is said to have originated among the Christians of Mesopotamia, who stained the eggs red in memory of the Blood of Sacrifice.

An egg contains all the ingredients necessary to support life and develop the organism. Like milk, it is a complete food, for out of it the entire structure of a bird—bones, muscles, nerves and all are developed. But although the type of a perfect food, eggs are not intended to be eaten exclusively, any more than any other food. They are deficient in starch and should be eaten with bread, potatoes or rice.

But to come back to Easter. Don't let it go by without coloring eggs for the children and letting them find them on Easter morning where they are hidden in nests in the grass or in the garden or on the porch behind the climbing vines or potted plants. Better still, let the children do the coloring themselves and each one be allotted one side of the house or garden in which to hide for the others the eggs he colors or decorates.

Then if each child may make for one of the others a little basket in which to collect the eggs, he or she finds it will add to the happiness of the days before Easter as well as of Easter morning itself. Little baskets of pasteboard covered with tissue paper or grasses or wild flowers, on the order of May baskets, give chance for individual taste and ingenuity and at no expenditure in money furnish happy hours and good training for hand and eye, as well as exercise of loving generosity in fashioning something for another's use and pleasure.—R. D.

HOT CROSS BUNS

For Good Friday:

Easter comes early this year, on April 4. That brings Good Friday on April 2. So the Cultivator gives you this recipe for Hot Cross Buns in good time.

Rub a quarter of a pound of butter into two pounds of flour and add a pinch of salt. Into a glass of fresh yeast stir a pint of warm milk and gradually stir this into the flour until it forms a light batter. Cover and allow to rise. Then work into it by means of a wooden spoon half a pound of sugar, half a grated nutmeg, half a pound of currants, one egg and a half teaspoonful of allspice. Knead well, cover again and allow to stand until perfectly spongy. Then knead into buns, cut a cross on top, let it rise until light, cover with a clarified sugar and bake 20 minutes.

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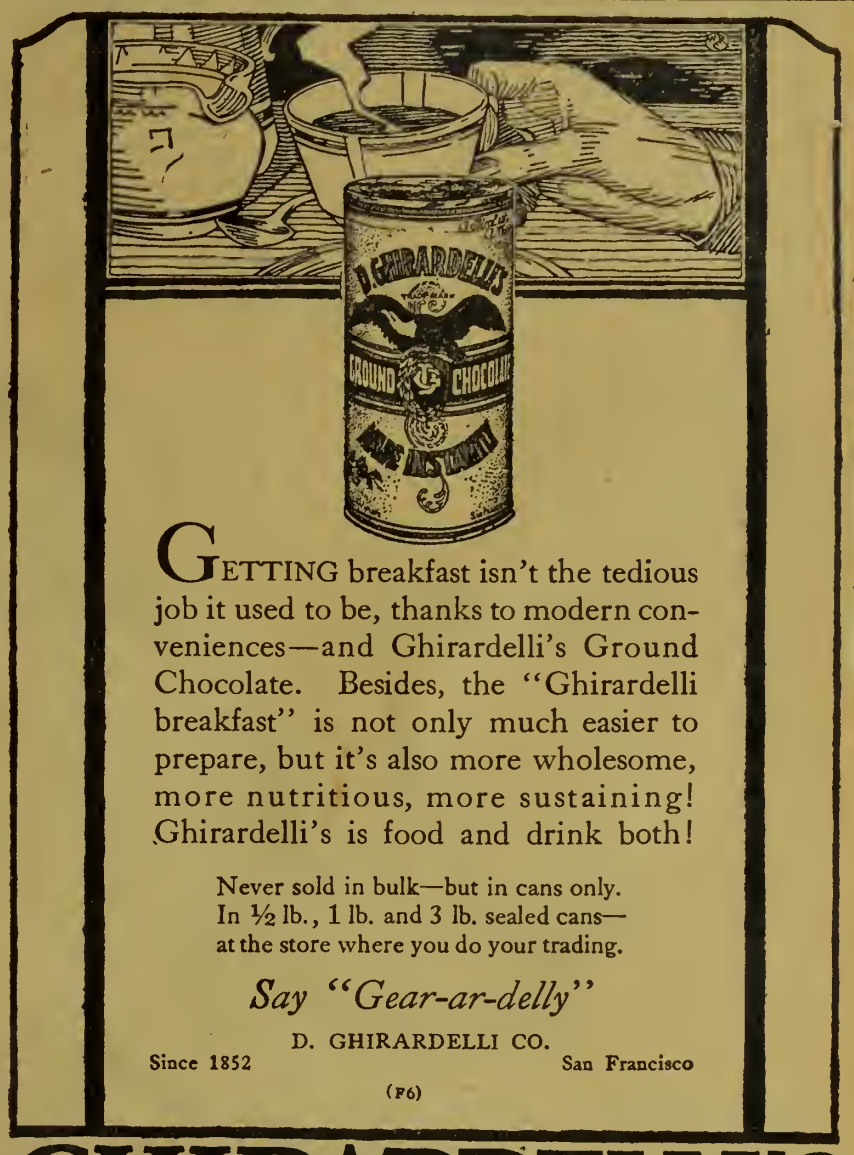

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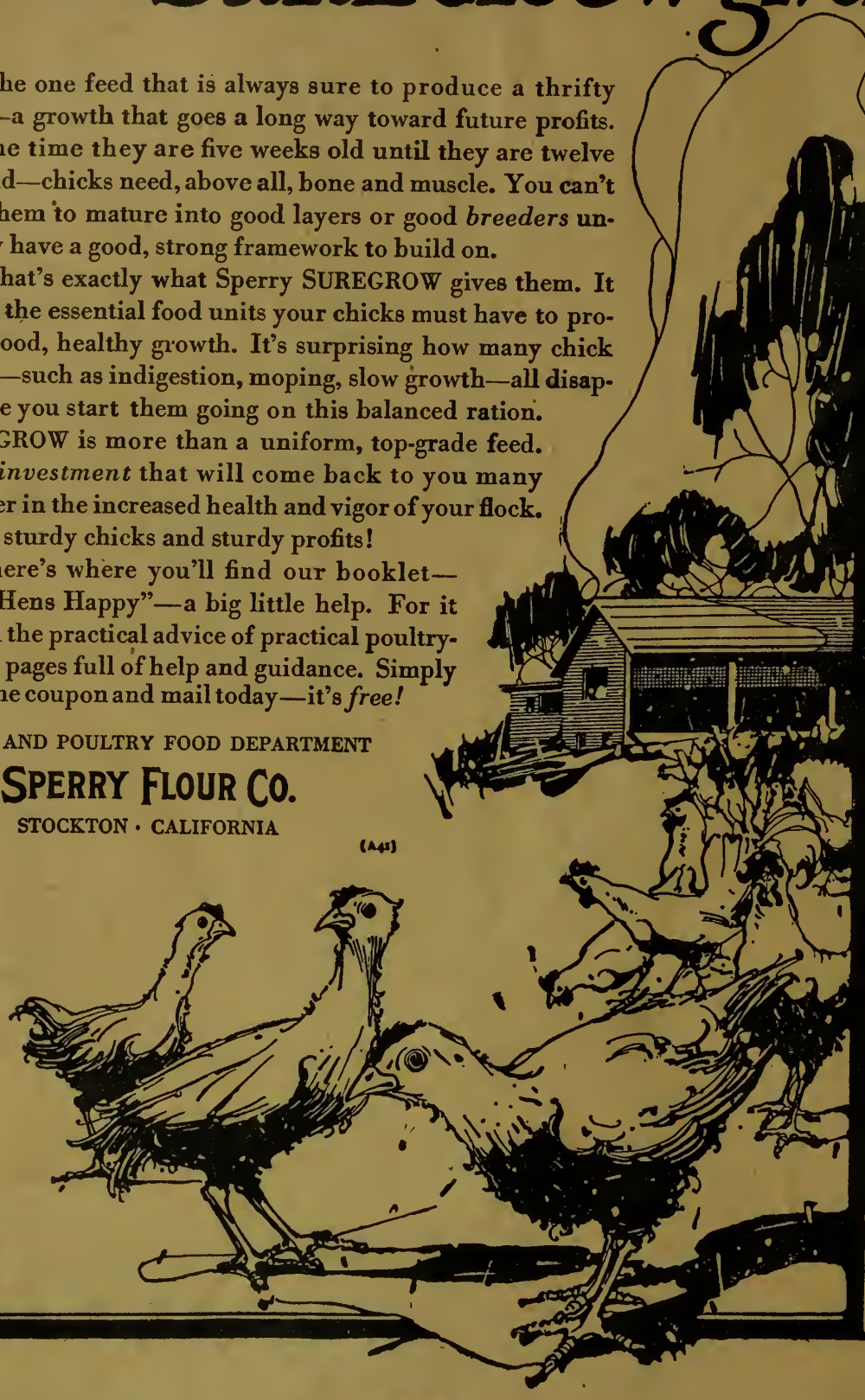

Some Worth-While DONT'S

By GEORGE R. McLEOD
Agricultural Department
Sperry Flour Co.

Note: These terse hints by a practical poultry expert are worth reading and heeding. Every poultryman is more or less familiar with them but, in the rush of things, he is apt to forget them. So, keep the list handy—and use it as a frequent, friendly reminder.

Don't buy chicks with a small amount of vitality.

Don't blame the feed you are using without questioning yourself as to the care you are giving your hatch.

Don't figure on ventilating your brooder through the window.

Don't forget to keep an even temperature.

Don't forget to thoroughly clean all receptacles for feed and water every day.

Don't buy the lowest priced feed—buy the best obtainable.

Don't add animal protein to proprietary feed—there should be enough in it to give the best results.

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — April 3, 1920 — No. 14

Conclusions of an Ignorant Cowman

By A. L. Spellmeyer

OUR country was founded by a race of pioneers, vigorous and independent, physically and mentally unaffected by precedent, and finally formulating and endorsing a creed of liberty and ideals which in less than 150 years has become the model government of a weary and pessimistic world.

The majority of these fathers of our country were experienced farmers and stockmen and their laws were based upon the primer principles of economics and the fact that raw earth is the source of wealth. The demand for fur, which a previous generation deemed a necessity and which today we consider a luxury, was responsible for the early exploration of our country. The fur hunters and trappers reached out into the wilderness, established trails, found mountain passes and started the outposts of civilization, and the cattlemen followed to hold the unknown portions of the West, then came the homesteaders and farmers who developed it.

In this age of diverse opinion and turmoil, conditions have developed which menace the contentment, prosperity and well being of the people of our nation. The figures of the Chicago economist, S. A. Baldus, indicate that stock inflation has placed a cumulative and perpetual burden upon the average family of $300 per year and that profit taxes and such makeshifts merely are added in advance to goods before they are sold, and in reality paid by the consumer, and that the percentage system of figuring results in general profiteering. As compared to the tax upon each family income owing to watered capital, the interest on our war debt appears to be a mere $50 yearly to the family, and while a contributory cause for intolerably high priced food and clothing, is not the basic cause.

If the evil is as deeply imbedded in our national life as the above theory would indicate, it will take years of wise legislation or one great panic to bring matters to a fact basis and secure readjustment with the dollar representing a dollar value in commodities and not 35 cents in value and 65 cents of fiction, as it is too much to expect that ordinary business honesty and the principles of a Humble Carpenter of Nazareth expounded 1900 years ago, will be followed by our banking, commercial or union leaders.

In every crisis that our country has experienced leaders or circumstance have eventually guided the nation towards progress and a greater prosperity, and today while a few million union men and a few hundred thousand dealers in capital and credit are engaged in a tug-of-war, the seven million farmers are according to indication about to take the political helm and guide the ship of state to a safe harbor. The political future and domestic policies will not be guided as many have thought by our boys from the war, nor by the labor unions, nor by the banks, but by the farmers and livestock men of the country whose very living has been made uncertain by continued manipulation and injustice.

Whatever may be wrong, it is a fact which cannot be denied that production is suffering and that the world demands more food and products than we are able to give at present. It would indeed seem foolish to prophesy hard times or panics until production has equalled demand, and from autos to alfalfa hay there is a shortage.

The surest way to increase production is to make it profitable, and notwithstanding the opinion of the misinformed neither farming nor livestock growing is today generally profitable, considering the difficulties and expense incurred. Thousands of men have quit the cattle business in the West and hog raising is in any parts unprofitable, and with meat retailing at 40 cents per pound up this is a condition due entirely to profiteering and the handling of middlemen between the producer and consumer. Cattle and sheep are essential to the prosperity of the farmer and soil fertilization. Hides are today about the same to the rancher as in 1914, in fact, in many instances they were then higher,-(Continued on Page 585.)

Fair Weather or Foul—
It's all in the Day's Work

PATRIOT

Motor Trucks

Lincoln Model Patriot Truck hauling supplies for the Charter Oak Copper Co.

Holman Bros. Ranch Co., near Stockton, Cal., making eight four mile trips daily, hauling faur and ane half tons of wheat to the load, on a Washington Model Patriot.

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And, as a "foul weather truck," the Patriot will surprise you with its equally dependable, efficient and economical service, no matter how bad the road, load and weather conditions may be.

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California Cultivator

Vol. LIV, No. 14 Los Angeles, April 3, 1920 One Dollar Yearly

Planting Citrus Trees

By F. H. Nusbickel, before Citrus Institute

PRESUPPOSING that you have already secured the best fruit wood reproduced on nursery trees, your next step is to give these trees the proper environment. Many good trees are allowed to die each year from improper handling. The first thing to do is to decide the distance apart to plant the trees. In doing this you must take into consideration your soil conditions. In a rich heavy soil citrus trees may grow much larger than in loose stony soil. For all ordinary conditions our growers are spacing their trees 20 by 20 or 22 by 22. The 20 by 20 spacing allows for 107 trees to the acre; the 22 by 22 for 90 trees. It is sometimes advantageous to measure off the space to be planted and divide by the number of rows, thus securing a small variation from the spaces just mentioned and giving the grove a better proportion. For those inexperienced in laying off groves I might briefly state the process.

Let us mentally plant a grove 20 by 20, placing the first row of trees ten feet from the property line. First square the corners of the space to be planted ten feet from the property line. Having stakes at all four corners, drive laths at every 20 feet between the corner stakes on all four sides of the square. It will now take three men to "sight in" the tree stakes. We will call the lines around the square the baselines. It is essential that these base lines be accurate. One man sights across the field standing at the first stake from one corner, sighting to the corresponding stake on the opposite side of the field; the second sights between the first laths at right angles to the first man. The third man holds a pole in line with the two who are sighting. When he brings his pole in line with both "sights" he places a stake in the ground at the intersection marking the position of the tree to be planted. By quickly moving from row to row the three men can cover a big space in the course of a day. This method has several advantages over stretching a wire along each tree row and measuring along the wire. In rolling ground trees placed by sighting are always in their proper alignment; in measuring on a knoll or hillside the wire and measuring rod does not take into consideration the irregularities of the ground elevations and the result many times is a very irregular planting. Often the wire is not stretched in true alignmeut and the result is a disappointment. In addition to being more accurate, this method has proven quicker and consequently more economical than the wire method. If the space to be planted is larger than 400 feet, intermediate base lines will facilitate sighting.

Having placed the stakes where each tree is to be set, make a space board or "yoke" of one by four material about six feet long, with a V notch in the exact center; also one by one notches in each end. Place the center V notch to the tree stakes previously set and drive small stakes at each notch at the ends of the planting board, taking care to have the planting board in line with the intended irrigation. Otherwise your side stakes may be disturbed when the irrigation furrows are made. Nothing must disturb the end stakes until the trees are planted. Having set the end stakes, you are ready to dig the holes. This part of the planting has often been slighted to the detriment of many promising orchards. In a rich loam the hole should be at least 20 inches across and 18 inches deep. To secure this give to each man digging a "T" made of two pieces of wood, one 20 inches long and the other 18 inches long; one end of the 18 inch piece nailed to the center of the 20 inch piece and at right angles to it, forming a "T". The 18 inch piece will give him the proper depth and the 20 inch piece the width. By inverting, one can place the 20 inch piece to the bottom of the hole. Often the holes narrow down to six or eight inches at the bottom without this "T" as a reminder.

A Ready Made Orchard

The impatient orchardist who wishes to plant his trees in the morning and gather the fruit at evening may be accommodated, for nurserymen are now ready to supply trees not only ready to bear but with fruit already on. Here is one plot taken at San Dimas.

In stony soils a much larger hole will give the trees a better start. Two years ago a planter in the Upland district dug his tree holes four feet wide and four feet in depth and then prodded with a crowbar for possible rocks below. He screened the top soil which went back in the hol s, irrigated the filled soil, redug smaller holes and planted his trees. I believe that his holes cost him $2.50 each. He planted 1,106 loose root trees in a hot spell in the middle of August. Every tree soon had a nice bushy top. Sixty-five days after planting most of them had started a vigorous second fruit wood growth, and if you could see these trees today you would be convinced that this man was justified and well repaid for his extra care in planting.

In digging the holes place the soil all on one side in two piles; this leaves the opposite side for the irrigation furrow. By placing the top soil in one pile and the bottom s il in the second pile you have good aerated top soil to place in the bottom of the hole when planting.

In preparing your land, do not grade off good soil and plant in the subsoil. Small trees will not grow satisfactorily in this subsoil. If it is necessary to grade, be sure to dig big holes and fill in with rich top soil and then build up the subsoil around by fertilizer as fast as possible. Next plow the irrigation furrow as near the holes as practical. You are now ready to order your water and trees prepared for delivery. This should all be done before the trees are brought on the ground, otherwise one is tempted in the rush of the work to slight the preparation for the trees.

Perhaps a few words about the time of planting would be appropriate. Balled trees can be planted at almost any time of the year except late fall and early winter. From our observation they do best when planted from March to July. In the case of loose rooted trees I am of the firm opinion that they should not be planted until the soil warms up in the spring. If we have an early spring loose rooted trees can be planted to advantage on the lighter, warmer soils the latter part of April, but on the heavier soils planting should be delayed until May. Our best plantings have been in June, after the soil is thoroughly warmed. Contrary to general opinion, we have had exceptionally fine plantings after a hot spell in June and July. If the nursery trees are made dormant in the nursery, packed with care, set carefully, and settled with plenty of water, our experience from planting thousands of loose root trees under many varied soil and climatic conditions in California and lately in Texas convinces us that the safest time to plant loose root trees is in the latter part of May and in June in California and in March in Texas; in other words, after the soil is warm enough for the trees to respond quickly.

At this time let us discuss briefly the respective merits of the balled and loose root tree. The nursery trees grown in a heavy soil have a strong tap root with little, if any, fibrous lateral roots. The nursery stock grown in light, loose soil, in addition to the tap root develops many laterals and fine fibrous roots, which experience has taught us is of great importance to the transplanted tree. We therefore believe you should demand that your nursery stock be grown on light soil. In order to ball a tree it is necessary to cut off all lateral roots three or four inches from the center and the tap root 12 inches long. In comparison, the loose rooted tree has its tap rot cut 16 or 18 inches long and in addition retains many of its laterals and fine fibrous hair roots. In transplanting this gives the loose root tree a greater advantage. Again, in taking out a loose root tree one can easily examine the roots and trim out any crossing roots, and if there is a decided twist or "return bend" on the root, the tree can be discarded. Discarding trees which have imperfect roots eliminates future root trouble and is the greatest advantage in favor of loose rooting trees. In a balled tree the roots are inclosed in a ball of earth and consequently there is no way to determine their condition. Therefore the trees with imperfect roots which should be discarded make seemingly good balled trees as the twists or return bends are concealed. Again, the balled tree from a heavy soil planted in a loose soil sometimes does not get sufficient water. In running down the furrow the water permeates the lighter soil easily and does not thoroughly soak the ball of heavy soil. Often, in instances of this kind, the ball of heavy soil has to be taken out after being in place for a year or two, and cracked in order to get sufficient water to the roots to make a satisfactory growth.

The loose root tree requires more careful handling than the balled tree. When there is any doubt as to the care of the trees when planted, as in the case of resets, they should be balled. But we have found that in new plantings or where the trees get consistent uniformly good care the percentage of loss with loose root trees is very small. Another advantage of the loose root trees is the ease with which they can be shipped. Much can be saved in this manner. Still another advantage is that the second year the loose rooted tree grows better than the balled tree. For these various reasons we strongly advise planting with the loose root method.

To successfully transplant a loose root tree it is necessary to start in the nursery. The tree must be thoroughly dormant. To secure this the tops should be cut back about a week or ten days before transplanting and the ends of the cuts waxed. At the same time a trench should be dug alongside of the tree and the tap root cut with a sharp instrument, the earth being refilled. After a week or teu days the buds will begin to swell and the trees should be carefully lifted out to preserve their roots. They should then be scrubbed, the roots carefully inspected and the trees

(Continued on Page 572.)

Agricultural News Notes of the Pacific Coast

Northern California

Siskiyou County wants a farm adviser.

Sacramento County is now sending out heavy shipments of asparagus.

Packing of spinach will soon be begun in the canneries of Oroville, Butte County.

Irrigation is the big topic of discussion at farm bureau meetings throughout the Valicy.

Cherry growers of Napa County recently met at Napa to form a marketing organization.

The farm bureau of Livermore, Alameda County, has resolved in favor of absolute exclusion of Japanese.

It is reported that much of the land planted to rice last year will be put into barley because of water shortage.

The big fruit icing plant at Roseville, Placer County, will be enlarged to care for an additional 150 tons of fruit daily.

Reports from almond growing sections are to the effect that slight, if any, damage was done to almonds by frosty weather.

Butte County is preparing to entertain the traveling farm bureau conference which will enter the county on the first day of April.

Farm bureau meetings at which there is discussion regarding spraying for codling moth, aphis and other pests are becoming common.

The directors of the Placer County farm bureau have decided to hold the county fair at Auburn this year. The last fair was held at Rosevilie.

The state motor vehicle department announces that as soon as the license rush is over inspectors will devote their efforts to enforcing the headlight iaw.

C. P. Clausen, who has been with the state department of agriculture, now with the federal department, has gone to Japan to secure beneficial parasites.

A general plan for irrigation of the Livermore Valley, of Alameda County, is being investigated by the irrigation committee of the chamber of commerce.

A mass meeting of water users was held at Auburn, Placer County, on Saturday, March 13, to consider the raise in irrigation rates from $45 to $50 per miner's inch per year.

Proposed federal grades for milled rice were discussed at a formai hearing at San Francisco, March 17. The hearing was heid under the auspices of the federal bureau of markets.

Shasta County has been holding a series of potato meetings and listening to addresses by W. V. Shear of the state department and B. F. Stroup, horticultural commissioner of Shasta County.

Commercial organizations of Northern and Central California met in Sacramento, March 20, to inaugurate a campaign for construction of a national highway over what is now known as the Overland Trail and the Pikes Peak ocean to ocean highway.

Representatives of 12 wool growing counties of the state met at Berkeley last week to discuss pooling wool interests. The plan adopted was to appoint a committee in each farm district to pool wool of growers, the district pools again in turn to be handled in county units.

Central California

Turlock has cannery running on spinach.

Reports from most sections of the state indicate promise of a big wheat crop.

Madera County growers have decided to plant quite largely of Durango cotton.

The Merced County Cattlemen's Association met at Merced, Saturday, March 13.

The Merced County farm bureau held a hog auction at Gustine on March 17.

Commissioner McKinney of Monterey County is conducting systematic squirrel drive.

The farm center at Denair, Stanislaus County, has declared against any effort to put through a daylight saving plan.

The board of supervisors of Stanislaus County has declared in favor of improving the fair grounds at Modesto.

Fig growers of Clovis, Fresno County, have endorsed the movement looking toward the new fig marketing organization.

The conference of apple growers at Watsonvile resulted in determination to secure more rigid inspection of apple pack.

Almost every county in the San Joaquin Valley has thorough organization distributing poison and making drive on squirrels.

The Fresno Agricultural Association has asked the county chamber of commerce to assist in placing the fair on a firm business basis.

One hundred and twenty-five acres is to be planted to cotton in the Turlock irrigation district. Durango will be the variety planted.

The California Bean Growers Association held meetings March 12 at Turlock and March 13 at Modesto to discuss marketing problems.

Santa Clara Valley fears serious inroads because of brown rot appearing in many orchards. The recent weather conditions have been very favorable to the rot.

Bean growers of Stanislaus County recently met at Turlock and took steps to enlarge the scope of the association and greatly increase is membership.

The apple output for the Pajaro Valley last season was 2,719,000 boxes as announced by State Inspector Tate. The bulk of the output was, of course, Newtown Pippins.

Petitions are being circulated for the formation of the West Joaquin irrigation district. Petitions are to be presented to the Merced supervisors the first Monday in April.

The Tulare County Water Users Association is conducting a membership drive. The association will take up the various water, irrigation and power questions as a county problem.

Tulare County proposes to have a genuine livestock show and livestock men are appearing before chambers of commerce and urging greater attention to that branch of the industry.

The Tulare County Water Users Association is making a drive for new members and hopes to secure more general conservation and development of new waters for use of irrigators.

Southern California

Blythe, Riverside County, has a cotton compress.

Los Angeles speculators are talking of organizing a cotton exchange.

Fillmore, Ventura County, is now having a strike among Mexican lemon pickers.

Talbert, Orange County, reports six new dairies recently established in that section.

San Diego County farm bureau recently elected Felix Landis of El Cajon president.

Many bean growers of Ventura County are changing from lima beans to sugar beets.

Banning entertained the Associated Chambers of Commerce of Riverside County on March 16.

Rannels, Riverside County, hopes for highway connection with Niland on the Southern Pacific.

Orange County fair committee is making definite plans for an agricultural fair to be held this fall.

The new West Side packing house at Anaheim, Orange County, expects to begin on Valencias, April 12.

The Claremont Pomological Club met last Saturday and discussed fertilizers and methods of application.

A movement is on foot to use the Polytechnic school at San Luis Obispo for vocational training for disabled soldiers.

Orange County hopes to have the mid summer meeting of the citrus institute organized recently at San Bernardino.

Directors of the Southern California Fair at Riverside are making plans to have a bigger and more representative fair the coming fall.

This is a wonderful year for wiid flowers. All desert sections report such a carpet of bloom as comes only in exceptional years.

The directors of the Imperial County farm bureau have endorsed the calling of a bond issue for $30,000,000 for construction of an all-American canal.

Professor Quayle and Commissioner Morris of Orange County have been making addresses on daylight fumigation before Orange County farm centers.

It is reported that a big tire company has made offer for all the cotton raised in the Perris Valley, Riverside County, at a guaranteed price of 60 cents per pound.

The state highway commission is investigating as to best line of highway from Mecca, Riverside County, through Chuckawalla to Blythe on the Colorado River.

Groups of farmers in the Hemet-San Jacinto Valley are organizing themselves into mutual water companies to sink wells to supply their lands with water this summer.

Imperial Valley shipped out during the month of February 1,127 carloads of produce, Brawley heading the list with 262 cars of lettuce and other truck crops making a total of 367 carloads.

Irrigators of Pomona Valley have so thoroughly brought the storm waters from San Antonio Canyon under control that not a drop has wasted to the ocean. The waters have been spread over a thousand acres of gravel and boulders at the upper edge of the valley.

The Coast and General

A Glendale, Arizona, cotton grower reports a gross income of $681 per acre for his long staple cotton.

The bank at Tonasket, Washington, is financing importation of a bunch of pure bred dairy cattle.

Sherman County, Oregon, farm bureau is endeavoring to find out how much it costs to grow a bushel of wheat.

The Okanogan County, Washington, Livestock Association will meet in annual convention this week and elect officers.

Poultry producers of Washington report that practically 90 per cent have not made cost of production during last six months.

The Hood River section of Oregon produced 70 cars of potatoes; only eight cars of which remained in the hands of producers on March 1.

The Arizona Cattle Growers Association at the recent meeting selected Phoenix as the convention city for the 1921 meeting of the association.

Oregon dairymen are perfecting a cooperative marketing organization and they hope to bring practically all dairy products in the state under one organization.

Reports from Egypt state that the world's record price has been received for the long staple Egyptian cotton, $1.66 a pound having been paid at Alexandria a few days ago.

Charles E. Marshall has been appointed register of the United States land office at Phoenix, Arizona. His appointment was made to fill a vacancy created by the resignation of John L. Irwin.

A cotton grower who has made some considerable study of picking cotton states that cotton which is picked in the early part of the day weighs 16 pounds more per hundred than that which is picked in the afternoon. The quality, however, he believes to be better when picked dry.

F. A. Chisholm, county farm agent of Coconino County, Arizona, is allotting each farmer in the county 20 pounds of prairie dog poison free of charge. Any farmer who desires to cooperate with him will be furnished with the poison free of charge, with instructions how to use it.

Mrs. Mary P. Lockwood of the extension department of the University of Arizona reports that in one school in the north part of the state 94 children were examined relative to the food which they were receiving and not one of these reported that milk formed any part of their diet.

Stockmen in the vicinity of Williams, Arizona, report losses from loco weed unusually heavy this year. Several horses have died from its effects and many others have become locoed. The common supposition that stock on abundant range will not eat the loco seems to be proven wrong this season, as the range is exceptionally good.

The suit brought by the water users of the Yuma reclamation project to enforce payment to the government on the basis of $40 an acre instead of $75 has been decided in favor of the government and the land owners must pay on the basis of the actual cost of constructing the Laguna dam which the government has fixed at $71 an acre.

Amendment to the Federal Constitution

ETERNAL vigilance is the price of liberty," good citizenship and practically everything desirable. California appreciates that fact as much as did those who landed at Plymouth Rock.

The California Cultivator has given much space to discussing one question, the proper settlement of which means a vast number of contented homes in one of the earth's most favored sections for the white race—or it may mean an even greater number of homes for an Asiatic race. But as much space as has been devoted to the discussion of alien land ownership, we feel justified in continuing this discussion, for, to the people of California there is just one side to this question, though, fortunately, we believe the nation as a whole, at least that part of it lying east of the Rockies, sees only another side. In other words, they are willing to sacrifice a vast number of their own people in order to maintain friendship with a nation across the Pacific.

While such ideas prevail agitation must be continued by Californians.

The Cultivator has just received this letter from a Los Angeles County subscriber:

"As a subscriber, I wish to say that I think you are performing a great public service, particularly to the agricultural interests, by your recent articles on the question of the 'peaceful invasion' of the Japanese. I trust that you will keep the good work up. You remember how Carthage was destroyed!

"I visited Honolulu at various intervals between 1899 and 1911 and saw its business and some residential parts change to a veritable Japanese city. It is said that they practically control the retail trade there now. And during several visits to Japan I have had ample opportunity to observe their teeming millions, their manner of living and their morals. We don't want them among us. Their hovels on the farm lands they are absorbing are a warning. I do hope the 'Cultivator' will keep a most vigilant eye on this most serious question of the Pacific Coast."

In writing, the subscriber encloses a leaf from the Congressional Record which gives the text of joint resolution providing an amendment to one section of Amendment XIV of the constitution. The resolution and the document embodying it are more or less technical but intensely interesting, so we quote largely:

* * *

Mr. Phelan: I introduce a joint resolution and ask that it may be read.

The joint resolution (S. J. Res. 144) proposing an amendment to the constitution of the United States was read the first time by its title and the second time at length, as follows:

Resolved by the senate and house of representatives of the United States of America in congress assembled (two-thirds of each house concurring therein), that the following amendment is hereby proposed to the several states as an amendment to the first section of Amendment XIV of the constitution, which shall become valid to all intents and purposes as a part of the constitution when ratified by the legislatures of three-fourths of the several states:

"Amendment XIV

"Section 1. All persons born in the United States and subject to the jurisdiction thereof whose parents are white persons, Africans, American Indians, or their descendants, and all persons naturalized in the United States and subject to the jurisdiction thereof, are citizens of the United States and of the state wherein they reside. No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person of life, liberty, or property without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

"The congress shall have power to enforce, by appropriate legislation, the provisions of this article."

Mr. Phelan: Mr. President, I simply desire to state in moving a reference of the joint resolution to the judiciary committee that at this time it seems appropriate and timely for the reason that the congress is engaged in the work of Americanization. This amendment on its face may seem extraordinary to many senators, because from the beginning of the republic children born upon the soil are ipso facto citizens. We have acquired the Hawaiian Islands, which are now known as the territory of Hawaii, an integral part of the United States, and there this condition exists: In less than 14 years the native born Japanese population will control the territorial legislature and all the elective offices. Therefore we will find the territory of Hawaii under alien control because these people are not assimilable, owe allegiance to their Mikado, and who, after and before the regular school hours, are now studying the Japanese language, traditions, and loyalty to the home government.

They seem to be unassimilable, un-American, and often anti-American, and hence those born upon our soil under this amendment, if it should prevail, would not be in power to control the territorial government of Hawaii.

At the present birth rate it is estimated that in 90 years there will be more Japanese in California than Americans.

Under the administration of Governor Johnson, in 1913, a land law was passed by which it was provided that persons ineligible to citizenship in California might not acquire agricultural lands. That law from which so much was expected is today absolutely a dead letter because those forbidden persons are putting the agricultural lands which they buy in the names of their native children who are citizens and enjoy all of the privileges, rights and immunities of American citizens.

Hence there is a necessity for changing our fundamental laws so that only the children of white persons, those of African descent and of American Indians and such others as the congress may naturalize, shall enjoy the priceless boon of American citizenship. We must not allow that boon to be used for the destruction of a state, either California, Oregon, or Washington, or the territory of Hawaii. I trust that the judiciary committee, to which I ask its reference, will favorably consider it.

Japanese-American Relations

Mr. Phelan: Mr. President, I ask to have printed in the Record a series of questions and answers on the subject of the American-Japanese relations.

There being no objection, the matter referred to was ordered to be printed in the Record, as follows:

* * *

The Japanese Times,
New York, N. Y., January 15, 1920.

Hon. James Duval Phelan,
United States Senate,
Washington, D. C.

Sir: It is reported by several newspapers to the effect that you are to introduce in American senate a bill which prohibits children born in this country of Japanese or Chinese parents from becoming citizens of United States of America, and, further, constitutional amendment to prevent Asiatic immigrations.

I will very much appreciate your kindness if you will answer following questions, as it will give us great help in securing a better understanding among our people:

(Following this introductory, the writer of the letter asked the questions which are quoted by Senator Phelan in his answer.—Edit.)

I will dispatch your answer briefly by cable, and full translation will follow by mail. Your frank advice and an earliest possible reply will be greatly appreciated.

Respectfully yours,
Y. Fuwa,
New York Correspondent to the Taisho Daily News, of Osaka, Japan,
Care the Japanese Times, 35 Sixth Avenue, New York City.

* * *

United States Senate,
January 17, 1920.

Mr. Yasuo Fuwa,
Care the Japanese Times,
35 Sixth Avenue, New York City.

Dear Sir: I am in receipt of your letter of January 15, submitting to me six questions to which you politely request an answer.

1. Question. Do you or do you not satisfy the recent announcement by Japanese government that the picture bride be prohibited strictly from February of this year?

Answer. I am well pleased with the decision of the Japanese government to refuse passports to "picture brides," but that is not sufficient to meet the objections of California. Other remedies must be found.

2. Question. How far, in your opinion, Californians will continue their anti-Japanese movement?

Answer. California desires very properly to preserve her white population, which is being driven off the soil by the influx of Japanese who have bought or leased land. The law forbids them to purchase land and still they are doing it by taking the land in the name of their children or in the names of corporations, both of which practices are clear evasions of the law. California will, I believe, continue to carry on this movement until the soil is in possesssion of the white race.

3. Question. Is Japanese people in California or elsewhere in United States destruct American living standards and their safety than those bolshevik, communist, or some other movement?

Answer. There is no comparison between the Japanese and the bolshevik movement. The Japanese dispossess the American people of the land and other means whereby to live, on account of destructive competition, while the Bolsheviks are corrupting their political opinions. The government has taken action against the criminal Bolsheviks and is deporting them from the country. It would be a solution of California's economic troubles if the Japanese there would return to Japan or concentrate in other countries.

4. Question. Do you favor that Japan to keep Shantung or Siberia or elsewhere in Asia in order to settle her immigration problem?

Answer. I am in favor of giving Japan an outlet in Asia for her surplus population in order to protect my own country.

5. Question. Will you state me what would be a best policy for Japan to keep her good relations with America?

Answer. Japan could best keep her good international relations with America by keeping her people out of America and encouraging those in this country to go to other lands. As long as they are concentrated on the Pacific Coast, the Japanese will be a source of irritation. The situation is acute in California, Washington and Oregon. Australia bas been able to protect itself. American public opinion has condemned Japan for her course toward both Korea and China, and good relations could also be improved by changing her policies in these respects.

6. Question. Do you believe war between Japan and America? If it is possible, will you state your reason?

Answer. America will never go to war with Japan or any other country unless under the greatest provocation, and I believe that no such provocation has arisen. All warfare is misunderstanding, and I trust your questions and my ans ers will serve a good purpose. If the Japanese would put themselves in our place, they would understand the situation. If Americans spread over Japan, and with improved and patented machinery cultivated the soil, and acquired it in large tracts, displacing the native population, what would Japan do? She would be obliged to stop it to preserve her people. Japanese travelers, students, scholars and diplomats will always be welcome in America, but not the inexhaustible supply of laborers who can not assimilate with the white race and who destroy the character of the population. Our government is a republic and has to preserve the standard of its population in order to exist.

Very truly yours,
James D. PLelan.

PEAR PRODUCTION

Bulletin No. 822 of the United States department of agriculture shows plainly the important place California holds in pear production in the United States. The average yearly production of the entire country is 11,425,000 bushels. Of this California produces 2,076,000 bushels. The only other state which reaches above the 1,000,000 mark is New York, with something less than a million and one-half. This bulletin quotes from tbe California state horticultural commission bulletin as to production in different counties. Sacramento easily leads in bearing age orchards with 3,000 acres. Lake, Placer, Santa Clara, Solano and Sonoma come next with from 1,000 to 1,500 acres. Los Angeles has only 311 acres credited as having reached bearing age, though we believe this must have been taken several years since, but is credited with having 2,388 non-bearing acres, while San Luis Obispo comes in with 3,285 non-bearing acres.

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

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Saturday, April 3, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THREE MEALS A DAY

In discussing planks which may be used in building the platforms of political parties, an editorial in Collier's, written by Richard Washburn Child, touches upon agriculture as a fundamental well worth more attention than it is receiving from politicians. One of the first principles laid down in this article, or series of articles, is, "The most vital thing in our lives is three meals a day." As is true with humans, so with the nation; the most vital need is food supply. As essential to food supply, in addition to soil and proper condition, is the producer.

The position is then taken that food production in this country is jeopardized or that "there is a disease of the backbone of the country." But this disease, or the fact that there is any such disease, is not recognized by the politicians nor the people at large. This is shown by the fact that in a contest for prizes offered by a metropolitan daily for the best "plank" for a political platform there were 2,225 planks offered and practically none of these touched upon the necessity of giving attention to agriculture in any way. Things which were considered by these contestants were foreign relations, Americanization, labor and capital, social legislation, constitutional rights, Bolshevism, H. C. of L., free speech, taxation, Mexico, suffrage, tariff, railroads, league of peace, aid for soldiers, prohibition, negro problem, and many other topics too numerous to mention.

Meantime congress is cutting the appropriation heretofore made to the department of agriculture and the bureau of markets will be practically eliminated if present plans are carried out. The bureau of markets was greatly handicapped, almost eliminated, because of reduction in the recommended appropriation. The appropriation as now recommended will still further reduce the amount for the market bureau by $50,000. This means that the livestock reports which proved so wonderfully helpful to live stock breeders of the Pacific Coast during 1918 and up to July 1, 1919, will not be renewed. In addition, the reduction will curtail special fruit and truck crop reports so that they cannot begin to have the efficiency of those of last year. This may not prove suicidal to the country at large but it certainly will vastly reduce marketing efficiency. This will mean less prosperity for the farmer and will ultimately mean less food for the country. Possibly there may not be three full meals daily.

LAND HUNGER

Under the title of "The Leeches" the editorial referred to dealt with "Two Parasites on Agriculture." These are the parasite on the land and the parasite on distribution. The discussion of the land parasite we endorse in the main. However, there is one point to which we do take serious objection, and that is that, after discussing the activities of the "land hog" and the replies recently received by the post office department to a questionnaire which had been forwarded, in which wide discontent was shown by the farmers, reference is made to Governor Henry J. Allen of Kansas "who has done more than anyone to sound the warning and provide a remedy." And therein Collier's shows its inabiltiy to see farther west than the boundaries of Kansas.

All honor to Governor Allen. He sent to California and gathered in the best of information this state had in the matter of land settlement and taking the lands to the landless. Prof. Elwood Mead of the University of California, formerly at the head of land settlement in Australia, has put in operation in this state land settlement plans in advance of any state of the Union. Governor Allen used these plans in suggesting relief for his own state. Land tenancy in the Middle West is becoming a curse, and California's example is often quoted in the effort to provide something which will correct the evil conditions. The suggestions made by the governor of Kansas and quoted by Collier's may prove just as forceful as if full credit had been given, but naturally we of California wish credit for our own people who are capable leaders. If Collier's will be less provincial and subscribe for the California Cultivator, it may acquire a wide range of information as to two land settlement schemes, one already in operation, accommodating over 100 families, another, much larger, with assignments to be made within the next two weeks and already something like a dozen applications for each allotment.

The best of it is that the success of the Durham settlement is encouraging the people to demand more of the state land settlements. The enormous profits and overhead which must be placed on subdivisions of large holdings made through use of private capital make necessary a price which is a serious handicap on the producer. When the state takes charge an entirely disinterested superintendent may aid in directing selection of the parcel and aid greatly in securing for the settler expert advice and help.

A canvass of the farms of Kansas in 1880 showed that 84 per cent of the farms were owned by the operators and there were only 16 per cent of tenant farmers. In 1918 this proportion was changed to an even fifty-fifty. Fortunately, California is yet far from the fifty-fifty basis, and here's hoping Professor Elwood Mead's enthusiasm and ability for hard work will be sufficient to prevent it from ever reaching that proportion by giving us more opportunity for land settlement.

COOPERATE IN INSURANCE

Nearly 50 per cent of insurance cost is being saved California farmers by cooperation in insurance. Under our state laws county associations are allowed to insure in not only the county in which they are located but in each adjoining county. The law has thrown so many safeguards about these companies that while they have been somewhat restricted their security has been increased so that they are growing in strength and ability to serve. One of these, located in Los Angeles County, is now carrying about $12,000,000 in insurance. Excepting for one provision of the law, that which limits the total amount which may be carried by any one insurer to $4,500, this company would have been carrying a far greater amount. To meet this condition insurers who have become members have united and organized an entirely separate association. For a time its management will be from the same offices as the original company, and Mr. Cromer, who has for more than 20 years had to do with the managing of the original company, will give of his advice in the management of the new concern.

If a farmer can split his insurance costs in the middle and have equally as good, even better, security, why not?

MEAT WEEK

Through efforts of the livestock men the "Meat Week" campaign has been deferred seven days. It was discovered that the week chosen for Pacific Coast states, which was this, the last week of Lent, was not the best for the purpose as many church people would not observe the request made by the campaign directors. Hence the week beginning April 5 has been chosen.

As noted in a former Cultivator, the cattlemen are urging "Eat meat inteligently" as the slogan. They hope that consumers will not confuse the campaign by injecting the idea of greater economy in amount so much as economy in making wiser elections of meat. In the eyes of some porterhouse and loin chops are about the only meat cuts. The campaign is to educate up to the fact that equal nourishment and equal satisfaction may be had in the cut which costs much less money and which will lead to equalizing the demand.

EXPORTING LESS WHEAT

Report from the International Institute of Agriculture at Rome shows that the United States, with a larger crop of wheat in process of distribution, has shipped nearly a million tons less during the last six months than it did during the corresponding period of the preceding year. The great obstacle to greater export seems to be the exchange situation. The southern hemisphere is finishing its harvest and reports great increase in the production of cereals. Argentina, especially because of greatly increased acreage, has produced more than 200 per cent beyond its average production of the last five years.

CLAREMONT POMOLOGICAL CLUB

By V. V. Leroy

THE Claremont Pomological Club held its regular monthly meeting at the home f Mr. and Mrs. J. S. Jewell, Claremont, on Saturday, March 27. This club has maintained its enthusiastic interest in its work for over 21 years. Most of the best speakers of national importance on horticultural subjects have been secured to address its meetings. The attendance is always good and the discussions of value. The results show in the fact that its members produce far above the average amount of fruit. The social feature alone is of great importance in the rancher's life. At their noon hour, when a dinner is served by the host, the talks and discussion of varied subjects tend toward a splendid uplift in their lives, keep them out of the ruts, and broaden their outlook.

C. H. Vary, the head of the quarantine division of the state agricultural department in Southern California, made the first address. He gave a general outline of the needs of the quarantine service and of the every day work of the division, proving conclusively that the agricultural interests of the state are badly in need of the best efforts of these men and that they are being splendidly served.

Prof. R. S. Vaile of the citrus station at Riverside gave the first of a series of addresses on fertilizers. He spoke of the methods in the past of applying fertilizers on the surface of the soil as if we were growing annual crops, and of the recent attempt to get the food down to the feeding roots by the furrow application. While this is good he thought there ought to be a still better method devised. Plowing with a small scraper ahead of the plow share, to scrape the fertilizer which had been previously scattered broadcast into the furrow, before the plow turned the soil over, might be a better way. The putting of fertilizer down where the roots could get it and not leaving it in the few upper inches where a large part of it escaped into the air and was lost, seemed to be the important problem in fertilizing. Plowing, except for getting plant food deep into the soil, the speaker thought was poor practice.

Ernest Braunton, the well known writer on horticultural and floricultural subjects, next gave an intensely interesting address on the wild flowers of California. During the noon hour he gathered a large bouquet of flowers growing near with which he illustrated his talk. How he could remember so many jaw-breaking names was a wonder to his hearers. Mr. Braunton, however, made it clear by his illustrations that every name derived from Latin or Greek had a very special meaning in each case. The club expressed its hearty appreciation of Mr. Braunton's talk and its thanks to the Cultivator for loaning him to them for the day.

Dr. F. E. Garlough of the biological department of the United States government next gave a very instructive talk on the gopher. He said there are 30 varieties of this pest, but only two in this county. Drowning or gassing to destroy him were not very successful because of his habits. In a small way traps were by far the best, the wire trap being the surest and quickest. Poison was the only practical way, however, on a large scale. He demonstrated with an iron rod how to easily find the runway and drop a piece of poisoned sweet potato, carrot or parsnip down the hole made by the rod into the runway. Sheets with printed formula of the best way to make the poison material were passed around. The habits of the gopher were described. He is a very wise animal and you have to match his cunning or you will not catch him. He makes a runway as long as 60 feet and many laterals. When breeding the gopher digs down several feet and then makes two laterals where the nest is made in one and supplies kept in the other. Except at breeding time only one gopher occupies a runway. They breed only once a year generally and have from four to eight young in a litter. At night time they travel for quite a distance on top of the ground.

The next meeting will be held with Prof. and Mrs. Booth at Chaffey High School, Saturday, April 24, where two of the speakers will illustrate their topics with lantern slides.

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"The use of Goodyear Cord Tires on our hog ranch is a source of all-round farming economy as well as of simple hauling economy. These tires save time and the handling of supplies and animals while reducing wear on truck, minimizing operating cost, saving hog shrinkage and sickness in transit and demonstrating other important advantages."—N. T. Shearman, Owner, Shearman Hog Ranch, P. O. Box 452, El Paso, Texas

AS in the instance cited above, a large number of farmers, planters, dairymen, and ranchers are reducing much of their general farming work, in addition to their actual hauling work, with pneumatic truck tires.

By freeing farm trucks of the handicaps imposed by solid tires, Goodyear Cord Tires relieve farmers of the necessity of hauling slowly and laboriously either with teams or solid-tired trucks and thus hindering other activities.

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The rugged strength of Goodyear Cord construction, affording the foundation of the whole success of pneumatic truck tires, results both from Goodyear pioneering work and that extraordinary care in manufacturing which protects our good name.

The detailed reports of many farmers using pneumatic truck tires to improve the work connected with diversified crops, or such specialties as fruit, livestock and dairy products, can be obtained by writing to The Goodyear Tire & Rubber Company, at Akron, Ohio.

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PLANTING CITRUS TREES

(Continued from Page 567.)

packed in paper lined boxes in spaghnum moss. These boxes should hold from 75 to 150 trees.

We are now ready to plant. The first thing is to see that the water is ready and that you have a careful man to wet each tree. Drive down between the rows with one box of trees on a wagon or sled. In actual planting at least two men are necessary—one to hold the tree and spread the roots, and the other to shovel the earth. Place the yoke with the end notches against the stakes set. Now take one tree from the moss and wrap a wet burlap around the roots. This protects the roots from the sun and wind. The wind is more detrimental than the sun, as it dries faster. Take the tree to the hole, unwrap the burlap and place the tree at the center V notch with the bud union against the strongest wind and leaned slightly against the prevailing wind. The second man should now be ready with the moist earth. The tree should be planted at least three inches higher than it was in the nursery to allow for settling and to be sure that the bud union will eventually be high enough above ground. Often planters try to raise a tree after it has settled. This is apt to strip the roots, disturb the earth around the roots, and is a bad practice. The tree should be planted high enough in the first place. The earth should be shoveled in the center and roll down in the hole in the shape of a cone. This will materially assist the man holding the tree to place the roots in their natural position, properly spaced. If this is not done and the earth is built up in the shape of an inverted cone, then the lateral roots may double back on themselves in spite of the best efforts of the man holding the tree. Getting the roots properly spaced and in their natural position as they grew in the nursery is of the utmost importance. If the tap root is divided, or any roots hug each other, it is well to place a small piece of wood between these two roots to properly space them. By the time the wood rots the roots will have been trained to keep their proper distance. Do not shovel hot dirt against the bare roots to shock them. It is not necessary to tamp the earth in with the foot.

When the hole has been filled to the level of the ground, build up a basin about two feet in diameter around the tree, taking the earth from outside the basin. Be careful not to take the earth from the tree hole itself to make the basin. Now cut the water in, which has previously been started down the furrow. Let this water come right up against the tree. Of course this is not a good practice to follow after the tree is two years old and has its roots established and growing out from the tree, but when the tree is small and the roots are close to the tree, it is essential to get the water next to the tree to properly settle the earth around the roots, drive out air spaces, and thoroughly wet the roots. Water one foot from the tree may not soak in enough to accomplish your object and consequently the tree may get a severe shock and setback as a result of this lack of water applied at the very beginning of its existence in the grove.

After being assured that the tree will get plenty of water, go on to the next tree. Never take more than one tree at a time from the moss packed box and then only when ready to plant. Be sure to keep the tree protected from the sun and wind in carrying from the box to the hole. Water the second time either the same day or the next day. This method is more successful than running water in the hole as the earth is shoveled in. After the water has settled the earth around the tree, see that all roots are covered from the sun, as sometimes in settling the earth settles below the crown roots. Water the third time within a week or ten days and about two weeks later, and then every two weeks until the roots are established in their new environment. In heavy soil do not water after the second watering at such frequent intervals as to keep the ground and roots cold. They must be warm to grow.

I wish to add a few words of caution about the irrigation of trees during the first year. I find that the trees which respond best are those

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Factory Built Ready to Operate
A Complete Machine with
350 3x4 ft. Trays

Has as standard Equipment Every Feature That Professor Arthur W. Chrlstie, at San Jose Convention Recommended to be Built with State of California Funds into Experimental Plant at Davis Farm, University of Californla

Call on our Service Department. Dehydration experts in charge. We can help with your problems.

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Sulphur

It has been proven and so recommended by the Universlty of Californla that if you sulphur your grape vines and orchards 6 times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of Sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100% pure, in double sacks, for Dry Dusting and making Paste Sulphurs.

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food, drill into the soil 110 to 220 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR, 100% pure. This has increased various crops up to 500%.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 degree BE., etc., Fungicides and Insecticides.

Carried in stock and mixed to order.

SAN FRANCISCO SULPHUR COMPANY
624 California Street, San Francisco, Cal.

We are equipped to make immediate shipments. Send for "ILLUSTRATED BOOKLET"; also booklet "NEW USES FOR SULPHUR," Price-list and Samples.

Please state for what purpose you use the sulphur, quantity needed and date of shipment preferred.

Place Your Order NOW for

Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or ex steamer to arrive.

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Pacific Coast and Hawaiian Islands
311 California St., San Francisco.

A NAME and a BRAND to Trust

THE NAME of Goodrich, branded on automobile tires, is itself a certification of the very utmost in tire satisfaction.

Stamped upon millions of tires, it has stood and today stands responsible for their superior quality and service.

Goodrich keeps faith with every buyer of its tires. Frankly, openly, it states the least that a Goodrich Tire, with proper usage, will deliver.

6000 Miles for Fabric Tires, 8000 Miles for Silvertown Cords! It is an adjustment basis maintained only by virtue of persistent high quality reflected in the big mileage which the tires deliver.

Goodrich Tires

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TRADE MARK

The Goodrich Adjustment Basis:
Fabric Tires, 6000 Miles
Silvertown Cords, 8000 Miles

EVERY ORCHARD ITS OWN NURSERY

A fruit grower must now be as careful of his trees as is the nurseryman. There will be a great shortage of nursery stock of standard varieties; time alone will remedy this condition.

What the grower cannot attempt in propagating, grafting and budding, he can compensate for by persistent, intensive hoeing and cultivation and moderate irrigation, where available, to conserve every tree planted.

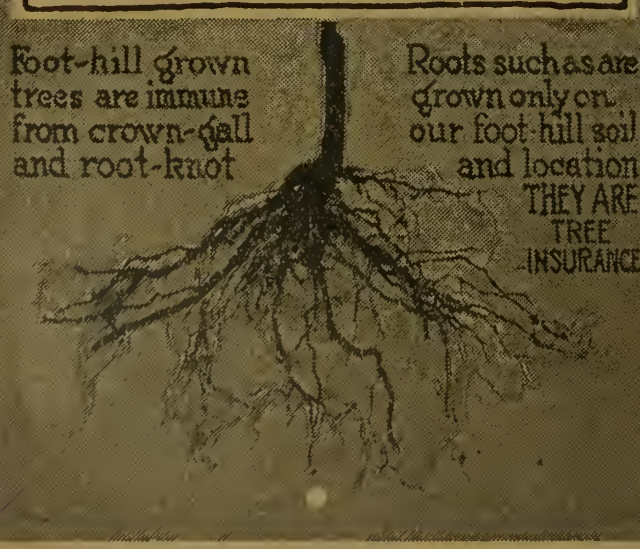
As fruit growers and nurserymen we strive for the improvement of horticulture in California. We are affiliated with the California Nurserymen's Bud Selection Association, an organization of the best expert talent devoted to the improvement of the standard fruit varieties by the exercise of the principle of selection and elimination. To this end also we strive mightily to deliver to the California fruit growers the best trees that can be grown.

The shortage of fruit tree stock of the best standard varieties for the season of January and February, 1921, will be greater than this year and for every one tree then available there will be two wanted. The planter who buys now not only saves money in the buying but assures the carrying out of his planting plans.

Every dollar invested in fruit tree planting will bring you more income than any other enterprise. Write us today concerning your next season's wants.

J. E. Bergtholdt
Secy. and Mgr.

SILVA - BERGTHOLDT CO.
Nurserymen and Fruitgrowers
Newcastle, Cal.


Foot-hill grown trees are immune from crown-gall and root-knot
Roots such as are grown only on our foot-hill soil and location
THEY ARE TREE INSURANCE

which during the entire first summer have been given water close to the tree and settled slowly. Too often water is cut around the trees and allowed to run swiftly. In some soils there is danger of slicking the surface of the furrow when the water is started too fast. If this happens, comparatively little water soaks into the ground around the roots. It is a good plan after irrigating to examine your soil around a few trees by digging and see by actual observation whether or not you have made the thorough job you intended. I add this word of caution because I have sometimes seen trees with dry roots directly after irrigating, and the most surprised man was the man who irrigated.

The trunks of the trees should now be protected from the sun's rays. Either newspaper, burlap, yucca, or perforated oiled paper wrappers can be used. If newspapers are used they should be wrapped loosely and you must be sure to cut off the strings before they cut into the bark of the growing tree. Too often this is neglected by well intentioned men. I believe that ultimately the most economical wrapper is the yucca or perforated oil paper wrapper. Be sure, whatever wrapper you use, to extend it into the ground. The greatest reflection of heat and consequently the greatest danger is near the ground.

For some years I did not believe that it was necessary to fertilize a tree the first year. About two years ago, with the cooperation of some of our planters, we began experiments in different localities and the results were astonishing. Shortly after planting we asked these growers to basin and put cow manure in the basin on a few trees or rows of trees. At each irrigation the water filled the basin, soaking the manure, and carried nourishment to the roots. The trees thus fertilized showed almost double the growth at the end of the summer. I am not sure that this is the best method of fertilizing to follow, but I do believe that the trees will come into bearing much quicker if fertilized properly from the very start.

In conclusion, we advise the sighting in of trees when planting; the digging of a large hole; nursery stock from a light, loose soil; loose rooted trees; careful high setting and thorough irrigation; protection from the sun, and fertilization to start the first year.

Flood Control

By Ernest Braunton

THE matter of flood control is for the first time engaging the attention of all parts of the sttae, though the annual toll of damage from erosion seems to be heaviest in the south end of the state. The shifting of channels and washing away of land is most serious where soils are of a light and sandy nature.

Various methods of checking floods are being given tryouts, but the practical end of the work at present really lies in protection of the lands below where check dams are possible. To cite an example, many of these dams were built in the San Dimas Canyon, a few miles east of Los Angeles. While these tended to check the flow and protect the canyon proper, they did not in any way arrest the water or check its momentum a mile below the canyon mouth where the orchards and farm lands begin. Therefore protective measures for these lands are the most important consideration engaging the attention of county officials.

San Dimas Wash Flood Control
A stretch of brush fences that control five miles of the flood waters from San Dimas Canyon as they pass through Covina, Los Angeles County.

Storm Water Guides

As the waters cannot be curbed, the problem resolves itself into steering the runaway so little or no damage results. Some of this work has in the past proved very costly, especially where concrete or rock work has been built. It was soon found that mere weight counted for little unless it could be protected from undermining. The most economic plan, already adopted at many points, and in use for five miles along the San Dimas wash, is the brush fence method. Second hand or used pipes of two inches or more diameter are driven in the ground for eight or ten feet, sticking a' ove four or five feet.

Two rows of these are driven four feet from each other and ten or more feet apart in the row. On each row of posts is fastened a sheet of strong wire of six inch mesh extending a foot below the surface and bent out at bottom six inches toward stream bed. This "flange" at bottom prevents serious undercutting in case the soil is washed away. Into this continuous four foot bin is laid brush trodden down solid. Prunings from orchard and garden, loads of old geranium stalks, were noted in the San Dimas containers. This scheme has worked wonders in guiding flood waters and protecting orchards and farm lands. It is the most inexpensive, too, of all methods tested.

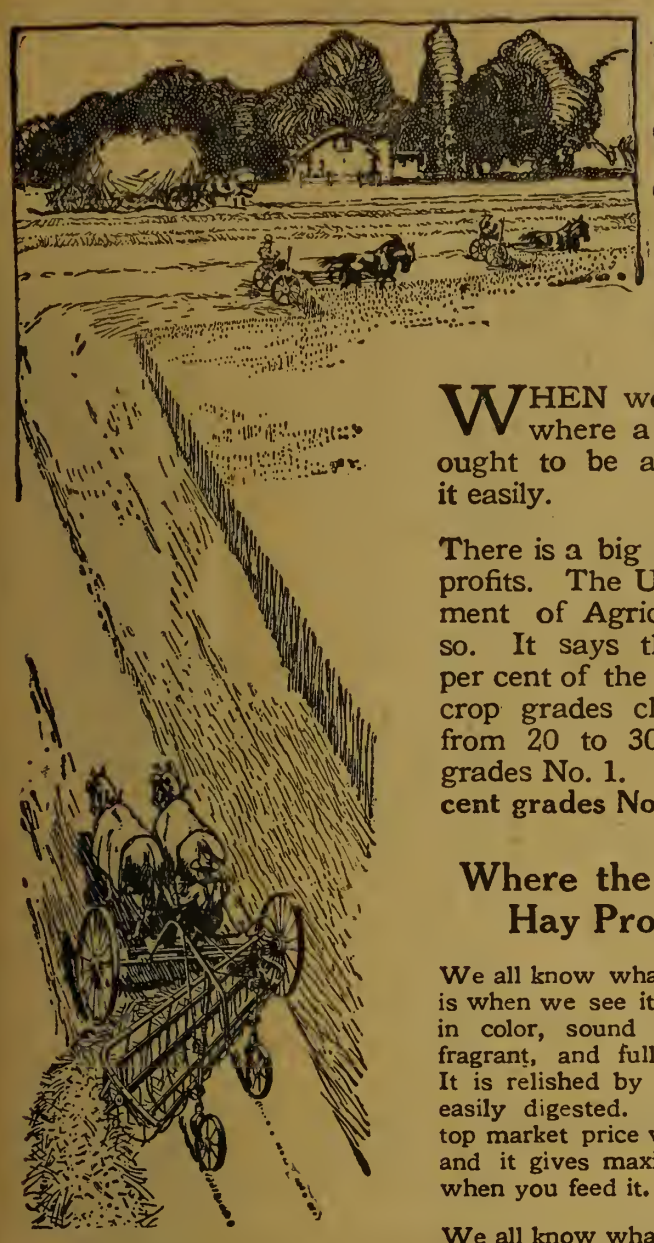
The change has been severe, however, on those living below this five mile long channel. Its extension to the Irvindale Avenue section is sorely needed. To remove the necessity for such construction plans are now complete for a dam in the San Dimas Canyon having a depth of 125 feet. This will catch and hold the excess storm waters, which may then be gradually released between floods so that no harm can result to lands below lying along or nearby this great wash. This appears to be the scheme that must be followed with all canyons whose waters work destruction to agricultural pursuits. On the outside of the protective fences the county forester has planted from three to many rows of black locust, which, when grown, will prove a considerable aid in guiding the waters aright, as well as beautifying the landscape.

IN NO HURRY

"All the little boys and girls who wish to go to heaven," said a Sunday school superintendent, "will please rise." Whereupon all, with the exception of Sammy Scruggs, rose. "And doesn't this little boy want to go to heaven?" asked the superintendent, in surprise. "Not yet," said Sammy.

WHAT'S THE DIFFERENCE

When a boy grabs all the cake, he is called a pig; but when he grows up and grabs all the money, he is called a leading citizen.



Hay harvested by the Dain System means more dollars in profit whether you market your hay or feed it. The Dain System Rake enables you to use this system.

Stop the Leak in Your Hay Profits

WHEN we know just where a leak is, we ought to be able to stop it easily.

There is a big leak in hay profits. The U. S. Department of Agriculture says so. It says that only 10 per cent of the annual hay crop grades choice. Only from 20 to 30 per cent grades No. 1. **And 60 per cent grades No. 3.**

Where the Leak in Hay Profits Is

We all know what "choice" hay is when we see it. It is bright in color, sound as to foliage, fragrant, and full of nutrients. It is relished by live-stock and easily digested. It brings the top market price when you sell, and it gives maximum returns when you feed it.

We all know what No. 3 hay is when we see it. It is "off color." It has lost much of its foliage. It is tasteless. Stock will not eat it readily. And it carries but little nutrition, in proportion to its non-digestible fiber. It is all right for stall litter, but it is very unsatisfactory for feeding or selling. Its market price is about $10 a ton less than that of choice hay.

The big difference between choice hay and No. 3 hay is mainly a matter of curing. The leak in hay profits is in incorrect curing methods.

Curing in the Swath is Costly

Letting the hay lie in swaths to cure under a hot sun is the method that frequently causes the big loss. And here is the reason:

You have noted that hay, when cut by the mower, falls back in a position similar to shingles on a roof, with the heads and leaves exposed to the sunshine and the stems underneath in the shade.

TWO hours of hot sunshine sears the exposed leaves and stops the process of draining water from the plant. The pores in the leaves are closed and the water is sealed up inside the stems. The sun continues to shine on the heads and leaves until the water is slowly steamed out through the stems. The leaves are sunburned long before this unnatural process has continued until the hay will go into stack or mow without spoiling. They will crumble between your finger and thumb. Many of the leaves fall off in the process of raking and stacking or loading and storing. The hay does not have the color, the fragrance, the palatability, the digestive qualities nor the nutrition of the "choice" or the No. 1 grades cured in the proper way.

Use of the Dain System Stops the Leak

By doing away with the old-style method of swath-curing, and using the Dain System of Air-curing Hay, many hay growers have stopped the leak in their hay profits. They are making "choice" or "No. 1" hay instead of the lower, unprofitable grade that they used to make.

The Dain System is called "Nature's Way of Curing Hay." It puts into practice the principle that properly curing hay is merely taking the water out of the hay rapidly and efficiently while keeping the nutrients in, and that the best way to accomplish this is to let the water pass out of the plant in the natural way.

Water leaving a plant in the natural way passes out through the leaves in the form of perspiration. Examine a blade of green hay under a microscope, and you will see little drops of water oozing out all the time. How rapid and thorough this natural process is can be best understood when one remembers that from 200 to 400 tons of water per acre are utilized in maturing a hay crop.

THE Dain System Rake was built for the special purpose of handling hay while it is still green. Using this rake, you follow the mower before the sun has had the opportunity to sear the leaves. The rake picks the hay up while the leaves are still active and delivers it on clean stubble in a medium-sized, loose windrow.

The action of the rake places the bulk of the leaves on the shady inside, and the stems on the sunny outside of the windrows. The windrows, being loose, air passes through freely. The leaves continue to function normally in draining water rapidly from the plant. More quickly and with less labor than in swath curing, the hay is ready for the stack or mow. And only by this method of curing can hay be given the feeding qualities that bring you the greatest returns when you feed it or when you sell it.

Find Out all About the Dain System

Don't fail to find out about the Dain System and the Dain System Rake before your next haying season begins. Make it the means of stopping the leak in your haying profit.

Ask your John Deere dealer to show you this rake. He will show you how easily it works—how its operation makes the Dain System of air-curing hay the simplest, as well as the most profitable method that you can use.

Note the inclined frame that distinguishes the Dain from other rakes of its type. You will find that this inclined frame is as important as a properly-shaped moldboard on a plow. The frame is low at the front end and increases in height toward the rear—its capacity increases as the volume of hay increases. The low front end is set slightly ahead of the tooth bars, causing the hay to come up against the frame and pitch forward in the loose coil that characterizes the Dain way—the way that puts the leaves inside, the stems outside, and allows plenty of air to pass through the windrow.

WRITE TODAY FOR A FREE BOOKLET. We have prepared a booklet that explains the Dain System thoroughly. Many thousands of copies of this booklet have been distributed. You will find it interesting and profitable reading. Send for your free copy today. Address John Deere, Moline, Illinois. Ask for booklet DS-17.

JOHN DEERE

JOHN DEERE MOLINE, ILL.

THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

Wonderful New Hay Crop
SUDAN GRASS

First Introduced into the U. S. in 1909 from the Sudan in Africa. Tests by the department of agriculture have proved it to be of the greatest value in the Southern and Western states, where rainfall is deficient.

Culture—Sudan Grass is strictly an annual. It may be drilled or broadcasted. If drilled 8 to 12 lbs. per acre is ample; for broadcasting 15 to 25 lbs. should be used. It grows 8 to 10 feet high and yields from 3 to 8 tons per acre. You are sure of two cuttings, and if irrigated three or four cuttings.

Sudan Grass for Pasture—During the months of August, September and October all other grasses are dry, then is the time Sudan is most valuable for fall pasture, and by having it fenced in small fields it will yield food for six times as much stock as any other forage will without irrigation. For milk cows and hogs, there is no better and more abundant pasture than Sudan Grass. It will solve the hay proposition as nothing else can or will do in this climate. A good silage and balanced ration. This seed was grown on our own farm, and is free from Johnson Grass.

Price Per Pound:

10 lb. lots, 25c — 100 lb. lots, 20c
250 lb. lots, 19c — 500 lb. lots, 18c
1000 lb. lots, 17c

Bowman's Hardware and Implement Company
721 J. Street Sacramento, Cal.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

This Month in the Ornamental Garden

Northern California

By A. R. Gould

THE greater part of garden preparation should be completed this month and most of the empty spaces be ready to fill up with that charming annual or perennial flower so that it will have a good start. Many beautiful subjects may be sown where they are to flower and will provide a nice splash of color in the beds or border. Among the quick flowering annuals we suggest sowing Godetia, Double Rose; Clarkia, Salmon Queen; centaurea Cyanus, or blue cornflower; calendula, orange and yellow; calliopsis, Crimson King dwarf; Browallia speciosa, blue; candytuft, giant hyacinth flowered, white and rose cardinal; dimorphotheca, orange daisy; gypsophila, white; linaria hybrids; Linum, red; mignonette Shirley and tulip flowered poppies. These will supply you with cut flowers most of the season. The seed should be thinly sown and the seedlings later thinned out for future development.

Planting of trees and shrubs will be completed also this month, as it is hardly practical to handle plants from the field much later. There are, however, some nurserymen who grow much of their small stock in pots, hence these are supplied for planting almost any time. All the vacancies in the rose garden should be filled without delay and the beds should be well trenched with manure if you are after choice blooms. Dusting with dry sulphur or spraying with liquid spray will be necessary, and for that frequent visitor, "Mr. Aphis," attack with "Black Leaf 40."

Gladiolus

Of late years these flowers have become deservedly popular and through the efforts of hybridists and observant growers who have specialized in this flower there are numerous varieties ranging in many delicate shades. In our own state the gladiolus sets seed quite freely, so that each year any grower, providing he have the best parent stock, may raise new varieties and most probably secure something worth while. Bulbs of these flowers may be planted this month in fairly rich garden soil, six inches apart, and if a solid color scheme is aimed at, plant one good variety such as Mrs. Francis King. If they are desired for a successional display, a number of the following varieties may be grown: Dawn, Augusta, America, Princeps, Brenchleyensis, Peace, Loveliness, Halley, Klondyke, Snow King, War, Baron Hulot, Panama and Primulinus hybrids.

Dahlias

Interest increases also in this flower and like the gladiolus it is easily raised from seed which the plant produces freely enough in our climate, and it is quite possible to raise it from seed to flower the same year, or cuttings of desirable types may be placed in sand and will root readily. Strong tubers having several eyes may be secured and planted during the month, spacing them at least three feet apart. There are now in cultivation an endless number of varieties, and they are divided into several groups such as paeony flowered, cactus, show and fancy, pompom, collarette and single. and they range in size from the button type to that of the large dinner plate. However, for strictly decorative purposes the cactus singles or collarettes are the most useful. Any good seedsman's catalogue will describe the many varieties and a pleasing selection may be made, or seed may be sown in boxes of fine soil and some real surprises secured, which creates an added interest to home gardening. Sow now and watch developments. Plant out seedlings when three to four inches high in fairly rich soil and when in flower select the best for your collection.

Chrysanthemums

This beautiful fall flower should be secured and planted this month. Your nurseryman will supply you with strong plants of the single and bush flowering types for garden planting, or if the large flowered varieties are desired a special frame covered section must be prepared for them. We shall deal more fully in later monthly notes with cultural directions. In the meantime prepare the soil with manure and thorough cultivation.

Lilliums

There are quite a number of fine types of this bulbous plant which should be grown in every garden. They require rich soil to thrive, and to be effective should be planted in groups. The best are L. Auratum, L speciosum rubrum, L. tigrinum, L. Henryii, and the most recently introduced L. regale, discovered in China by that most famous plant collector, E. H. Wilson.

Carnations

The following will provide a long display and plants may be set this month: Enchantress, Matchless Benora, Yellow Prince and Belle Washburn. Plant those in rich soil about six or eight inches apart

Complete-ness

YOUR tractor should be a *complete* power investment. It should be one that can be used practically every day of the year, one that is 100% efficient, belt and drawbar.

The **International 8-16 kerosene tractor** meets those requirements. The drawbar has a wide range of adjustment both up and down and sidewise so that the tractor will pull any machine or implement on the farm with equal advantage. The 8-16 pulley is so placed that the tractor can be backed into the belt quickly—so placed also that the belt doesn't rub against any part of the tractor nor drag on the ground. And 8-16 power is just right—neither too heavy nor too light—it *fits* practically any drawbar or belt power task on the average farm.

Aside from its adaptability for all-year-round farm work, the **International 8-16 tractor** is a 100-cents-on-the-dollar investment because of its exceptionally efficient and economical (kerosene) operation; because, too, you can always secure repair and expert service without delay through the 92 branch houses and many thousands of dealers. Your International dealer—wherever he is—has a Harvester branch in easy reach.

If you are interested in a *complete* tractor power investment just write your name and address along the margin of this advertisement and mail to the address below so that we can send you full descriptive information of the **International 8-16.**

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
(INCORPORATED)
Billings, Mont. Cheyenne, Wyo. Denver, Colo. Helena, Mon.
Los Angeles, Cal. Portland, Ore. Salt Lake City, Utah
San Francisco, Cal. Spokane, Wash.

The MOLINE Tractor is Universal

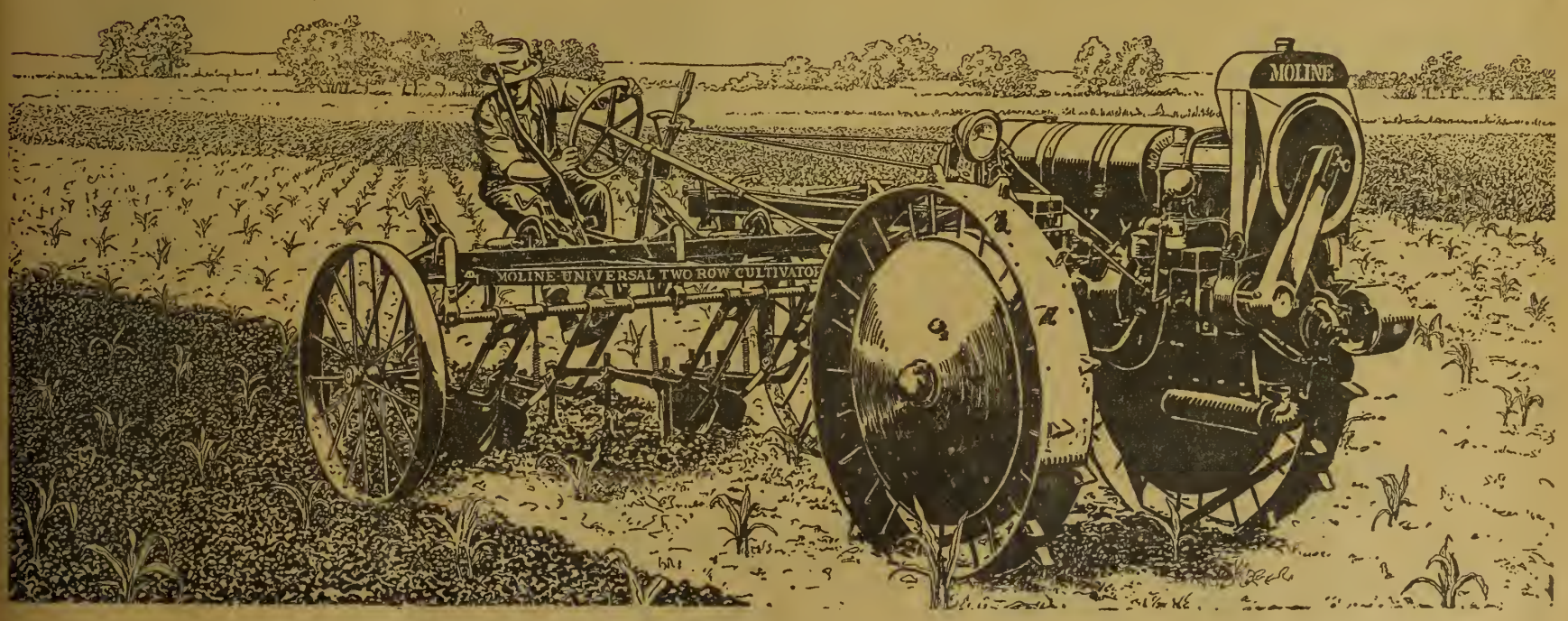
6 Indispensable Results

The principle of doing all field operations with one man sitting where he can watch his work is correct, or farming has always been done backward, and the operator would always have ridden or led his horses instead of driving them.

The Moline Universal Tractor places the power of nine big horses where the horses stood—is driven just like horses are driven, from the seat of the implement, and hitched up to the implements just as horses are hitched.

No duplication by horses	*Because*	Does all field work, including cultivating, harvesting and belt work
A large saving in labor	*Because*	One man completely operates both tractor and all implements
Great ease of operation	*Because*	A single seat in the center of all controls of tractor and implement
Can back and turn short	*Because*	A single unit of operation—the tractor and implements form but one unit
Better and faster work	*Because*	Operator sees all his work—"Foresight is better than hind sight"
Power used as horses are used	*Because*	Tractive power in front of the work with operator behind the work

Utility Is Not Sacrificed for Price



If desired you can use the "drag behind" or horse drawn implements you now have with the Moline Universal Tractor, the same as with other types of tractors.

See your Moline Dealer or write our nearest branch for full information.

MOLINE PLOW COMPANY, Moline, Illinois

Branches at:

Atlanta, New Orleans, Dallas, Oklahoma City, St. Louis, Poughkeepsie, N. Y., Baltimore, Los Angeles, Stockton Cal., Spokane, Portland, Salt Lake City, Denver, Kansas City, Omaha, Minneapolis, Minot, N. D., Sioux Falls, S. D., Des Moines, Bloomington, Ill., Indianapolis, Columbus, Ohio, Jackson, Mich.

Southern California

By Ernest Braunton

SO sufficient and satisfying have been the late spring rains that gardening operations have received a welcome extension. Without artificial aid garden plants are in luxuriant growth. This succulent vegetation demands much water and when the warm days come there will be much "flagging" or light wilting. This shows need of water and the need must be met. Aside from soil moisture an early morning light spray, before the sunshine is strong, is a splendid stimulant to prepare foliage for a hot day's activity.

April is the first month for tropical planting and the last for planting of things in general, excepting a few bulbs. Tropical plants from elephants ears to oranges may be planted now or in May. It is early enough for plants of this class and the close observer will note about July that tender subjects put out in February and April are of like size and vigor and in the same stage of development. The growth of tropical plants is not aided by early planting. With all seed beds care should be taken to see that a soil crust is not formed that prevents seedlings from being projected into the free air. After sowing if a little sand or finely sifted manure, or both, may be lightly raked into the surface, the latter will not become encrusted.

A Busy Time

Insect pests and plant diseases propagate apace these days, so that sprays are more profitable in application now than later. Free your plants of these so they may start seasonal growth without handicap. Thin sown seed beds so every plant will have a fighting chance without too great competition. The list of seeds for sowing now, both annual and perennial, is a long one, and it is fairly safe to sow anything and everything. Haste should be made to divide all perennial roots for they are ready to grow now. Those tropical clumps of cyperus, elephant's ear and papyrus can be divided and so multiplied, and this is as true of that group to which bananas and cannas belong.

Some bulbs may still be planted—the last lot of gladiolus, amaryllis, dahlias and tuberoses. But it is an ideal time, and early enough, to plant tuberous rooted begonias in a shaded or half shaded spot. Soil for these must be loose and rich. Hard, sterile soils or hungry sandy soils will not do. Leaf mold with some well decayed stable manure and superb drainage is the proper combination for these aristocratic bulbs. Bedding and border plants of all sorts should be put out at once; it is the season for finishing your garden as you expect it to remain for the summer. The young lawn grass needs much and frequent waterings in these days of tender growth. Water all plants in early morning, not during the hottest hours.

A Great Squirrel Drive

On Thursday, March 25, Horticultural Commissioner Ryan of Los Angeles County sent out a truckload of squirrel poison containing 10,500 pounds, for distribution and use in the second annual squirrel control drive in the Antelope Valley. And this is but a part of the poison to be used. The United States biological survey, represented by F. E. Garlough, will furnish 2,500 pounds for government lands, the California state department of agriculture will furnish the amount necessary for state lands in the district, the Tejon ranch will have a ton and the Southern Pacific will cover its right of way.

The field application of all this poison was made on March 31 and April 1-2-3, covering fully 200,000 acres and requiring the time and labor of at least 200 persons. The work has been systematized and the territory divided into six districts—Del Sur, City Ranch, Elizabeth Lake, Fairmont, Neenach and Bailey's Lake. The county work is in charge of L. S. Neville, the state work, of W. C. Jacobsen. Last year the drive netted 90 per cent of the squirrels in this district, but the pesky ten per cent remaining has now increased to about 25 per cent of the original number. The present drive is expected to result in total extermination, for the territory will be carefully canvassed after the drive and all open holes again dosed so that the squirrel will indeed be sly that evades the final summons. As the present is the most favorable time for poisoning squirrels all with infested lands are urged to attack this pest by either the bisulphide of carbon method, given in Cultivator of January 17, 1920, or with the poison recommended by the United States biological survey, and given in former Cultivators but here repeated:

Poison and Its Use

Barley, recleaned grain, 16 quarts; strychnin (powdered alkaloid), 1 ounce; bicarbonate of soda (baking soda), 1 ounce; saccharin, 1-10 ounce; heavy corn syrup, ¼ pint; thin starch paste, ¾ pint; glycerin, 1 tablespoonful.

In a clean vessel mix thoroughly one ounce of powdered strychnin (alkaloid), one ounce of common baking soda, and one-tenth ounce of saccharin. Crush all lumps of the soda with mixing spoon. To this add one-quarter pint of heavy corn syrup and stir thoroughly to a smooth, creamy paste free from lumps. Over this pour three-quarter pint of thin hot starch paste and stir well. (The starch paste is made by dissolving one heaping tablespoonful of dry gloss starch in a little cold water which is then added to three-quarter pint of boiling water. Boil and stir constantly until a clear thin paste is formed). Add the tablespoonful of glycerin and stir thoroughly, making sure that none of the heavy syrup paste still sticks to the bottom of the container. Pour this mixture over 16 quarts of good cleaned barley and mix well so that each grain is coated.

For mixing small quantities an ordinary galvanized wash tub is convenient. For larger quantities a tight smooth box may be used, and the mixing may be done with a spade. Each quart of the poisoned grain is sufficient for 40 to 50 baits. This quantity scattered along squirrel trails, or on clean, hard places on the surface about the holes, will not endanger stock.

N. B.—Strychnin in any form other than the powdered strychnin alkaloid is not effective in the above formula.

TRACTORS must work on an average of 210 days per year on the large ranches of the West—which means anywhere from 2100 to 5000 hours service per year.

BEST TRACTORS have mastered these conditions for over thirty years. BEST engineers have gradually made improvements until today the BEST TRACKLAYER SIXTY stands supreme as the most dependable heavy duty tractor built.

The tractor built in the West to meet Western conditions in farming, road building, logging, hauling and belt work.

Best "60" Tracklayer and road scraper. Taken at Denver, Colorado, June 1919. Lower photo shows Best "60" pulling 9 plows 8 inches deep in hard adobe land

BEST TRACKLAYER TRACTORS

Write for name of your dealer

A few outstanding features of the SIXTY are: Ease of operation—accessibility—no wheel, all track—no belts or chains, all gear driven—turns in own length—37 anti-friction bearings—manganese steel tracks—working parts completely housed—non-lubricated rocker joint in track, etc.

Catalog upon request

C. L. BEST GAS TRACTION COMPANY
San Leandro, California

"60"

GMC

General Motors Trucks

The Trucks That Get There and Back

Getting your product where you want it and getting back again are the main things so far as a truck is concerned.

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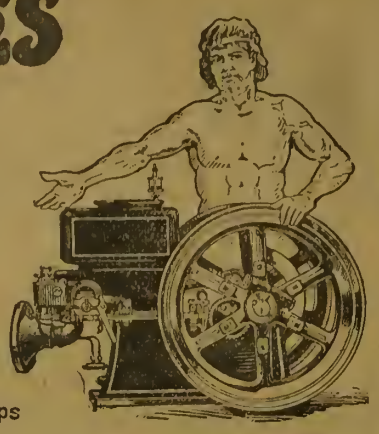

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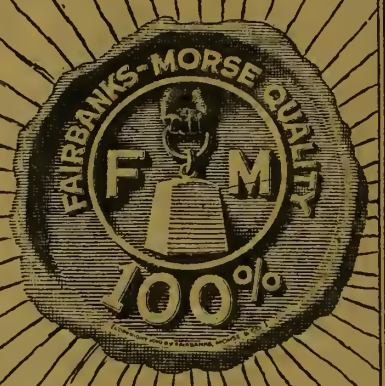

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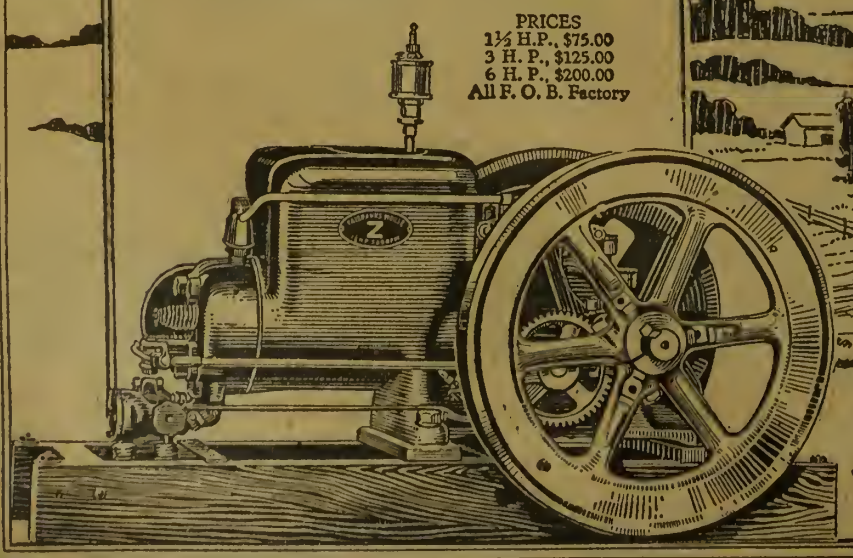

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Blackeye Beans

What is the best time to plant blackeye beans (or peas)? How many pounds of seed is required per acre, and from good soil how much may one expect for a crop? Is there more than one variety of blackeyes? —J. H. J., Lemoore.

The best time for planting is the first half of April; in your heavy soil, about 15th. About 30 pounds to the acre is usually planted. They are heavy producers, 2,500 pounds an acre being grown without irrigation, though better crops will result from application of water. So far as we know but one variety passes under the name of blackeye.

Feeding Dahlia Bulbs

We have a quantity of common dahlia tubers. Will it do to feed them to pigs, horses, or other stock?—Subscriber, Burbank.

Dahlia bulbs have been boiled and fed to human beings, as a joke, in several instances known to the writer. As they belong to the sunflower or composite family, they are closely related to the Jerusalem artichoke so commonly used as a food for hogs and we see no reason why the dahlia tubers should not be of equal value. They are much alike, both raw and cooked, in flavor and in general appearance and consistency of flesh.

Time to Pick Lemons

Should lemons be picked when they are turning yellow or left on trees until they become quite yellow? What is the best way to preserve them?—Subscriber, Santa Maria.

Lemons are picked when they reach the proper size; the quality is lowered if they are permitted to turn yellow on the tree. Sometimes in winter the yellowing cannot be prevented, but in growing season if the trees are thrifty the fruit should be brought up to commercial size. If 360 size is desired, cut when the lemons are 2 1/4 to 2 3/8 inches in diameter. If they are a rich dark green they will cure under proper atmospheric conditions down to perfect lemons.

Starting Sweet Potatoes

How are sweet potatoes started?—Subscriber, Santa Maria.

This question was so well answered by Q. A. Lobingier in the Cultivator of January 29, 1914, that we repeat:

"For growing sweet potato plants select some well sheltered spot that will get the sun most of the day. Often such a spot can be found on the south side of some building. Spade up the soil eight or ten inches deep, making it as fine and mellow as possible and rake it level. About the first of April select medium sized sweet potatoes and place them upon this bed of soil quite close together, allowing about half an inch space between the tubers. If some of the tubers are quite large cut them in two lengthwise and lay them with the flat side down. If the bed has been made alongside a building, do not make it more than four feet wide, as it will be hard to reach the young sets later on. I have overcome this objection by setting up two boards parallel with the building, allowing the board next the building to be 18 inches or two feet away, so that one can get between it and the building. These boards need be only about eight inches wide, and no matter if the bed is eight or ten feet wide, you can lay a heavy board across the bed upon which to stand when getting your sets. After your tubers have all been placed cover them with clean fine sand to the depth of about one and one-half to two inches and give them a thorough watering with the sprinkler. Do not water too freely after this first time until the sets begin to show up through the sand, but on the other hand examine the soil every day to see that it does not dry out. After the sets begin to grow the bed can be watered more freely. Some growers plant the sets out in the field as soon as they are large enough, while others go over the bed from time to time and break off the sets from the potato, allowing the potato to remain in the bed, and transplant the sets very close together in rows."

Trench Silo

With the price of feeds going up I find it necessary to use silage and wish to save the present crop of mell-

lotus. Will it be practicable to dig a trench about three feet wide and five feet deep, as long as necessary, board the sides and affix to them cheap roofing paper and fill up with chopped clover with a sprinkling of barley, oats and alfilaria, and keep on packing it down and when full, cover up with one inch boards and paper roofing and keep the silage good? Around the sides I would put water with a view of keeping the ground around well packed and tight. When taking the silage I would start by taking only the small surface my goats can consume every day, and go to the bottom, and after that either repeat or else take perpendicularly a slice every day, if the proportion to use is suitable.—Subscriber, Yucalpa.

We have never heard of silo being constructed in the exact form you describe, but we are inclined to think it is practical. Unless you have a very large herd of goats, even if you could build a very small silo, it is possible you could not feed down fast enough to prevent spoilage. If your trench is only five feet deep we think you would have to use greatest care to tramp very firmly. Care must also be taken, as you suggest, in keeping air from working in at sides. Even with the utmost care, if the soil should be gravelly or stony its loose nature might permit air to enter and spoil some of the silage. On the other hand, if soil is very heavy, especially as to subsoil, the drainage might be poor and water might stand in the trench and prevent proper bacterial action, which would mean poorly cured silage. Silage has been kept in this way, or, rather, in the larger trenches made by scraping out by the use of horse power. Will be glad, indeed, to learn as to your success if you make a trial of this method. Above all, be careful and pack down very firmly. We think the feed would be exceptionally fine for the goats, but as a rule has not been found acceptable to hogs or chickens.

Argentine Ants

Please tell me what to use to keep Argentine ants away from orange trees.—Subscriber, Colton.

The sticky barriers or smears which trap and destroy the pest are usually not so successful as the poisons, or one poison which was given by Mr. Woglum in the California Cultivator of March 30, 1918. This consisted of 12 pounds granulated sugar, 7 pints water, ¼ ounce tartaric acid (crystallized). Boil 30 minutes. Allow to cool. Add water equal to that evaporated. Three-quarters ounce sodium arsenate (chemically pure only), dissolve in 1 pint hot water. Cool. Add poison solution to syrup and stir well. Add to the poisoned syrup 2 pounds honey. Mix thoroughly. This mixture is placed in can or small container with sponge and the sponge is soon covered with ants carrying away the poison. Where one wishes the tree barrier it may be had by mixing 1 pound resin and 1 gallon castor oil, using gentle heat to make into one mass. If too thick add more castor oil. This mixture may be applied on the bark of the tree, or better, a piece of old soft rope like baling rope may be saturated and tied around the trunk of the tree. This will remain sticky about ten days.

Sugar Prunes and Grapes

Last spring (1919) I planted four sugar plums which grew so high, some of the shoots being eight feet, that a neighboring fruit grower was asked about them and advised heavy cutting back. This I did with two of them and they are now in full bloom, while the others are not. What shall I do with them? I also have a freak grape vine. Some years ago I grafted a Black Prince on a Tokay root and now have a vine bearing two kinds of grapes; one is a large white grape of good value and the other is a Black Prince. Can you tell me cause of freak?—Subscriber, Lodi.

The two trees cut back were given correct treatment. For the first few years they need heading much more severely than the French prunes. Treat the other two likewise and thin properly each year. In regard to your Black Prince (Rose of Peru) grape, we are at a loss for solution, but believe a shoot of Tokay must also have grown up; in some cases they do not color and you have a "white" Tokay. If not, the Tokay may first have been grafted on the root of a white grape.

Buttermilk for Feed

What is the value of buttermilk for feeding, that is, buttermilk with the water removed? Kindly state your opinion as to its value for growing stock and fattening, and if it is a good mixture with grain.—Subscriber.

Dried buttermilk has a similar feeding value as the solids in the buttermilk before drying. Since this contains on the average about 9.5 per cent solids, it follows that dried buttermilk is worth about ten times as much as ordinary buttermilk for stock feeding. In order to place a money value on it, it may be assumed that it takes on the average six pounds of buttermilk to equal a pound of grain in feeding value. With barley at $3.50 a hundred, buttermilk will therefore be worth about 60 cents a hundred, and dried buttermilk $6 a hundred, or $120 a ton. There are several brands of condensed buttermilk on the market that have been only partially desiccated and contain over 60 per cent of water (40 per cent solids). These should only be bought on definite guarantees of water content and freedom from sulphuric acid. It is likely that they will be found expensive feeds in comparison with either grain or tankage. Dried or partially dried buttermilk is sold under

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various trade names and used for feeding young and growing animals, especially pigs and chickens, and when it can be bought at a fair price in comparison with that of standard pig or poultry feeds furnishes a most valuable source of animal protein and can be highly recommended. — F. W. W.

Grafting Old Grapevines

Kindly advise me how to graft old grapevines about two inches in diameter and should the sap flow freely?—Subscriber, Big Foot, Texas.

Answering your last question first, it is rather late for such work in California but perhaps not in Texas. But even in your state the work is best done just before the buds begin to swell, though the sap may flow freely. The operation is performed just as is done in topworking the walnut, fully illustrated and described in the Cultivator of February 14, 1920. Saw off the trunk as near the ground as a straight portion two or three inches long may be found and make smooth on top with a sharp knife. Split stock through middle with sharp chisel down for an inch or two, being careful not to break loose the bark. Cut two scions of last year's growth, with three or four buds each. Shape at base into eveniy tapering wedges, with a bud at base of wedge and the wedge thicker on this than on other side. Drive a narrow wooden wedge into the cieft to keep it open while inserting the grafts. Put these in with the thickest side out and let them lean outward a little, being careful that their bark crosses that of the stock. Pull out your wedge and the job is done. It is so simple and easy that grape growers usually do not cover with wax but mound earth over the whole, leaving but the upper bud on the scions sticking out. In four or five weeks good shoots will be coming from the scions. Select one or two of the strongest on each scion and remove the remainder.

This Month in the Vegetable Garden

Northern California

By A. R. Gould

CONTINUED rains have been very helpful and give promise of a record cropping season, hence we have little excuse for delay in planting. Rotation cropping and successional planting are necessary to keep the family supplied the season through. Have the plots well manured and follow such leguminous crops as peas, beans, etc., with root crops.

Potatoes

Success with this crop largely depends on the character of the soil. A sandy loam is the best and farmyard manures or a good artificial fertiiizer should be applied. Good seed or sound tubers are essential and should be certified as free from disease by the dealer. Another danger is the eelworm, or nematode, which attacks the potato. It is necessary to use clean seed only and destroy any tubers found affected by burning and the appiication of quicklime. Early varieties may be planted at once, such as Early White Rose and Early Red Rose. Plant the tubers two feet apart in rows which should be three feet apart to allow space for cultivating between the rows. Large tubers may be cut before planting and several eyes left for sprouting.

Peas

Sow Little Marvel, Melting Sugar, the edible pod pea, and Telephone. The last two named varieties are tali growing types and will require wire or stakes for support. Keep the cultivator busy between the rows of those previously sown.

Tomatoes

Plant out strong plants of the variety Stone, San Jose Canner, Ponderosa or Earliana. These should be placed four feet apart in rich soil.

Beans

These may be planted toward the middle of the month and the varieties we recommend are: Davis White Wax, Golden Wax, Kentucky Wonder, Refugee, Stringless Green Pod and Canadian Wonder. Sow the bush varieties one pound to 100 foot row and for a row of the pole variety use half a pound of seed.

Lettuce

Make successional sowings of Los Angeles, Big Boston and White Paris Cos. Transpiant and thin out those previously sown.

Corn

At the end of this month sow Country Gentleman, Golden Cream and Golden Bantam. Sow two feet apart in the row.

Carrots

Sow Danvers half long and Early Shorthorn and have the soil well prepared. Sow the seed in rows two feet apart.

Radish

Make successional sowings of French Breakfast and White Icicle, sowing the seed thinly.

Cucumbers, Melons and Squash

Prepare the hills for these by manuring. The hills should be placed four feet each way. Varieties and more details will be given next month.

Celery and Leeks

Prepare trenches for these by heavily manuring at least 18 inches to two feet deep.

Southern California

By D. F. Reichard

WAS it not great! The first good soaking rain for over two years that vistied us recently was certainly great. It has removed all fears as to our having a year of short crops. Coming at the time it did, no doubt that downpour was the cause of some seeds being washed out and of others rotting, but there is time enough to plant again. The warm days of the coming months will develop the plants quickly. Governor Stephens advises us that everyone who has a back yard or a vacant piece of ground near the house should put in a garden to help reduce the high cost of living. The conditions are excellent. It is up to the possessor of the piece of land to do his share.

The first thing to do is to get the land in shape to receive the seed. That is done by plowing deep, turning under all grass, weeds and roughage. Work it down, breaking all the clods and get the plot as level as possible before any planting is done. It is much easier to work the garden if the heavy work is done before the planting is commenced. It is too late now to start permanent garden, the plantings should be confined to annuals. Those who have their gardens started we would advise to be very watchful this month for any garden enemies, especially aphis, which are easily controlled by spraying with a weak solution of Black Leaf 40.

Most everything in the seedsman's catalog may be put in this month. Beans, corn and melons especially are to be planted. Do not crowd stuff, better stuff and larger crops grow

where plants are properly spaced. The hardy vegetables may be planted; beets, carrots, turnips and parsnips, but they are not relished as are the more succulent summer vegetables. Small plantings of potatoes may be made but they should go in as soon as possible because they are less resistant to disease and pest attacks when planted after the middle of April. Onions, too, may be planted and a good crop should be raised, but the seed must be in the ground before the 15th of the month. Use either Australian Brown, Silverskin or Yellow Danvers. These are the best for this time of the year.

What to Plant

Sow seed asparagus for plants to set out next year. Green Globe artichokes may also be grown from seed. Plant the seed now for strong plants to put out next winter. Beans of all kinds, bush and pole string beans, commercial or field beans, and Limas will be planted very extensively this month. Plant a few carrots. They always come in nicely for flavor even though you do not care for them as a vegetable. A few beets will not come amiss.

General plantings of both sweet and field corn will commence this month and will continue until well into August. In the home garden make a small planting of sweet corn every two weeks for a continuous supply. We do not recommend planting cauliflower for a month or so, but small plantings of cabbage may be made. Cucumbers both for slicing and pickles, muskmelons, watermelons and squash, both summer and winter, can be planted with safety. The young plants of this group should be dusted with dry arsenate of lead, tobacco dust or air slacked lime to keep insects and worms away. Plant Iceberg or some smooth leaved variety of lettuce at this time for best results. Kale and kohl rabi may be planted now but they do not do as well as when planted during the cooler months. The same can be said of peas which we do not recommend planting at this time. Turnips and parsnips will grow if planted at this time but they are of better flavor if used as a winter crop. Set out plants of tomatoes, peppers and egg plant. April is the best month for them. Radishes are planted at all times. They will develop quickly during the warm weather. Large plantings of sweet potatoes are made in April. These come off for early harvest.

Southern Arizona

By M. E. Bemis

THE varlety of things which may be planted, or the plants which may be set out, in April begins to narrow from the list of things which the gardener may specialize on in March and February.

It is not too late to plant tomatoes the early part of the month. These may be planted in the ground where they are to grow or the plants may be set out. There should be little danger of frost from now on.

For general planting probably there is no variety that will give as general satisfaction as the old standby, Dwarf Champion. The chief advantage of this variety for hot climates is that it stands up without artificial support and has a sufficient amount of foliage to protect the fruit from sunburn. Plants should be set about four feet apart each way.

Of peppers, Mexican Chili and the Giant Bell are desirable varieties for this section. They should be planted or set out at this season of the year. If desired they may be, like the tomatoes, planted where they are to grow. Probably the plants which are already in the beds ready for transplanting, either of peppers or tomatoes, will be slightly earlier than those which are planted in the ground. However, many gardeners prefer to plant where they are to grow rather than to transplant. These may be put out any time in April, 24 inches apart in the row and the rows three feet apart.

It is a little late for cucumbers, but the early part of the month will do very nicely for general crop. The early White Spine seems to be one of the varieties best adapted to this section. Plants should be set six feet apart. All varieties of summer squash do well here. Winter squash should be planted earlier.

Pumpkins may be planted the early part of the mouth. The Chinese pie pumpkin has proved to be a good variety. Watermelons and cantaloupes for general crop should be planted in March. It is not too late, however, for a succession of such popular varieties as the Tom Watson or Black Seeded Chilian, which are suitable for later planting. The Netted Gem and Rocky Ford cantaloupes would be best for late planting.

Of the smaller root crops, there is not much advantage in planting them at this season of the year, with the exception of radishes and onions to be pulled for green onions. The White Icicle radish is a good variety for these later plantings.

Egg plants can be put out at this season of the year.

The good gardener who is looking ahead and making plans for the fall garden will begin to prepare the land now. The land which has been in lettuce, cabbage or other winter growing crops should have at least a ton of stable manure plowed under before the weeds get too much of a start. Then throughout the summer this land should be occasionally irrigated and harrowed often enough to prevent a growth of weeds. Some have found it advantageous to grow a crop of cow peas to be turned under.

Irrigation of all growing garden crops has to be rather frequent from now on and each irrigation should be, for best results, followed by a thorough cultivation in order to keep a dust mulch on the surface of the ground to prevent the soil from baking. Some gardeners have found that frequent cultivation not only saves irrigation but produces better plants. One gardener claims that cabbage will head very much better where the cultivation is thorough. This is believed sometimes to make as much as 25 to 50 per cent difference in the number of cabbages which head.

R. S. Cook, gardener at the Indian School Sanitarium near Phoenix, states that he has been very successful in planting the smaller seeds in rather heavy soil by having his ground thoroughly prepared and as nearly level as possible, allowing, of course, for the necessary slope, and then planting the seed on the level. He then runs a furrow a few inches from the row of seed. The irrigation water is allowed to run down this furrow as needed. In this way there is a sub irrigation which furnishes the necessary moisture to the seed without wetting the surface of the soil to induce baking. He has found this more satisfactory than the usual method of planting on the sides of ridges.

EELWORM

"The eelworm, or nematode, which infests not only potatoes but practically all vegetable crops and fruit trees as well, occurs in many places in California. There are still large districts which are free from it, and every effort must be made to keep these districts clean, since once in the soil it is a practical impossibility to eradicate it. Potatoes for planting should be carefully inspected by the county horticultural commissioner, and only those free from eelworm should be planted. Soil already infested with nematodes or eelworms should not be planted to potatoes since this only produces more infested potatoes and tends to distribute the pest. Under the standardization law severe restrictions will be placed on the marketing of eelworm infested potatoes during the coming season, so that it will be greatly to growers advantage to avoid planting potatoes on infested soil."

JUST AS WELL

Man—What are you fishing for, little boy?

Boy—Sharks.

Man—But there are no sharks in that little pond.

Boy—No, nor nothing else, so I might just as well fish for sharks.—Houston Post.

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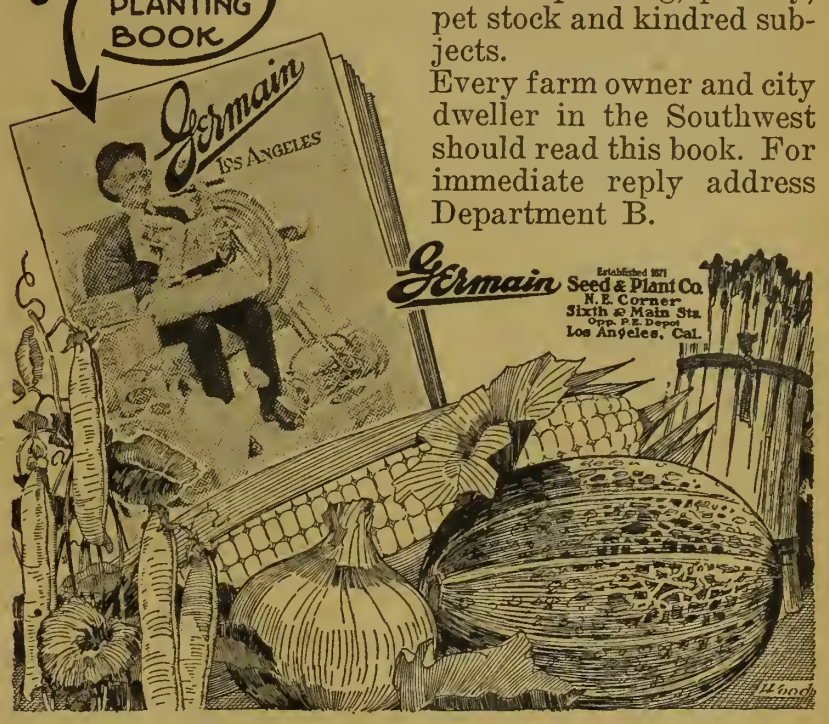

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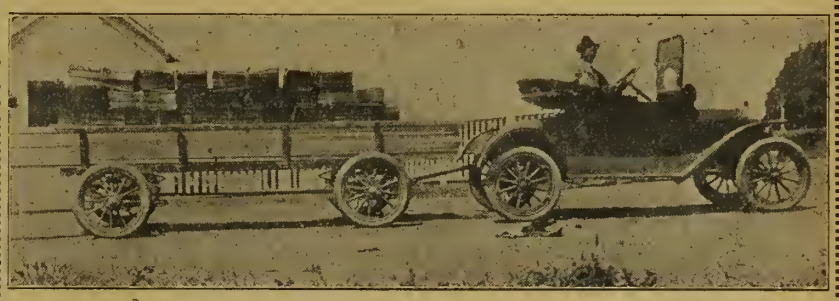

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The De Laval Milker is a distinctly different type of machine. It is alternating, positive and uniform in action—every day the same. It is faster, more reliable and more sanitary than any other method of milking, and is sold with full knowledge of the fact that more is expected of the De Laval than of any other milker.

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61 Beale Street, San Francisco, Cal.

Southwestern Possibilities

By A. L. Spellmeyer

THE Southwest has not yet been developed, and although California is supposed to be a state of intensive cultivation, the future holds forth possibilities without limit.

Owing to a prolonged drouth we are now considering possible water shortage through certain rich farming districts and both the cattle and sheep men have suffered loss and hardship, but this state can and will double, triple and quadruple production of everything, from raisins to livestock, within the next ten or 20 years.

The power possibilities have been hardly touched and water is short merely through lack of development of storage facilities which exist in many places. To merely touch upon the San Joaquin, the district now suffering, it is possible to make great storage reservoirs on the Kaweah, Kings, and in fact in a hundred places on a dozen different streams whose flood waters today are not used. Although vast sums would be necessary the power alone developed would eventually pay for the reservoirs and canal systems. Hundreds of thousands of acres of barley land or grazing land would then be transformed into the finest alfalfa, raisin and fruit land in the West.

Right across the mountains from San Bernardino lies a desert, and this desert would grow anything if it had water, and the water can be brought to it from the Bear Valley district by reservoirs on the Mohave and possibly from the same mountain range which supplies the city of Los Angeles.

Iron ore exists in Riverside, in Orange and in other counties, and right at our doors in Arizona and Utah there are millions of acres of undeveloped coal fields, and great quantities of iron ore. Asbestos is not plentiful, but there is one district in Arizona alone where sufficient asbestos to supply this country could be secured.

In Arizona there are unlimited opportunities to build other dams as great as the Roosevelt, and a great expanse of rich dry desert land.

No matter what the essential causes for high cost of living it is very certain we have the natural resources to support 20 times our population, feed them, clothe them and warm them, if these possibilities are developed.

The trouble with the times is that people forget the primer principle that wealth comes from the earth, and when we have long term cheap money for the farmer and stockman we will get more production and it will never be stimulated until it is made profitable. A tithe of the money wasted through the pork barrel, shipping or aviation errors would have put in hundreds of great dams, reservoirs and canal systems, to the great wealth of the nation.

The present general unrest is bad. Capital can't put in these projects and the government won't. It looks as if the farmers were going to be the political deciding factor in naming men and policies, and if that is the case perhaps we will get down again to the earth and facts, give production a profit, safeguard it and develop new irrigation projects.

The Shorthorn in California

California is perhaps attracting more attention from breeders of all kinds of pure bred livestock than any other section. Eastern breeders are just beginning to realize the wonderful possibilities of this state and the prediction is freely made by those who have recently visited this state that eventually California will be one of the important sources of breeding stock. The following article which appeared in a recent issue of The Shorthorn World was written by J. Clark Chamberlain, who is circulation manager of the publication, and should be of interest to those interested in Shorthorn cattle:

"Far away on the other side of the Sierra Nevada lies the richest and the grandest cattle breeding ground in this country. Every Californian will tell you that, and though some of us may be inclined to doubt the statement, one good look serves to convince. The conditions are practically ideal for the breeding of beef and dairy cattle.

"Through summer and winter alike in California the herds of pure bred Shorthorns roam the fields without suffering in the least from weather conditions. Barns are needed, of course, but they are usually shell like structures of no such proportions as those required in Eastern and Middle Western states. Alfalfa grows practically the whole year round, providing a most nourishing grazing food. Grass springs up earlier and grows faster than in ordinary climates—these are some of the reasons which Shorthorn breeders in California give to account for the success of their breeding operations.

"More than 67 years ago one pure bred Shorthorn bull and three heifers were brought across the plains to California, finding their way into the herd of the Howard Cattle Company. This little herd as a nucleus paved the way for more importations and greater breeding operations until today, when the Shorthorn breeders of the Golden State produce just as good cattle as can be found on the other side of the mountains. They still are not strong in numbers, for the comparative sparseness of population has naturally held down extension somewhat, but the quality and numbers in the individual herds is certainly apparent. The winning of grand championship at the International by Little Sweetheart, owned and bred by T. S. Glide of Davis, well supports this assertion.

"Shorthorns are perhaps strongest in the Sacramento Valley country, where eight or ten excellent herds are located, but there is scarcely a valley in all this great country which does not support at least one Shorthorn herd. In this great state, which is large enough to take care of 1,500 breeders of range cattle (members of the California Cattlemen's Association), it is most gratifying to see the steady increase in the pure bred herds. Out of 47 bulls which sold recently at the sale of the California Shorthorn Breeders Association, at least 30 went to the ranges to produce the better kind of cattle. This indicates that where there is, figuratively speaking, one Shorthorn herd in every valley, there ought to be a dozen.

"At present no one man or group of men stands alone in boosting Shorthorns in California. All of the established breeders are cooperating to bring about the greatest need—more breeders of Shorthorns—and mention of a few only is possible. Caledonia Farms is by far the largest Shorthorn establishment, numbering in its herds more than 400 head of pure bred Shorthorns. This herd rivals in size the best the Middle West produces. T S. Glide, Dr. Elberg and C. N. Hawkins, all of Davis, are doing some wonderfully constructive breeding. Their herds are the equal in quality of the best. Then there is the Dibblee Estate of Lompoc, a remarkable breeding establishment, the Carruthers herd of Live Oak, the Miller herd of Hollister and the Ormondale Company of Redwood City—these do not suffer in comparison with the herds of other states.

"A tremendous amount of good is being realized directly from the activities of the university farm animal husbandry department, with Professor Gordon H. True in charge. He and his associates have worked tirelessly to bring about better livestock conditions in the state, and though no breed favoritism has been shown, the campaign for more and better Shorthorns has through his efforts been greatly helped along. The university farm herd is but a comparatively small one, still it serves as a model for those who would learn more about the Reds, Whites and Roans. At the recent association sale held at the farm, one of

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FOR SALE
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The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

Professor True's entries brought the top for the females, while at last year's sale one of the bulls entered by the university brought the highest price ever paid for a pure bred bull in California. The state university is each year proving more valuable to the beginners, but in no state is the beginner given a bigger boost than in California by the animal husbandry department of the university farm.

"There are no county Shorthorn breeders associations in the state of California. (The breeders of Glenn County organized the Glenn County Shorthorn Breeders Association last summer.—Editor.) All breeders are brought together in the one organization called the California Shorthorn Breeders Association. D. J. Stollery, as secretary of this association, comes in for a great deal of strenuous work, but the results produced must prove an ample reward for him. With only one state organization, the results are easily seen, as every breeder in the state is a member of the association.

"Marketing and transportation problems may seem an obstacle in the way of the breeders in the Golden State, but these things will be overcome in time. It will not be this year, nor next year, and perhaps not within ten years, but the time is surely coming when the sun will never set upon the produce of California's Shorthorn herds. Many steps remain to be taken before that time comes, but they are logical steps. The many herds of range cattle are rapidly being headed with pure bred bulls. This one move alone is a great one. Calf clubs are being organized, new breeders are breaking into the game—these are all constructive steps and most encouraging ones.

"Statistics show that 90 per cent of the land in the state of California is being used or can be used for the raising of livestock, and with the present rate of advance, Shorthorn breeders ten years from now should be holding down a goodly portion of that percentage. Our hats off to them if they can make the grade."

CONCLUSIONS OF AN IGNORANT COWMAN

(Continued from Cover Page.)

but shoes have tripled and throughout the list of commodities recent investigations have shown greed and enormous profit percentage for which there is no justification.

How is it possible that our political representatives fail to realize a national viewpoint and continue to feed to a privately despised public "mush of concession" propaganda fodder and ingenious explanation of high living costs, when the people want juicy beefsteak, white bread, warm clothing, and leather shoes at prices within their earnings.

If our candidates are economists they know that watered stock is the principal cause for high prices and that a costly war, wasteful governmental errors, idle men, strikes and side issues are merely contributory, and this must certainly not be a secret knowledge for the few when we see today the greatest drive in our history to get the public to buy bonds and our financiers placing stocks and bonds to many instead of a few so that the inevitable shrinkage will not be the burden on the few who have already collected theirs in the watered industries.

How is it that investigations flivver and the pork barrel reigns supreme with some of the financiers investing in South American cattle and abattoirs or real estate in Germany, when a tithe of these sums would stimulate production. As a nation we loan billions to countries which cannot even pay the interest and our farmers and cattlemen cannot borrow long term seven per cent money to within 75 per cent of first class security.

We hear of widely advertised efforts to help the cattlemen in recent drouths, but that is mere bureau advertising. The protection for the small man on the national forest today is a farce with prevalent hidden systems of controls and dummy permits developed by outfits with large capital. Who saved from the sacrifice of a million Texas breeding stock a few years ago and where was any effort to save the million cattle endangered in the California drouth just passed. We see heralded in papers the wonderful work done to save a few hundred thousand cattle in Montana and Wyoming last November, and the bureaus were evi-

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I have used GOMBAULT'S CAUSTIC BALSAM for ten years: have been very successful in curing curb, ringbone, capped hock and knee, bad ankles, rheumatism, and almost every cause of lameness in horses. Have a stable of forty head, mostly track and speedway horses, and certainly can recommend it.—C. C. CRAMER, Training Stables. 990 Jennings Street, New York City.

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18 High Class Brood Sows in herd—young stock for sale.
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Holstein Bull Calves For Sale Very Reasonable
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THE VICTORY HERD——Holsteins and Duroc-Jerseys
Holsteins of known value, headed by Sir Piebe De Kol Segis Pontiac, a son of King Segis Pontiac Count, acknowledged one of the breed's greatest sires. A young bull from this herd is bound to prove a profitable investment.
HILLCREST FARM, H. E. Spires, Mgr., Caruthers, Cal.
Duroc-Jersey Swine of Highest Quality

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dently so deafened by self praise and blinded by flattery that they didn't know the California sheep men dropped about $20,000,000 of prospective lamb profits, or that 1,600,000 cattle of California were until February 18, 1920 in dire danger of losing a third or more. When in one state of this Union in which half of the cattle and sheep of the state are grazed upon lands controlled by forest and reservation permits the ranges are so administered that one man can control half of the sheep and a tenth of the cattle and contemplate the purchase of a million acres of land as an incident, it is about time for the people to consider the future generation.

The farmers have raised their voice and they expect to get a square deal and the cattlemen and farmers work together, and ambitious politicians will do well to heed the growing murmur. Farmers are conservative, respectors of laws, believe in property rights and a square deal, and it appears from general farm paper comment they intend to get it.

Why doesn't our reserve system recognize long term cattle loans at low interest rates? Why do we in administering our national forest reserves, in which the sale of grazing brings more money than the sale of timber, not allow the new permittee enough stock to make a living instead of forcing him to succumb to the large permit neighbor who is smooth and rich enough to work things out? Why isn't the man allowed to take up and fence enough semi-arid grazing land to support enough cattle to permit his existence? Why are a few thousand Indians held within a great reservation like the Apache, for instance, when these millions of acres of rich land could be tilled and stocked by ten times as many white people and the Indians be supported on the reservation, civilized and educated by example also.

Our country is rich, and its resources as yet merely prospected. When knowing the West as I do, I read about the small amount of coal to each person in the United States, etc., it is laughable. There are hundreds of thousands of acres of undeveloped coal fields in one state of the West, there are unlimited possibilities for water power developments, and the total available horse power as indicated by the same expert is a joke. He hasn't traveled in the West. There are today masses of iron ore which could keep the entire steel trust going for several generations in one little country a hundred miles square. There are valleys which can be irrigated and mesas which can be watered with the cheap power used to raise the water near by, and this country can and will support in the course of time a billion people as easily as it supports a hundred and ten million today. California, the land of intensive cultivation and developed farming, is merely scratched as yet. It has desert stretches which would bloom with water and it has water from a hundred sources, if it is conserved and developed. The Roosevelt Dam in Arizona is a mere pigmy to some dams which could be built in Arizona and there are vast undeveloped desert regions capable of producing oranges, raisins and walnuts as well as cotton and alfalfa.

If a people figure capital is evil and discourage investment and safety for money put in new enterprise, and prevent a profit upon actual developments, things will go on as usual. Now that our farmers are getting busy and showing their political teeth, let us get a lot of these natural resources right at our doors in the West opened up even if we have to do it with the government backing and finance. Let us get loans for cattlemen and for farmers for period terms, and either finance and make our bureaus practical or get some better men in if that is the trouble.

All this labor agitation and political muddle is pretty small in its final analysis as compared to the production of food and development of natural resources. All any good union man can want is a fair wage, a living and education for his family, some lesiure for self improvement, and a chance to save money. All that any good capitalist can ask is a reasonable profit on the actual investment of the hundred cent dollar, but both must eat and both must be clothed, and as union labor is mostly in the manufacture or transportation of products it is essentially dependent upon the farmer and livestock growers prosperity, and that at present needs protection.

COUNTY DAIRY COW CONTEST

Adviser Hodgson of Los Angeles County announces arrangements nearly completed for an annual county dairy cow competition involving nearly $5,000 in prizes. The prizes will be given for grades and pure breds, with a large number of classes in the competition. The test will not begin until probably July 1, and it will have the assistance of Dean Van Norman of the State University and Sam L. Greene of the dairy council and of others deeply interested in dairying in California.

AUCTION SALE

of Registered and Grade HOLSTEINS

Commencing at 11 o'clock A.M.

Wednesday, April 7th

at what is known as the A. J. Van Cleef Ranch, two miles west of Riverdale, Fresno, County

Rosamaines Starlight, born June 22, 1917, a daughter of Prince Aralia Walker and from a 17 lb. 11 year old granddaughter of Ignaro De Kol; milking with first calf.

Apple Blossom Fatima De Kol, milking with second calf. From the Mitcheli herd of Visalia.

Jessie June Malda, milking with second calf. Another good heifer from the Mitcheli Ranch.

King Pontiac Segis Dutch, born August 21, 1918; sire, Segis Pontiac De Kol Dutch; dam, Una Estrella De Kol 2d, with 20.99 lbs. butter as a four year old.

The above cows are bred to this good young sire.

3 High-Grade Holstein Heifers, milking with first calf. Bred to King Pontiac Segis Dutch.

10 Heifers from 1 to 2 years old, some to freshen soon. Sired by Dichter Spofford Korndyke Lad 3d and bred to King Pontiac Segis Dutch.

1 purebred Poland China Sow, big type; 1 purebred 7 months' old Gilt, litter mate to my $170 and $110 gilts, sold at Fresno; 4 big type Gilts 3½ months old; 2 boar pigs 3½ months old.

5 dozen purebred Barred Rock Hens.

Terms Cash. Free Lunch. Everybody welcome.

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Auctioneer: H. M. Bernstein

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Southern California Holstein Breeders' 1920 Spring Sale

120 Registered Cows, Heifers and Bulls

Rhoades & Rhoades Sale Pavilion
Clearwater, California

Tuesday and Wednesday, April 27-28, 1920

This offering features one of the best collections of the breed yet offered in Southern California. An extraordinary lot of heavy producing cows, fresh or heavy with calf to some of the state's foremost bulls, will be an attraction of more than ordinary interest.

KING PAUL KORNDYKE VALE, one of the most richly bred bulls in the west, will be sold, as he heads the herd of W. D. Millard, Arcadia, which will be dispersed in this sale. The sire of this remarkable young sire is King Korndyke Sadie Vale, the only 40 lb. bull to produce a 40 lb. daughter, and the dam is a 31 lb. daughter of Sir Sadie Cornucopia.

SOME EXTRAORDINARY COWS with good short time records and excellent 305 day records will be sold by Burr Farm, Los Angeles, most of them bred to the sensational young sire Sir Veeman Korndyke Pontiac, whose first daughters to freshen have made up to over 24 lbs. butter in 7 days as 2 year olds.

ROSAMAINES RANCHO, Riverside, will sell granddaughters of Prince Geische Walker and Tilly Alcartra, bred to King Pontiac Netherland Segis 3d, whose first daughters to freshen have made records that place him among the leading younger sires of the breed.

P. H. KRICK, Anaheim, will make an offering that is made up largely of granddaughters of the great King of the Pontiacs, most of them bred to King Winnie, son of the first cow to make over 1200 lbs. butter in one year in California.

CHAS. S. HARRINGTON, Compton, sells a number of granddaughters of the famous producing and breeding cow Pontiac Clothilde De Kol 2nd, the first cow to make over 1200 lbs. butter in one year or over 37 lbs. in 7 days. These are out of highly bred dams with records up to over 30 lbs. butter in 7 days.

BOST & JOHNSTONE, Corona, sell a granddaughter of King Segis and a granddaughter of King Korndyke Sadie Vale, two heifers of exceedingly rich breeding.

AGEE BROS., Rivera, sell some well bred females bred to TOYON FAYNE VALDESSA, who is a son of King Valdessa, and out of a 30 lb. daughter of King Hengerveld Aaggie Fayne.

W. T. McALISTER, Los Angeles, has a choice offering composed almost entirely of granddaughters of such famous animals as King of the Pontiacs, King Segis Pontiac, and Tilly Alcartra.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; NO ANIMAL TUBERCULIN TESTED

Catalog free on request to management

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, California.

Auctioneers: Col. Ben A. Rhoades, Harold B. Rhoades, Los Angeles.

A Sensational Holstein Offering

The dispersal of the W. J. Higdon herd of registered Holsteins, excepting the daughters of King Korndyke Pontiac 20th, ranks as the outstanding event of the year in Holstein sales.

This herd is one of the greatest collections of the breed ever on one farm in the west, a herd that was selected at the beginning with rare judgment, has been developed along the most constructive lines, and is today composed of outstanding young cattle that are only just at the start of their usefulness as producers and breeders. The sale will be held at

Tulare Sale Pavilion, Tulare, California

Wednesday, May 5, 1920

Six 30 to 36 Pound Cows Go Under The Hammer!

The list of high record cows includes HOLLYWOOD LILITH PONTIAC, 36.20 lbs. butter in 7 days as a senior 3 year old, the California record, also the two cows that were originally selected from Mr. Higdon's herd to go to the St. Paul Sale. The offering also contains

A COW WITH OVER 1000 LBS. BUTTER IN ONE YEAR!
A 2 YEAR OLD WITH OVER 800 LBS. BUTTER IN ONE YEAR!
A 3 YEAR OLD WITH OVER 800 LBS. BUTTER IN ONE YEAR!
DAUGHTERS OF MANY OF THE GREAT COWS THAT HAVE BEEN DEVELOPED IN THE HERD!
A WONDERFUL LOT OF DAUGHTERS OF PRINCE RIVERSIDE WALKER, THE FIRST TO FRESHEN WITH RECORDS UP TO OVER 22 LBS. BUTTER IN 7 DAYS AS 2 YEAR OLDS!

The female offering has never been exceeded in quality in any public sale offering in the west, even the picked sales, and it will be a very rare opportunity to buy high record, clean young cattle of very high type.

Who Will Own King Korndyke Pontiac 20th?

KING KORNDYKE PONTIAC 20TH will pass into new ownership in this sale, and the man who is fortunate enough to buy him will have at the head of his herd one of the greatest of the present day Holstein sires. He has everything required in a real herd bull, and his two first daughters to freshen prove his transmitting ability.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

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Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

April 20, Bonita Stock Farm, Lodi.

April 27-28, Southern California Consignment, Clearwater.

May 5, W. J. Higdon, Tulare.

May 6, R. C. Sturgeon and others, Tulare.

May 12, Leeman & Kilgore, Dispersal, Ripon.

Shorthorns

June 17, C. W. Anderson, Burkbank. Dispersal.

Poland Chinas

April 3, Kings County Pig Club sale, Hanford.

April 24, W. T. Dice and Harrold Waltz, Hanford.

Peter Hopley, Atlantic, Iowa, one of the leading Shorthorn breeders of the Middle West, has been spending the winter in California. Mr. Hopley recently visited the herds in the Sacramento Valley.

Glenn County has taken the lead in the organization of the county unit breed association by the recent election of officers of the Glenn County Berkshire Breeders Association.

Vernon Dubel, Kaweah, Tulare County, who is establishing a herd of Poland Chinas, writes that he will name his herd the Gigantea Herd, and that he has secured the boar, Big Orange, a son of Liberty Bond, and adds that at 11 months he stood 32½ inches high and measured 62 inches in length. A half interest in the boar has been sold to W. E. Martin of Visalia.

Castleview Ranch, Santa Rosa, has recently shipped a fall gilt by Achiever to F. L. Hall of Perris.

The Western Berkshire Congress has arranged to hold its first community consignment sale in Marysville, Saturday, April 24. This will be the first of a series of such public sales to be handled by their newly appointed field manager, B. S. Bennett.

John C. Burns, formerly at the head of the animal husbandry department of the University of Texas, and who judged the beef classes at the 1919 California state fair, has been appointed field representative for the American Shorthorn Breeders Association for the state of Texas. California breeders are planning to engage the services of a field man to assist in the promotion of their breed.

The Italian Vineyard Company, Guasti, has just received from Castleview Ranch that grand Berkshire sow, Miss Villa's Laurel, full sister to Real Type, the great Barker boar. This sow has been a great prize winner in the past and is now bred to Achiever for a spring litter.

M. Bassett, Poland China breeder of Hanford, recently purchased from M. A. Dowling, Valley Junction, Iowa, a bred gilt sired by Fair Acres Joe and bred to The Rainbow.

The prospects for a big show of Berkshires at the coming state fair are very bright. A great spirit of friendly rivalry seems to be developing among the Berkshire breeders and many herds, not previously represented, will be there, prepared to win the purples and blues.

Clarence V. Castle, who has been an instructor in the animal husbandry division of the college of agriculture, University of California, has resigned to enter government work.

Breeders will be interested to learn that the Sonoma County fair will be held in Santa Rosa August 25 to 29. Full classes for all breeds will be arranged, with liberal premiums. This fair will be held just previous to the state fair.

Anderson and Fogarty have purchased from George E. Dierssen, Sacramento, a young Holstein bull sired by Sir Aaggie De Kol Acme and out of Miss Blaney Walker. The dam of Miss Blaney Walker was Miss Blaney, a Morris cow with a record of 1,008 pounds butter in 365 days.

The high school of Marysville has adopted the Berkshire for their pig club organization. Owing to the scarcity of Berkshires much difficulty was found in obtaining the required number. Castleview Ranch of Santa Rosa contributed several good ones.

E. Every Newton is the owner of the 50 acre Arenal Ranch at Lankershim in the San Fernando Valley where alfalfa is supreme. The Arenal Ranch is noted for its excellent equipment for breeding purposes, the housing and pasturing facilities being ideal and complete, with water piped to every compartment. The three most popular breeds are represented, with select blood lines. There are Poland Chinas, Durocs and Hampshires—120 March pigs in the pens. A special attraction in the Duroc section may be seen in the 12 months boar Arenal Critic by Crimson Colonel, dam Arenal Rose by Superior Critic 2d, dam Miss Liberty, a granddaughter of the great Enchantress, first prize aged sow at Sacramento, 1918. This big fellow is a typical Duroc of the most popular pattern. Fred Calloway, formerly herdsman for a term of years at the Donald H. Graham ranch, is in charge.

Fred Gatewood, Poland China breeder of Fresno, is now in the East attending a school for auctioneers. After completing the course it is Mr. Gatewood's intention to return to California and engage in business.

An Unusual Holstein Offering

In the usual public sale of registered Holsteins the buyer of young heifers and heifer calves has a small range of selection, but here is a sale made up entirely of heifers and heifer calves, and a lot of choice young bulls.

This is a COMPLETE DISPERSAL of the young registered Holsteins at

Bonita Stock Farm, Lodi, Cal.

Tuesday, April, 20, 1920

This herd of young things is one of the typiest offerings yet made in the state. They are well grown, well marked, in splendid condition, and of most substantial breeding.

63 Heifers and Heifer Calves

There are a few bred heifers in the offering, and the rest range from yearlings down to young calves. A large number are sired by SUPREME GLISTA PIETJE, whose dam twice made over 32 pounds butter in 7 days and made 631.35 lbs. in one year, and his sire's dam made 827.31 lbs. butter from 18623.7 lbs. milk in one year. The dams of these heifers are splendid young cows, a large number with official records up to over 26 lbs. butter in 7 days, and most of them have cow test association yearly records that will be valuable in guilding the selection by buyers.

27 Excellent Young Bulls

Every bull in the herd will be offered in this sale. Quite a number are now ready for service, and most of them are sired by SUPREME GLISTA PIETJE, mentioned above, and out of some of the best cows in the herd. This is one of the real opportunities of the season for dairymen to secure good young bulls.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; NO ANIMAL TUBERCULIN TESTED.

Catalog free on request to management.

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, California.

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. John A. Davis, Manteca.

Tulare's Best Consignment Sale

65--Registered Holsteins--65

Unquestionably the best offering of registered Holsteins ever made at Tulare in a consignment sale will go under the hammer at

Tulare Sale Pavilion, Tulare, Cal.

Thursday, May 6, 1920

R. C. STURGEON, Tulare, sells his entire milking herd and some choice heifers, many with high records, and all of breeding age in calf to SEGIS PONTIAC ABBEKERK, 35 lb. son of Segis Pontiac De Kol Burke.

R. F. GUERIN, Visalia, will offer one of the very best consignments he ever made to any sale, including a great 28 lb. cow, a 25 lb. cow that has a 24 lb. 2 year old daughter, three granddaughters of King Korndyke Sadie Vale, and others of excellent breeding, all bred to King Sadie Vale Idyl Segis, whose dam is a 35 lb. daughter of King of the Pontiacs.

ALEX WHALEY, Tulare, sells two beautiful heifers, one of them a daughter of the three times grand champion bull King Segis Alcartra Prilly, both of them bred to Sir Aaggie De Kol Acme 2nd, five of whose seven nearest dams average 1154 lbs. butter in one year.

THE VICTORY HERD, H. E. Spires, Caruthers, will offer four excellent females bred to SIR PIEBE DE KOL SEGIS PONTIAC, son of the famous King Segis Pontiac Count, and whose first daughter to freshen as a 3 year old has made the Kansas record for any age of over 33 lbs. butter from 699 lbs. milk in 7 days.

LES McCRACKEN, Ripon, sells ten open heifers, most of them ready to breed, all of them of excellent breeding, including several granddaughters of Colantha Johanna Lad.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

CATALOG FREE ON REQUEST

Management

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, California.

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare.

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PRODUCTION

Toyon Farm Association

Mills Bldg. San Francisco

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They have established a

FEDERAL Accredited Herd

on their Farm at Brentwood and have placed their Los Altos herd under Federal supervision as the first step toward accreditization.

¶ ¶ ¶ ¶

These herds are the first of any breed in California to make this important milestone in dairy history of the state.

¶ ¶ ¶ ¶

Every animal has been subjected to a searching physical examination and tuberculin test by veterinarians of the

United States Bureau of Animal Industry and The State of California

¶ ¶ ¶ ¶

A Federal certificate of tuberculin test goes with every animal we sell.

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FAMILY A Square Deal in Holsteins QUALITY
PRODUCTION

"FEEDFINE" FEEDS

are scientifically compounded in proper proportions for dairy and all livestock feeding, of the following ingredients with the most economical results always in view.

YEAST — A concentrate high in PROTEIN and FAT content, sterilized and predigested.

CANE MOLASSES — The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.

ALFALFA MEAL — Gives body to the ration and supplies the mineral matter which is absolutely essential to all animals.

The greatest known combination for health, strength and productiveness.

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Sows and Gilts---GET ONE

Bred to farrow next two months. We are making an extremely low price on these to reduce our herd. At the price we won't keep them long. Write today. Quick. before they are all gone.

H. P. Slocum, Willows, Cal.

A-1 Duroc Ranch

Where one of the state's greatest herds of Duroc-Jerseys is maintained. For years our Durocs have proven profitable to farmer and breeder alike. Better place your order now for spring pigs as what we will be able to spare will go quickly. Remember, this is the home of the state's highest priced ($1500) and most valuable Duroc-Jersey sow.

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The Greatest Duroc Boar of His Age!
Choice Wonder 3d

a winner at the 1919 Iowa State fair. sired by the great boar, Mahaska Wonder, and a litter mate to the first prize junior boar of Iowa, heads our herd. He is the largest, heaviest boned. best footed boar in the state and he is being mated to the sows that have made this herd famous for futurity winners. Get your order in early for his pigs. Prices are most moderate. Satisfaction guaranteed.

JUNE ACRES STOCK FARM — V. F. Dolcini, Davis, Cal.

SPRING PIGS---DUROC-JERSEYS

sired by ORION'S KING GANO. a boar famous not only for his own great individuality, but for the smoothness and quality of his get. If you want some of these quick maturing, prolific Durocs, write me at once.

Donald H. Graham — Lancaster, Cal.

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Have all Breeds of Registered

Draft Stallions and Mammoth Jacks

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Registered and Unregistered.

All Animals Sold Under Guarantee.

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Gives Greatest Value for Least Money
It Makes Them Fat

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California Cultivator
Costs $1 per Year

CARE OF NEW BORN CALF'S NAVEL

Each year many calves die as a result of navel infection. This trouble, like many others, is more easily prevented than cured and for that reason the following suggestions by Dr. G. H. Conn of the Iowa state agricultural college which appeared in a recent issue of The Shorthorn World should be carefully heeded.

"The navel cord, as it is usually called, is the normal means of maintaining relation between the mother and her unborn young. It is composed of arteries and veins with a small hollow canal known as the urachus. These are all enclosed in a larger membranous tube and surrounded and held in their proper relation by a loose connective tissue. The arteries and veins carry the blood to and from the unborn calf, and it is in this way that it is nourished before birth. The urachus leads from the bladder and is for the purpose of carrying the urine and other waste products from the body of the unborn calf. It can be readily understood that the navel cord would be of no use after the calf was born.

"When the calf is born this cord must be divided and the relation between the mother and calf discontinued. This is usually ruptured when the calf is born (but as the cord is very long in the calf this does not always happen). When it separates at birth it usually separates about one and one-half inches from the abdomen, where there occurs normally a soft ring in the cord. If the cow is lying down the cord usually ruptures when the cow gets upon her feet, but if the afterbirth is passed it may not rupture until the calf struggles to get upon its feet. In occasional cases it may rupture five or six inches from the abdomen, which is not at all abnormal.

"When the navel cord ruptures normally a few drops of blood may ooze from the arteries, but they soon contract well within the abdominal cavity away from any dangers of infection. The vein usually remains in the position it occupies when it ruptures, and the few drops of blood that it contains flow away soon after the cord separates. The urachus contracts very forcibly and finally comes to rest within two or three inches of the bladder. Under normal conditions the jelly like substance in the end of the separated cord, that is know as the 'Whartonian jelly,' works out of the end of the stump and the cord dries up quite rapidly. Under normal conditions this healing takes place very rapidly and without any infection gaining access. If this mass of tissues dries up, it seals the opening here against any infection and that is just the thing we are looking forward to.

"It is a common practice to tie or ligate the navel cord in the new born calf. All practical experience tends to show that this is a very detrimental procedure and one that is attended with much risk. By ligating the stump the arteries and urachus are prevented from contracting to within the abdominal cavity, the Whartonian jelly is prevented from escaping. Instead of promoting drying of the cord, this hinders it and tends to keep the stump of the cord moist for a greater length of time. It increases the danger from disease germs, as it provides a better medium for their growth. As a result of this the urachus frequently reopens and drivels urine for several days. (Proof that this is not a good practice can be seen in the much greater number of cases of navel-ill and fatal infection we have in the young foal compared to the calf, where tying the navel is not so commonly resorted to.) When it is practiced the Whartonian jelly should be squeezed or milked out and the stump should be tied with a piece of sterile cord. The stump should be frequently and thoroughly disinfected with a reliable disinfectant, such as Tr. of iodine, creoline, etc., several times each day.

"If the navel cord ruptures too long in the calf it should be divided by the attendant at the soft ring which is found from one and one-half to two inches from the abdomen. This can often be done by catching it between the thumb and first finger of either hand, on both sides of this ring, and pulling it apart. When this cannot be done it should be scraped in two with the thumb nail or a knife; when handling the navel cord the hands and every instrument used should be thoroughly cleaned and disinfected.

Watch the Udder

Keep the "business end" of the cow on the job of milk-giving. Injuries to teats or abnormal udder conditions reduce production, make the cow restless, and render milking difficult.

Bag Balm is a wonderful penetrating, healing ointment designed especially to restore the normal healthy texture to congested, caked or inflamed udders and to heal any external cut, chap, bruise, chafing or extreme soreness. A sure remedy for Caked Bag, Cow Pox and Bunches.

Keep the udder soft, silky and healthy and teats smooth and clear. The production will be increased and milking will be a pleasure.

Buy your package of Bag Balm from your feed dealer, druggist or general store—sold in liberal 60c packages. Send for free booklet, "Dairy Wrinkles."

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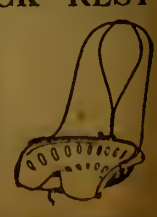

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PIPE—Practically all sizes from ½ to 15 inches.
CASING—Practically all sizes from 3 to 14 inches.
All pipe and casings have good threads and couplings on each joint.
RIVETED PIPE — 4 to 12 inches, as good as new.
We also carry valves and fittings.
MAIL ORDERS GIVEN PROMPT ATTENTION
Write, phone or wire for quotations.

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Better service is assured by the advertiser if when writing you mention the California Cultivator.

"The proper method of handling the navel cord in the new born is to assist in its rapid drying. This lessens the chance of infection, as disease germs grow best in a moist, warm place. In the first place, the Whartonian jelly should be squeezed or milked out and then some good antiseptic drying powder should be dusted on the stump of the cord. Equal parts of pulverized alum and boracic acid or tannic acid and zinc oxide make a good powder for this purpose. Another good preparation is one ounce of formaldehyde (formalin) to three ounces of water. This will dry the cord up very rapidly. Should be painted on the cord every 15 to 30 minutes with a small brush or the cord may be immersed in it. It may produce some irritation if it gets on the skin. In using the powder it should be applied every one or two hours until drying has taken place. Tr. of iodine may be used upon the stump, but formaliln will induce drying quicker than any other substance that we know of and is very efficient. No danger in using it and ordinary care will yield good results.

"Prevent the greater part of your losses with your young calves by omitting the ligation of the navel cord, and simply assist nature in securing a dried up stump, which automatically eliminates the dangers from infection. The ligation of the navel is simply a custom handed down from earlier times and should he forgotten for the best interests of the cattle industry."

RANGE CALVES FED SILAGE

The Prescott dry farm, one of the experimental farms of the agricultural experiment station of the University of Arizona, has made a study of the production of silage crops and the making and feeding of silage. Papago sweet corn, club top cane and hegari appear to be the best crops for silage in the Prescott district.

County Agent Fillerup of Snowflake recently stopped off at the station and at the L. L. Bates Livestock Company at Prescott, where successful silage feeding to range stock has been carried on for the past several years. Mr. Fillerup reports as follows:

"The L. L. Bates Company is weaning its range calves in the fall and feeding them through the winter on silage without other roughage and without grain. Calves four and five months old soon learn to eat silage with a relish and come out in the spring in better condition than if left on the range with the cows. They also grow faster than those allowed to run at large. Since the cows are not required to carry the calves through the winter, they also do much better and come out in the spring in good, thriving condition. As a rule the calves are fed at the rate of about 12 pounds of silage per head and this is increased somewhat as the animals grow.

"In addition to wintering the calves on silage, the company is feeding out a number of beef cattle. These are fed all the silage and alfalfa hay they can eat. The gains are entirely satisfactory. Feeder hogs in the feed lots make remarkable gains, though they are not fed other than in connection with the cattle."

COMPARE WITH FEED COSTS

A dispatch from Chicago gives livestock prices and refers to prices in former years, as follows: Choice 300-pound hogs went at $14.25. Three years ago the best hogs went at $14.85, four years ago at $9.90, and five years ago at $6.90."

It is interesting—or perhaps uninteresting—to the hog raiser to make comparisons of these prices with those of feeds at the same time.

Prof. C. L. Roadhouse of the University recently addressed the farm center at Merced and recommended a greater number of dairy cows for that section before an effort should be made to start a creamery.

The California farm bureau federation has committee working on plans for marketing spring clip of wool.

Cloverdale farm center is discussing county fair, also matters concerning the livestock industry.

The Modesto cow testing association reports 56 cows securing place on the roll of honor in March.

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will keep your pigs in condition by acting on the liver, kidneys and blood. Will keep the stomach sweet, expel worms, aid digestion and prevent white scours and thumps.
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Registered Hampshires

If you are looking for a young boar or some well bred gilts, we have some that should just suit you from the best blood lines in the country now for sale at moderate prices. If possible come and see them for yourself and inspect our thoroughbred stock of Percheron Horses, Aberdeen-Angus Cattle, and Collie Dogs.

S. C. Buff Orpingtons

Start your season right with reliable birds, we have some choice cocks and cockerels for sale at reasonable prices.

Eggs for hatching in limited numbers from our Pacific Coast prize winners. Bred to win and lay, $10 for 15 eggs guaranteed to give satisfaction.

Bred Sows and Gilts

These sows and gilts will give you pigs that will be ready for the high market this fall. They are registered Poland Chinas and bred to our great herd sires. They are priced so you can make money—get into the business NOW. We will be pleased to write you full particulars. Address

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Size and quality predominate in our big type Poland Chinas. No better big type sows are found in the state. Buy Berma Poland Chinas and you buy wisely.

C. E. DACK R. H. Box 196 Fresno, Cal.

TWO PREMIER SIRES

are found at the head of our herd. Caesar's Buster and Rosebud's Jumbo are siring the type of Poland Chinas you want. Get them early.

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Home of King's Big Ben, where he is siring those early developing big type Poland Chinas that are ready for the market at 6 mo. They have size, bone, quality and are from the easy feeding families.

W. Bernstein Hanford, Cal.

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Superior equipment. Best management. 120 March pigs. Some crack September boars and gilts. Durocs and Hampshires, likewise fine weanlings. See them at ranch any day, 2 miles south and west of Lankershim, or address

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Livestock Auctioneers---Hammond, Bradley and Johnson

Our big 2 days sale at the Fuller Bros.' Ranch (cattle, mules and implements), Imperial Valley, March 5-6, was the biggest and most successful sale of its kind ever pulled off on the Pacific Coast.

At the R. L. Vorhies sale of 82 dairy cows at Artesia, March 17, we broke the Pacific Coast record on prices for grade cows—$530 being the top price for the day. Write or wire for dates, terms, etc.

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Another Brilliant Record Made at Annual Guaranty Sale

Another fine page of Holstein history was written when 71 head of bulls and females were sent through the third annual Guaranty Sale at the state fair grounds, Sacramento, Thursday, March 25, for a general average of $901. While the average established was somewhat below the average of last year's sale, this year's was remarkable in many ways and must be rated as one of the most successful sales ever held in the West.

Among Those Present

Left to right, A. J. Stalder, Riverside; E. Burr, Los Angeles; Ben A. Rhoades, Los Angeles; Jas. J. Jefferies, Burbank; Robert N. Clapp, Nuevo; G. M. Brown, Los Angeles; David Maxwell, Waterloo, Iowa; Mr. Dundas, Riverside.

Indeed, it was stated that no sale ever made such an average that did not have at least a $5,000 top. The extreme high quality of the offering is indicated by the uniform range of prices. Only two animals crossed the $2,000 mark. One of the most satisfactory features of the sale, from the standpoint of breed promotion, was the fact that very few of the established breeders were buyers—nearly all of the offering was absorbed by new men or by men who have not been long in the pure bred business. Such a situation indicates the splendid development that the Holstein breed is enjoying in this state.

It was generally conceded that the class of the offering, especially the female division, was quite the best ever assembled in the West, and the fact that such fine foundation material was made available to new men presages much for the future and is sufficient justification for the efforts made by the breeders to hold at least one such sale a year. No buyer can feel that he has made an investment that will make it difficult for him to realize a handsome profit if he gives proper care to his purchases.

Speaking generally it can be said that the better things in the sale were the cheapest.

Sixty-four females, ranging in age from very young heifers to mature cows, averaged $884, and seven bulls, all youngsters, averaged $1,060.

The top of the sale was registered by the Higdon 33 pound cow Ida Lotta Winifred Burke, a daughter of Winifred Hotaling, one of the 12 cows in the breed that have produced three 30 pound daughters. She was taken by R. L. Holmes of Modesto for $2,300 and was a real value. Holmes also secured Eldorado Winifred with a 30 pound four year old record and from a half sister to the dam of the top cow for $1,850. Holmes displayed fine judgment in his two selections.

W. J. Higdon of Tulare had the top consignment, averaging $1,610 on five cows, all of which had records of 30 pounds or better. Trout Brook Pontiac Starin, a 35 pound granddaughter of King of the Pontiacs, went to H. G. Ball of Tulare for $1,800; Sir Skylark Ormsby Hengerveld Pet 2d, with 32.01 pounds butter to her credit, sold to the Napa State Hospital for $1,500; Madrigal Mooike 2d, a 32 pound senior three year old, was a splendid buy at $1,400. Anderson and Fogarty, young breeders near Sacramento, made a capital selection when they got Leda Hengerveld De Kol Korndyke, heavy in calf to King Korndyke Pontiac 20th, at $1,050.

A $1,300 Heifer

S. V. K. P. Clarie of Sunnyside, bred and sold by R. F. Guerin, Visalia to T. A. Sparks, Winters. One of the highest priced Holstein heifers ever sold in the West.

James J. Jefferies of Burbank made his debut as a seller with an attractive consignment topped out with a 30 pound senior three year old that was purchased by David Maxwell of Waterloo, Iowa, for $1,000.

R. F. Guerin of Visalia sold a particularly desirable lot of young things headed by the 24.64 pound two year old daughter of Sir Veeman Korndyke Pontiac, S. V. K. P. Clarie of Sunnyside, that was taken by T. A. Sparks of Winters at $1,300.

Bridgford Holstein Company, Patterson, made a strong try for the bull top and landed dangerously near that position when H. E. Spires of Caruthers paid $1,900 for the year old son of King Segis Alcartra Prilly, and from a 36 pound dam.

Much interest was accorded the consignment from Carnation Stock Farms, Seattle, and in view of the famous bulls to which the females were bred their selling prices looked like real bargains. Laconner Pontiac Bessie, bred to Matador Segis Walker, topped the Northern consignment at $1,650, going to R. Stevens of Stockton. Cantate Dominion Sir Skylark 3d, carrying the service of Carnation King Sylvia, was taken by H. H. Sisson of Willits at $1,600.

One of the most uniform and desirable groups in the sale was contributed by A. J. and F. W. Stalder of Riverside and buyers were eager for the daughters of King Pontiac Netherland Segis 3d, the bull that is making such a fine record in the Stalder herd.

The Milky Way Farm, owned by A. E. Smith, Sumas, Washington, had the top bull, Ensign Korndyke Model Pontiac, a year old son of Chimacum Spring Farm Pontiac. He was taken by H. H. Sisson at $2,050 and it is expected that he will be heard from in the future.

One of the best bull buys was made by F. L. Pellissier of Whittier who secured the richly bred calf, Tosantos Walker Pontiac, consigned by E. D. Barry, Jr., of Daggett. At $750 the buyer, who is establishing a fine herd, can count himself very lucky.

Toyon Farm Association, Los Altos, contributed one of the choice consignments. It was from that herd came the valuable young bull, Sir Toyon Model Hartog, purchased by W. J. and B. A. Edwards of Ripon for $1,100.

Fred W. Kiesel of Sacramento sent forward a real star in Uneeda Mutual Korndyke Segis 3d, and Burr Farm, Los Angeles, the heaviest buyers at the sale, secured her at the conservative price of $1,200.

Longheath Farm, Fallon, Nevada, the leading Holstein establishment of that state, sold a son of their herd bull, King Ormsby Canary Johanna, that should prove a fine investment to his buyer.

The J. S. Gibson Company of Williams had a number of choice entries

The Cheapest Feed to buy is the Best

Great Western Milling Co.-
Gentelmen:
Comparing the price of all available food stuffs and their producing values, We are satisfied that your "Besgrade Dairy Feed" in combination with alfalfa hay and corn silage is giving the best possible results at the lowest cost. Thanking you for the help of your specialty man in keeping us posted on the prices
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East End ave, Pomona Calif.
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Feeding cheap feeds is not economy.

No other factor will decrease your milk yield as quick. Poor cows and poor feed absolutely spell failure.

Stop feeding poor cows and stop feeding cheap feeds.

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is absolutely guaranteed to increase your present milk yield—because it is a feed that is balanced against the roughage you feed. It contains all the food elements necessary for heavy milk production.

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Do you want to increase the milk yield of your herd? Write and ask us about guaranteed results.

Great Western Milling Co.
Los Angeles

and

Northwestern Milling Co., San Francisco

that sold below their real values, particularly the 18 pound two year old daughter of Segis Creamcup Pontiac, that went to Burr Farm for $725.

Santa Anita Rancho sold an excellent value to E. D. Barry in a two year old daughter of Prince Gelsche Walker.

One of the valuable things that changed hands was the great white cow, Ontario Blonde Pietje, with 33 pounds butter to her credit. She was consigned by Dr. E. J. Weldon and was purchased by Dr. F. J. O'Donnell of Tulare for $1,525.

Leeman and Kilgore of Ripon sold the first daughter of King Korndyke Pontiac 20th ever offered at public sale and she was bought by Higdon at $750.

R. L. Holmes of Modesto and R. C. Sturgeon of Tulare each sold one head.

Burr Farm, Los Angeles, were the heaviest buyers, securing 20 head. Manager Brown made his selections with rare judgment and was a persistent bidder on the best entries. C. T. Sierra, Jr., of Santa Rosa was also a heavy buyer.

Aside from the California buyers, Nevada, Oregon and Iowa were represented at the sale.

As usual the sale was managed by C. L. Hughes of the California Breeders' Sales and Pedigree Company, Sacramento, and much of the success of the event was due to the untiring efforts of Mr. Hughes. Ben A. Rhoades of Los Angeles demonstrated his ability and staying qualities when he stuck to the block for over eight hours' selling, the sale lasting until ten o'clock. Col. George Bell of Tulare worked the ringside.

Consigned by W. J. Higdon, Tulare

FEMALES

1, Trout Brook Pontiac Starin, Sept., 1913, 35.47 lbs.; H. G. Ball, Tulare, $1,800.
3, Ida Lotta Winifred Burke, Dec., 1915, 33.04 lbs.; R. L. Holmes, Modesto, $2,300.
4, Sir Skylark Ormsby Hengerveld Pet 2d, Oct., 1913, 32.01 lbs.; Napa State Hospital, Napa, $1,500.
5, Leda Hengerveld De Kol Korndyke, April, 1912, 30.80 lbs.; Anderson and Fogarty, Sacramento, $1,050.
6, Madrigal Mooike 2d, Aug., 1915, 32.91 lbs.; Dr. J. F. O'Donnell, Tulare, $1,400.

BULLS

7, Unnamed, May, 1919; Brooks and Pickham, Reno, Nevada, $675.

Consigned by Alex. Whaley, Tulare

FEMALES

9, Eldorado Winifred, April, 1915, 30.22 lbs.; R. L. Holmes, $1,850.
11, Yama Princess Alcartra Lass, Jan., 1914, 27.02 lbs.; Burr Farm, Los Angeles, $700.

Consigned by James J. Jefferies, Burbank

FEMALES

12, Piebe Canary Belle De Kol, Nov., 1914, 30.64 lbs.; David Maxwell, Waterloo, Iowa, $1,000.
13, Miss Madrigal Segis, Feb., 1914, 29.05 lbs.; Robt. N. Clapp, Nuevo, $900.
14, Wayne Hengerveld Ornot, Jan., 1912, 27.64 lbs.; C. T. Sierra, Jr., Santa Rosa, $500.

Consigned by R. F. Guerin, Visalia

FEMALES

15, S. V. K. P. Clarie of Sunnyside, Feb., 1917, 24.64 lbs.; T. A. Sparks, Winters, $1,300.
16, S. V. K. P. Cantate of Sunnyside, March, 1918; Burr Farm, $550.
17, Anita of Sunnyside, Jan., 1919; Burr Farm, $375.
18, Glendora of Sunnyside, Feb., 1917, 23.10 lbs.; T. A. Sparks, $850.
19, Katie Hengerveld Butter Girl, Dec., 1916, 16.54 lbs.; T. A. Sparks, $750.

Consigned by R. C. Sturgeon, Tulare

FEMALES

20, Clothilde Beauty Pontiac Veeman, March, 1916, 20.84 lbs.; Burr Farm, $825.

Consigned by Bridgford Holstein Co., Patterson, Cal.

FEMALES

21, Miss Segis Pontiac Walker, July, 1918; A. J. Stalder, Riverside, $825.
22, Finderne Kodienna Korndyke, Feb., 1914, 28.57 lbs.; James McGillivray, Sacramento, $650.
23, Raphaella De Kol Pontiac, March, 1911, 33.82 lbs.; J. C. Ramsay, Escalon, $1,225.

BULLS

24, King Pontiac Alcartra Prilly, March, 1919; H. E. Spires, Caruthers, $1,900.

Consigned by Carnation Stock Farms, Seattle, Washington

FEMALES

25, Cantate Dominion Sir Skylark 3d, March, 1914, 27.30 lbs.; H. H. Sisson, Willits, $1,600.
26, Edna De Kol Sir Skylark 3d, April, 1914, 25.65 lbs.; C. T. Sierra, $600.
27, Lady Coloma Geische, Dec., 1915, 24.72 lbs.; E. D. Barry, Jr., Daggett, $1,250.
28, Laconner Pontiac Becky, Dec., 1915, 24.02 lbs.; A. H. Aldrich, Davis, $550.
29, Laconner Pontiac Bessie, May, 1917, 17.39 lbs.; R. Stevens, Stockton, $1,650.

BULL

30, Unnamed, Aug., 1919; Kaiser Bros., Modesto, $700.

Consigned by A. J. and F. W. Stalder, Riverside.

FEMALES

31, Aralia Walker, April, 1915, 25.99 lbs.; C. T. Sierra, Jr., $825.
32, Rosamaines Gerben Maid, Aug., 1917, 17.76 lbs.; Burr Farm, $700.
33, Novena Walker, Nov., 1916, 21.31 lbs.; Burr Farm, $600.
34, Rosamaines Pontiac Gold Drop, Dec., 1917; R. N. Clapp, Nuevo, $850.

The Top at Sacramento

Ensign Korndyke Model Pontiac sold by A. E. Smith, Sumas, Washington, to H. H. Sisson, Willits.

BULL

35, Rosamaines Pontiac Posch, Nov., 1918; A. H. Smith, El Monte, $575.

Consigned by Santa Anita Rancho, Santa Anita

FEMALES

37, Anoakia Hiske Walker, March, 1918, 12.32 lbs., J. S. Gibson Co., Williams, $700.
38, Anoakia Korndyke Gelsche, April, 1917, 17.18 lbs.; E. D. Barry, Jr., $950.
39, Mutual Christmas De Kol, Dec., 1914, 23.20 lbs.; E. D. Barry, Jr., $800.

BULL

40, Prince Walker Cornucopia 8th, April, 1919; J. A. Clark, Lodi, $375.

Consigned by R. L. Holmes, Modesto

FEMALES

41, Jane Creamelle Hengerveld, Dec., 1915, 26.62 lbs.; Burr Farm, $825.

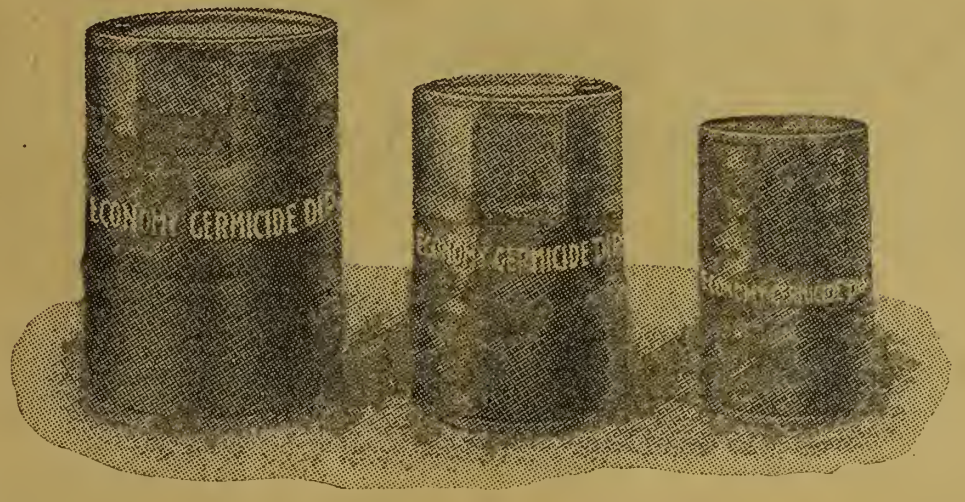
Consigned by Leeman and Kilgore, Ripon

FEMALES

42, Canary Pauline Sadie Vale, March, 1917, 21.14 lbs.; R. Stevens, $875.
44, Merci Pauline Burke Walker, April, 1919; Gotshall & Magruder, Ripon, $700.
45, Molly De Kol Pontiac Mead 2d, Dec., 1918; W. J. Higdon, Tulare, $750.
46, Clothilde De Kol Mead, May, 1919; Gotshall & Magruder, $750.

(Continued on Page 599).

Springtime Is Clean-up Time



With the coming of Spring millions and millions of disease germs that have lain dormant through the Winter take life and breed and multiply. Springtime is clean-up time.

It is the wise stockman today who, upon the first approach of Spring—gives his premises a thorough disinfecting — cleans out the chicken houses—disinfects the barns and lots—and cleanses the stock thoroughly.

This is the age of sanitation. Never have we seen such a demand for a good Dip—farmers and stockmen who a few years ago considered from one to five gallons enough for a season, now use from twenty to thirty gallons a year. Thousands of feeders with an average size herd use 50 gallons a year—and consider it one of the best investments on the farm. During the month of January our Dip business showed an increase of over 100 per cent as compared with January, 1919. There must be a reason—Economy Germicide Dip must give satisfaction. It does.

Economy Germicide Dip comes in five gallon cans—also 15—30—and 50 gallon steel drums. The drums are handy, fitted with lock faucet—no waste whatever. Write—let us know the quantity of Dip you use and we will give you price and terms.

Economy Hog and Cattle Powder Co.

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Economy Hog and Cattle Powder Co.
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Please tell me about your Economy Germicide Dip. I generally use.....gallons per year.
I have.....hogs, ...horses, ...sheep, ...cattle.
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State .....

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THE INEXPENSIVE TRACTOR FOR SMALL RANCHES

Does the work of one horse at one-quarter the cost. The Original One Horse Tractor—five years on the market.

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One Man
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OTTAWA MFG. CO., 741 Wood St., Ottawa, Kans.

The Importance of Lime in Agriculture

No soil is complete withtout a fair percentage of available lime, and it is almost impossible for any soil devoted to intense culture to contain too much. To keep a soil sweet and in proper condition to produce leguminous and other crops to the fullest advantage, lime should be used in quantities of from half a ton to five tons per acre, and such applications would very often mean the difference between success and failure. It is not intended to suggest that lime only is required, but it is certainly one of the first treatments any soil should receive, where such soil is known to be wanting in this particular element.

The effects of liming are many and various, and are not as fully realized as should be tbe case. Liming neutralizes acid in the soil and makes it more alkaline, reducing the amount of sorrel and greatly increasing tbe growth of peas, beans, lucerne, and all other crops. It causes nitrification to a greater extent, thus providing more nitrogen—one of the most necessary plant foods—for the crop's benefit. In addition, liming sets free the otherwise locked up potash in the soil and so allows the crop the use of another important plant food tbat might witbout liming be unused. Applications of lime kill the larvae of insects and so save much loss to market gardeners in time and material.

Soil temperatures are raised where lime is applied, and quicker growth naturally follows. The quality of both green feed and vegetables is better where there is sufficient lime available, and provided fertilizers are used in proper quantities, the soil will go on producing for a longer period. Tbe mechanical effect of lime is also valuable, as it renders a clay soil more friable by drawing together the smaller particles, so making the land more easily worked; in a sandy soil it has the opposite effect, closing it and making it hold moisture better. Lime in itself has an affinity for moisture, and its presence enables the soil to retain moisture longer and to a greater extent.

There are three kinds of lime on the market. One is burnt lime, limestone from which the moisture has been expelled by heat. This form of lime is valuable for swamp lands, especially those containing large amount of undecomposed vegetable matter, which it assists in breaking down, and thus renders such soils usable much earlier than if left to time and nature. Burnt lime is liable to deteriorate, as it absorbs water from the atmosphere, and for tbese reasons should be obtained fresh from the lime works and applied as soon as possible. It should be ground fine for preference when it can be applied more easily and evenly than in the lump. To apply burnt lime to soils already poor in bumus (decaying vegetable matter) is a mistake, as it is liable to burn and destroy this valuable constituent.

Ground limestone is the unburned limestone simply ground fine, and though not as powerful as the burned lime, is safer and more easily applied to most soils. In order to obtain the same amount of actual lime per acre, twice the quantity should be applied as compared with burnt lime. It is about half the price, consequently the freight and spreading are the only two disadvantages. It is slower in its action than burned lime, but is much easier to bandle and spread. Gypsum, or sulphate of lime, is found in natural deposits in very large quantities, and where easily procurable, pays well for distribution upon the soil. It takes 2.7, or, roughly, three times, as much gypsum to give the same effect as burned lime.—T. A. J. Smith in Journal of Agriculture, Victoria.

SETTING PRICES

Commenting on stabilizing, or at least judging as to direction which markets will take, the National Stockman and Farmer says editorially:

"In all our discussion of markets and prices we should remember the great unknown but vital factor of consumption, which is reflected in wbat we call the demand. Some writers and speakers assume that markets may be stabilized by finding out what is to be marketed and then distributing tbe shipments of it over the normal period of marketing so as to avoid an oversupply or a shortage at any one time. That may belp if shippers will follow the plans suggested for the proper distribution of their shipments, but there is little probability that they will do this. It is doubtful, considering all things, whether this plan of regulating sbipments or stabilizing markets will prove any more effective in marketing staple crops and products tban the present automatic regulation by advancing or declining prices. But the experiment will be interesting if it is carried on long enough to afford a basis for conclusions. The extent to which consumers' desire and ability to buy affect markets is generally underestimated, probably because we are in the habit of looking at consumption of necessities as a fairly constant quantity. But examples may be cited from current history to illustrate bow potent this influence is. Take the present wool market, for example. Fine wools are selling at high figures and have been advancing for many months. Medium and low wools are dull and have been so during the period in which fine wools have advanced. Fine wools sbrink most in scouring and make the dearest product. A few years ago tbey sold away below the lighter shrinking medium wools. Why is tbe position of the two reversed now? The reason is clear enough—consumers want the finest fabrics and are able to pay for them. They will not buy fabrics made of medium or low wools even at lower prices, though these fabrics are highly useful and were formerly most popular. Otber examples equally striking might be given, but are not necessary. Tbe point of tbe whole matter is that a market is the result and expression of all influences and it can hardly be stabilized from the producer's side alone."

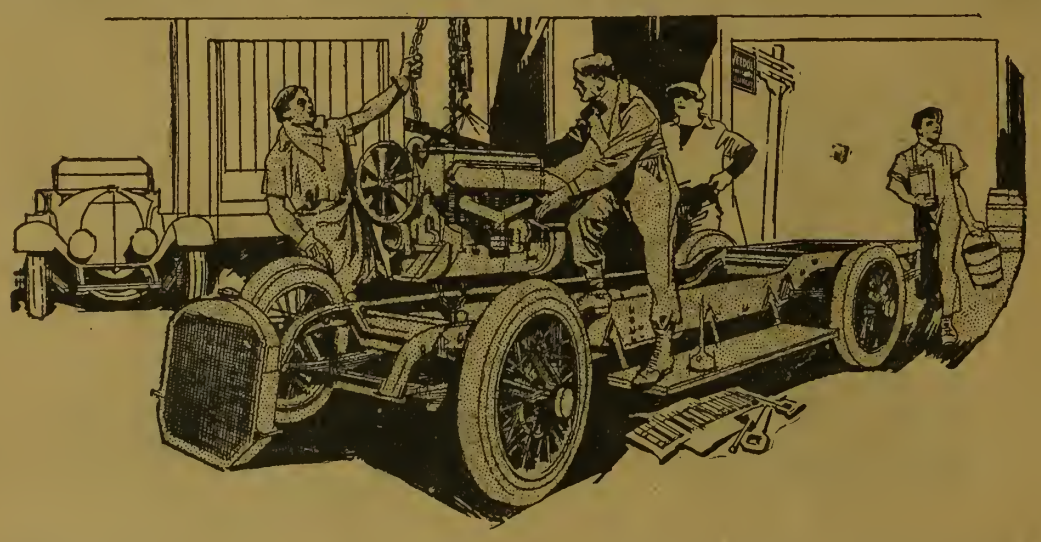
COFFEE IN CALIFORNIA

The question is often asked if coffee may be grown in California and if not, why not. The writer has several times set out plants of the more common and hardy species, or Arabian coffee, Coffee Arabica, in gardens of Los Angeles, ranging from tiny plants to hardwooded subjects several years old and three feet high.

The plants are injured, though not killed, by the lightest frosts. They do not really thrive anywhere in California, but will grow, for a few years at least, where climatic conditions are extremely favorable. A more equable temperature is needed, warmer nights throughout the year, and bigher temperatures during the entire winter season. The annual rainfall should be at least 60 inches, though this could in part be supplied through irrigation and frequent sprayings. But commercial coffee in California is an impossibility unless hardier species are found. —E. B.

GOVERNMENT SAVINGS

The former War Loan Association connected with the federal reserve bank has changed its name to Government Savings Organization. This institution will continue to encourage thrift through the purchase of war savings stamps and certificates.



Which of these troubles has injured your engine?

Scored cylinders, burned-out bearings, fouled spark plugs, played-out piston rings, worn cam shaft, loose wrist pins, sticking or pitted valves

REPAIR shops all over the United States report that these seven common troubles are responsible for 90% of all delay, "layups" on the road, and repair expense.

Yet each of these troubles can usually be prevented. Each of them is *due chiefly to improper lubrication.*

Layups and repair bills due to sediment in your oil

Under the intense heat of the engine—200° to 1000° F.—ordinary oil breaks down. Large quantities of sediment are formed which have *no lubricating value and which thin out the remaining oil.*

Ordinary oil after use — Veedol after use

Sediment formed after 500 miles of running

Excess carbon is formed, valves are pitted. The oil film fails to hold. Cylinders and pistons are scored by metal-to-metal contact. The engine over-heats. Bearings burn out. This is the toll taken by sediment in your oil.

How the sediment problem was solved

To produce an oil that would reduce sediment to a minimum, engineers experimented on the road and in the laboratory for years. Finally they evolved the famous Faulkner Process, used exclusively for the production of Veedol, the lubricant that resists heat.

Veedol reduces the amount of sediment formed in the engine by 86%. This is graphically shown by the two bottles in the sediment test at the left. It reduces evaporation between 30% and 70%—giving long mileage per gallon of oil.

Make this simple test—buy Veedol to-day

Drain oil from crankcase and fill with kerosene. Run engine *very slowly* on its own power for thirty seconds. Drain all kerosene. To remove kerosene remaining in the engine, refill with *one quart* Veedol. Turn engine over about ten times, then drain mixture of oil and kerosene and refill to the proper level with the correct grade of Veedol.

A run on familiar roads will show you that your car has new pickup and power. It takes hills better and has a lower consumption of both oil and gasoline.

Leading dealers have Veedol in stock

The new 100-page Veedol book on scientific lubrication will save you many dollars and help you to keep your car running at minimum cost. Send 10c. for a copy.

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SOIL FERTILITY MUST BE REPLACED

There's a certain amount of fertility in your soil. If you take some out, you should replace it, just as you would return borrowed money. In the matter of fertility, the trouble is that our soil is too good a friend. We can borrow, borrow, borrow—not getting so much each time, of course—until we finally conclude there is not much more to get from our friend, and we are at liberty to move away, if we want, and cultivate another friendship.

This, at least, used to be the case, but there is practically no more virgin land and what we have will have to be taken care of.

Reaching Limit of Fertility

Few of us realize how very little fertility in proportion to the whole bulk of the soil there really is. In a ton of ordinary black clay loam there are only 3½ pounds of nitrogen, 3¾ pounds of phosphorus and 60 pounds of potash. When these are exhausted they are gone, that's all.

The best and cheapest general purpose fertilizer and the one that contains the three elements above mentioned is barnyard manure. A ton of it contains 5 pounds of nitrogen, 3½ pounds of phosphorus and a much larger quantity of potash. It is worth at present prices for commercial fertilizer about $5.50 a ton, according to Pennsylvania experiment station Circular No. 67.

$600 Worth of Manure on Average Farm

Supposing you have the average number of stock on the average farm—six cows, three horses and ten hogs. These will produce about 110 tons of manure per year. At $5.50 per ton those 110 tons will have a total value of about $600.

How much will you get in return for that amount of manure? That all depends on how you handle it.

Director C. E. Thorn of the Ohio experiment station says that eight loads put on with a spreader are worth as much as 12 put on by hand. This means a loss of one-third of the above amount, about $200, if the manure is spread by hand. It is hard to realize that the unevenness of hand spreading would make that much difference in comparison with even machine spreading. A good spreader doesn't cost near as much as that loss of $200.

Advantages f Wide Spreaders

In buying a spreader at the present time the farmer should see that he selects one with a wide spread attachment. With such an attachment a strip eight feet wide or better can be covered, extending well outside the wheels on both sides. This has positive advantages over the narrow spreader of years ago. In the first place, the load is thrown off twice as fast and the same amount of ground is covered with just half the driving distance, and on the return it is not necessary to drive so that the wheel tracks lap in order that all ground may receive an even spread. For practically the same price today a wide spreader can be bought that will deliver more in service and include more in quality of construction than an old type machine that only spreads the width of the beater. For these reasons the wide spread machine should be thoroughly investigated before a farmer invests his money in a spreader.

A spreader is the most necessary implement on the farm today. It is a crop producer, whereas most other machines are only crop handlers. It encourages the saving of manure and thereby makes the farmer honest with his soil. He borrows his fertility and doesn't steal it.

DRAINAGE TO THE SURFACE

It is well known that one of the chief causes of arid land becoming alkaline is the drawing of alkali to the surface by moisture which rises and evaporates. The extent of this water movement, however, is often underestimated. In reality it is one of the best examples of capillarity that one readily can point out and has a distinct bearing on the handling of swampy land in rainy sections.

Arid land fully irrigated becomes wet to a depth of 20 feet. The volume of water required to accomplish this would form a lake two or three feet deep over the same area, yet all of this water, practically speaking, would pass to the surface and escape into the dry air within three or six weeks.

The lesson for owners of land requiring draining cannot be missed. If the under soil of their land is equally open, fine and granular, it, too, will pass to the surface immense quantities of troublesome water early in the season. Water logged soil, however, usually is puddled and solid, rather than open and granular, hence has weak capillary movement of water.

The remedy is to begin a course of treatment which will break up and granulate the under soil. The first thing to do is to blast it. The second is to plant heavy rooted crops, which will fill the lower soil with organic matter. The blasting opens and fines the ground down several feet, and the humus keeps it open. Incidentally, the opening and loosening assists direct gravitational drainage to a marked extent. With both downward drainage and upward drainage in good working order, the soil soon becmes dry and mellow.

The danger from alkali, which upward rising water brings in arid sections, does not occur in rainy sections simply because there is enough water escaping downward or through the lower soil each year to leach away the soluble salts. When ground is blasted in dry sections, it should be understood that the danger from alkali is increased, because the upward capillary movement of water will be increased or hastened. This does not mean that irrigated land and dry-farming land should not be blasted if they otherwise demand that treatment, but that surface mulch must be looked after regularly to prevent evaporation so far as possible. For the good of the crops, capillary movement of moisture cannot be too easy. The better the water movement, the better the roots will be supplied with a normal growth.

Experience has shown that in many cases swampy land, obviously demanding tile drains, dries off perfectly as soon as a proper condition of tilth is established. The credit usually is given to the underground drainage established, and that feature of the matter has a large and predominating effect. Yet the drying effect of the drainage into the air is too considerable to be overlooked, especially when the conditions required for it are identical with those required for the securing of the virgin fertility in the soil, and for all around productiveness.

CAPRIFIGS

The J. C. Forkner Fig Gardens, Fresno, has a good supply of mamme and profichi caprifigs for this season. Mamme crop for colonizing caprifig trees ready the latter part of March. Profichi crop ready the first week in June. Orders given prompt attention. Address or see

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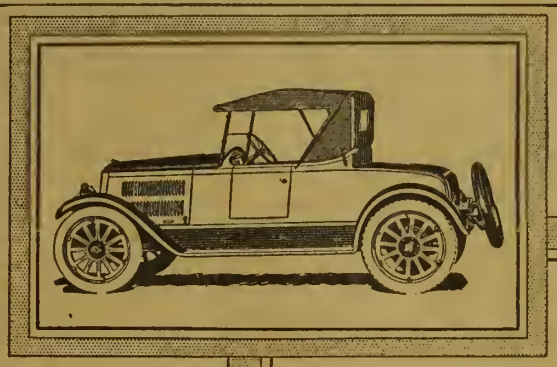

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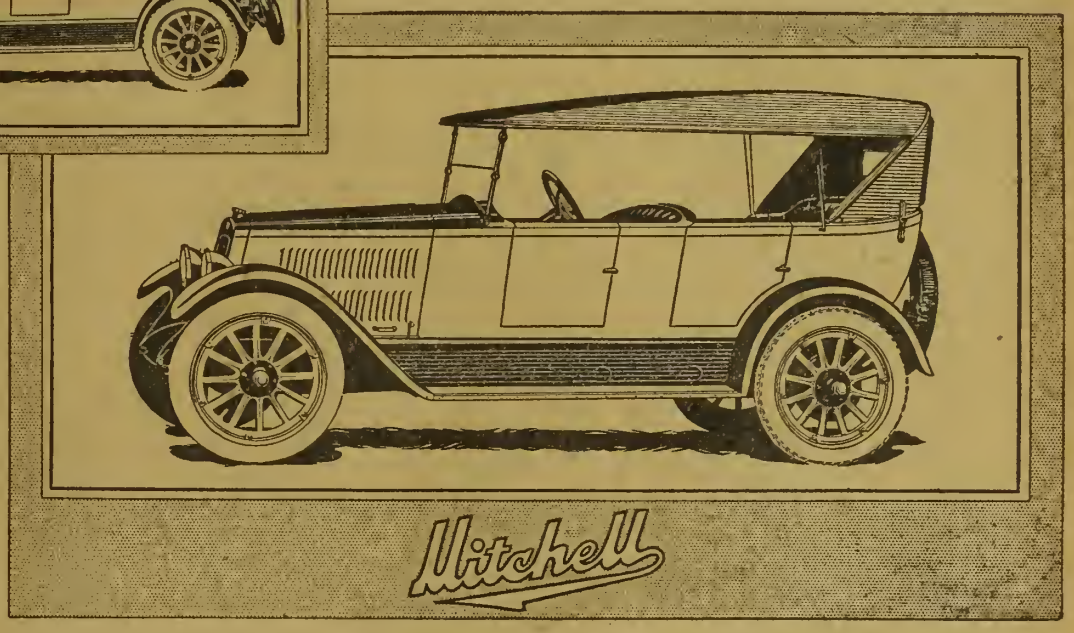

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The reason for the many over-values you find in this new Mitchell is largely due to the Mitchell way of scientific manufacture.

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Then we save in building because we supervise every process. We pay no freight on bodies. We suffer no delays, no compromise in quality.

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We are offering to the California public, the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in, and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

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We Are Now Booking Orders for Eggs. Eggs from our Mammoth Bronze Turkeys, $1, $2, $3 from show stock and 50c utility stock. Eggs from Toulouse Geese, winners at seven shows, $1 each. White Muscovy Duck Eggs, 35c. White Wyandotte Eggs, $3 and $5 a setting. Young unmated pairs, White King Pigeons $2, old mated pairs $3. Pearl Guineas $4 a pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY (Electric), Box 122, Artesia, California.

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White Orpington Hatching Eggs for sale, $10.00 per hundred. Also limited number of baby chicks. Mrs. S. D. Koons, P. O. Box 186, Orland, California.

"Eastman's Bred-to-Lay" trap-nest Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

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I have a 12-24 La Crosse Tractor in the warehouse, never been used, also tractor plow and harrow. Must remove from warehouse at once. Write for low, quick sale price to Box K, Cultivator, Los Angeles.

For Sale—6 H. P. Universal Moline Tractor in fine condition. Pulls two 12 inch plows easy. Will demonstrate any day at my ranch. Too small for my use. Bought a larger one. Want a 6 to 9 ft. double disc, also 8 to 10 ft. orchard cultivator and 3 disc power lift plow. I. I. Bennett, Etiwanda, California.

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All worn parts renewed. Phone or address Rio Hondo Rancho, 234, Compton, California.

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Pumps—Motors—Tanks—Gas Engines.
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DUCKS

For Sale—Ducklings, Pekin and Indian runner, also several hundred laying Pekin Ducks, heavyweight stock, immediate delivery. Beresford Poultry Farms, San Mateo, California.

White Pekin Baby Ducks—White Pekin Duck Eggs for hatching. 152 East Spruce St., Inglewood.

White Muscovy (Quackless) Ducks—Eggs, Ducklings, Breeders. Free circulars. Caldwell Farm, Box 274-E, Los Angeles.

White Mammoth Pekin Ducklings—Ten days old 50c each. Eggs $1.00 a dozen. A. Surtman, Petaluma, California.

FERTILIZERS

The Gypsum You Need — Best agricultural lime, complete fertilizers. H. B. Matthews, 1010 N. Madison, Pasadena.

TREES

For Sale—20,000 Sour Seedlings, year old; 1000 Eureka Lemons, 500 Small W. Navels, Supply Co.'s buds; several hundred Rangpur Limes; the mother tree yields a revenue $20.00 to $40.00 yearly. Fruit sticks tight—like the Valencia—the only Lime that sticks. Get in while they last. $1.50 each; $14.00 100. Budding cloth 70c yd. Cyrus W. Wilhite Citrus Nurseries, Glendora, California.

Eureka Lemon Trees—2 years, also 1 yr. No. 1 stock; 200 Naval Orange Trees, open root, extra fine stock. One and two year Valencia Orange trees; three to four foot Bartlett Pears on Japan root; Manzanillo and Mission Olives, four years old. Deciduous Fruit Trees. Prices reasonable. Los Nietos Valley Nursery, Downey, California.

Washington Navel, Valencia, Marsh Grapefruit, Eureka and Lisbon Lemon trees. Sour stocks. One year old buds. We used "Supply Company" buds only. Nurseries Riverside, Puente. Frank A. Tetley & Son, 405 Eighth Street, Riverside.

For Sale—Placentia Perfection and Eureka walnut trees, also Eureka Lemon and Almond trees. These are all high grade stock. Ketscher's Nursery, 1101 E. 4th St., Santa Ana, California. Phone 572WK.

50,000 Florida Sour Orange Seed Bed Trees; 100,000 California Sweet Seedling Seed Bed Trees; Valencias, Eureka Lemons; Supply Co. buds. SOUTHLAND NURSERIES, 1941 East Colorado St., Pasadena, Cal., Phone, Colorado 6352.

For Sale—Olive Trees, Pichalen Roots; 5,000 Mission ⅜ to 1 inch very low figure. Roseville Nursery Co., Roseville, California. PLACER COUNTY GROWN TREES.

For Sale—Washington Navel, and Valencia late orange trees; Marsh Seedless grapefruit and Eureka lemons. Fine large trees, reasonable prices. H. H. Ford, Redlands, California.

Avocado Trees—Mathers' Avocado Nursery. Home of Field Grown Trees. P. O. Box 585, Pasadena. Nursery Phone Colorado 6044.

For Sale—3,000 select orange trees. Also 3,000 lemon trees; first class trees; 20,000 seedbed stock. A. R. Rideout, Whittier.

For Sale—Orange seed bed stock. Nursery Colorado and Huntington Drive, Lamanda Park. Paul B. Magee, R. F. D. 2, Pasadena.

Walnuts—Send in your orders now for grafted and budded walnuts. 1921 delivery. J. G. Grundel's Walnut Nursery, Oakdale, California.

Fine Stock Valencia Orange trees, budded Placentia and Eureka Walnuts on black root. A. R. Marshall, 1212 Ross St., Santa Ana, California.

For Sale — Several hundred Washington Navels, Valencia and Eureka Lemon trees. B. L. Byer, Upland, California.

Place Your Orders Now for all kinds of Citrus Stocks. Butler's Morningside Nursery, Lamanda Park, California.

Citrus Seed Bed Stock — Budded citrus trees. L. A. Tuttle, R. 2, Box 404, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Rooted Olive Cuttings (Mission). Write for prices. Kavan Nurseries, San Bernardino, California.

For Sale—4 Year Old Manzanillo and Mission olive trees. E. E. Barnes, Highland, California.

Tulare Co.—Washington Navel, Valencia trees, 2 year buds, a fine lot of trees. A. G. Ogilvie, Orange Cove, California.

10,000 Registered Eureka Lemons. L. A. Tuttle, R. 2, Box 404, Pasadena.

Pear Trees — Strawberry Plants, Prune, etc. Cash Nursery, Sebastopol.

FOR LEASE

FOR LEASE

15,000 ACRE RANCH

Located in Ventura Co., 35 miles from Los Angeles. Ideal stock ranch. Also suitable for grain, etc. For further information, address Agoure Ranch, 200 Garland Bldg., Los Angeles, California.

Wanted—To lease for 5 years, a three hundred twenty acre farm in El Dorado Co., near Fairplay, with about 55 acres in growing grain and between 70 and 90 acres in cultivation, the rest in pasture and timber, to a husky man with 2 or 3 strapping big boys. Don't delay. Call or write, W. E. Robinson, Fairplay, El Dorado Co., California.

TURKEYS

For Sale—Turkey Eggs, Mammoth Bronze and Wild Domestic, crosses; raise more poults, introduce wild blood into your flock. Get hardy, vigorous poults. With each order we send you formula for raising close to 90% of those you hatch and special feeding instructions. Will be worth many dollars to all turkey raisers to know the real way. Pamphlet tells you all. The WILD & DOMESTIC Turkey Home, R. D. Box 26 A, Hemet, California.

Mammoth Bronze Turkey Eggs — "Gold Nugget" and other prize stock. Flock shows enough wild blood for vigor and fine breeding has added size. NO EGGS sold from other than our own stock. Hints given for feeding and care. Turkeys have range. Guarantee fertility. Prices reasonable. Carrie Andrews, BO-K-HAUNT, Hemet, California.

For Sale — Thoroughbred Mammoth Bronze Turkey Eggs, and Toms. Robinson Turkey Ranch, San Dimas, California. Mention California Cultivator.

SEEDS AND PLANTS

Cotton Seed For Sale—Mebane and Durango seed, ginned from our crops, grown West Side San Joaquin Valley, which gave generous production, grading excellent staple and color. Quantity limited. Shipped in new sacks weighing approximately fifty-five pounds. If ordering less than ton state number of sacks wanted. Should plant approximately twenty pounds per acre. Prices: seven one-half cents per pound; in lots of ten tons or more to one consignee, seven cents per pound. All quotations f. o. b. Southern Pacific Westhaven. Boston Land Company, Westhaven, Fresno County.

For Sale — Millions of Stone Tomato plants, grown on new land, from seed saved by myself and guaranteed. Eggplant, pepper, cabbage, cauliflower, rhubarb and other plants. Write for prices and order early. Ran short last year. Reference: Chamber of Commerce, or any bank or business man in Pomona. L. C. Johnson, 795 West Seventh St., Pomona, California. Phone 2987.

Rhodes Grass—Is making Imperial Valley famous and will make any other section famous, if it is planted, especially if the soil is hard or alkali. Write Imperial Valley Seed House for Literature. El Centro, California.

Dairymen — Hog Raisers — Poultrymen! Plant Diener's Sweet Fodder Sudan. Wonderful yield; sweet, soft, nutritious stems and abundant seed. Write for circular. D. J. Whitney, Exeter, Cal., or Morse Seed Co., San Francisco.

Strawberry Plants—Americus everbearing. Strong, healthy plants. Do well in California. $2.50 per 100, $5.00 per 250. Postpaid. Catalogue free. F. I. Moffet, Ellensburg, Washington.

Sweet Potato Plants—Yellow Jersey, $4 per 1000, 50c per 100 f. o. b. E. W. Van Gorder, R. 5, Box 91, Santa Ana, California.

Grow Your Own Melons. Secure a package of seed, 25 cents. The world's finest musk melon "Casad's Special." Roland C. Casad, Covina, California.

For Sale — Ever-bearing Strawberry plants, Progressive, $1.50 per hundred; Superb, $2 per hundred; postpaid. G. M. Hawley, La Mesa, California.

For Sale — Giant Himalaya Blackberry Tip plants from bearing vines. Immediate delivery. Sylvan Grove Farm, R. D. 1, Box 147, Santa Cruz, California.

Tomato Seed—New Improved Stone, San Jose Canner, 25 cents ounce, $3.00 pound postpaid. Money order or stamps. Dana Walden, 4711 Mascot St., Los Angeles, California.

Berry Plants — Ettersburg Strawberries, Blackberries, Dewberries and Raspberries. M. J. MONIZ, Berry Specialist, Sebastopol, California.

R*O*S*E*S 50c per dozen. Fruit and ornamental trees, plants, vines, etc. Write for catalogue. KAVAN BROS. & CURRIER, San Bernardino, California.

For Sale—By grower, clean seed of Burpee's stringless green beans, 15c per pound in fifty pound lots or more, sacked and delivered f. o. b. Escondido. John Speer, Escondido, California.

Cory's Thornless Blackberries—Postpaid, 4 for $1.00; 10 for $2.00. Citrus, olive trees, rhubarb plants, etc. Bishop's Nursery, Highland.

Write amount and kinds of seed wanted. Four kinds of alfalfa, 25c and up; free samples. Box 501, Fowler, California.

Stock Beet Seed—Any variety. Write for prices. Aurora Seed Mill, grower, Stockton, California.

Kentucky Wonder Bean Seed for sale, 12½c per lb. Chas. L. Beltz, Route 2, Box 799A, Santa Cruz, California.

For Sale — Choice hand picked Lima Beans. J. Kishimura, 1028½ South Catalina Street, Los Angeles. Phone 72092.

Cory Thornless Mammoth Blackberry—10 plants by parcel post $2.15. Wm. Mortenson, Rt. A, Box 209, Lodi, California.

WANTED

Wanted, Foreman for Ranch—Raising alfalfa, grain, hogs and pears. Must be experienced man capable of taking full charge of work and ranch records in owner's absence. Answer, giving reference and experience to W. G. L., California Cultivator.

Herdsman or Foreman (married) with college training and lifetime experience handling purebred dairy cattle. Will consider change of position, lease or partnership. Familiar with all the fine points of breeding and general dairy farm management. Box 3, California Cultivator.

Wanted—Position as caretaker or foreman. Dairy or fruit ranch. Married; American. References. 112 Castillo St., Santa Barbara, California.

Wanted—A good practical Orange tree pruner. Several months' work to the right man. See or write E. E. Campbell, Orange, California.

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The Only Exclusive Rabbit and cavy magazine published in California. One year for 25 one cent stamps. Pacific Rabbit and Cavy Breeders, Eagle Rock, California, Dept. CC. "Tell them your troubles."

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The Sweet Briar Poultry Ranch

By M. E. Bemis

THROUGHOUT the Salt River Valley of Arizona there are a number of successful poultry farms. Just how successful some of these are it would be difficult to say, though all of them seem to be prosperous enough.

I endeavored some time ago to check up some results and the methods which produce the results on a number of these farms and found that there were some who could not give very accurate figures as to the cost of their feed or the egg production per fowl, although I assume that all of them know whether they are making or losing money. Two, both of whom I consider successful poultry men, report quite different results. On one of these farms the cost is 90 cents a year more than on the other and the egg yield is five dozen less.

Of those poultry keepers interviewed the best average egg production covering a series of years has been obtained on the Sweet Briar Ranch. About 1,000 White Leghorns are kept on this ranch. They are housed in one long house. This house is possibly more elaborate than the average poultry man could afford and possibly just as good results would be obtained in a house which cost somewhat less. The fact, however, that a house of this kind is used is the best evidence that everything in connection with the plant will be just as exact and just as near right as possible.

The proprietor of the Sweet Briar Ranch is W. H. Westfall. Mr. Westfall came here from the East some years ago. He was president of a railroad and brought to the business here the same careful methods which had brought him success in his administration of railroad affairs. For a period of three years he has made his hens produce an average of 160 eggs per year. This is exceptionally good for a flock average. Of course there is attention given to all details from raising the chicks which are to become layers to marketing the eggs.

With the high cost of poultry feeds probably most poultry men will be more interested in the ration which is fed. This is as follows: Grain, one-third wheat, one-third milo, one-third barley. The hens consume 4 pounds each, or 1.6 ounces per day. A mash is fed composed of 65 pounds bran, 25 pounds shorts, 15 pounds oil meal, 20 pounds corn meal, 15 pounds ground oats, and 20 pounds meat scraps. This is fed dry in hoppers. The hens consume 2.4 pounds of this mash each month, or 1.3 ounces daily.

I have estimated that the cost of this at current prices for feed is three-fifths of a cent per day for each hen. This does not include any green feed, as the hens here have the run of the ten acre farm or such part of it as they need.

Mr. Westfall was one of the pioneers of the Salt River Valley in the production of guaranteed eggs. About five years ago he made arrangements with one of the local dealers to furnish him with eggs stamped and carrying a guarantee of quality. These eggs have sold at five to ten cents a dozen above the market price for unstamped eggs and the demand has increased until this same dealer has induced a number of others to furnish him with stamped guaranteed eggs.

Close attention to details, the feeding of the carefully compounded ration, which is well balanced, and producing eggs which have sold above the market price, are the methods which have made this poultry farm successful.

POULTRYMAN'S CALENDAR—APRIL, IN THE WEANING COOP

By the first of April chicks hatched between the middle of January and the middle of February are ready for the weaning coop. If they have been properly brooded they are already accustomed to doing without heat. In the weaning coop they learn to roost. Males and females are separated and put on a different ration, the males being given a fattening mash which will prepare them for market and the pullets being put on a laying or near-laying ration.

To teach chicks to roost, put them underneath the roosts, on a thick bed of straw or in boxes. After a few nights you will find them on the roosts. In up-to-the-minute brooder houses the chicks sleep first on the floor and then gradually learn to find their places on the roosts above them.

A good fattening ration for the cockerels consists of 2 pounds corn meal, 1 pound bran, 1 pound ground barley, moistened, if possible with buttermilk or sour milk. If the milk is not available, moisten with water two or three times a day, and feed cracked corn for the scratch grain.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, March 1, 1920. Report for the week ending February 27.

The seventeentb week of the laying contest at Storrs developed the keenest competition of the year, or since the time the contest was started last November. Not only this, but the winning pen for the week, ten White Wyandottes entered by Harry D. Emmons from Plymouth, Connecticut, made the highest weekly record of the year with a yield of 51 eggs. Three pens of three different varieties from three different states tied for second place. Tbese were Oneck Farm's Barred Rocks from Westhampton Beach, Long Island; W. H. Bassett's White Rocks from Cheshire, Connecticut, and A. E. Hampton's Black Leghorns from Pittsfield, New Jersey. All three pens laid 48 eggs each. Four pens from four different states and representing three different breeds, all tied for third place.

The total yield for all pens amounted to 3,504 eggs, which is a gain of 309 as compared with the preceding week and 349 better than the five year average for this period. This is a yield of 50 per cent, which means that the 1,000 hens in the contest av-

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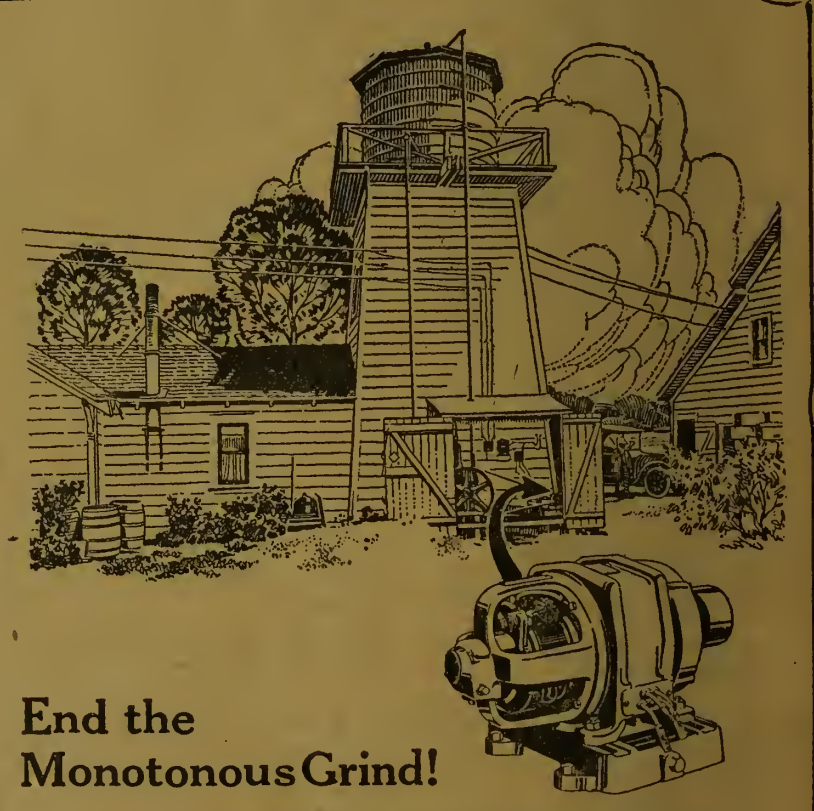

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Write for FREE Catalogue No. 31.

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There is only one way to deal with baby chicks and that is to keep them well. Doctoring a hundred or more chicks is mighty discouraging work.

It's pure carelessness to lose more than 10 per cent of chicks, from hatching to full growth. Many lose 40 per cent to 60 per cent, and even more. No profit in that.

Our book, "Care of Baby Chicks" (free) and a package of Germozone is the best chick insurance. WITH BABY CHICKS YOU MUST PREVENT SICKNESS—NOT ATTEMPT TO CURE. "I never had a sick chick all last season"—C. O. Petrain, Moline, Ill. "Not a case of white diarrhoea in three years"—Ralph Wurst, Erie, Pa. "Have 800 chicks now 5 weeks old and not a single case of bowel trouble"—Mrs. Wm. Christiana, Olive Ridge, New York. "Two weeks after we started last spring we were a mighty discouraged pair. Every day from three to six chicks dead. A neighbor put us next to Germozone and we are now sure if we had had it at the start we would not have lost a single chick"—Wm. E. Shepherd, Scranton, Pa.

GERMOZONE is a wonder worker for chicks, chickens, pigeons, cats, dogs, rabbits or other pet or domestic stock. It is preventive as well as curative, which is ten times better. It is used most extensively for roup, bowel trouble, snuffles, gleet, canker, swelled head, sore head, sores, wounds, loss of fur or feathers. **25c, 75c, $1.50 pkgs. at dealers or postpaid.**

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every Saturday and Sunday from our pure bred and bred to lay B. P. Rocks, R. I. Reds, Mottled Anconas and S. C. White Leghorns. We have our own stock and you know what that means. Write for free catalogue and care of baby chicks.

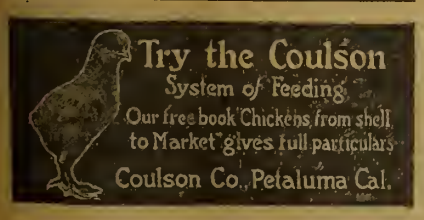
DOWNEY HATCHERY

Downey, Cal. Tel. 892

Elmhurst Poultry Ranch

5217 T St., Sacramento, Cal.

Chicks all sold. A few cockerels at $25. Great reduction in hatching eggs. While putting in our new incubator cellars, will sell our $4.50 eggs at $3.00, $3.00 eggs at $2.00, $2.15 eggs at $1.50 insured and delivered free. Reds, Leghorns records 246-285.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How to Prevent Loss in Chicks—how to prevent dead chicks in shell; get bigger hatches; stronger chicks; more fertile eggs; prevent bowel trouble; dead chicks and to promote growth besides how to get big egg yields and select layers and slackers is all explained in a new bulletin which will be sent free to all who write Professor T. E. Quisenberry, of the American Poultry School, Department 7, Kansas City, Missouri.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

eraged to lay exactly every other day or three and a half eggs each during the week. Of course some individuals didn't lay any eggs at all, but others did double duty by laying seven eggs each during the week.

The three best pens in each of the principal varieties are as follows:

Plymouth Rocks

Merritt M. Clark (Barred), 490; Oneck Farm (Barred), 486; Jules F. Francais (Barred), 475.

White Wyandottes

Langford Poultry Farm, 529; Merrythought Farm, 463; Applecrest Farm Co., 443.

Rhode Island Reds

Pinecrest Orchards, 636; Charles H. Lane, 589; Mrs. C. O. Polhemus, 525.

White Leghorns

George Phillips, 586; Glenhope Farm, 558; Merrythought Farm, 531.

Miscellaneous

A. L. Anderson (R. I. Whites), 556; H. P. Cloyes (Buff Orpingtons), 517; A. E. Hampton (Black Leghorns), 411.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

The fourth month of the contest at Santa Cruz ended on the evening of Monday, March 15. During this month, which covered a period of 29 days, the flock as a whole laid a fraction under 59 per cent. G. G. Barker of Santa Cruz won for the month, his ten hens establishing a new record for the contest with a percentage of 73 for the 29 days. A close second to this was the record of Warren Wood's pen, also of Santa Cruz, with a percentage of 72. The average consumption of food per hen for the month was: Grain, 3.34 pounds; mash, 3.31 pounds; greens, 3.48 pounds.

Leading pen records: Barker, 211 eggs; Wood, 210; Walls, 205; Bellows, 205; Amsbaugh, 204; Binney, 202; Enterprise, 201.

Bellows Bros. of Lakeside had the highest hen for the month with a record of 26 eggs. For the four months, a period of 121 days, hen number 16, belonging to D. B. Walls of Petaluma, laid 106 eggs, or a percentage of 87½ per cent. By the month No. 16 has laid: First month (30 days), 25 eggs; second month (31 days), 28; third month (31 days), 28; fourth month 29 days), 25.

The leading pens to date are as follows: Walls, 754 eggs; Neef, 671; Enterprise, 665; Rose, 659.

Highest individuals at the end of the fourth month: Walls, 106 eggs; Walls, 92; Enterprise, 90; Peck, 88; Barker, 88; Gibson, 87; Walls, 87; Bellows, 85; Webb, 85; Hale, 85.

During the past week, ending March 20, a new seven day record was made for the contest by G. G. Barker's pen, his hens laying an even 80 per cent. High pens for the week were: Barker, 56 eggs; Bellows, 55; Binney, 53; Walls, 53; Enterprise, 53; Bandini, 51; Wood, 51; Gibson, 50; Amsbaugh, 50; Wilson, 50.

POULTRYMEN'S BANQUET

B. R. Holloway of the Holly Hatchery entertained the Van Nuys chamber of commerce, members of the Los Angeles County farm bureau, representatives of various newspapers and agricultural magazines and prominent poultrymen of Van Nuys and San Gabriel at a banquet in the dining room of the Van Nuys high school on Wednesday evening, March 10. Fifty thousand laying hens were represented, including the 26,000 breeding hens whose eggs are used by the Holly Hatchery.

Poultry Queries

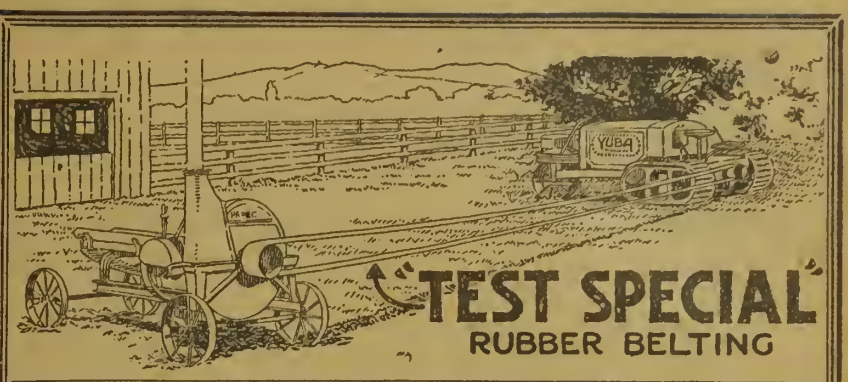
Conducted by J. A. Koethen

Ration, for Squab Breeders

Will you kindly give me the correct nutritive ratio of a good balanced ration for squab breeders.—J. B. S., Riverside.

According to the National Standard Squab Book the proper ration for squab breeders is a mixture of cracked corn and whole wheat in the proportion of three parts corn to one part wheat, fed in a self feeder where the

(Continued on Page 600.)



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WRITE TODAY, giving the R.P.M., and Diameter of the driving pulley—also driven pulley and distance between centers of same, also give the rated horse-power of your motor or engine, and name kind of machinery you are operating. We will reply immediately giving you our recommendation as to kind of belt to use.

Write us today.

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Fairbanks Morse & Co.
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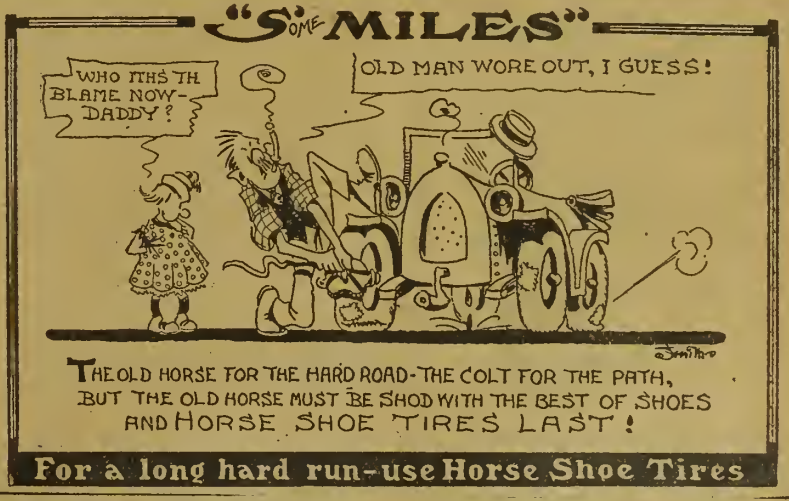
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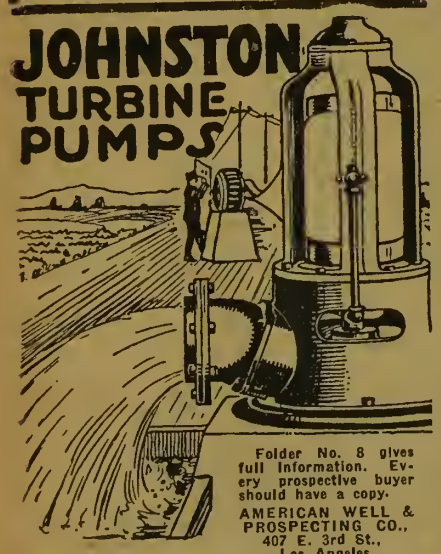

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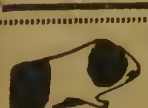

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Los Angeles Markets

Los Angeles, March 31, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 56 cents.

Dairy Exchange prices last week on extras:

March	24	25	26	27	29	30
'20 ...	62	62	59	59	56	56

CHEESE

Brokers' prices:
California, lb., 29, price to retail merchants, 29@31.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 39 dozen; case count Produce Exchange closing price 38 dozen; pullets, Produce Exchange closing price 36 dozen; pewee pullets, 29.

Dairy Exchange prices last week on extras:

March	24	25	26	27	29	30
'20 ...	38	38	38	39	39	39

POULTRY

Price to producers: Hens, lt., 35; heavy, 37; colored over 4 lbs., 39; broilers, 37-43; fryers, 40; roasters, 38; old roosters, 16; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.
Belgian hares, live, 20.

LIVE STOCK

Los Angeles, Mar. 30 — Weighed and delivered on cars without food or water: Hogs (hard-grain), 125 to 175 lbs., 15.50; 175 to 225 lbs., 16.00.
Cattle (on foot, gross weight)—Steers, good, 12.00@12.50; medium, 11.50@12.00; cows, good, 10.00@10.50; medium, 9.50@10.00; bulls and stags, 7.50; calves 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.
Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, March 30, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.
Market strong, prices higher. New stock: Stockton: Burbanks, fancy 7.50@8.25; few low as 7.00@7.25. Idahos: Russets, fancy, 7.75@8.25; others 7.50. Local stock: lug boxes, 3.00@3.25. New stock: Local Early and White Rose, 12 per lb.; 3.50@4.00 lug.
Sweet potatoes: Market strong. Lugs, 2.35@2.50.
Onions: Demand and movement moderate; market strong. Homegrown and Stockton: White Globes, per cwt., 9.00@10.00. Yellows and Browns, 8.00@9.00 per cwt.; lugs, 2.50@3.00; per lb., 8@10. Garlic, lb., 45@50.

VEGETABLES

These are the actual prices obtained March 30, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.
Artichokes: Doz., 1.00@1.35.
Asparagus: Supplies liberal. Delta section: 15@25 per lb., mostly 16@21. Imperial Valley, 15@20 per lb. Local 20@30 per lb., mostly 25. White: 14@16 per lb.
Beets: Doz., 45@55; lb., 4@5; sk., 2.50@3.25.
Cabbage: Market steady. Per lb., 3½@4½, mostly 4@4½; per crate mostly 4.00@4.50; others, 3.00@3.50; sacks, mostly $4.00. Red cabbage: 4@6 per lb., mostly 5.
Carrots: Doz., 45@50; lb., 1½@2; sk., best, 1.75@2.25.
Cauliflower: Supplies very light. Local stock: per dozen, best, 1.65@1.75; others low as 1.25; field crates, scarce, 3.00@3.50; pony crates, 1.75@2.00.
Celery: No carlot arrivals. Market steady for good stock. Local and northern per dozen bunches, 1.50@2.00; crates, 5.50@6.50; fancy shipping stock, 8.00@8.50; poor stock low as 2.00 crate.
Cucumbers: Illinois: Hothouse, wide range in price, 2.50@3.25 per dozen, according to size.
Peppers: Floridas: Bells, 40@45 per lb., Chilis, 40@45.
Lettuce: Local Stock: Market firm. Per dozen, 25@30; crates wide range in quality and condition; best 85@1.00; poorer, low as 50.
Parsley: Doz., 15@30.
Parsnips: Lugs, 1.00@1.25; sacks, 2.90@3.25; per dozen, 45@55.
Peas: Local and Imperial Valley: Market firm; best, 8@11 per lb.; others 6@7.
Rhubarb: Strawberry, bx., 2.00@2.25; Crimson Winter, 1.25@1.50.
Spinach: Doz., 20@30; lb., 2.
Squash: Hubbard, cwt., 4.50@5.00; lb., 4½@5½.
Tomatoes: Mexicans: crates, best 2.25@2.75; lugs, repacked, 2.50@3.25; lb., best, 9@11.
Turnips: Per dozen, 50@55; per sack, 2.90@3.25.

FRUITS

These are the actual prices obtained March 30, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.
Apples: White Pearmains, 2.50@2.75; 4@6 per lb.; Yellow Newtown Pippins, 4-tier, 2.00@2.50; 4@6 per lb.; Romes, 2.50@3.50.
Bananas, 8@8½; Red, 9.
Pears: Winter Nelis 6½@7½ lb.; bx., 3.00@3.50.
Grapefruit: California and Arizona: per box, 4.00@4.50; other, 3.50@3.75. Local, 2.50@3.00 per box.
Lemons: San Fernando Valley stock; fancy packed, 4.00@4.25; loose, 3.50@3.75; juice, 2.50. Local stock; packed, 2.50@3.50; loose, 2.00@2.25; some low as 1.25 box: 2@3 per lb.
Oranges: Market slightly weaker. California Navels, packed, 4.50@5.50; best brands, 6.00@6.50; others low as 3.00@3.25. Local Stock: packed, 3.50@5.00; large sizes low as 2.00. Tangerines. No carlot arrivals. California stock, mostly 6@9 per lb.; some best high as 14; 2.75 lug.

HONEY

Demand and movement slow, market weak. Supplies cleaning up. Carlot f. o. b. usual terms: White orange blossom per lb. 18; extra light amber, 17@18; light amber sage, 17@17½; light amber alfalfa, supplies very light, mostly 15. Beeswax, demand and movement good, market strong, little change in prices, l. c. l. lots 40@42.

WALNUTS

Net prices have been named by California Walnut Growers' Association.
No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

BEANS

California Lima Bean Growers' Association fixed prices October 6, but market falling. Limas, 14½; baby, 13.
F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	27.00@30.00
Barley	26.00@30.00
Alfalfa	28.00@32.00
Barley Straw	10.00@13.00

Alfalfa Growers of California, f. o. b. Los Angeles: Choice alfalfa, 38.00@39.00 per ton; choice dairy alfalfa, 30.00@38.00; No. 1 dairy alfalfa, 33.00@36.00; No. 1 alfalfa, 34.00@36.00; standard alfalfa, 33.00@34.00; standard alfalfa, 30.00@33.00.

GRAIN AND FEEDS

Price bid local grain exchange, March 30:
Barley: 3.00.
Corn: Yellow, 3.12½.
Eastern Kafir: 2.50.
Milo: 2.87½; Eastern, 2.47½@2.60.
Wheat: Mixed feed, 4.30@4.60.

San Francisco Markets

San Francisco, March 30, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.
Dairy Exchange quotations, lb.:

Extras						58½
Prime Firsts						58
March	23	24	25	26	27	29
'20 ...	63	63	62	60	59	58½
'19 ...	..	59½	59½	56½	55½	58

Rcts. week ending March 29, 6,511 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	34
Ore. Trips	31
Cal. Flats	27@32½

EGGS

The prices paid by wholesalers to producers are eight per cent less.
Dairy Exchange quotations, dozen including cases:

Extras	45
Firsts	42
Extra, pullets	40
Undersized	35½

March	23	24	25	26	27	29
'20 ...	43½	44	43	44½	44	45
'19 ...	..	44½	44½	45	45	45½

Rcts. week ending March 29, 725,090 doz.

POULTRY

Wholesale prices are:
Leghorn, 43@44; small, 41@43; large, 37@38; roosters, young, 43@45; old, 23@25; broilers, 50@55; fryers, 52@58; turkeys live, 42@43; dressed, 51@52.
Ducks, Indian Runner, 30@32; Pekin, 33@35. Squabs, 70@75; pigeons, doz., 2.35@2.50.
Belgian hares, live 20@23; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:
Cattle — Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 11@12; do 1,200 to 1,400 lbs., 10@10½; do, second quality, 8@9; thin, 6@7.
Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4@5.
Calves—Light weight, 12@12½; medium, 9½@10; heavy, 7@9.
Hogs—Weighing 100 to 150 lbs., 16; 150 to 225 lbs., 16½; 225 to 300 lbs., 16; 300 to 400 lbs., 15.
Lambs: Milk, 15@16; Yearlings, 13@13½.
Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:
Cattle—Good steers, 1000 to 1100 lbs., 12@12½; top steers, 1100 to 1200 bs., 11½@12; good heifers, 1000 lbs. and over, 9@9½; No. 2 cows, 1000 lbs. and over, 8@8½; canner cows, 5@6; good bulls, 6@6½.
Calves—Light, 13@14.
Hogs—Top packer, hard and well finished; 100 to 150 lbs., 16; 150 to 225 lbs., 16½; 225 to 300 lbs., 16; over 300 lbs., 15; under 100 lbs., 14½.
Sheep: Ewes, 9@9½. Wethers, 11@12. Yearlings, 13@13½. Milk Lambs, 14@15.

POTATOES

Wholesale selling price:
Per 100 lbs.: Rivers, fancy, 5.00@5.25; choice, 4.50@5.00; Idaho Gems, 5.50@5.75; sweet, 5@5½ per lb.

ONIONS

Wholesale selling price:
Onions: Fancy brown, 4.75@5.00; choice, 4.50@4.75; yellow, 5.00@5.25; white, 5.00@5.25. Garlic, China, 14@15; other, 30@35; Green onions, 1.50@1.75 box.

VEGETABLES

Wholesale selling price:
Artichokes, No. 1, 65@75; No. 2, 40@60.
Asparagus: lb., 6@8.
Beans: So., 13; Hothouse, 20@22 lb.
Brussels Sprouts: lb., 8@9½.
Carrots: sk., 1.00@1.25.
Cauliflower, doz., 1.25@1.45.
Cabbage: doz., 40@45; lb., 2½@3.
Celery: doz. bunches, 35@45; cr., 2.50@6.00.
Cucumbers: Eng. doz., 2.75@3.00; hothouse, bx., 3.00@3.50.
Eggplant: lb., 15@25.
Lettuce: L. A., 2.00@2.75 cr.; Imp., 3.00@3.25.
Peppers: Fla., 25@35.
Peas: lb., 6@13.
Radish, 7@9 doz. bunches.
Rhuharb: bx., 3.25@3.50.
Tomatoes: Southern, 2.00@3.00.
Spinach: lb., 1@1½.

DECIDUOUS FRUITS

Apples: Newtown Pippins, old stock, 2.15@2.25; California storage, 4-tier, 1.85@2.00; Oregon, 2.00@2.50; Spitzenberg, choice, 2.50@3.00; fancy, 2.50@3.25; Winesaps, fancy, 3.75@4.00.
Bananas: lb., 7@10.
Pears: bx., 1.50@4.00.
Pineapples: Doz., 3.50@6.00
Strawberries: basket, 30@40; cr., 5.25.

CITRUS

Box: Lemons, fancy, 4.50@5.00; choice, 3.00@3.75; standards, 2.50@3.00; lemonettes, fancy, 2.00@3.50; others, 2.00@2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 3.00@6.25; limes, 1.00@1.50 crate; tangerines, 1.50@3.25 per crate.

DRIED FRUITS

Prunes:
Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.
Peaches:
Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:
Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.
For "practically peeled" add 1½c, per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2 c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special, "practically peeled," 16¾c per pound, bulk basis.
Apples:
Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.
Figs:
White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.
Pears:
Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

WALNUTS

Net prices have been named by California Walnut Growers' Association.
No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.
Raisins:
California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅜; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12½, Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾; Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown flat pack, 5s, per box, 1.20; 4-

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crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, $2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

RICE

The California market generally remains practically level, although there are a few lots available slighty under the market. Export inquiries continue to come into the market. The trade firmly believes that the next two weeks will see large orders being consummated.

BEANS

Jobbing price per cwt.: Small white, 6.20@6.25; large white, 6.00@6.35; cranberry, 6.90@7.00; red Mexican, 7.75@8.25; pink, 6.20@6.35; California Bayo, 9.00@9.25; blackeye, 7.10@7.25; red kidney, 13.00@13.35; lima, 11.00@11.25; Garvanza, 9.00@9.50; Kotenashis (in bond), old crop, 5.25; new crop, 5.75.

Dried Peas—California, 5.25@5.40 per cental for green, recleaned.

HOPS

1919 crop, 70@85c per lb.; older growth, 45@55 per lb.; prices to growers for 1920 crop, 50@60 per lb.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

Hard White—	Per Bus.	Per Cen.
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$2.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.00	3.48½

The above are minimum prices.

For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.15@3.25.

Corn: California yellow 3.10@3.15 per cental; Egyptian white 3.50@3.65; milo maize 3.00@3.10.

HAY

Under date of March 27, Scott-Magner & Miller says:

Receipts past week 1,118 tons, mostly cheat from Oregon and No. 1 alfalfa from Nevada. The present weather conditions have been most favorable all over the state for growing crops, therefore, it will not be long before our new crop hay will be available. It is reported that cutting of first crop alfalfa will start in some sections as soon as the weather settles. The entire country reports plenty of grass and the demand from country districts, which was very heavy a few weeks ago, is practically nothing. Feeders in San Francisco are cleaning up their barns before buying any further supplies, which naturally makes trade in the city extremely dull. It is predicted that a few showers during April will give us one of the largest crops we have had in years, both of grain and hay.

We quote today wholesale prices in carload lots as appear from dealer's transfers upon the hay market in San Francisco, for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat or Wheat and Oat hay	35.00@38.00
No. 2 Wheat or Wheat and Oat hay	33.00@35.00
Choice Tame Oat hay	37.00@40.00
Other Tame Oat hay	33.00@37.00
Wild Oat hay	Nominal
Barley hay	Nominal
Alfalfa hay	32.00@37.00
Stock hay	29.00@32.00
Oregon Cheat and Oat mixed	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, March 31, 1920

Florida shipments are rapidly decreasing. This has opened the way for keener demand for Californias. There are only about 2,500 to 3,000 cars of Navels left in California. Valencias are beginning to go forward especially from Central California points. They are being quoted around $5 f. o. b. basis.

Lemon prices are not satisfactory though first class stock is commanding fair return. There are 165,000 boxes of foreigns in sight within the next 30 days.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 12,522 cars; lemons, 2,488; total 15,010. To same date last season: Oranges, 12,874; lemons, 3,152; total, 16,026. From Central California this season: Oranges, 3,566; lemons, 276; total, 3,842. To same date last season: Oranges, 2,274; lemons, 251; total, 3,525. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

March 24

Philadelphia: 3 cars or., 2 lem. Nav. 4.05-6.50, lem. 2.05-2.85.

St. Louis: 8 or., 1 lem. Nav. 3.00-5.95, Seeds. 4.05-4.65, Sweets 4..55-5.10, Mikes. 3.15-6.15, Tange. halves 3.20, lem. 3.00-3.35.

New York: 24 or., 2 lem. Nav. 2.90-6.60, Tange. halves 3.35-4.20, Bloods. halves 2.45-3.40, lem. 2.45-3.75.

Boston: 12 or., 3 lem. Nav. 4.15-6.40, Seeds 4.20, lem. 2.50-3.85.

March 25

New York: 23 or., 1 lem. Nav. 3.25-7.00. Navelencias 5.85, Mikes 5.95-6.50, Sweets 5.30, Tange. halves 3.15-4.25, Seeds 5.50, lem. 2.30-4.05.

March 26

New York: 20 or., 1 lem. Nav. 3.05-6.45, Bloods halves 2.90, Tang. halves 2.50-3.70, Sweets 5.05-5.15, Mikes 5.40-6.45, lem. 2.90-3.55.

March 29

New York: 37 or., 2 lem. Nav. 3.20-6.10, Seeds 3.95-4.95, Bloods 4.00-5.20, lem. 2.90-4.10.

Cleveland: 10 or., 1 lem. Nav. 3.40-5.90, lem. 3.00-3.50.

Pittsburgh: 7 or., 3 lem. Nav. 2.55-5.90, lem. 2.75-4.35.

St. Louis: 5 or., 1 lem. Nav. 3.40-5.30, Seeds 3.85, Mikes, 2.35-5.20, lem. 4.50, 4.80.

Cincinnati: 5 or., 2 lem. Nav. 2.50-5.10, Mikes 3.25-6.70, lem. 3.25-4.55.

Boston. 23 or., 1 lem. Nav. 2.25-6.15, lem. 2.00-3.50.

March 30

New York: 26 or., 1 lem. Nav. 2.75-5.90, Tange halves 2.45-4.95, Bloods 5.20.

Boston: 18 or. Nav. 4.40-5.65, lem, 2.50.

MARKET NOTES

The market for California cabbage has held stiff during the past week owing to a car shortage in Texas. Usually at this season the crop from that state seriously interferes with marketing the California crop and as the car situation has been relieved a heavy drop in prices may be expected.

There is such eastern demand for lettuce that for the first time in several weeks New York has quoted Imperial Valley lettuce at $5 a crate and prices are expected to hold good to end of season about April 15. Peas still continue in good supply with an advance of one cent over last week. 350 crates of summer squash arrived from Imperial Valley on Tuesday, the second shipment to the local market. Witloof or Dutch celery, forced from roots of chicory, first appears this week.

ANOTHER BRILLIANT RECORD MADE AT ANNUAL GUARANTY SALE

(Continued from Page 591.)

Consigned by Fred W. Kiesel, Sacramento

FEMALES

47, Uneeda Mutual Korndyke Segis 3d, Nov., 1913, 27.40 lbs.; Burr Farm, $1,200.

48, Oakfield Korndyke Adele 2d, Feb., 1914, 28.27 lbs.; Chas. Harrington, Compton, $700.

49, Heilo Bess Korndyke Segis, Nov., 1913, 26.81 lbs.; Burr Farm, $725.

50, Lad Dirkje Queen 5th, March, 1915, 23.45 lbs.; H. E. Vogel, Fresno, $550.

Consigned by J. S. Gibson Co., Williams

FEMALES

51, Unnamed, Jan., 1919; Burr Farm, $475.

52, Dora De Kol Acme, April, 1917; C. T. Sierra, Jr., $625.

53, Roma Princess Alcartra 2d, February, 1918; Burr Farm, $600.

54, Princess Creamcup Pontiac, Nov., 1917, 18.51 lbs.; Burr Farm, $725.

55, King Korndyke De Kol Acme, Mar., 1917; Burr Farm, $925.

Consigned by Longheath Farm, Fallon, Nevada

BULL

68, Longheath Ormsby Johanna, May, 1919; Fernley Valley Holstein Bull Association, Fernley, Nevada, $450.

Consigned by Toyon Farm Association, Los Altos

BULL

8, Sir Toyon Model Hartog, April, 1919; W. J. and B. A. Edwards, Ripon, $1,100.

FEMALES

69, Toyon Stanessa, Nov., 1918; F. L. Pellissier, $550.

70, Stanislaus Princess Pontiac, Feb., 1915, 25.36 lbs.; R. N. Clapp, Nuevo, $650.

71, Laconner Pontiac Evangeline, April, 1917, 16.81 lbs.; Burr Farm, $700.

72, Laconner Pontiac Albino Girl, May, 1917, 18.17 lbs.; Burr Farm, $875.

73, Cascade Mary Ormsby, April, 1917, 18.18 lbs.; H. J. Long, Fallon, Nevada, $1,150.

75, Cascade Johanna, Feb., 1914, 20.09 lbs.; Burr Farm, $1,100.

77, Isabelle Ormsby Valdessa, Sept., 1918; E. D. Barry, Jr., $700.

78, Northfield Maid Rag Apple, Oct., 1916, 16.07 lbs.; H. J. Long, $800.

Consigned by E. D. Barry, Jr., Daggett

BULL

57, Tosantos Walker Pontiac, Feb., 1919; F. L. Pellissier, Whittier, $750.

Consigned by Dr. E. J. Weldon, Sacramento

FEMALE

58, Ontario Blonde Pietje, Oct., 1913, 33.07 lbs.; Dr. F. J. O'Donnell, Tulare, $1,525.

Consigned by A. E. Smith, Sumas, Washington

FEMALES

59, Korndyke Mechthilde Keyes, Sept., 1913, 27.85 lbs.; Burr Farm, $775.

60, Lady Korndyke Hartog, Nov., 1914, 26.49 lbs.; Burr Farm, $675.

61, Jefferson Wayne Boon, Sept., 1913, 23.82 lbs.; Napa State Hospital, $600.

62, Queen Diamond Pontiac, Sept., 1916, 579 lbs. 365 days; Burr Farm, $850.

63, Baroness Pontiac De Kol Belle, July, 1916, 2 yr. 424.62 lbs.; Burr Farm, $500.

64, Lady Sumas Valley Tohc Pontiac, Feb., 1918; W. Martin, Forest Grove, Oregon, $1,250.

65, Von Helm Hartog Margaret, July, 1918; F. L. Pellissier, $500.

66, Baroness De Kol Belle 2d, Feb., 1914, 20.22 lbs.; F. J. Williams, Mantcca, $400.

BULL

67, Ensign Korndyke Model Pontiac, April, 1919; H. H. Sisson, $2,050.

From Washington to California

Four head from the A. E. Smith consignment purchased by Burr Farm, Los Angeles.

WEATHER REPORT

San Francisco, California, March 27, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.91	18.78	37.77	58	34
Red Bluff	1.91	9.44	20.92	64	30
Sacramento	1.49	7.39	16.59	60	34
San Francisco	1.02	9.06	19.18	60	41
San Jose	1.60	7.65	14.33	60	38
Fresno	2.54	7.66	8.09	61	38
San Luis Obispo	2.95	13.04	17.67	58	34
Los Angeles	2.42	11.37	13.66	62	45
San Diego	1.15	7.96	8.68	62	45

Always Popular

A well known northwestern ranchman, addressing a livestock meeting in March, said: "We have heard a lot of so-called experts say that there is no such thing as a dual purpose cow but everyone knows that the Shorthorn cow that carries a liberal flesh covering and gives a liberal flow of milk is the most profitable and most popular cow on the farms and ranches of this country."

Looking through a western herd an observer noted several cows ranging from 1800 to 1900 lbs. in weight, big, fleshy, beefy cows, yet their milk records range from 8000 to 12,000 lbs. per year each.

Shorthorn steers continually top the leading beef markets.

American Shorthorn Breeders Association
13 Dexter Park Ave, Chicago, Ill.
Ask For Literature

Prince Walker Cornucopia

Popular and Productive Holsteins

Founded upon breeding of the most popular blood lines of the breed, backed by foremost production, and carrying a high degree of type, our herd of registered Holsteins offers most desirable selection to the intending purchaser.
The herd of females, including a large number of daughters of Prince Gelsche Walker out of high record dams, is headed by PRINCE WALKER CORNUCOPIA, by Prince Gelsche Walker and out of Alba Sadie Cornucopia Creetia, with over 36 lbs. butter in 7 days and 866.28 pounds butter from 18849.4 pounds milk in 338 days.

Some of his young sons out of good record dams are now offered for sale.

Poland Chinas---The Big Type

Our registered Poland China females include daughters of such high class big type boars as Mac's Big Price, Big Bone Jumbo, and Suberba, the world's champion boar, and are headed by QUALITY BOB, grand champion at Wisconsin State Fair and rated by many judges as one of the outstanding boars of the breed.

The first litters by QUALITY BOB are now coming on, and buyers should make early reservations.

Visit the Rancho or write your wants. You will receive prompt and courteous attention in either event.

SANTA ANITA RANCHO

Anita M. Baldwin, Owner **Santa Anita, Cal.**

Now is the time to plant

Napier or Elephant Grass

Price	Per Doz. Postpaid	100 Postpaid	500 F.O.B. here	1000 F.O.B. here
Dormant Joints	$ .75	$4.00	$12.00	$20.00
Rooted Sprouts	1.00	5.00	18.00	30.00
Divided Crowns	1.25	6.00	24.00	40.00

WRITE FOR CIRCULAR

Now is the time to establish

SMILO PLANT CROWNS

Per 1000—$4.00

Complete Catalog Now Ready. Write

Aggeler and Musser Seed Co.

620 So. Spring St. Los Angeles, Cal.

POULTRY QUERIES

(Continued from Page 597.)

birds have access to it constantly and an additional meal three times a week of what the author calls "dainties," i. e., millet, hemp secd, buckwheat, Canada peas, kafir and barley. A liberal supply of Canada peas and hemp seed, he says, is necessary to good egg production. The other grains may be mixed with them according to availability and convenience. The "dainties" are fed by throwing them on the floor of the squab house by hand and are thrown in by handfuls as long as the birds will eat. All the grain fed must be old, hard, dry and sweet. Ground oyster shell should be kept in a box in the house, and the ground of the flying pen should be covered with gravel or sharp sand.

Prolapse of Oviduct

I have lost several White Leghorn hens with rupture. First the eggs they lay are a little bloody, then a part of their insides comes out. Can you tell me the cause and how to prevent it?—Subscriber, San Martin.

This is not rupture, but prolapse of the oviduct. The fundamental cause is a weakness in the oviduct walls and ligaments. The immediate cause may be either straining to lay a very large egg, straining to lay when there is an obstruction in the oviduct, or constipation. If the portion of the oviduct which protrudes when the condition of the hen is discoverd has been pecked at by the other birds or has become infected from other causes there is nothing to be done but to kill the hen. If the prolapse or eversion is discovered in time, give an enema of warm, soapy water, if the hen is constipated, and follow with a dose of one-fourth teaspoon of Epsom salts. Wash the protruding mass of tissue with a warm bichloride solution (one tablet to pint of water), then grease with vaseline. With greased fingers try to replace the protruding mass. This must be done with great care and gentleness. When the parts are back in approximately their normal position, insert a lump of ice and keep it there for several hours, in order that the ligaments may not relax. Keep the hen in a small, darkened coop, where she will be as quiet as possible for a few days, and feed a light ration with plenty of green.

It is usually young birds that are laying heavily that are affected in this way. It may be necessary, if many such cases occur, to make the ration a little less forcing for a time.

How Soon Fertile?

I have a goose that began laying before she was mated. How soon after mating will the eggs be fertile? —Subscriber, Orange.

Experiments have shown that eggs may be fertile within a week after mating, but it is safer to wait till two weeks after mating before beginning to have hatching eggs.

White Diarrhoea

Kindly let me know the cure and prevention of white diarrhoea in chickens.—Subscriber, Chino.

If you have really white diarrhoea in your flock, there is not much you can do, for it is a bacterial disease and comes in or on the egg from the hen that laid it. If, which is much more likely, your chicks have ordinary diarrhoea from chilling or overheating or too early feeding, the first thing to do is to remove the cause and the second is to feed sour milk or buttermilk in as large quantities as possible. Keep it before them in fountains and moisten their mash occasionally with it. I am satisfied that 99 out of 100 cases of diarrhoea come from chilling the first four days, and the first and most important part of the treatment is to put the chicks where they will be amply warm. Then feed the sour milk, taking care that there is ample opportunity for exercise—but remember, warmth comes first.

May Be Tuberculosis

My hens go very lame in one or both legs. They eat fairly well, but become poor and weak and sit around on the ground most of the time. Their sleeping quarters are dry. Their ration consists of boiled barley, bran, middlings, alfalfa meal, meat meal and charcoal made into a warm mash in the morning, with cracked corn, wheat, milo and Surelay the rest of the day. They have free range.—Subscriber, Calpella.

This looks like tuberculosis, but a post mortem is necessary to make sure. If on killing one of the affected birds you find liver, spleen and intestines studded with cheesy, yellowish white nodules, you may be quite sure that it is tuberculosis and that the only thing to do is to kill and bury deep every affected bird. If you find no such nodules you are justified in thinking the trouble is rheumatism, though the latter disease is usually characterized by some swelling or inflammation of joints or legs. If there are such external symptoms, which you do not mention, paint lightly with iodine twice a day till there is improvement.

Wants the Best

A Bakersfield subscriber writes for the names of White Leghorn breeders who trapnest, a request which has come to me several times, and I only wish I knew the names of all California poultrymen who trapnest. This subscriber says: "I would like to get some of the best. I raise S. C. White Leghorns, pure bred Hampshire hogs, and am expecting to start in the spring with a registered Holstein bull. I like the Cultivator and want to get in time the best of stock."

Where Are They?

I have just received a vigorous protest from a subscriber against the not-there-ness of people who write this column for help. Two parties have written the Cultivator of their desire to raise pullets for fall delivery. I thought I was doing a service when I put them in touch with two other parties who wanted pullets, but one letter received no reply at all and the other only the shortest refusal.

The Cultivator is most anxious to help in every way, but it hates to be snubbed when it tries to help, and if a breeder or dealer has disposed of all his stock he may—he should—write and inform the inquirers for his goods.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST AT SANTA CRUZ

By M. A. Kortum.

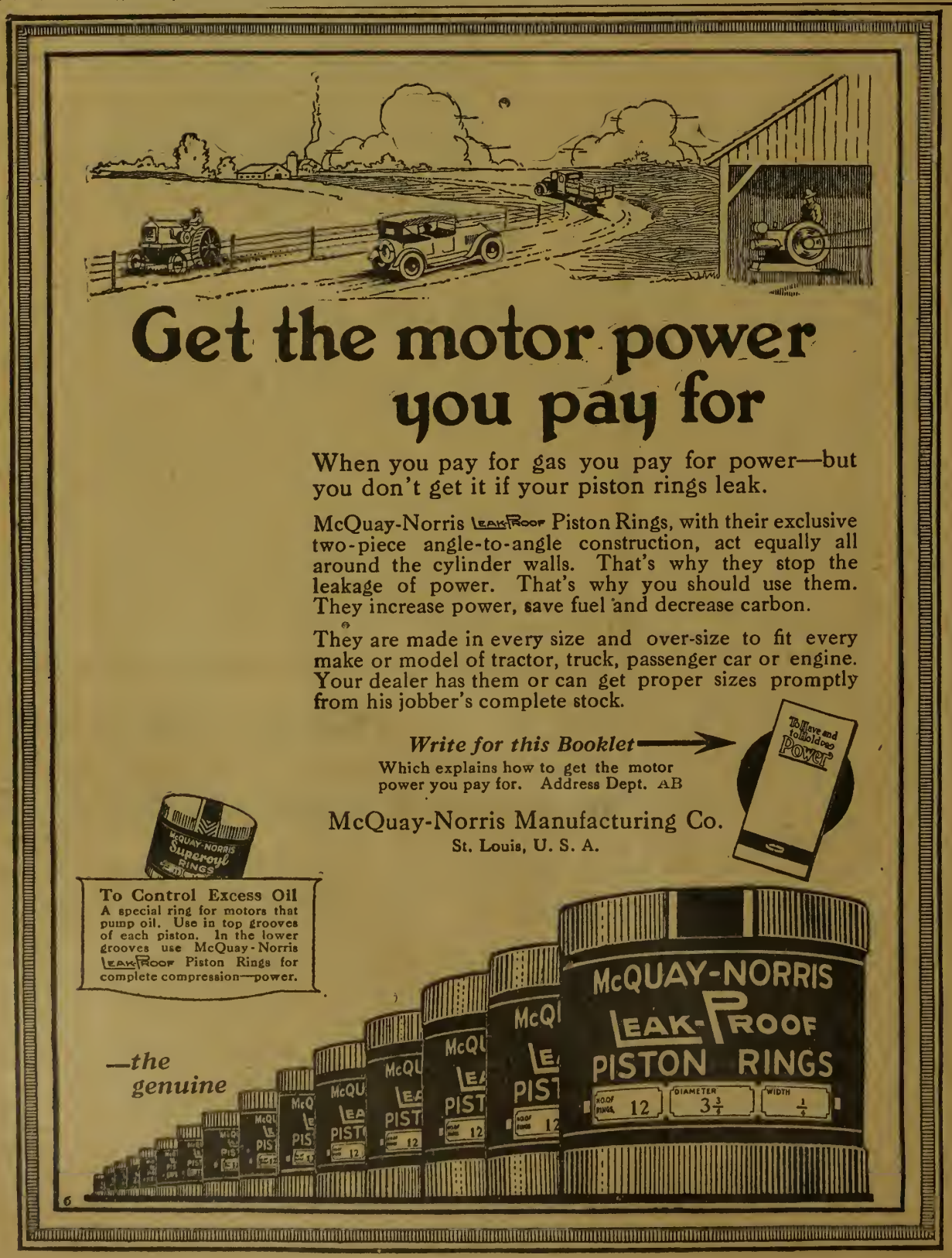
Week ending March 8 showed four running neck and neck, finishing with the same count. Again Santa Cruz took half the honors, with the other half divided between Petaluma and Chino. The high pens for the week are as follows:

Enterprise, 51 eggs; Wood, 51; Walls, 51; Barker, 51; Binney, 50; Webb, 49; Hale, 49; Amsbaugh, 49.

Highest pens to date: Walls, 736 eggs; Neef, 656; Enterprise, 650; Rose 647.

Hens having laid better than 70 per cent to date are: No. 16, Walls, 104 eggs, 87½ per cent; No. 18, Walls, 90 75½ per cent; No. 61, Enterprise, 88, 73½ per cent; No. 272, Peck, 87, 73 per cent; No. 292, Barker, 86, 72 per cent; No. 177, Gibson, 86, 72 per cent; No. 30, Bellows, 85, 71 per cent; No 101, Webb, 84, 70 per cent; No. 238. Hale, 84, 70 per cent.

For the week there were 76 birds that laid over 85 per cent and 216 of the 402 birds in the contest laid over 70 per cent.


Get the motor power you pay for
When you pay for gas you pay for power—but you don't get it if your piston rings leak.
McQuay-Norris LEAK-PROOF Piston Rings, with their exclusive two-piece angle-to-angle construction, act equally all around the cylinder walls. That's why they stop the leakage of power. That's why you should use them. They increase power, save fuel and decrease carbon.
They are made in every size and over-size to fit every make or model of tractor, truck, passenger car or engine. Your dealer has them or can get proper sizes promptly from his jobber's complete stock.
Write for this Booklet
Which explains how to get the motor power you pay for. Address Dept. AB
McQuay-Norris Manufacturing Co.
St. Louis, U. S. A.
To Have and to Hold the Power
To Control Excess Oil
A special ring for motors that pump oil. Use in top grooves of each piston. In the lower grooves use McQuay-Norris LEAK-PROOF Piston Rings for complete compression—power.
—the genuine
McQUAY-NORRIS
LEAK-PROOF
PISTON RINGS
RING 12
DIAMETER 3¼
WIDTH ¼

Household Department

THE MEANING OF EASTER

The meaning of Easter, children?
I will tell yon if I can;
'Tis the heart of God in the spring time,
Appealing to good in man.

And down through all the ages,
Back farther than we can know,
The springtime resurrection
Has carried this message, I trow.

The meaning, at first half hidden,
Is coming on surer wing:
The night of truth has a morning,
The winter of error, a spring.

And anew shall each springtime's glory
This beautiful lesson impart,
That truly the heart of the Easter
Is Easter in each human heart.
—Belle M. Perry.

HOUSE BRIGHTENING

By M. R. O., Hollister

Dear Householders:

Spring brings us so many new joys and by no means least among them is the "house brightening" that our homes may be more truly homey.

Our home is in a five room bungalow. Our spring inventory showed stained woodwork, walls a bit dingy and in much need of new paint, curtains anything but "springy" looking, therefore, resolved we to go over the whole house and give a springtime touch at minimum cost.

We found a good coat of varnish was all the woodwork needed.

The living and dining room floors received a wider varnished border around rug space. One bedroom floor was painted a light tan. The bathroom and other bedroom a light gray, and kitchen floor a darker gray. Experience has taught us that only the "best" of floor paint is economy, and it must be well applied and allowed full time in which to dry before using.

The walls next engaged our thought. Because of the inexpensiveness, ease of applying and its being so sanitary, we chose Alabastine. For living room, dining room and one bedroom a soft creamy tan was used on walls and a little lighter shade for the ceilings.

In bath and the other bedroom we used a delicate blue, and for the kitchen a light shade of green. In each room we put a fainter shade for the ceiling. If you home makers do not know Alabastine, for your own convenience of time and means you'd do well to try it. If at any time by accident a bit is scaled off, we go over the spot with a small brush and a little of the Alabastine mixed with cold water and as soon as dry one could never tell there had been a mar. It is especially good in homes where babies and small children play about, for the walls are ofttimes marred, but can be so easily made new.

Of course the usual cleaning of rugs and brightening up of furniture was necessary. We used dampened salt freely on living and dining room rugs, sweeping and dusting very thoroughly. Some of the furniture needed varnish and some only the regular polish.

The curtains are usually a problem of much interest in the cleaning and changing of the house.

The living room and one bedroom had curtains of good quality scrim. These I washed in warm suds, rinsed in water having added to it two teaspoons gum arabic for each curtain. The curtains retain their crisp newness by this means. They were then stretched on a curtain frame and when dry looked like new.

The heavier winter draperies gave way to ones of pongee. These are lovely and soft and with a brown stenciled pattern were rich and beautiful.

The dining room windows were curtained with tan cotton crepe having inexpensive ball trimmings. These crepe curtains are dainty, serviceable and easily laundered.

A crash table runner on library table in living room was given same brown stencil design as pongee draperies.

The couch in dining room had three large soft cushions, covers made from a tan crash skirt, linen duster (long since unused) and one of tan burlap. The crash and linen ones were given brown hems and a touch of color added with some bright novelty braids. The burlap received a stencil design of pine needles and cones and was fringed on the ends. These cushions can be used freely anywhere and by all members of the family. We want our home to be a usable one; it must combine good taste and utility.

In summer time part of our family occupy out of door sleeping rooms, so we decided to make bedroom off the dining room into our guest room, choosing a soft tan and yellow as our color scheme.

The scrim curtains before mentioned were beautified by adding a band border of yellow flowered cretonne hung "Dutch" style, the valance of the same yellow flowered cretonne. A runner for the dresser was also of the cretonne and a cushion on the rocker. A soft, dainty summer comfort was covered by using four bleached and laundered sugar sacks. these being set together by bands of the cretonne, one running full length through center and one crosswise center, and a border around the finished comfort. It was tied with mercerized cotton thread in yellow and white.

We cut, sewed, dyed and rolled carpet rag balls, carried to the rugmaker, and as a result had a number of pretty rugs, one a tan and white, another of brown with a touch of green. These were placed in this guest room. A little of summer's golden sunshine was reflected in this cool, inviting, restful room.

The other bedroom was in blue and white. Sugar sacks were again utilized on the five windows, two to each. These being broad, short windows, a blue stencil design was used and very nice curtains resulted.

The furniture, dresser, bed and chairs of white enamel were touched up with a new coat of enamel. A bedspread was made from a larger cretonne square, washed and dyed a delft blue (it was formerly used for a big doorway in another house). The two rugs in this room were from the rug makers, one delft blue and white, the other navy blue and green.

The kitchen is a woman's home during many hours of the day, at least some days. The color on walls, light

A SONG FOR EASTER

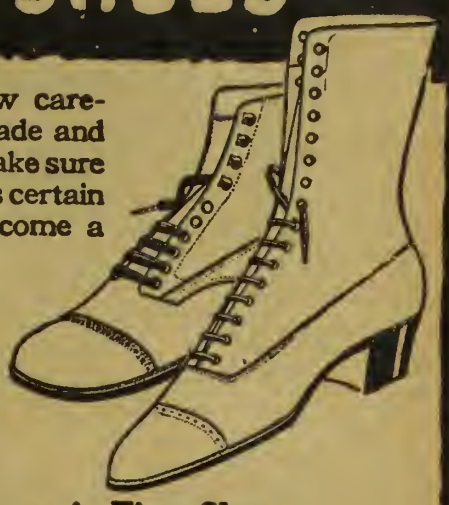
Let all earth's good arise today
And fill the world with sweetness;
Let all earth's wrong unbidden lie
In dust of death's completeness.

Soft falling rains have called the flowers,
The tomb's rock door is riven,
And all the happy springtime hours
Are singing unto heaven.

They must have had enchanting dreams
Down in their hidden places:
The leaves, the grass, the little streams,
To wake with such glad faces.
—E. T. Tompkins.

Mayer
MILWAUKEE Mayer CUSTOM MADE HONORBILT

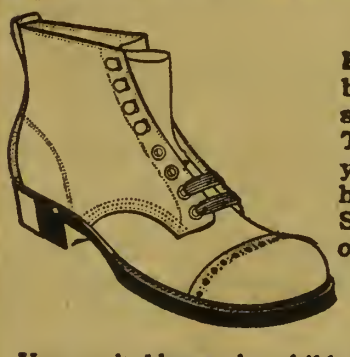
HONORBILT SHOES



IF you only knew how carefully every shoe is made and what steps we take to make sure of unvarying quality, it is certain you would promptly become a wearer and booster for Mayer Honorbilt Shoes. Right now it is essential that your shoe dollars should buy the utmost in value. You can always depend on *Honorbilt* values.

Men's and Women's Fine Shoes

Honorbilt Fine Shoes for men and women can be had in all the very latest styles. Neat and graceful, correct in detail, perfect fitting and comfortable. And the wearing quality never fails. Honorbilt Shoes are built to last.



Work Shoes

Honorbilt Work Shoe leather is double tanned to resist the alkali in the soil, as well as barnyard juices. They are soft and easy on the feet, yet long wearing and will not get hard when wet. Honorbilt Work Shoes will give double the wear of ordinary shoes.

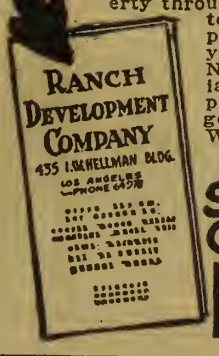
Children's Shoes

You can't blame the children if they scuff out some shoes in a hurry. But that doesn't happen to shoes that bear the Mayer *Honorbilt* trade-mark. They are made of honest leathers and are sound and solid—School Shoes and Fine Shoes—built for comfort for growing feet. *They wear like iron.*

Buy Honorbilt Shoes for your whole family. Leading dealers sell them. Look for the trade-mark on the soles.

F. Mayer Boot & Shoe Co.
Milwaukee, Wis.

This Folder Tells You How To Make Your Idle Land Earn Money



This is the day and age when you should make every foot of land produce profits for you. If you have any size tract ranging from 80 to 5,000 acres in the Western States that need development you should send for this book at once. It tells you the way to develop your property through the use of Hydro-Electric plants, gravity irrigation systems, pumping plants, grading, and buildings; in fact, it points out the various essentials that are necessary to make your ranch a producing property.

Now is the time to act, so that you can get a crop from your land next year. It is a certainty that crops will bring good prices next year, so take advantage of this condition and get your land under cultivation now.

Write today, stating location of land and number of acres.

Send for Your Copy Today FREE

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Engineers and Contractors
435-36-37 I. W. Hellman Bldg.
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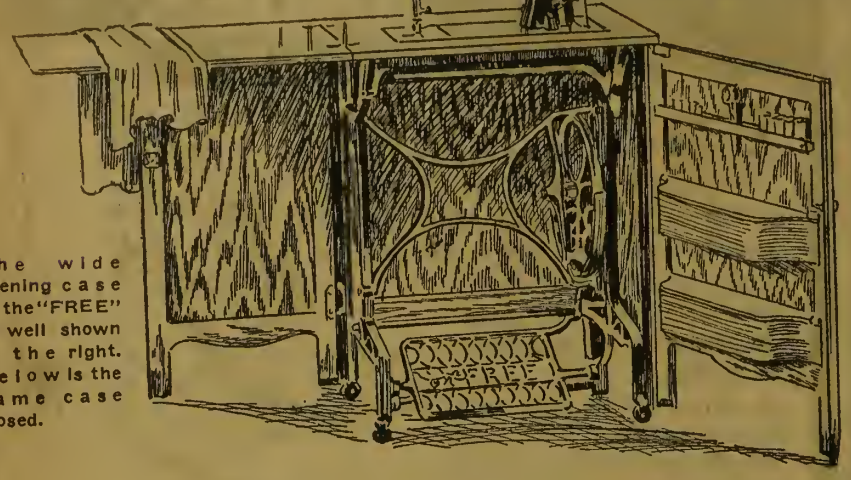
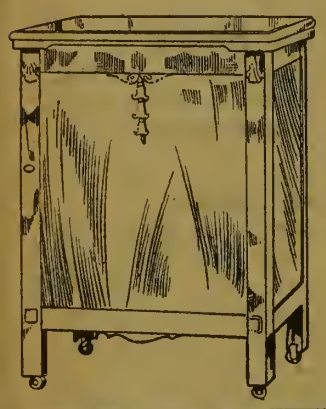
Women Who Do Their Own Sewing Deserve the Help of a Modern Sewing Machine

They should not be compelled to use an out-of-date hard running machine. Family sewing is important. A woman who can do her own sewing saves many dollars a week by her skill. She deserves more than being compelled to "get along" with an ancient machine that taxes nerves and disposition.

THE "FREE" Sewing Machine Guaranteed For Life



The wide opening case of the "FREE" is well shown on the right. Below is the same case closed.



Trade in your old machine on a "FREE."

If you want to know how to get full present value for your old machine applied on the purchase of a "FREE" and enjoy Barker Bros.' convenient payment terms on the balance, write us fully describing the make, age and condition of your machine and we will tell you how you may easily and quickly begin to enjoy sewing on a "FREE."

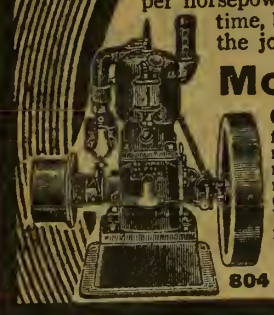
Barker Bros
ESTABLISHED-1880

Complete Furnishers of Successful Homes

722 S. Broadway, Los Angeles, Cal.

Light Weight Farm Engines

Cushman Engines, recognized everywhere as The Original Light Weight Power, give dependable, economical service on every power job on the farm. Cushman Engines weigh only 40 to 65 pounds per horsepower. The Cushman owner saves valuable time, because he can easily move his engine to the job, instead of hauling the job to the engine.



More Power Per Pound

Cushman Engines weigh only one-third to one-fourth as much as ordinary engines, and they run much more quietly and steadily. Better design, better materials and better workmanship give the Cusbman more power per pound. Equipped with Throttling Governor, Carburetor, Friction Clutch Puliey and Water Circulating Pump without extra charge. Send for Free Book on Light Weight Engines.

CUSHMAN MOTOR WORKS (320)
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CUSHMAN

KROGH PUMP AND MACHINERY COMPANY

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Krogh Pumps Are Absolutely Water Balanced
No End Thrust Possible No Set Collars Used

The No Trouble Pump

Krogh Direct Motor Driven Pump

Fitted With Ring Oiling Bearings

Renewable Babbitted Bushings

Ring Oiling Gland

We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

At the bottom of your letter to advertisers just say "California Cultivator"

green, was used on curtain stencils (sugar sacks), the woodwork being a darker green. We have much light and with the light green it is a restful, cheerful, sunny room.

We put a set of open front shelves in one corner and hung curtains across. This for young "Miss Three Year Old," to put her play pretties in as mamma puts her things in cupboards. Everything in the kitchen is built in except two chairs, a sink stool and small table on rollers. These were all painted to go with kitchen woodwork. This roller table is used to carry foods and dishes from kitchen to dining table, and vice versa. It saves many steps and much time.

One point of much pleasure and change to us is our pictures. We have not yet come to the place financially where we can invest a big sum in real first class water colors and oils for our home decoration, but we do have a good kodak and on our trips here and there we've gathered together a number of good landscapes, now and then a pretty road curve, or a lone tree. For small sums we've had enlargements made and when these are framed in natural wood frames, stained in browns, tans or rich dull green, they are pleasant to the eye and full of memories for us. We change our pictures on the walls, and when spring bids us bring forth the cretonne cushions and the lighter monious with the season. And a few of these pictures have been made more real by the tints from the artist's brush.

From our kitchen we look out upon a full bed of good old fashioned hollyhocks and their cheery faces will be good company on busy days during summer canning and cooking times.

The big front window of the living room looks out upon marigold, golden glow, goldenrod, zinnia and coreopsis beds. These golden yellow flowers carry much of heaven's sunshine into our home, as we always have baskets, bowls and vases of them arranged in our rooms.

I don't know whether or not our editor will consider this worth while, but I'm so anxious to hear from others that I'm sending my epistle in.

My wee daughter and some distance from town keep me in our home many days of the year and we try to make it a really bright home, and do so, partly, at least, by changing the interior with the season's change.

Yours for "Brighter, Better Homes," M. R. O.

P. S. As to stating the exact cost, our Alabastine tints cost an average of $1.25 per room. Good floor paint comes a bit high nowadays, but pays; much of my cretonne I had on hand; the rag rug materials were prepared during long winter days and evenings; the frames for pictures were made from bits of wood in the workshop—really otherwise wasted materials.

The whole family enjoyed taking part in the work, and I am a firm believer in letting the men of the family have a hand in beautifying the home. They enjoy it the more for having had a part, and many have much better taste and judgment of materials, color combinations and the execution of work than women—at least a harmonizing of ideas gives much more pleasing results in the home.

HOW I MADE A NEW KITCHEN

By E. J. T., Stockton

As I happened to be a woman carpenter, perhaps the making of a new kitchen will not interest those who cannot drive a nail straight, but when I was a small youngster I said, "I can do anything that anyone else my age can do," and I kept saying it all through life, and when I wanted a thing done I did it, and so without aid of any kind I made myself a kitchen.

Our house was large. There was a small kitchen, a big dining room and double parlors. Now no farm woman needs two parlors, or living room, as one of them is in these modern times called, so I decided to make a kitchen of the dining room, a laundry and wood room of the little kitchen, it also answering for a storage room for wet coats and wet shoes in winter, things that formerly had cluttered up the kitchen. It was 10 by 11, so was large enough for these purposes. But now to the kitchen:

I bought cheap tongue and groove pine lumber and, with the other pieces

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needed, already on the farm, I built a cupboard all along an 11 foot wall. But first I took the sink from the kitchen and put it exactly in the center, with a big drain board at the left, and at the left of that I built my cupboard from the floor to the molding on a line with the top of the doors. Then I built a shallow cupboard overhanging. On the other end I built a table with two top drawers and three side drawers and two bins. The bins I took from an old table but built the drawers from parts of new boxes. My cupboard comes over this table too and at the end is closed in by pine boards clear to the floor. I closed it in front of the sink with doors and put in shelves for pots and pans.

I bought hinges, drawer pulls and door catches and before putting them on stained the whole thing a dark walnut, as white soils too easily.

I put in the pipes myself, also, the lead sink drain and the water pipe through the floor, but I did not connect it to the pipes in the yard. I'm going to admit that someone else did that.

I of course put in shelves, just as I could, so there was a place for ev erything. There was, however, one important part I forgot until all was finished, and that was to leave a space in my table for the flour board, but sometime I shall make the drawers shallower and put it over them, as it was in my old table.

I bought Congoleum for the floor and two and a half years ago, the entire job cost $22.75. There was already a place for a stovepipe, so I put in another stove, leaving the old one in the room set apart now for a laundry. I tinted the ceiling of the new dining room and part way down the wall. The balance I papered, using a cream for the ceiling and cream and brown paper for the wall, with an old white molding on the margin, painted brown. This room has a fireplace and two south windows, so it is cozy and light, and everyone remarks upon the convenience of my kitchen.

SUGESTIONS FOR AN EASTER LUNCHEON

Here is a pretty suggestion for Easter favors: From a nest of ferns and flowers have the guests draw colored eggs, to each of which is attached a slip of paper bearing sentiments like these:

Draw the egg of violet hue;
You'll have friends both fond and true.

Pink will bring you luck—
A lover full of pluck.

Gladly take the egg of green,
For good fortune may be seen.

The egg of blue
Means lovers few.

Do not touch the egg of red;
If you do you'll never wed.

If you draw the egg of white,
Your true love you'll see tonight.

You'll marry in another town
If you choose the egg of brown.

These jingles may be written with gold ink, which can be used with an ordinary pen, or the paper may be yellow and the ink of white.

Among the very prettiest of all decorations for a home dinner for Easter, or an Easter Monday party, are crepe paper butterflies, in varied colors, decorated with gold or silver paint or oil colors. Large ones can be made with gilded clothespin bodies, while the dainty small ones have cotton covered wire for foundation bodies and antennae.

Have butterfly candle shades, butterfly place cards and, if possible, a lovely overhead decoration with a number of delicately made paper butterflies fluttering from the ceilings at the end of fine silk strings.

Lovely nut holders may be made (or ordered from a firm making a specialty of novelties) by having small butterflies poised on the rims of the cups which hold the nuts. This is a beautiful decorative scheme especially fitting at this season.

WINNERS OF HOUSEHOLD CONTEST

First prize, $2 cash, to "House Brightening," by M. R. O., Hollister; second prize, $1 cash, to "How I Made a New Kitchen," by E. J. T., Stockton

Buy the Best Piano You Can Afford

A good many people start out to buy a Piano with the idea of "how cheap" they can buy. They usually have only one thing in mind—"the price." They are naturally attracted to dealers making "price" the main talking point of their pianos. Pianos are very intricate instruments—the plate and sounding board must be first-class in every respect; there are thousands of little parts which must be accurately made and fitted. Now this "mechanical" part costs, if the Piano is made properly and of good materials. The "tone" of the Piano is still another matter—the art of the manufacturer has endowed the instrument with a "soul," which we speak of usually as the "tone"—this, too, is figured in the cost of the instrument.

Therefore, if the purchaser desires an instrument which is a real piano with a "soul" and not just a piece of furniture, a substantial amount should be invested. Instead of figuring "how cheap," the purchaser should figure "how good" he can afford to buy—for the more money invested at a reliable Piano House, the better the instrument, the longer the service and the greater the satisfaction.

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — April 10, 1920 — No. 15

The Basin of the Colorado River

By C. B. Messenger

OCCASIONALLY a California farmer has been so fortunate as to make a purchase of orchard, alfalfa, cotton or other lands and recover the entire purchase price with the first year's crops. "A combination of circumstances" is usually given as the explanation, or, simply, "good luck." More correctly, it is because of a shrewdness in observing and taking advantage of opportunity, combined with much hard work. When America acquired Alaska, also when she acquired the great territory of the Northwest, in which was also included some of the Southwest, she acquired holdings which every year are doing vastly better than the occasional farm referred to. The minerals of Arizona alone pay annually sufficient to cover lands acquired west of the Rockies.

Now come the engineers and other experts, together with the seers who see things nationally and they point to the rich valleys in the Colorado River basin, and more particularly to the "liquid gold" flowing into the Gulf of California annually, and say to us: "Hold back the floods, put these waters on the rich valleys, and the products of the 6,000,000 acres will every year more than pay for the cost of this great work. In addition, there will be developed 2,000,000 horsepower for use in our industries. Homes for millions will be made possible. Opportunity will be given for birth of a new Americanism, or, more correctly, rebirth of the old Americanism, the spirit of the pioneers."

In addition to new lands developed, new homes made possible, the lands now reclaimed along the Colorado, nearly 2,000,000 acres, will be saved from the ever present menace of mid-summer floods from the melting snows of the Rockies. These lands lie in Mexico and in the seven states up to Wyoming. In the entire basin 15 per cent of the tillable land is in Mexico, 15 in Wyoming, 11 in Utah, 18 in Colorado, 2 in New Mexico, 1 in Nevada, 13 in Arizona, 25 in California.

But why the renewal of this discussion which has been before the people of the Southwest for scores of years? Simply because it remains discussion. Excepting in isolated cases, nothing has been done to reclaim this great wealth. There is still being carried into the waters of the Gulf of California yearly 114,000 acre-feet, or 20,000,000 tons, of rich soil. The wealth giving waters are wasted, the power is not used, homes are not made possible, so there has been brought into being the League of the Southwest.

Its first meeting was held in San Diego in Exposition year. In 1918 a second meeting was held in Tucson, Arizona, but war called for every energy and little more than a series of resolutions resulted. Now comes its third meeting, held last week in Los Angeles. The league is composed of state governors, of representatives of civic bodies, chambers of commerce, boards of supervisors, and other organized units in the seven states or, as expressed in its constitution, the league is: "A non-political alliance between the states of Arizona, California, Colorado, Nevada, New Mexico, Oklahoma, Texas and Utah to foster closer social and commercial relations and to link the communities of the Southwest in a spirit of brotherhood and the promotion of the civic, commercial and social interests of the territory."

In addition, its friends say for it: "It grinds no axes, backs no particular schemes, represents no special interests or factions; it promotes the progress and prosperity of all the Southwest by fostering better acquaintance and intelligent cooperation between the influential and substantial elements of its various communities. Its conventions afford any one community or state opportunity to enlist the unified influence of the entire Southwest to successfully further any legitimate local project or need."

The officers are: President, Dr. R. B. von Kleinsmid, president of the University of Arizona; first vice president, A. L. Richmond, recently president of El Centro chamber of commerce—(Continued on Page 618.)

TO the Wallis owner there is no question that the tractor is a time-saver and a profit-maker. Naturally, his opinion is based upon what his Wallis has done for him; so in his mind there is no doubt.

The Wallis has long championed the principle that the tractor, to serve day after day under the hard strain of heavy farm work, must be built as fine as the best automobile or truck.

Thus you find in it such fundamental principles as the "U" shaped frame; the smooth-running, peppy valve-in-head motor with removable cylinder sleeves and machine-finished combustion chambers; the cut-and-hardened steel gears, completely protected by dust-proof housings and running in a constant bath of clean oil; the oversize bearings, and others.

These things do not cause much concern to the Wallis owner. He congratulates himself on the fact that his Wallis is a dependable worker; that its power is ready day after day; his work done in season; his labor bill reduced and his profits increased.

The trend today is more decidedly than ever toward the Wallis, "America's Foremost Tractor." If you cherish the hope of owning one, it will be decidedly to your advantage to act promptly.

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(168A)

California Cultivator

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The Goat Dairy Industry

By C. B. Messenger

NOW comes advanced reglstry for Milch goats. I imagine that goats have been the source of food for humans almost as long as have the faithful cows, but Americans have, as a rule, been content to leave this most worthy little animal to southern Europe and western Asia or northern Africa, at least as to commercial production of human food.

More recently, however, the goat has been "tolerated" in this country. This has been especially true of California, for of the great number now producing milk in this country more than 75 per cent are in this state. But even yet in this goat producing section the industry is often likened unto the rabbit boom which flourished in this country many years ago. If there are readers of the Cultivator who have an idea that breeding of goats for milk is but a fad they are surely due to be enlightened. We have no definite figures to show the magnitude of the industry, but a short time spent in looking around a large producing center is sufficient to show literally thousands of these worthy little animals browsing contentedly over hillsides and producing milk which, through auto delivery, is carried to nearly every section of the larger cities. I visited one of these dairies, Vinans' Goatairy, a few days ago and was impressed with the magnitude of the business and the efficiency with which it is conducted.

This dairy has some 200 goats, 91 now milking, but many others due to freshen within a few days. The 91 goats are milked twice daily. The milking is done by two attendants, a man and his wife. As I watched, three or four goats were released from the stanchions and taken to the milking room, this room, not more than ten feet square, having the appearance, with its closed cupboards, of a kitchenette, white enamelled and faultlessly clean. There were two benches of which two of the goats took possession and were promptly groomed, or rather cleansed with moist cloth. The milkers sat down at their sides and in two or three minutes had finished the milking and the two nannies left their places on the benches which were immediately occupied by two more. As the goats were milked, the milk was strained into an ice cream freezer looking container, a tin can inside of a wooden tub, and when this was filled with practically ten gallons of milk a snap was released and the milk ran down the trolley to the bottling house a bit lower down the glen. In this case the milk is delivered to various parts of the city of Los Angeles at a price of 40 cents per quart or 25 cents per pint; other dairymen have sold for 25 per quart or 15 per pint.

This dairy was exclusively of grade goats. California has a large number of pure breds. the foundation stock of which was sent to this country many years before the present quarantine regulations were in force. There are Toggenburgs, Nubians, Saanens, Maltas, and now there is coming an American breed, that is, the American Milch Goat Record Association organized in 1903 is not only registering pure breds but under a different classification is registering grades providing the sire is pure bred.

Youngsters Which Promise Future Production

A bunch of kids of great promise surrounding their owner J. P. McLaughlin. Most of them are pure bred Toggenburgs. A few, however, are grades.

But regarding the advanced registry, here is a note just received from the University of California.

* * *

University Tests Goats for Advanced Registry

Testing Toggenburg goats for an advanced registry for the first goat breeders' association organized in the history of the world, the college of agriculture of the University of California today announced the beginning of a system of authenticated records of milk and butter fat production which will not only focus attention upon the remarkable milk production of goats but will also lead to their improvement through breeding on the same basis as applied to dairy cattle.

The work was carried on under the auspices of the National Toggenburg Breed Association for J. B. McLaughlin of La Crescenta. The results of 24 hour tests follow:

Name of Doe	Milk Pounds	Butterfat Pounds	Avg. % Fat
Polly-Mac	13.8	.442	3.20
Polly Ana	10.2	.421	4.13
Lassie Mac	9.1	.355	3.90

If the production of Polly-Mac be estimated for a period of 30 days, it would amount to 414 pounds milk or approximately 184 quarts for the month. This is at least two-thirds as much milk as a good dairy cow will produce, yet the average goat weighs but one-tenth as much as a common cow.

* * *

"First in the history of the world" looked attractive, so at the first opportunity I proceeded to Mr. McLaughlin's place on the hillsides at the foot of the Sierra Madre. Polly-Mac and Polly Ana were engaged in a lively tilt, for they had just been milked and were well fed. They are both under test, and Mr. McLaughlin remarked that visitors were not in strictly good form inside the goat house when they were under test. However, a peep was permitted. The goats are under a 12 month test and Polly Ana is the first of Polly-Mac's offspring to join in this test. There will soon be a whole flock of Pollys if Polly-Mac continues her last year's record. Inside of 12 months she gave birth to ten kids, five does and five bucks. Three of the little does, as near alike as three peas, were at play in a nearby corral and gave every promise of being as great producers as is their mother with her 13.18 pounds of milk daily. Whether they will, any of them, surpass California Gretel, that wonderful little animal whose production was given in the

(Continued on Page 627.)

Picnic Day at the University Farm

PICNIC Day at the University Farm at Davis has come to be an event of widespread interest to the agricultural communities of the state. For the past 11 years this annual celebration has been enjoyed by thousands of people and this year's Picnic Day, which is scheduled for April 24, promises to surpass all predecessors.

The term "Picnic Day," which has been applied to this annual visitors' day at the farm, is somewhat misleading. While the event has all the features of a picnic or fair, its real purpose is to afford the citizens of the state an opportunity to inspect the institution which they are supporting and which has such a vital influence in the biggest industry of the state. While the institution is always open to the public, this is the one day when all phases of it will be in operation for the special purpose of inspection and demonstration.

The equipment and methods of farm practice which will be displayed are the latest word in scientific agriculture. Many valuable experiments are being carried on continuously, the results of which would be of great value to the farmers in general if they were known. The actual demonstrations and exhibitions are continuous throughout the day and the remainder of the program keeps up a continual series of amusements. The parade is always one of the most spectacular events. The university's prize livestock, which includes some of the best in the state, is entered in this event and each division has a float which depicts some phase of the work being carried on. The student floats, depicting some of the phases of campus life or activity, are always orlginal and interesting. Athletic events not only include intercollegiate games and meets, but also a number of comedy numbers. Large accommodations are provided for dancing and refreshments are served continuously. Speeches of the day are usually made by the governor and the president of the university. It is customary for most of the visitors to bring their own picnic lunches, and coffee and cream are provided.

The first picnic was held in 1909, three years after the purchase of the site, and marked the beginning of the farm's activity. On this day some 5,000 friends of the university gathered to eat lunch under the trees and discuss the future of the farm in California agriculture. This gathering proved very successful and it was decided to have a picnic every spring when those interested in the farm could get together and review the past and make plans for the future. The following fall school instruction was started, but lack of equipment and other difficulties made progress slow at first. The two succeeding picnics were not successful for the farm had little to show and had not as yet learned to show that to advantage. In 1912, however, enough equipment had been installed to prove quite a drawing card, and attendance from then on steadily increased.

When Professor H. E. Van Norman was made dean of the University Farm school in 1913 he made an important step in advancing picnic day. Previously most of the work had been handled by the faculty, but Dean Van Norman realized the value of this type of work for the students and accordingly they were asked to take charge. The student committee which will handle the picnic this year is: General chairman, H. M. Kilburn; entertainment, John Wheeler; publicity, R. A. Davidson; dance, Ernest Phillips; parade, O. W. Karn; transportation, H. J. McLean; reception, Chester Steele; refreshments, G. Hayford; stock judging, J. E. Ditty; decoration, F. Cooper; athletics, O. Huber. The general chairman and the first three men named are students from the university at Berkeley, and the remaining chairmen are farm school men.

The last few years' attendance has been around 16,000 and this year accommodations are being made for 25,000. Last year the day was proclaimed a general holiday in Yolo County in order that everyone might attend.

Agricultural News Notes of the Pacific Coast

Northern California

Hops are selling in Santa Rosa for 62 cents.

The Sacramento retail market is quoting spuds at $9.10 per sack.

The Pacific Rice Growers Association is asking for tariff on Asiatic rice.

Placer County produced last year nearly $5,000,000 worth of deciduous fruits.

Livermore, Alameda County, has promise of establishment of a big dehydration plant.

A campaign is on to raise a fund for building a highway between Nevada and Northern California.

Some almonds have been caught by late frosts and it is feared the crop may be materially reduced.

The state highway commission is taking steps to grow nursery shade trees for use along the highways.

Wine grape growers are generally uniting and preparing for cooperative action in disposing of next season's crop.

Dr. David Barrows, newly appointed president of the University of California, was installed on Charter Day, March 23.

The advisability of installing community dehydrating plants in Napa County is being considered by owners of vineyards.

Work is going forward steadily on outlining plans for forming an irrigation district to take in irrigable lands of Livermore Valley.

Between 50,000 and 75,000 acres of land in Sacramento Valley on which it was expected rice would be grown, has been abandoned for this year.

The state highway commission has advertised for bids for the construction of highway between Red Bluff and the northern boundary of Tehama County.

California papers are full of reports that thousands of sacks of potatoes are rotting in warehouses, the precious spuds being held to force up the market.

Rice experiments directed by the federal department of agriculture at Biggs, Butte County, will be curtailed because of cut in appropriation of the federal department.

The Central California Wool Growers' Association, with headquarters in Alameda County, is the name to be chosen by wool growers who are now engaged in organization.

Horticultural Commissioner Turner, Placer County, in a recent report to the supervisors places the total of fruit and grain crops in Placer County for 1919 at $5,000,000.

Fifty autos carrying about 160 farm advisers and farm bureau delegates are doing Sonoma, Napa, Solano, Sacramento, Placer, Yolo, Sutter, Yuba, Butte, Tehama and Shasta Counties this week.

Ninety power concerns in the state have turned over to the railroad commission complete direction of their systems in order to equitably distribute and conserve power during the coming irrigation season.

Sacramento now has direct steamship service between Europe and New York via San Francisco and the Panama Canal. Through bills of lading will be issued in both directions, goods being transshipped on river steamers.

Central California

Prospects are for a good sorghum crop at Hughson, Stanislaus County.

A. J. Serpa of Stanislaus County was killed by a bull on his ranch near Ceres.

Monday, May 24, is opening day for the Sequoia and General Grant national parks.

The Blossom Festival of the Santa Clara Valley was staged at Saratoga on March 27.

"Control the pest of house flies" has been the slogan of San Joaquin County farm bureaus.

Erection of a $50,000 dehydrating plant for fruits and vegetables is announced for Visalia.

The boys potato club at Shafter, Kern County, has potatoes all planted and growing for the contest.

Superintendent Kreutzer has moved the general offices of the land settlement to Delhi, Merced County.

A number of poultry producers of Santa Cruz have joined the Poultry Producers of Central California.

Patterson, Stanislaus County, proposes August 26, 27 and 28 of the week preceding the state fair as its fair dates.

Tulare shipped during the last year in excess of $250,000 worth of grain, or all told, dairy and other products aggregating $6,125,000.

The Dinuba Grape Growers Association is building additions to its packing houses at North Dinuba, Reedly and Orange Cove.

The California Farm Bureau Federation is mailing to all its members a questionnaire on the Asiatic and Mexican immigration problems.

The Farmers Union at Ceres is inviting locals in the vicinity of of Modesto to unite in the establishment of a cooperative store at Modesto.

Picking of Valencias in the Lindsay and Porterville district of Tulare County is considerably ahead of normal years and 80 per cent crop is reported.

The big cannery at Armona, Kings County, has opened the 1920 season on spinach with force of 125 women and 50 men. It will next operate on apricots.

At the recent conference of rice growers and handlers with the bureau of markets in San Francisco the government recommendation for four grades was indorsed.

The California farm bureau proposes to take up Japanese immigration. Questionnaires will be sent out asking for vote from every member of the federation in the state.

Farm bureau livestock auction sales are announced at McFarland, April 10; Bakersfield, 17; Wasco, May 1; McFarland, 8; Bakersfield, 15; Wasco, June 5; McFarland, 12; Bakersfield, 19.

A general meeting of the Tulare County Water Users' Association is announced to be held in Visalia, April 28. At that time it is expected definite action will be taken for a survey of the county's water resources.

Local meetings of the Kern County farm bureau will be held at Shafter, April 13; McFarland, 14; Beardsley, 15; Weed Patch, 20; Kern Delta, 21; Edison-Fairfax, 23; Court House, 24; Inyo-Kern, 26; Isabella, 27; Wasco, 29.

Southern California

Elsinore Lake is reported rapidly filling up.

Camp Baldy reports a seasonal precipitation of 30.3 inches.

Nuevo, Riverside County, reports apricot trees heavily loaded.

Banning, Riverside County, held its flower show April 8 and 9.

Large plantings of sugar beets are being made in Ventura County.

Palo Verde Valley has pledged 6,000 acres of cotton to the cotton growers association.

Apricots and almonds on low ground at Banning were somewhat injured by recent frosts.

Celery growing has become an important industry in Chula Vista, San Diego County.

E. P. Pierce has been appointed deputy horticultural commissioner in Coachella Valley.

Ranchers in Victor Valley, San Bernardino County, are interested in cotton experiments.

The Palo Verde Cotton Association now has three gins owned and operated by growers.

Heaviest snowfall in years was reported on the San Jacinto mountains the last of March.

Several Southern California apricot orchards are carrying "This is a Sunsweet Orchard" sign.

A big dehydrating plant for grapes is proposed for the Cucamonga district, San Bernardino County.

Simi Valley, Ventura County, made large planting of walnuts and apricots during the past season.

Anaheim Orange and Lemon House has begun on Valencias. It is expected the work will be in full swing by May 1.

Early planted cantaloupes of the Imperial Valley are in bloom and prospects are for carlot shipments by the first of May.

W. C. Wallace has been appointed by the Riverside supervisors to take charge of the drainage system in West Riverside.

The new orange packing house of the Anaheim Cooperative Orange Association will begin packing between April 15 and 20.

The Escondido Progressive Poultry Club is working toward the building up of an industry which can ship eggs by the carload.

Ranchers of the Vista section of San Diego County met recently to discuss the formation of an irrigation district to include 40,000 acres.

The Escondido Poultry Association has organized by the election of Frank Hull as president and Mr. Sorenson as secretary and treasurer.

Considerable interest is manifested in the Escondido Valley in the proposal to form a new irrigation district between Escondido and Oceanside.

The annual meeting of the Riverside County farm bureau will be held at Fairmount Park, April 13 with a picnic lunch at noon and a program of short talks in the afternoon.

The Ventura County Cattlemens Association at its recent meeting at Ventura elected W. H. Hoffman president, Charles Donlon vice president, Gerald Waterhouse secretary, Walter Johnson, treasurer.

The Coast and General

Wenatchee Valley, Washington, has 1,500 cars of apples yet to move.

The Stillaquamish, Washington Cow Testing Association has 500 cows on test.

Pastures in Western Mexico and Southern Arizona continue in good condition.

Two hundred bales of Yuma Valley cotton were sent out last week to Liverpool, England.

Embargo against Australian fruit entering Hawaii has been removed in the case of apple shipments.

Recent rains in Salt River Valley of Arizona have made possible greatly increased planting of alfalfa.

The Washington State Fair Association has $16,000 on hand to use in planning the next state fair.

Storing of eggs began in Portland Oregon, the last of March, buyers paying 32 and 34 cents at country points.

The desert about Yuma is "blooming like a rose." The delicate wild lilies of the desert are brought in by the armful.

A central bureau will be established in Chicago to control refrigerator car service during the coming fruit shipping season.

Wheat growers of Washington are signing up in the great Washington-Idaho-Oregon Wheat Growers Marketing Association.

At the April meeting of the Lewis County, Washington, Holstein-Friesian Club federal testing for tuberculosis will be considered.

Dr. C. D. Marsh of the federal bureau of animal industry is touring Arizona on the lookout for poison forage plants, especially loco.

A great irrigation project is being discussed by Montana people, which would place water on thousands of acres in the valley of the Yellowstone.

Fifty fruit shippers of the Wenatchee District of Washington have pledged their support to proposal for building a new railroad up the Columbia River from Pasco.

During 1919 county breed associations were organized in 12 counties of Oregon. These are all dairy associations organized to encourage the use of pure bred stock.

Gopher control work was conducted during February in the counties of Maricopa, Cochise, Yuma, Santa Cruz, Pima, Pinal, Gila and Graham. The work was done through cooperation of federal and state authorities.

Irrigators near Mesa, Arizona, are clamoring for more teams to aid completion of canal which has been endangered because of so many farmers having withdrawn their teams because of necessary home work.

A group of 50 Finnish poultrymen recently met at Winlock, one of the biggest poultry centers in the state of Washington, and formed an organization to affiliate with the Lewis County and the state cooperative poultry organizations.

The governor of Nevada has named April 6 "Bird and Arbor Day." The proclamation calls for observance of the day by special exercises in the schools. The people of the state are asked to plant trees on this date and to do some act for the preservation of bird life.

Cooperative Management of Citrus Groves

By T. R. Woodbridge Before Citrus Institute

THE groves associated in our project are situated in the Upland-Alta Loma district, about 20 miles west of San Bernardino. The individual holdings are from two to 40 acres, averaging about 12. Therefore it is not feasible for more than a few individuals to own teams, tractors and equipment necessary for satisfactory grove work, and it is the custom for these individual owners to employ labor by the day and hire teams and tractors by the day or season for all classes of work. It is not necessary to more than refer to the common difficulties under this system. There is the uncertainty of what is the proper rate of wages and team and tractor hire, the competition between neighbors in these matters, especially during the spring rush, the aggravating delays, and the annoyance and inefficiency of having a different boss, even if he is the owner, of each small tract.

For a number of years a few of my friends and myself have worked out various more or less promising plans for overcoming our troubles, from including all our properties in a stock company to some form of cooperative operation. Nothing, however, came of our efforts until the war called several of our growers and made us realize that it was up to the stay-at-homes to in some way take care of the groves of those who took war's chances for us. Before our plans were completed the armistice was in force and our neighbors were returning to take up their work. But we had gone so far in our plans that we decided to give them a trial, and out of all this was born what we call the Liberty Groves Operating Corporation.

The Liberty Groves is incorporated under the non-stock, non-profit laws of the state. It has three directors who are given complete control of its business affairs, but who are subject to recall at any time; membership is granted by the vote of the directors; membership is terminated by expulsion by the vote of the directors for reasons sufficient in their judgment, by sale of a member's groves, or by the withdrawal of any member during the last 15 days of any December. Memberships are not transferable and the purchaser of a grove belonging to any member must make an original application if he desires to join. The general idea of these restrictions is that in such an organization it is necessary to have harmonious membership. And putting control of the membership in the directors' hands alone assures us peace even if they have to fight to get it.

Any such expelled or withdrawing member is credited or paid in cash for the interest he may have acquired in the assets of the corporation during his membership. At the end of the fiscal year all charges against each member for the services of the corporation are adjusted on the basis of actual cost and the excess or deficiency between the amount collected and this cost is credited or debited to the member. Each member's interest in the corporation's assets are similarly credited at the end of the year.

Each member upon joining pays into the treasury $15 for each acre in the care of the corporation. These amounts are carried in equal amounts of $5 each as membership fee, capital account and operating account. This makes $10 available for the purchase of equipment and assures the corporation $5 per acre in cash to meet payrolls and current expenses which must be paid before charges can be collected from members.

Other details of the incorporation and by-laws will not be of particular interest. They are all built with the object of being so strictly non-profit, and of determining so easily and definitely the interest of any member that the corporatoin may be even dissolved at any time on a fair and equitable basis.

In studying other ranch organizations we found that most of the successful ones operated a single large tract or a centrally situated larger tract with a few scattering acreages and that they were owned by corporations or by individuals who had other business or family relations.

When the owner desires separate accounts are kept of the cost of operating his groves in such separate acreages as he may specify.

It may be interesting to know that the superintendent, in order to pass by once (not enter) each tract under his care, must travel 16 miles. During a few months of road repair this amounted to 20 miles. This condition of scattered groves caused us considerable anxiety in the beginning, but, as I will show later, was not the bugbear we feared.

These 24 tracts receive their irrigation water from seven different sources, from one corporation furnishing canyon stream water, from four corporation owned wells and from two private wells. We have two tracts which take water from two systems at each irrigation.

The fruit consists of 85 acres of lemons, 205 acres of oranges, five acres of grape fruit, ten acres of olives, with ten acres being cleared for planting. The fruit is marketed through an olive packing corporation, an independent citrus packing house and five packing houses affiliated with the Citrus Fruit Growers Exchange, or seven in all. Our charter specifically states that we cannot engage in the packing or selling of fruit.

A troublesome condition has been our lack of a central location for anything. Scattered over the tract we have three small barns, three tractor housings, three tractor fuel stations, a small tractor repair house, a garage, with no place for larger equipment and tools except that in which they were last used. As we have no housing for our employes they live in the city or wherever they can get board or lodging in the country. This has been a serious matter in our labor situation.

Inasmuch as we were trying an experiment we did not wish to make a heavy initial assessment for the purchase of teams, tractors and equipment necessary for the work. Fortunately the members of our organization owned two teams with equipment, three tractors with few tractor tools, and a small blacksmith outfit. We therefore decided to rent all the equipment available until such time as the Liberty Groves had proven a success. All equipment was first appraised by an outside and universally approved man and the rental was based on the values so given. This rental however covers merely the interest on the investment and a fair depreciation which may be applied to the purchase price later. There were several wagons, team equipment and general ranching tools which were loaned by members to the corporation without rental for the first year in order to speed the affair along.

It has been necessary however to purchase equipment amounting to about $3,000. This includes a few of the larger tractor tools, a brush cutter, a sprayer, a trailer and an automobile. The trailer was made necessary by the state law which prohibits moving tractors over the highways without adequate protection for the road surface, as well as by our feeling that it did the tractor injury to drive it on its own power over the concrete pavements.

Our trailer was a specially designed carrier hung low, and the tractor climbs into it easily on its own power. It is also used in emergencies for fruit hauling, being towed around by automobile. In a larger organization a truck would be necessary, but by buying a strong automobile we have combined the heavy and light service requirements and move tools as well as employes around easily and quickly.

An important feature of the Liberty Groves is that it does not necessarily take over the whole care of any grove. A member is supposed to state in writing at the beginning of each year, or at the time he joins, just the work he desires the corporation to do for him and the manner of doing it. The balance he assumes himself and the corporation takes no responsibility either in advice or work. We have groves where the owner attends to the pruning, the irrigation, etc., or the fruit picking or hauling, or where the matter of the fruit is attended to by a packing house or independent buyer. We have tracts where we are doing only the rock clearing, and we have several tracts where the superintendence and work of every kind is assigned to the Liberty Groves, with almost every condition between these extremes. While the by-laws enable the directors to make a rigid rule in this respect, we have been able to make it elastic, and the custom is to let the member change his working schedule within reason.

A member is charged only for the actual time the laborer, team, tractor, etc., is working on his grove. All adjustments in the field taking more than 15 minutes, all time lost in repairs, all time used in transferring men and equipment from grove to grove, is charged, not to any one or two members, but directly to the general cost of the labor or equipment used, and thus becomes a part of the general expense on which the average charge is based. I referred to the matter of lost time above. During our early planning it was even feared that this would be so large as to disrupt the organization. It seemed to us that this was a crucial point in determining whether isolated groves could successfully combine their working plans. To our surprise and gratification therefore our first year shows that the total cost of moving laborers, teams, tractors and all other equipment, including field adjustments of over 15 minutes, amounted to less than one per cent of the total cost of all operations.

Our system of charges to members probably follows that of other organizations. We render an itemized bill (and it is really itemized) each month showing days and hours for labor, team, tractor, etc., for each day, and for every class of work.

Labor is, however, not charged at the special rate that any certain employe may be receiving on that day, but is based on the average labor charge for the month. That is, the total payroll, including every class of labor from the man who hoes weeds to the team and tractor drivers, is divided by the total number of days of labor to get the average. In this we follow the custom of the Stewart Citrus Association of Upland, and possibly others, who have found it satisfactory. It is true that it works a temporary hardship in some cases, but it averages in the long run and certainly eliminates endless calculations on the monthly charges and, of greater importance, it enables the superintendent to use the labor available where and when he sees fit.

Teams have been charged for at an hourly rate covering the actual operating costs, plus the interest and depreciation (called rental on our books) referred to before. The amount so collected has enabled us to purchase three teams rented from members during the year and so accumulate enough to replace two horses in the case of injury or death.

Tractors

Tractors have similarly been charged for at an hourly rate covering operation costs, interest and depreciation. On the three tractors we have used, appraised at a total of $3,000, our rental collections have been sufficient to pay for half the cost of the tractors. We had planned to cover this item in three years, but an increase in our acreage increased our accumulations accordingly.

Overhead

The determination and proper assessment of overhead is at all times a difficult matter. I have been a member and also a director of several cooperative organizations and know that there is nothing to equal the mention of overhead to get a real live rise out of an annual meeting. For that reason it is not often discussed. In our Liberty Groves, however, we have from the start made a separate charge for this item, explaining what it covered. It seems fair to assume that the members' proportion of the corporation's general expenses is measured by the proportion his monthly bill bears to the total bills of all members. Therefore we adopted the more or less general custom of assessing the members for overhead on this basis. This means that a member who has to pay the Liberty Groves for $100 worth of work during any month shall pay one-half as much of the overhead as that member whose bill for services amounted to $200 for the same period.

We started with 190 acres, have had two sales of properties where the new owners joined the organization, and one sale where the new owner did not join. We started this new year with 300 acres and a resolution by the members authorizing an increase to 375 acres.

(Continued on Page 614.)

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultvator 1916

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Saturday, April 10, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

SPIRIT OF THE WEST

No apology is due for the amount of space given this week to a great gathering of great men held in Los Angeles. It was an event worth far more space. For years to come there will be opportunity to talk of the possibilities of reclaimed power and water and wealth from the Colorado. We do believe the event of the last week was one of the most important milestones in this reclamation.

Nor is the Colorado alone in offering opportunities to genuine Western get-together spirit. Flood control of waters of the Sierra Madre and other of the Southern California mountains, the great Pine Flat scheme of the Sierra Nevada, saving the floods of the Tuolumne, the American, the Sacramento, the great Iron Canyon dam, and the pooling of interests of irrigators of the Sacramento Valley all show California standing together to secure greater use of nature's forces and to secure the help of the federal government for these great undertakings.

BONDS COMING DOWN

The patriotic subscriber to the Liberty Bond issues now finds his $100 arôun l the $90 mark, that is, providing he is forced to sell, or, perhaps more often, if he wishes to sell and buy an automobile. In any case they are lower than it was anticipated United States government bonds ever would go. Just why, no one can tell, at least as to all the reasons, for there are a thousand of them. Perhaps the most rapid decline has come since the talk in congress of issuing another $2,000,000,000 to be given to the returned soldiers. However, we have one good suggestion, and that is, if we would all hold our bonds until they mature, their value would soon return to par. There is not a particle of question but that every one of these bonds will command a full 100 cents on the dollar when they mature. It is the height of foolishness to force them off at the big discounts of today.

HARNESS THE COLORADO

In addressing the chamber of commerce of Los Angeles, on his return to California, Franklin K. Lane, former secretary of the interior, touched upon several things of interest to the Pacific Coast, but on none with more force and eloquence than the reclamation in the Colorado River Basin. Here are a few disconnected sentences:

We have, as they have in England, little Englanders and big Englanders, little Americans and big Americans. The big Americans are those who have eyes to see what America can be—what she can be intellectually; what she can be spiritually; what she can be industrially; how she can serve the world best.

We are getting to have a new appraisement of things. Money doesn't seem to be of quite as much consequence as it was. The larger men who deal in large figures look upon themselves with less admiration because of the great sums that they have accumulated and ask themselves constantly—of what use is this money; how can I make it serve better and how can I put to the larger service of my fellowmen the talents that I have?

The thing that tests us all is our value to each other, and California, by that test, and Californians, by that test, loom large in the eye of the nation and in the eye of the world.

We have not yet upon this coast obtained the Pacific sense; the consciousness of the Pacific and of its possibilities. There are hundreds of millions of people who are today just awakening economically, industrially, socially, politically—those people should get their impulse and their impress from us, and we should show forth to them the finer qualities of Christian civilization and make them conscious that this is a land in which Christianity is not merely a commercial system.

I hear that in a part of this state there is a shortage of rain. It should not be vital to us in any way if there is a shortage of rain in one part of the state or another, because the whole community should be independent by reason of the largeness of its resources and our interdependence and our closeness of relationship in transportation. We have just begun to realize that this is a railway age; yes, that it is a steamboat age; yes, that it is an electric age; yes, that it is a gasoline, oil, petroleum age; yes, and that we are not living in Los Angeles alone, but we are living in Java and Alaska and New York and the islands of the sea, and all are bound together and you men of commerce must come up in your vision and appreciate that you are not serving merely the men who lie immediately at your doors, but that you are like those old men who lived in Boston a century ago, who sent their ships across the sea and first started the commerce with the Orient and like those men of Henry VIII's time, who went round the world carrying their flag and giving a conception of our civilization to the peoples of the world.

* * *

We who are in California are rich in vision and we are rich in this; that we can make men see what we see. We have eyes and we can make others see through those eyes and that is what you have done. That is the reason that this land has been subject to some magical transformation; that is the reason why you must make men in Washington see that the Colorado River shall be put to use.

I tell you gentlemen, it takes nothing excepting a little brains, a little money, a little patience, a little persistence, a little faith, and a long time to make Congress see anything.

* * *

We have a reclamation act. We have invested $115,000,000 in the development of Western lands. Last year, the crop from those lands was worth $87,000,000.

* * *

What are you going to do in making Congress realize that there are acres which the world needs brought into service because of the peculiar character of the soil and of the climate and that must lie unused in large part until somebody has the money to combine with the engineering sense to store the water of the grand Colorado, the tributaries of the Colorado down,—and then let those waters out over the land below in California, in Arizona, in Lower California, in such a way as to bring about the greatest result?

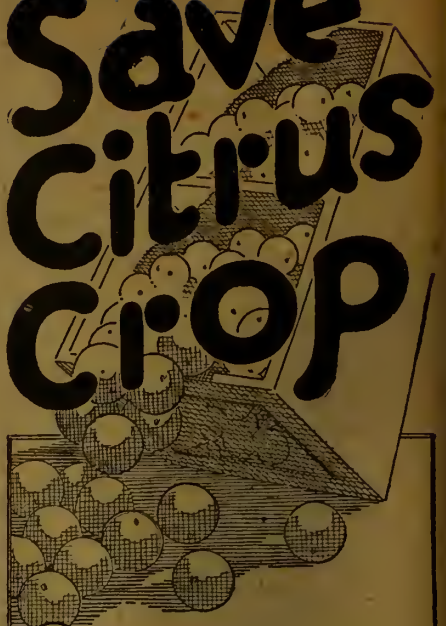
That is not a petty proposition. There is no other one possibility in the United States that will involve as much money. One hundred million dollars ought to be spent in the development of the Colorado River in the next ten years.

SELLING IRRIGATION WATER

The Cultivator recently answered a question as to selling irrigation water in effect that it was necessary for the owner of water to be very careful in making a contract to deliver to his neighbor water for temporary irrigation, otherwise permanency of the water rights might be jeopardized. This brought from Secretary W. R. Williams of the California state railroad commission a letter calling attention to certain exemptions because a "state of war" exists. In addition this is a year of water shortage and the state commission is gathering data which may make available every drop of water to be had. The commission says:

"We would like to be advised of any private wells and pumping plants which may have a greater capacity than is necessary for the irrigation of their owner's lands. In 1917 the legislature, by a special act (Statues 1917, page 281), provided that 'during the time the United States is a party to war or a state of war' and for six months thereafter, the owner of any private irrigation plant or any mutual water company could dispose of any surplus water to others without thereby becoming a public utility. Inasmuch as the United States is still technically 'a party to war,' we believe the above mentioned statute to be in full force and effect and that therefore an arrangement can be made whereby private owners and mutual water companies can materially assist in augmenting the supply of water by the use of surplus water from these private wells. We feel sure that every irrigator is interested in the welfare of the state as a whole and his community in particular and that he will agree to cooperate in the above outlined plan in a public spirited manner."

Save Citrus Crop



Wipe out your enemies—red spider and aphis—with Nico-Sulphur Dust. The most economical and effective method of pest control known to science. Headquarters for high-grade DUSTING MACHINES. Write for free literature.

Dust with NICO-SULPHUR

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Make Your Valuable Orange Crop Safe From June Drop and Fungus

Are you sure there is no Black or Citricola Scale in your grove, sapping the very life out of the trees that are setting what will be a burdensome crop?

Investigate for your own good. One Black Scale will produce 2000 to 3000 more, quickly spreading to healthy trees. Left alone it retards the growth of the tree and injures the fruit, sometimes lowering the grade considerably.

You can thoroughly clean your trees and eliminate Black and Citricola Scale, Red Spider and Fungus, if you will apply

TIZIT SPRAY

There is a grove near you where TIZIT has done all we claim for it. Send for the name and address of the nearest TIZIT SPRAY user so you can see the results.

The sooner you put TIZIT on, the more work it will do. The genuine TIZIT is labeled TIZIT—Trade Mark Registered.

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Also may be ordered through The Fruit Growers Supply Co.

Growing Greater Mileage On Desert Land

On several thousand acres in the Salt River Valley of Arizona, this company today is producing the finest variety of commercial long-staple cotton in the world.

While this accomplishment is of general interest as beginning the reclamation of an immense agricultural empire, it is primarily important to users of our tires.

Cotton is an indispensable element in modern tire construction; superior cotton enhances the strength, flexibility and endurance of the product it enters.

In converting the immemorial wastes of the desert into fertile and profitable acreage, Goodyear is really growing greater mileage on hitherto abandoned land.

Through every stage of their development Goodyear Cord Tires have benefited by work of such a character as is represented in this Arizona enterprise.

Not one element of their composition, not one principle of their construction, but has been carried steadily forward by invention, experiment and toil.

Today the harvest of such endeavor is seen in the capacity of Goodyear Cord Tires to deliver a kind of performance unapproached in any earlier type of tire.

Because Goodyear Tires and the sincere conservation service behind them afford unmatched satisfaction, more people ride on Goodyear Tires than on any other kind.

This actual photograph shows former desert land in the Salt River Valley of Arizona, now producing the finest variety of commercial long-staple cotton obtainable

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GOODYEAR

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You can be sure of your rides only when you are sure of your tires.

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Plus their proved service quality Racine Tires have the industry's supreme mile-making achievement—Racine Absorbing Shock Strip. This extra strip of resilient rubber welds tread and carcass perfectly.

You will find tire economy begins with the purchase of your first Racine Tire. Be sure every tire you buy bears the name

Racine Rubber Company
Racine, Wisconsin

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EXTRA TESTED
COUNTRY ROAD FABRIC
TIRES

The Standard Oil
ZEROLENE
For Motor Cars

A grade for each type of engine

More than half the cars on the Coast—

More than half the motorists of the Pacific Coast states use Zerolene. Such approval is given only as a reward to a product of highest quality. Use Zerolene for the Correct Lubrication of your automobile, truck or tractor.

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When Writing Advertisers, Mention the Cultivator.

The Possibilities of Terracing

By Herbert Burdett

TERRACES have been for centuries the favorite form for citrus groves in Southern Europe, and as the result of local observation and experience they seem likely to become as familiar a feature of the landscape in the citrus belt of California as in those of Italy and Spain. Hillsides hitherto neglected or devoted merely to the production of barley hay are being transformed into very profitable hanging gardens, as the ancients used to call them. Modern scientific methods of citrus culture are being applied to attain results formerly achieved only by the employment of human labor on a scale that today is economically impossible.

Protection from frost damage is the end chiefly sought by the terrace builders. The cost of fighting frost is a heavy charge upon the orchardists of California, amounting to as much as an average of nearly $80 an acre a year, according to C. C. Teague of the Limoneira Ranch at Santa Paula, who has kept careful records of the expense on that typical property during the past six years, which, to put it in another form, amounts to a capitalization of over $1,300 at six per cent. On the other hand, Edwin G. Hart of North Whittier Heights is authority for the statement that by the expenditure of from $10 to $100 an acre in terracing, immunity from frost has been secured, a difference of ten degrees being recorded on the coldest night of the present season, between the higher terraces and the level land less than an eighth of a mile distant.

It has long been recognized by careful observers in this state that the higher lands were comparatively free from frost and many groves have been planted upon slopes with gratifying results in that respect. But the fact that no particular difference was made in the method of planting these earlier groves, whether on level ground or on hillsides, proved often disastrous in other ways. The trees being set in the usual straight rows, up and down the slopes, there was nothing to check washing of soil during heavy rains and even in irrigating it was difficult to avoid some erosion. There were instances where this washing out was so extensive as to expose the roots of trees and practically ruin portions of a grove. Consequently the erroneous conclusion was reached by many observers that hillside planting was not practical.

By the construction of terraces on which the irrigation water flows on a grade of from one to 2½ per cent this danger of washing out has been overcome, as demonstrated at North Whittier Heights. Such terraces as extend beyond 300 to 400 feet are furnished with a second supply pipe at about that distance from the initial flow and the addition of a fresh stream prevents lack of water at any point, while it permits the use of a stream so small as to be under perfect control The rainfall is nearly always absorbed by each terrace but a drain is provided at the end of the terraces to take care of any surplus water, which it leads into the nearest gully or sometimes into a reservoir whence it is again used, as all water for irrigation necessarily is pumped to the summit of each terraced hill.

In Italy and Spain where the terraces were constructed long ago when labor was cheap, stone retaining walls were built, as often the soil was carried and filled in where rocky hillsides were utilized. The cost of this construction would be of course prohibitive here. Plow and scraper and "V" leveler do the work and the earth banks are sown to clover and self seeded with natural grasses and other vegetation which serve to prevent erosion from rain. Some of this growth remains green throughout the year but such of it as dries and ripens is cut or broken down and serves as a mat through which the rain filters gradually into the soil.

Avocado culture is rapidly increasing in popularity and terraces are particularly suitable for these trees. The first terraced avocado grove constructed in this state is at North Whittier Heights and is owned by J. M. Elliott. This was planted six years ago. The avocados are interset with lemons and absolutely no frost injury has occurred to either.

There has lately begun on the west or opposite slope of the Puente Hills at La Habra Heights what will be the most extensive demonstration of terracing in the state. About 100 acres will be terraced and planted this year under the supervision of Edwin G Hart, and it is intended to similarly plant about 500 acres. Another 300 acres will be utilized by Robert L. Reynolds, who has successfully grown winter vegetables on slopes and hillsides for some years past, and who is a convert to the new frost protection system of terracing. Robert M. Teague, citrus nurseryman, has 40 acres at La Habra Heights also, which he intends to terrace and plant to citrus and avocado trees.

Pear Growing

By H. H. Sherrard, Horticultural Commissioner Tuolumne County

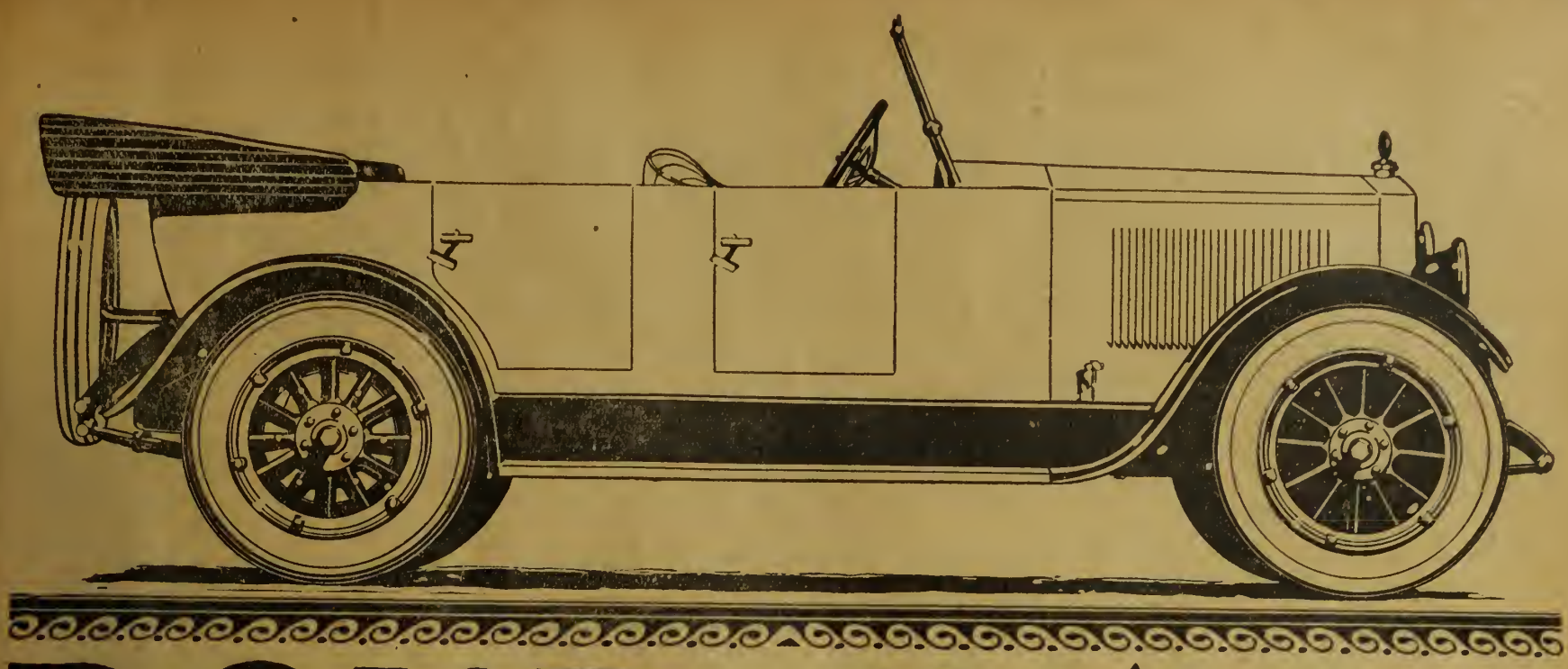
THERE is no greater assurance for the pear industry than the old trees widely scattered in all kinds of soil conditions, topography, and difference in altitude. With little observation along the highways one will notice pear trees of numerous varieties growing on flat wet areas, on the hillsides, on a ridge, in sod, and many of them growing vigorously and producing good yields, and without cultivation, pruning, or spraying. Some of these stand in very wet soil, others in dry soil, and many of the trees are over 50 years old, symmetrical in form and show no deformity as the result of unfavorable weather conditions, diseases, or insects. These trees have battled the elements alone and stand as mighty bulwarks for the future, indications of ability to grow in our county and seeming to beckon to the interested grower "Plant me," "Plant me." There is no better information to be secured as to what variety of fruit will grow in a section of a country than the very trees that are growing there, the conditions under which they are growing, and the results of this growth in health of tree, amount and quality of fruit produced. Some prominent fruit men of this county have stated that they have a yield of nearly 1,500 pounds from individual trees.

Localities and Soil

Some of the largest and best pear orchards in California are situated in the foothill regions. The conditions in Tuolumne County for the pear are ideal. Our deep, dark red clay loams, mixed with decomposed granite and lava, amply supplied with limestone, produce large quantities of the highest qualities of pears. However, pears will grow and produce well in shallow soils over a tight hardpan and under adverse conditions. Apples will not do well on wet or dry land; they will not be long lived and the fruit will be tasteless, but the pear will produce good fruit under both extremes, will even grow well and produce in soils somewhat alkaline.

Propagation and Planting

Pears can be dwarfed successfully by grafting on quince root, the Angier being commonly used. The Bartlett does not make good union with the quince and it is usually customary to double work the quince, first grafting on Beurre Hardy for a length of a foot or more, which makes a good union with quince variety, and then the Bartlett on the Beurre Hardy Some of the most experienced growers of California advocate 14 feet as the best distance between dwarf pear trees, which gives 222 per acre. The cultural advantages of the dwarf are



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MOTOR CARS

You will like the Bour-Davis at first glance, because few cars have ever approached it in beautiful lines, finish, upholstery, and equipment.

When you first drive it, your enthusiasm will grow. For you will feel the wonderful thrill of driving a big, high-powered car, fit and able to go through under the worst road conditions in the south and west; roads that are impassable to most cars.

But, the most pleasing thing about the Bour-Davis is that your pleasure in it grows the longer you own one, because of its thoro reliability.

The Bour-Davis is built in the south by men who were pioneers in the automobile business and who have made a most careful study of southern and western road conditions, and designed the Bour-Davis to meet them.

On the market for five years, the record of the Bour-Davis is without a blemish. There has never been a poor Bour-Davis built, nor a dissatisfied Bour-Davis owner.

THE CAR ITSELF

Space permits only the briefest description.

The chassis will delight any mechanic—125-inch wheel base; Continental Motor; spring specially designed for southern and western roads; every part the finest money can buy.

The body is a beautiful creation—straight, unbroken lines from front to rear. The body finish and coach work is a masterpiece. Real leather upholstery. And you have a choice of three body colors and four upholstery leathers to express your individual taste. The equipment is exceptional—lined top; tonneau and inspection lamp; thermos bottle compartment that locks; curtains that open and close with the doors, and numerous other features that will surprise you in a car at its price.

Take a ride in a Bour-Davis or drive one and we predict you will be surprised to find that you can satisfy your utmost desires in a motor car for a medium price

Our latest six color catalog will be sent on request

DEALERS
You will find the Bour-Davis an exceptionally profitable selling proposition. Some territory still open. Write for full information.

MODELS
Five-Passenger Touring Car
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RELIANCE
Irrigation Meters
(Patented)

THESE simple and absolutely accurate water measuring devices show at a glance what amount of water you are getting.
Thousands of Reliance Meters are now in use and giving satisfactory service.
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When writing advertisers, mention the Cultivator.

their ease of pruning, picking and spraying. One man can prune approximately four times as many of these trees and pick three times as much fruit in a day as of the standard pears. Spraying is more thoroughly accomplished. Quince root is nearly immune to root aphis, but more susceptible to oak root fungus.

The standard pears are budded or grafted on pear seedlings, the stock being secured from France and Japan. Dr. W. L. Howard of the University of California recommends Jap or French root as blight resistant for the trunk and top worked to Bartlett so that in case of blight attack the disease will be kept in the branches and be more easily controlled. Twenty to 24 feet apart on the square is usually advised for standards. The holes for planting pears, as well as all other fruits under most conditions, are most economically made and are best for the trees if blasted.

Pruning

The vase form is usual in shaping the pear tree. When the tree is young give careful consideration to the development of scaffold branches. Each individual tree usually presents a different problem and considerable judgment must be exercised. Summer pruning promotes fruiting while winter pruning secures strong wood and prevents overbearing. Thinning out with some shortening in to allow an adequate amount of sunlight are the fundamentals to observe in pear pruning.

Thinning

In case of overbearing after all the natural dropping has ceased, thinning is recommended to improve quality and size. Small and low quality fruit are common on the overloaded trees.

Irrigation

Irrigation must be carried out to some extent in Tuolumne County for pears or the fruit will be small, tough and of poor quality and the tree will be retarded in its growth.

Blight

One of the limiting factors of the pear industry in many sections of California and the United States is blight. Blight is a bacterial disease that develops in the sap tissue of the tree. It gains entrance through the blossom, bruises and tender shoots, the organism passes down the twigs through the branches and into the trunk and sometimes even to the roots. To control prune out the diseased areas when they first appear, using care in keeping tools disinfected and cutting out about 18 inches below the infected and dead parts.

Varieties

The Bartlett is unquestionably the variety for commercial purposes, with Winter Nelis in second place and Seckel a fair variety for the home orchard or special trade. It is usually recommended to plant Bartlett and Winter Nelis together for cross pollination purposes and in the proportion of about eight to one, every third tree in every third row being a Winter Nelis.

Harvesting

Pears should be harvested when the first indication of ripeness is noted. With the Bartlett the first sign of ripeness is a tendency for the stem to separate from the fruit spur when the fruit is slightly raised.

COOPERATIVE MANAGEMENT

(Continued from Page 609.)

Lessons

We have learned several lessons during the first year, a few of which may interest you. We should have housing for employes, and barns and shops for tractors and tools, with plenty of capacity for storing feed and supplies. We believe we will soon come to the plan of letting the superintendent alone decide from his experience on all kinds of ground in our organization what is the best way to disk, plow, cultivate, etc., any individual acreage. Our experiences in buying fertilizer, repair parts and replacements has shown us that we have not been utilizing our opportunities as we might. We can with advantage purchase the larger house supplies such as coal through our corporation. We have had confirmed our idea that a citrus ranch cannot be run by tractors alone. We have learned that operating a tractor on stony ground is doubtful economy. We feel that results have proven the correctness of our first instructions to our superintendent that he bear in mind two important matters: First, service; second, economy.

The members of the Liberty Groves have finished their survey of the first 11 months of operation and have expressed satisfaction with the results, and are convinced that a number of scattered groves totaling 200 to 300 acres can be operated better and cheaper as a whole than under the individual system, even with the unfavorable conditions I have described to you. So thoroughly are they convinced of these matters that at the annual meeting in February they authorized the purchase of another tractor and team and authorized the erection of a house for a married employe, a few bunk houses for bachelor employes and the building of a large barn and general storehouse.

RAISIN DAY

Fresno celebrates Raisin Day on April 30. Plans for the historical pageant which forms a section of the parade in the celebration are reported to be progressing rapidly. The pageant will depict the early days in the San Joaquin Valley. A parade two miles long will be the morning feature of the celebration and over 150,000 are expected in Fresno.

"Mail your friends a Raisin Day postal card from Fresno on Raisin Day" is one of the slogans adopted for the celebration of the day. Postals emblematic of the day are now being printed and will be distributed in the morning as the parade finds its way along the streets by "Sun-Maids" and "Blue Ribbon Peaches" riding a float on which will be the largest mail box in the world, a replica of the package boxes used by the government.

Later in the day the box will be placed in courthouse park in the center of the city and the public will be asked to mail the cards distributed to all their friends. It is planned to make this an annual event and it is expected that a flood of fame will be given to the Raisin Day celebration by this means.

The attendance is expected to exceed 150,000 this year, that number attending the eleventh Raisin Day celebration last year.

There are 75,000 blind throughout the United States and less than a dozen libraries for their use. There are no newspapers. England, with only 35,000 blind, has facilities for printing far superior to ours.

Orchard grafters are the only kind of grafters who don't get into trouble these days.

CATERPILLAR
Reg. U.S. Pat. Off.
LAND LEVELERS
increase land values

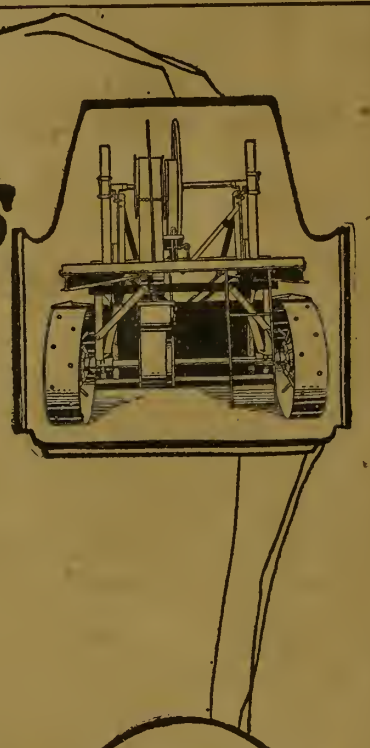
For a few dollars per acre, land once considered unfit for cultivation can be made highly productive. The increased valuation alone pays a big profit on the moderate investment.

Fill the low spots and level the rough stretches of so-called "worthless" land. The "Caterpillar" Land Leveler will do it at the rate of from 15 to 40 acres a day. One man on the tractor, another on the leveler, handle the work. The "Caterpillar" Land Leveler does better work, at less cost, than horses or mules and scrapers, or other tractor equipment. It is simple, strong, easy to operate.

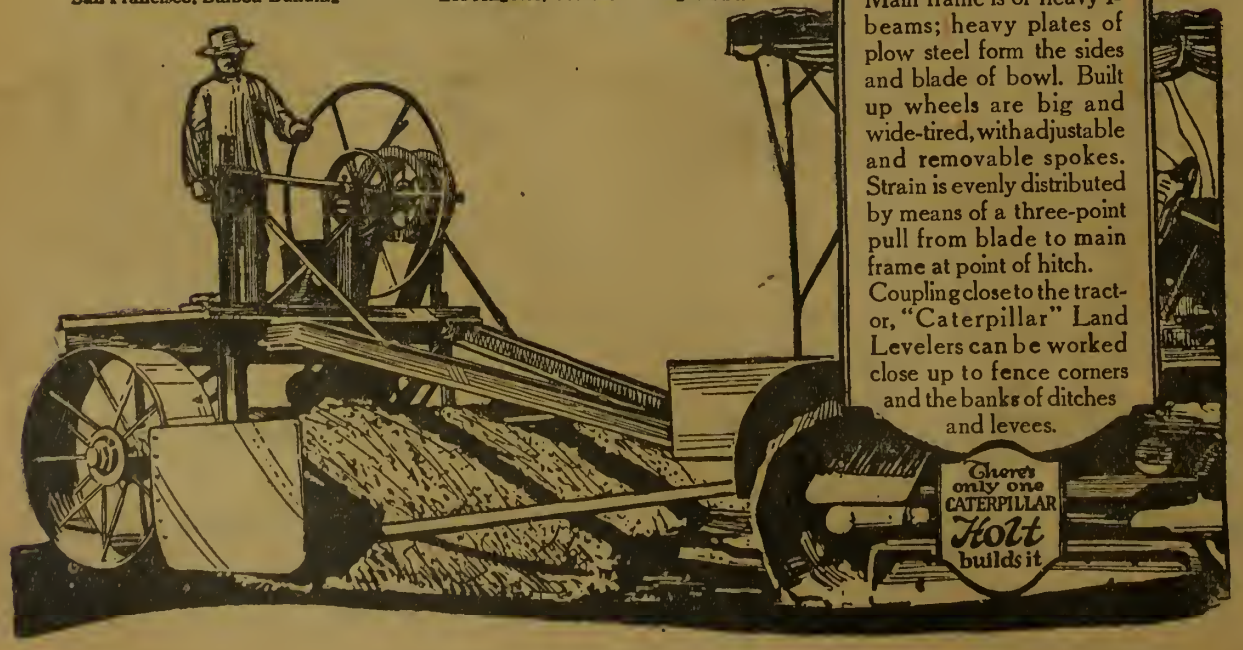
Governments use it for reclamation work, counties for roadwork, and farmers and contractors for every kind and condition of leveling. It carries the dirt as far as wanted, dumps it in a heap, or spreads it thinly or heavily, as desired.

Call no land "impossible" until you have seen our new book on "Caterpillar" Land Levelers. Where shall we send your copy?

THE HOLT MANUFACTURING COMPANY
Representation in every part of the world
STOCKTON, CAL. PEORIA, ILL.
San Francisco, Balboa Building Los Angeles, 117 So. Los Angeles St.



Two sizes of "Caterpillar" Land Levelers are made—8 feet and 11½ feet. The blade is raised by belt driven by pulley on axle. A powerful hand lever applies belt tightener. This lifting mechanism is simple, direct, and impossible to get out of order. A foot brake locks the blade at any height.
Main frame is of heavy I-beams; heavy plates of plow steel form the sides and blade of bowl. Built up wheels are big and wide-tired, with adjustable and removable spokes. Strain is evenly distributed by means of a three-point pull from blade to main frame at point of hitch.
Coupling close to the tractor, "Caterpillar" Land Levelers can be worked close up to fence corners and the banks of ditches and levees.



COOPERATIVE CAPRIFIG ORCHARDS

By G. P. Rixford

THE widespread disaster to the mamme, or over winter, caprifig crop during the past winter in the central part of the San Joaquin Valley and part of the Sacramento Valley should admonish the growers to take precautions to obviate such a calamity in the future. It is not less than a calamity to have the mamme crop wiped out, as the loss of the winter crop means the loss of the profichi, or spring crop, which is the great pollenizer and plays so conspicuous a part in bringing the Smyrna figs to maturity, the failure of which means disaster to thousands of acres devoted to the industry. The great Smyrna fig industry, now well on the way to a prominence scarcely second to the raisin industry, is absolutely dependent on that minute, but beneficent hymenoptera insect commonly called blastophaga.

The insistent demand from great regions for the winter figs from the government orchard at Loomis in the foothill region of Placer County, with which to reestablish the lost colonies, shows how serious the question is to large numbers of growers.

The obvious means to meet the difficulty in the future is for the cultivators of a district to join in planting the best caprifig varieties on a small tract in the citrus belt of the foothill regions along the borders of the great valleys, which is reasonably free from frost. The cooperators in such an enterprise would insure themselves a dependable supply of caprifigs at little expense. Other and later localities could be planted in order to extend the caprifying season.

The following paragraph from United States department of agriculture Bulletin No. 732, is germane to the subject:

"All Smyrna fig growers appreciate the fact that there would be considerable advantage if caprifigs containing the insect could be had for a period of a month or six weeks, thereby insuring the pollenizing of more figs and an increase in the crops. With our present varieties of caprifig trees the caprifying season covers a period of only about three weeks. The only way by which this period can be extended with capri vartieies now cultivated seems to be by planting the capri trees in cool localities where the proximity of the sea or other influences retard the ripening of the figs and the development of the blastophaga. In such localities as Loomis, Fresno, Indio and Mecca, California, and Phoenix, Arizona, the insects from the profichi crop begin to issue from about the 10th to 20th of June, while in localities within the influence of the ocean breezes, such as the cooler portions of Sacramento and San Joaquin Counties, the period of issue is a week or ten days later, and at Niles, Alameda County, California, on the eastern shore of San Francisco Bay, the time of issue is as late as July 25 or the beginning of August. Cooperative caprifig orchards could be so located as to supply the Smyrna fig growers with pollenizing material for the latest figs that could ripen before the advent of the fall rains.

"This would be a desirable undertaking for an association of fig growers, such as was formed at the Fig Institute at Fresno, California, January 4 and 5, 1918."

Any association formed for the purpose will be supplied gratis with cuttings from the best trees in the Loomis orchard, varieties which in that locality have never failed to carry the crop safely through the winter.

SALE OF PUBLIC SCHOOL LANDS

A public auction sale of state school lands in Ventura County will be held at the court house in Ventura, April 19, 1920; the school lands in Santa Barbara County will be offered for sale at the court house in Santa Barbara, April 20, 1920, and the school lands in San Benito County will be offered for sale at the court house in Hollister, April 22, 1920, all sales to commence at ten o'clock A. M.

For lists of lands and information address W. S. Kingsbury, Surveyor General, Sacramento, who reserves the right to reject any and all bids.

TRUCKS AND TRAILERS

Occasionally there was a tractor in the truck and trailer show held in Los Angeles last week, but it had a look as if it felt it was an interloper. It was really a fine showing of trucks, of trailers, of oils, greases, signals, spring lubricators, ball bearings, solid wheels, cushion wheels, all other kinds of wheels, batteries, tires, both solid and pneumatic, wheel cranes, anti-leaks for the radiator, carburetors, various types of bodies, listers and occasionally other farm implements, piston rings, magnetos, and other accessories and equipment for trucks and trailers.

There was a large number of trucks ranging from the small auto made over into a delivery wagon up to the big seven and a half ton powerful machine. The most surprising feature was perhaps the wide range of trailers. These were from the little two-wheel camping outfit up to the big four-wheeler in solid cushion tires, also in pneumatics.

IN CLOSE COMPANIONSHIP

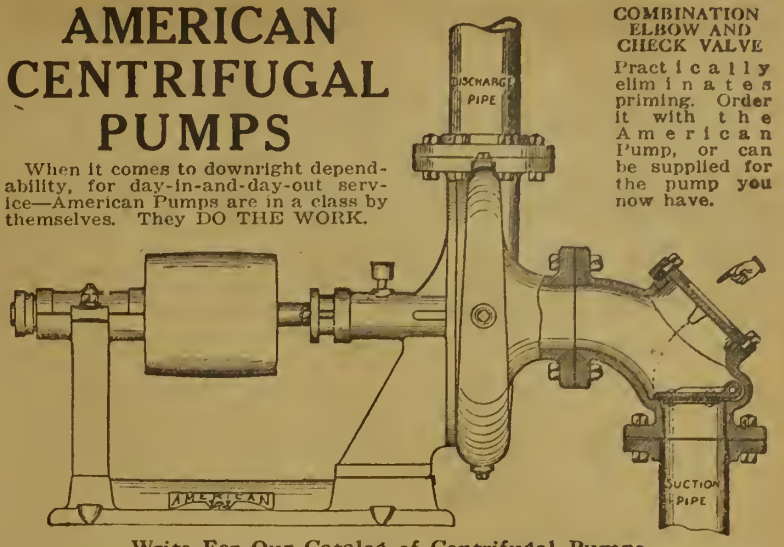
Little Janet's mother had sent her to the corner store to get some fly paper. Janet was a long time in returning, and her mother began to feel anxious. Going to the door, she saw the youngster coming up the street, and called:

"Janet, have you got the fly paper?"

"No, mother," said Janet, "it's got me, but we are coming together."

AMERICAN CENTRIFUGAL PUMPS

When it comes to downright dependability, for day-in-and-day-out service—American Pumps are in a class by themselves. They DO THE WORK.



COMBINATION ELBOW AND CHECK VALVE

Practically eliminates priming. Order it with the American Pump, or can be supplied for the pump you now have.

Write For Our Catalog of Centrifugal Pumps

If your water problems can be solved with any pump—it can be solved with an American. These pumps are designed to meet every possible condition. They get the MOST water at the LEAST cost and with the LEAST TROUBLE. Put your irrigation problems up to irrigation experts. Also write for our Catalogs of Motors, Gas Engines and Oil Engines.

American Pump Co.

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Extra parts are always available without delay for standard advertised machinery. This class always found in the California Cultivator.

-but CALCO Metal Grain Bins are Leak-proof

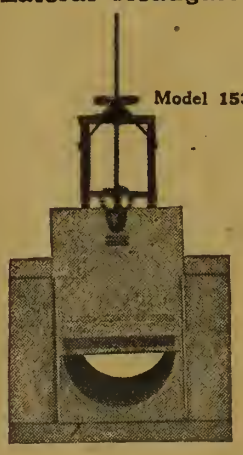
The only way to stop a leak is to plug it.

Calco Grain Bins are plugs; they are designed especially to plug leaks.

They plug the leaks where your grain has been wasting. They plug the leaks in your business. Sacks leak. Squirrels, rats, and mice gnaw holes in them. Every leak means a loss to you that could be avoided. Calco Metal Bins don't leak. Write for the Calco Grain Booklet. It will show you how to save money.

Armco Lateral Headgate

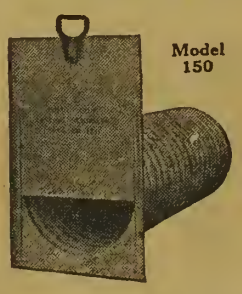
Model 153



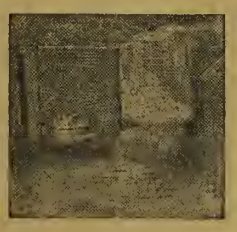
An inlet gate with bulkhead and screw lift. Model 150 is another inlet gate with hand lift.

Armco Lateral Headgate

Model 150

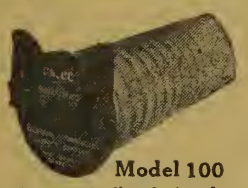


Lyman Irrigation Meter



An accurate, low-cost meter for the measurement of irrigation water.

Calco Automatic Drainage Gate



Model 100

Automatically drains low-lying lands and protects against back flow.

Armco Irrigation Gate

Model 161

Will not dry out, swell, warp, rot or burn. Is easily operated.

Calco Slide Headgate

Model 101

For levee and reservoir use under varying heads of water up to 20 feet.

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Is your car protected in a weatherproof, fireproof, permanent garage? Is your other property protected because your car is thus housed?

You want a garage like that—one that is reasonable in cost and requires practically no repairs.

You can have it if you use Concrete in any one of several ways. You'll be interested in knowing how a concrete block garage will meet your needs.

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Wonderful New Hay Crop
SUDAN GRASS

First Introduced into the U. S. in 1909 from the Sudan in Africa. Tests by the department of agriculture have proved it to be of the greatest value in the Southern and Western states, where rainfall is deficient.

Culture—Sudan Grass is strictly an annual. It may be drilled or broadcasted. If drilled 8 to 12 lbs. per acre is ample; for broadcasting 15 to 25 lbs. should be used. It grows 8 to 10 feet high and yields from 3 to 8 tons per acre. You are sure of two cuttings, and if irrigated three or four cuttings.

Sudan Grass for Pasture—During the months of August, September and October all other grasses are dry, then is the time Sudan is most valuable for fall pasture, and by having it fenced in small fields it will yield food for six times as much stock as any other forage will without irrigation. For milk cows and hogs, there is no better and more abundant pasture than Sudan Grass. It will solve the hay proposition as nothing else can or will do in this climate. A good silage and balanced ration. This seed was grown on our own farm, and is free from Johnson Grass.

Price Per Pound:

10 lb. lots, 25c — 100 lb. lots, 20c
250 lb. lots, 19c — 500 lb. lots, 18c
1000 lb. lots, 17c

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500 Carloads Good Quality Barn Manure For Sale

Carload Lots—Special Prices in Large Quantities

CAN MAKE PROMPT SHIPMENTS

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E. F. Sanguinetti Yuma, Arizona

When Writing Advertisers, Mention the Cultivator.

Carob, or St. John's Bread

By Ernest Braunton

THE Cultivator recently received a circular from a New York firm of importers offering beans and bean meal from Ceratonia siliqua, known locally as the carob, or St. John's bread tree, one somewhat grown in the warmer parts of California for nearly or quite a half century, for old trees may be found from San Diego to Butte County. The circular says:

"We quote subject to confirmation, for prompt shipment from producing countries, Portugal — Cyprus — Italy, wholo honey locust beans, in bags used especially in making calf meal, stock food, etc., in lots of 20 tons and upward at 4¾ cents per pound, f. o. b. New York, 30 days net, or less one per cent ten days. It requires about three to six weeks for shipments to reach New York after receipt of order. We can also supply powdered honey locust beans, in barrels, ready for use, and would be pleased to submit sample and quote price if interested."

Sounds like big business, but it is a long and expensive journey to bring the product from Spain and Italy when it may be grown in California. It has been stated that the trees are slow of growth and maturity but so far as the writer knows none have been given a chance. Budded nursery trees of superior merit have produced pods the first year, when less than two feet high. This is certainly precocious enough and satisfying to any who wish to make a practical test of the commercial value of these trees.

In Other Lands

The late Aaron Aaronsohn, of the Jewish agricultural experiment station in Palestine, said in that country an acre of these trees on poor dry soil yielded a much greater quantity of food material than an equal area planted to the best alfalfa. He gave a sugar content of 40 per cent and a protein content of seven to eight per cent. The writer has eaten of pods grown in California that analyzed 32 per cent in sugar.

In France, Spain, Portugal, Italy, Algeria and other parts of north Africa and in semitropic climes over all the earth the carob tree is grown for its edible pod for stock food. In times of famine or food shortage large quantities have been eaten by human beings. In those countries tho carob grows in any kind of soil except stiff clays or those too wet, as the tree is unusually drouth resistant. Even in gravel it has returned good crops of beans and in no good soil has it failed to yield a crop commercially profitable.

The Crop

Aaronsohn stated that in Palestine in good years the average tree yielded 450 pounds and he had seen grafted trees yield 1,000 pounds each, with trees still growing. Algiers reports a yield of 660 pounds; Portugal, in fertile soil, 1,650 pounds; and single trees are known in Spain, near Valencia, that bore more than 3,000 pounds Such a crop, at the New York prices quoted, would be worth in the United States $130.

Carob Trees Ten Years Old

They bore good crops of pods after the fifth year and promised well but were removed to make room for a skyscraper.

No harvesting except picking from the ground is necessary for the pods drop when mature. Those adhering will quickly fall if branch is shaken or the pod struck with the tip of a bamboo pole. As the trees are wide spreading and do not grow more than 40 to 50 feet high in the wilds they are easily controlled for we may behead them if found best to keep them branched low. The pods are equal in food value to barley for feeding horses, cattle, sheep and hogs and as the yield is much greater per acre than grain (in mature trees three or four times as great) it is readily seen they should be grown in all countries where it is climatically possible, for few crops will yield an equal value to the stock farmer.

In California

Records show that the United States imported seeds of the carob from Spain in 1854 and from Palestine in 1859. It is thought some of the seeds were sent to California as a few very old trees are known. These range as far north as Napa and Butte Counties. In 1911 the first budwood of the six best fruiting varieties was imported by the United States from Valencia, Spain. This was sent to the plant introduction gardens at Chico and is being widely distributed Aside from these buds the best of the seedlings in the state, probably of equal value, have been drawn upon for buds, so that there is no lack of trees of the best fruiting types. A large proportion of tho seedling trees, planted for decorative purposes, are valueless as food producers.

The trees are usually grown from

seeds, which are easily procurable, and the seedlings budded to approved varieties. Trees bearing seeds are not uncommon in many parts of the state and quite generally distributed over the southern third. Nurserymen having propagating plants have grown them from cuttings, but heat is needed. The seeds should be soaked in water for three days before planting. The trees do not transplant well with bare roots so all should be balled. The young trees are first grown in boxes or nurserymen's trays and treated same as eucalyptus, being cut out with little squares of earth for planting in pots, boxes or field. The trees grow rather slowly for the first few years and no doubt should be set 40 feet apart and interset with faster growing fruit trees. As stated, at first few trees have been given good care and soil but these few have made good growth. Heavy frosts injure them so that they should not be indiscriminately planted throughout California. There is no good reason why the pods should not be grown and used as elsewhere. They are exported from the countries mentioned by thousands of tons annually, much going to England for stock food and in Malta and other island possessions the meal is the chief food of horses belonging to the British army. Even in California the meal has been mixed with flour and used for bread, cakes, etc., and is highly regarded by those who have eaten of them.

STORAGE SCALD

A. W. Tate Jr., Watsonville district apple inspector, office of standardization, department of agriculture, is the authority for the following interesting information:

"Recently the manager of a local cold storage plant asked an opinion in regard to a certain lot of apples which showed a large percentage of 'storage scalds.' A shipper had stored apples in both the local plants. In one no scald developed; in the other a large percentage occurred.

"I examined lots from each plant, packed the same date and from the same portions of the orchard. The conditions were identical, and the investigation revealed plainly that the fruit from the irrigated section of the orchard showed no injury, while the apples from the light, shallow and dry soil did.

"This bears out the following conclusions from scores of inspections of cold storage fruit: Apples from light soils, or shallow soils overlying clay, in other words deficient in moisture; fruit prematurely ripened due to this soil condition, or from trees injured by rodents or other causes almost invariably are more easily infected by 'storage scald,' whereas fruit from irrigated light or heavy soils where, by thorough cultivation, the moisture has been retained, are practically immune."—S. V. C.

EUCALYPTUS A NUISANCE

A case of unusual interest has just been decided wherein eucalypt trees on a lot in South Pasadena, Los Angeles County, standing near the line of an adjoining lot, have been adjudged a nuisance in that the roots impoverished the soil of the adjoining lot. The trees were ordered cut down at once. The case has attracted wldespread interest because it is the first of its kind. After a description of the two properties involved, the decision reads:

"It having been found that the defendant maintains upon his said two lots seven eucalyptus trees of the blue gum variety, all of said trees standing near the said land of the plaintiff, and that all of said trees send roots into the soil of the plaintiff's said lot, and that some of them bear branches which overhang plaintiff's said lot, and it having been found as a fact that said branches and said roots constitute a nuisance in so far as said roots penetrate into the soil of plaintiff's said lot, and in so far as said branches overhang her said lot, and it having been found as a conclusion of law that the plaintiff is entitled to a decree requiring the defendant to abate the said nuisance, it is ordered, adjudged and decreed that the said nuisance shall be abated by the defendant within —— days from the entry of this decree. It is further adjudged and decreed that said abatement shall be permanent in its nature, and that the operations required therefore shall be carried out upon the land of the defendant and not upon the land of the plaintiff, and it is further adjudged that the plaintiff have judgment for costs in the sum of $——, to be taxed. Dated this 24th day of March, 1920. (Signed) L. H. Valentine, Judge of the Superior Court."

FOREST FIRE PROHIBITION IN DRY SEASON

Unanimously on record in favor of keeping all fires out of forests during the dry season, a joint committee appointed by several of the organizations most interested in the preservation of California forests to study the problems of forest first protection has announced its object of formulating a protective system that will, at minimum expense, prevent material loss to mature timber, and also result in a minimum of damage to the productive capacity of forest soil.

Initial activities of the committee will be to analyze and weigh all existing evidence on the following questions: Effect of fire on mature and young timber and on its rate of growth; value of advance reproduction in the forest; damage to timber by insects and the effect of fire thereon; cost of protective measures.

Donald Bruce, associate professor of forestry in the University of California, has been appointed chairman of the committee.

COLORING THE CASABA

Growers of casaba melons have striven for years to improve them, until we have several excellent types, all sports from or selections of the original type. Some years ago the flavor was pronounced perfect, the flesh of good color and texture, and the cavity and number of seeds reduced to a minimum. It then became a question if further improvement was possible. Then some grower noticed a little yellow tinge in the outer rind and this was encouraged until it became quite distinct as an underlay of yellow or imperfectly suffused background or foundation of yellow.

Then a Downey rancher teased the yellow "into the open" and held it fast. The result is a casaba with every good point of the other varieties and a golden color most appealing to the eye, proclaiming the rare qualities to be expected within. Other growers have reported the rind as being a little bit harder than that of the others, therefore a better shipper and keeper. Those watching market sales also noticed that the rich color sold off this variety before the others on the market were taken. So that now the golden hybrid is no doubt to be the leading variety grown in the future, unless someone shall still further improve it, which hardly seems probable. —E. B.

Value of the farm crops for Maricopa County, Arizona, last year was more than $35,000,000. The value of the crops in 1910, according to the United States census, was $2,545,000. The land under irrigation in 1900 was 118,230 acres and at the present time it is approximately 300,000.

Do You Know—

STANDARD PRACTICE

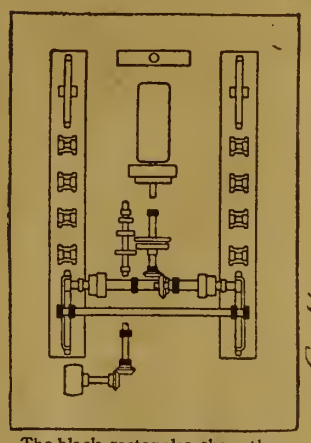
The use of Timken Tapered Roller Bearings at points of hard service in the great majority of leading tractors—and in power-driven farm machinery—is proof of leadership established on the tapered principle of design, quality of manufacture, performance, and service to the automotive industry.

that only an adjustable tapered roller bearing can keep tractor gears from wearing out prematurely?

that Timken Tapered Roller Bearings at points of hard service keep working parts in proper alignment continuously, decrease repair bills and increase the life of the tractor?

that the tapered roller bearing—the Timken type—is the type of bearing that will function properly under radial load, or thrust load, and all possible combinations of the two?

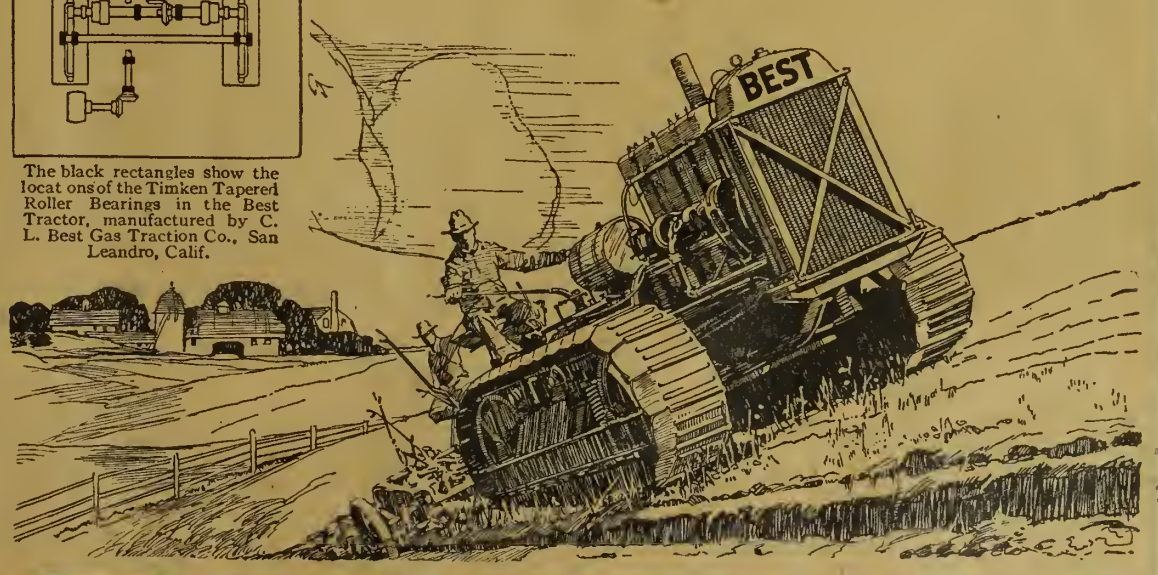
that Timken Bearings can easily be taken up should wear develop after a long period of service, and be made as good as new?



The black rectangles show the locat ons of the Timken Tapered Roller Bearings in the Best Tractor, manufactured by C. L. Best Gas Traction Co., San Leandro, Calif.

THE TIMKEN ROLLER BEARING CO.
Canton, Ohio

Timken Tapered Roller Bearings for Passenger Cars, Trucks, Tractors, Farm Implements, Machinery, and Industrial Appliances.



TIMKEN BEARINGS

BASIN OF THE COLORADO

(Continued from Cover Page.)

merce and an engineer of national note; vice president, Hon. William D. Stephens, governor of California; Hon. Thomas D. Campbell, governor of Arizona; Hon. O. H. Shoup, governor of Colorado; Hon. Emmett D. Boyle, governor of Nevada; Hon. W. P. Hobby, governor of Texas; Hon. J. B. A. Robertson, governor of Oklahoma; Hon. Simon Bamberger, governor of Utah; Hon. Octaviano A. Larrazolo, governor of New Mexico; secretary-treasurer, Arnold Kruckman, editor, writer and worker for the advancement of the Southwest.

QUOTATIONS
Feb. 6, 1920
Hay:
Choice $43.00
No. 1 $35.00
No. 3 $28.00
Hay met a good call from local feed dealers and shippers at former prices prevailed

Is Your Hay Part of the 10%

Only 10% of the hay Grades "Choice"

IN nearly every instance, hay that grades poor would have been "choice" or No. 1, if cured in accordance with the Dain System of air-curing hay. This system requires no extra hay tools—you simply use, instead of some other rake, a

JOHN DEERE

DAIN SYSTEM RAKE

The Rake With The Inclined Frame

With this rake you can follow the mower, rake while the leaves are still active, and place the hay on clean stubble in medium-size, loose windrows, the bulk of the leaves inside and the stems outside.

The Dain System rake does this the most successfully because it is the rake with the inclined frame. The frame is low at the front end and increases in height toward the rear—its capacity increases as the volume of hay increases. The frame being low at the front end and set slightly ahead of the tooth bars causes the hay to come up against the frame and pitch forward into a loose windrow, placing the leaves inside and the stems outside; most of the moisture evaporates with no loss of leaves or foliage.

With the Dain System Rake you can preserve the loose windrow until the hay is ready to store or bale, even though it may be necessary to turn the hay over two or three times on account of bad weather conditions.

Free Book "John Deere-Dain System Rake" describes this system of making better hay. Write us today, addressing John Deere, Moline, Ill., and ask for Booklet DS 47.

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TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

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nk, 1½ h.p. engine, mag-h, pumping capacity 4 gal. splendid truck, 2-25 foot hose, 2-10 foot spray rods complete for

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Orchard Gun $12

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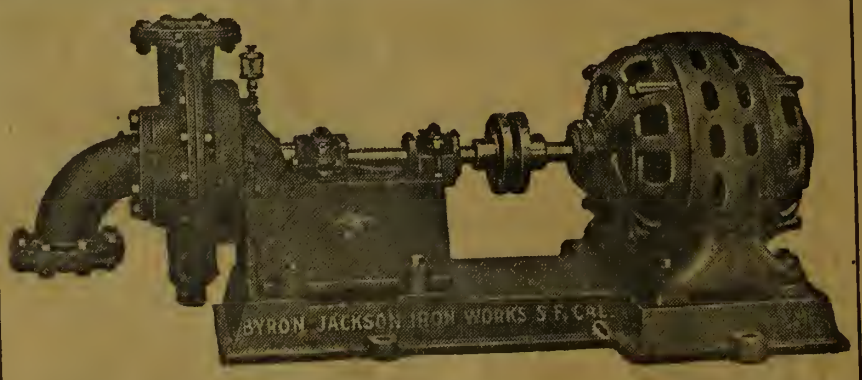


Have You a Producing Ranch?

IF NOT, WHY NOT?

The difference between a "live" and a "dead" Ranch is "Water" and "No Water."

"Byron Jackson" Pumps meet every water condition

Write us giving your water conditions and requirements.
Our New Catalog No. 60-B for the asking.

Byron Jackson Iron Works, Inc.

Los Angeles San Francisco Visalia
Portland Salt Lake

CONVENTION NOTES

President Von Kleinsmid is an ideal presiding officer. The discussions were pushed along with pep and a clear voice gave information to many who were unable to hear all some some of the speakers did endeavor to convey.

* * *

One of the great events of the convention was the address of William J. Bryan at the closing session. Mr. Bryan said that for once he had had the satisfaction of sitting and listening to men who knew what they wanted to say. He defined the greatest of orators as one who knows entirely his subject and honestly presents it. Mr. Bryan showed himself the orator under his own definition, for he spoke honestly of many of the things he had learned during the three days of conferences. One of the things he learned was that there is possible opportunity in this great development of the Colorado Basin for the exhibition of selfishness, but he gave warning to those who would exploit the American people and get undue advantages that the American people would be watching and waiting for opportunity to punish. Let the issue be clearly drawn between the pioneer and the profiteer. "I am for the pioneer."

* * *

It did not matter, perhaps, whether these lands were developed for the benefit of the state or the nation; but it did materially matter whether they were developed for the benefit of all the people.

* * *

Mr. Bryan suggested that the only campaign of education which could be conducted to convince the East of the wonderful possibilities and the great benefit to the nation of developing these lands was practically bringing the East out to see with its own eyes. The wonderful production of cotton, the best cotton in the world, of alfalfa, of livestock, of rice, of mid-winter garden truck, and many other necessities, could not be told convincingly at long range, but a trip of the Easterner along the road on one side of which is cactus, snakes and sage, on the other wealth producing crops, would show him.

* * *

"The same water which grows the cotton will furnish the power to turn the spindles and run the looms to make the cotton fit for human use. This would save to the Southwest the lands now desert; it would save in transportation and all other costs." It was asserted that if these waters which are going to waste annually could be controlled so as to be used for hydro-electric power, in addition to their use for irrigation purposes, there would be developed 2,000,000 horsepower for running the looms and the factories of the country. One enthusiastic listener understood it to be 100,000,000 horse power. It's immaterial, however, for it is as impossible for most of us to imagine the full import of 2,000,000 horsepower as of 100,000,000.

* * *

There are now being irrigated by the waters of the Colorado slightly over 2,000,000 acres of rich lands. One speaker suggested the cost of the reclamation as $80,000,000, another, $100,000,000, and another remarked that even if it should be a quarter of a billion one year of full crops would pay the entire cost.

* * *

President Seiberling of the Goodyear Rubber Company referred to the wonderful quality of the Pima cotton of Arizona and incidentally referred to agricultural possibilities under irrigation by stating that the cost of the great Roosevelt dam is now covered four times annually in the products of the Salt River Valley.

* * *

"Boll weevil has driven Sea Island cotton into the sea; the finest long staple cotton found anywhere in the world is the Pima cotton now grown in Arizona and California."

* * *

On Friday there was rivalry between speakers as to who could introduce the greatest number of puns, quips and stories to enliven their otherwise serious talks, with Governor Campbell of Arizona and Vice President McCormick of the Southern Pacific railway about equal. But William Jennings Bryan was called for while the audience awaited the coming of Helen Taft, and told the following story:

"When Joe Blackburn of Kentuck

was running for congress he heard that a hanging was to take place at a county seat in his district and as he knew the sheriff he made the trip, hoping to catch an audience. The sheriff recognized him in the crowd and invited him to a seat on the scaffold with the priest, doctor, etc. The prisoner was to be hanged at 10 o'clock but as arrangements got ahead of the program the sheriff told the prisoner he had five or more minutes if he wished to say anything to the crowd. As he replied in the negative Joe jumped to his feet, asked for the intervening time and launched a plea for his election. In about two minutes the prisoner turned to the sheriff and said: 'Sheriff, if it's all the same to you, I'd like to be hung now and let this fellow talk after I'm gone.'"

* * *

No talk of the day met with more response as it progressed than that of Dr. Elwood Mead, who explained that while others were outlining great schemes for reclamation and irrigation he wished to present the human side of the question—placing the settler on the land, and under conditions that reasonably assured success. It was evident from the close attention paid and the hearty approbation manifest that he had suggested a new and valuable line of action.

* * *

Joseph Simons, president of the Imperial Valley Landowners Association, asked the support of the league in seeking official creation of a neutral zone helow the border for the benefit of water users. He complimented the Mexican government on the favors extended and the able manner in which during the war they had guarded our water canals below the line. But when a canal breaks or other mishap occurs too much red tape has to be unwound and rewound before one may get across the international boundary to make repairs, etc. So his organization asks a neutral zone, for water interests only, to remove this heavy handicap to quick action in times of canal trouble.

The Resolutions

"The Convention of the League of the Southwest, composed of delegates from the States of California, Colorado, Arizona, New Mexico, Nevada, Utah, Wyoming and Idaho, in conjunction with engineers. scientists and men eminent in the affairs of the whole nation, assembled in the city of Los Angeles, Cal., April 1, 2 and 3, 1920, view the plan of control and development of the Colorado River, as outlined by the Reclamation Service of the United States and the able papers presented to this convention, as one most essential to the growth and development of the West, and as furnishing means for the future prosperity of a great many citizens of the United States of this and future generations. The vastness of the project is such, that many years will be required before it can be brought to completion in all its details.

"Whereas, it has been shown by the investigations of the government that a great dam may be constructed at or near Boulder Canyon on the Colorado River, as proposed by ex-Secretary Lane, adequate to control the destructive floods of the Colorado River and of sufficient capacity to supply water for the irrigation of 1,500,000 acres of land in addition to that now under irrigation, with a productive capacity of $150,000,000 in wealth annually, with a livelihood for over 1,000,000 of our population;

"And whereas, the power available from this reservoir will be sufficient to supply the necessary electrical energy for large portions of the states of California, Utah, Nevada, Colorado and Arizona;

"And whereas, the storage of water at this site will not in any way interfere with the further development of the river in the upper portions of its drainage basin;

"Now therefore be it resolved; That the United States Reclamation Service be requested and urged to proceed with diligence with its investigations of this site, with a view to its very prompt construction;

"Resolved: That Congress is hereby requested to appropriate the sum of $50,000 for the use of the Reclamation Service in completing the investigation of the Boulder Canyon reservoir site, and that such appropriation be made available at once;

"And whereas, the withdrawal from

(Continued on Page 623.)

"I never wrote an ad—but I've used one of your outfits a year—so here goes"

"Unfair, you may say, for a farmer like me to write an advertisement on Western Electric Power and Light Outfits when I already have one. But is it unfair if I tell the truth? You may disagree with my ideas, but I am not asking you to buy a Western Electric if you do not believe in it. I'll go further and say don't buy any plant until you have seen them all. That's what I did."

John Horning

Mr. Horning is a farmer near Maiden Rock, Wis.

Too much talk about "light;" how about power?

"In my case it was several weeks before I realized that in the pulley on my outfit I had a work-horse that was as valuable by day as the light was at night. Now I am convinced that without enough engine capacity to take care of power and battery charging at the same time, a farmer is cheated out of a money saving that means heaps.

"Of course, I know there are other plants with pulleys, but I do not know whether their engines can take care of an extra load or not. Maybe they can—they should. I do know that I got more engine with my plant than some of my neighbors.

But will the engine do the work?

"A big husky engine, like a mule, is no good if it balks. Now I want to say that my engine is dependable. Of course, all valve in head, 4-cycle engines are powerful — that's been proved.

"Nor must I fail to give my engine credit for starting when I want it to start, even in the coldest weather—and it keeps on running too. In fact, I can hear it right now. But if it depended on me to watch the oil level like a cat watches a sparrow, I'm afraid I'd be in trouble most of the time. I'm too busy. With my engine all I need do is fill the oil reservoir about once in two or three months. Then as long as there is even an inch or two of oil in the crank case, there's enough for the revolving crank to splash over every moving part.

"Then there's another thing that means sure death to a set of bearings—starting too soon on kerosene. I made that mistake once with another engine I had. Result was the kerosene seeped down into the oil reservoir, thinned my lubrication, and pretty soon bang! went the bearings. Now this present engine, though it burns kerosene, starts on gas—about a cupful is needed—and keeps running on gas that gradually changes to a mixture of gas and kerosene, which finally becomes all kerosene when the engine is hot enough to burn it up. I haven't had any bearing or lubricating troubles all this time and I don't look for any.

I don't know enough about a generator to talk about it.

"I am going to say off the generator question. I don't believe the average farmer knows enough about a generator anyhow to talk about it. I took my generator on faith. I understand that these people have been making generators for about 30 years, which is longer than I have been farming. I think I know something about farming and I should imagine that they know something about generators.

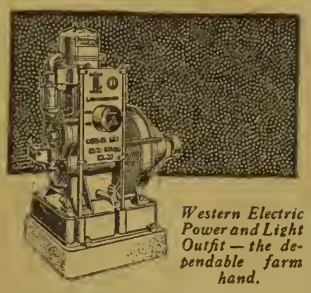
What about the Batteries?

"I have become interested enough in batteries to read up on them a little, and I know now that my battery is geared up a little differently from most other lighting plants. I think the explanation of the Western Electric Company, written by them, is a better one than I can write. If you're interested, read it."

* * *

Note: What Mr. Horning means by "difference" in his battery statement is this:

The charging of the battery is automatically controlled. At the start the current flows in at a fairly high rate, but as the batteries fill the rate of flow becomes gradually less and less—till at last the current is just trickling in. Then it stops by itself. This "tapering charge" takes the strain off the batteries and so makes them last longer.



Western Electric Power and Light Outfit — the dependable farm hand.

Maybe some of the information that helped Mr. Horning decide will help you, too, in choosing a Power and Light outfit. Write for booklet CC-3 to Western Electrtic Company, at Los Angeles or San Francisco.

Some good territory still available for live-wire representatives.

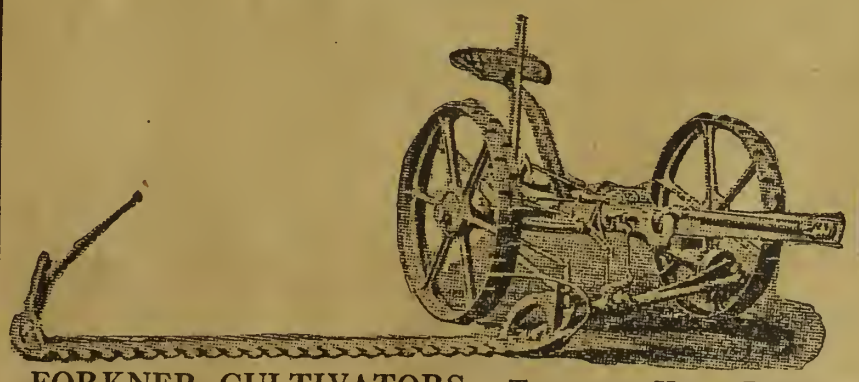
Western Electric Power & Light

Makes the Battery last longer

CALIFORNIA SPECIAL

NEW STANDARD MOWERS

3½ to 8-Foot Cut



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OLIVER TRACTOR and
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ORNAMENTALS

Trees, Plants, Shrubs direct from the nursery to you. Choice stock. Big assortment. WRITE FOR CATALOG, which illustrates and describes best varieties for California conditions.

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SUPERINTENDENT WANTED

For large truck farm in California. Good position to right man. Practical familiarity with commercial growing of vegetables essential. Scientific training desirable. Familiarity with packing and shipping of vegetables desirable.

R. L. Reynolds, La Habra, Cal.

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When Writing Advertisers, Mention the Cultivator.

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STURDY and strong, this 1920 Briscoe will stand the hardest kind of service with a freedom from trouble that you'll appreciate.

"Before you decide Take a Briscoe ride"

Light in weight, but so perfectly balanced and with such a long spring suspension that every road becomes a good road.

You'll find a big difference, too, in your tire and gasoline bills.

Frank O. Renstrom Co.,
Distributors
Los Angeles and San Francisco, California

BRISCOE MOTOR CORPORATION, JACKSON, MICHIGAN
(55)

The LEADER OF LIGHT WEIGHT CARS

American Steel Pipe & Tank Company

CORRUGATED AND PLAIN GALVANIZED TANKS

WELL CASING

RIVETED WATER PIPE

SURFACE IRRIGATING PIPE

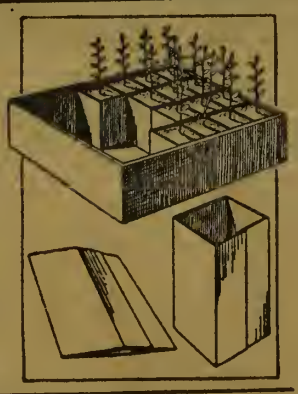
Main Office
354-P.E. Bldg. LOS ANGELES
Branch at Fresno

Perforated Tree Protector

that will keep Squirrels, Rabbits and Gophere from harking your trees and give perfect protection from hot sun, sandstorms, harking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to uee. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour. For etarting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbere, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniume, Eucalyptus, Olive Cuttings. It's the only practical pot on the market today for propagating work. Write us for eamples of either Pots or Protectore. Tell us which you are interested in.



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935 East Central Ave. Redlands, California

SEEDS THAT SATISFY
Send for "Hints on Gardening"
MORRIS & SNOW SEED CO.
439 Main St. Los Angeles, Cal.

Bamboos for California

By Ernest Braunton

JAPAN exports 10,000,000 bamboo poles to the United States every year. These will grow in districts of Japan where the temperature drops to 15 degrees Fahrenheit, or less, the snow often breaking down the young growths. In England a temperature of six degrees failed to prove fatal to several of the hardier species. There is no part of California, except in cold mountainous regions, where we may not grow timber and edible bamboos.

California is indeed not without notable collections to prove the statements above quoted. At the plant introduction gardens, Chico, there is a good collection, and one in Golden Gate Park, San Francisco. Dr. H. Tevis of San Francisco has probably the best collection in the United States, and Lloyd Tevis, at Bakersfield, has acres of groves that are of timber size, 50 or more feet high.

Commercial Plantations

In Japan some of the best commercial groves are on comparatively high ground surrounded by rice fields. A favorite site for them is in the deep rich alluvial soils along water courses. The valleys are chosen to get away from strong winds so the young and growing shoots may not be whipped against mature stems and the growing tips injured, for such injury makes an imperfect pole or sometimes none at all. Windbreaks of coniferous trees are planted in Japan and China.

Giant Bamboo

These magnificent plants are on the Tevis place near Bakersfield. The bamboo has not yet come into its own in this country, though its uses are very extensive in China and Japan. It appears to be perfectly adapted to California conditions, and from the experimental plantings which have been made we believe the time will come when its great usefulness will be proven.

From there to San Diego gigantic bamboos are common in ornamental grounds, but no one has attempted to grow them in commercial plantations.

Not Tropical Plants

A popular misconception is that bamboos are tropical in their requirements and to this is due the indifference in regard to their general use throughout the state. But the family is a large one, great in climatic range and size of species. Some are tropical, some are moisture loving, but other sorts grow on dry mountain sides amid the snow and ice of severely cold winters. The range in size is from creeping species that are mere soil covers to giants more than 100 feet high and a stem diameter of seven inches. It is this unsuspected hardiness in large growing species that has prevented wider planting in California, but the largest species grow rapidly and form large groves in commercial plantations of Japan where they are annually visited by 15 degrees of frost. Why need Californians hesitate to plant?

The question that naturally arises is: Why should we plant, and if we plant, where and how? The fact that we annually import 10,000,000 poles would lead us to look into the matter of possible profit; we care not what use is made of them, whether they go for fishing poles, or for prison cells as they do in Japan. The edible species, grown both in Japan and China, are shipped as canned goods to the United States and served in our best hotels at 25 cents a portion. Even in Japan these asparagus like shoots command a minimum price of five cents a pound. Here they will bring at least twice as much. And any agricultural product that markets at ten cents or more a pound is worthy of local consideration.

It seems the quality of the soil greatly influences the texture of the wood for some districts are noted for flint like hardness of the canes. The soil should also be well drained, yet retentive of moisture; they are not swamp plants, though needing much moisture. Stagnant water is fatal to growth, but lands merely subject to overflow are among the best. Borders of canals, streams and ponds are favorable situations. The United States department of agriculture states: "The deltas of rivers, low, irrigated islands, like those in the San Joaquin and Sacramento Rivers, would produce big forests of these valuable plants, while the banks of irrigation canals could be made beautiful by them."

Planting and Care

According to the largest Japanese growers cited, the soil should be stirred before planting as deeply as possible and if heavy should have large quantities of stable manure or other rough material worked in. Much humus is necessary. The plants are set out 12 feet apart each way or 300 to an acre. If the soil is a dry one, plant deeply, but if a moist one, set the plant in a little hillock or mound.

After planting a thin layer of cow manure is spread over the soil and on top of this a layer of straw. This

mulch is maintained throughout the year. Irrigation should be frequent and an annual application of fertilizer is necessary to commercial success. All foliage should be encouraged and fostered, as shade is necessary for the young shoots as they pierce the soil, and is at all times desirable. All shoots appearing for the first three years are allowed to grow, but subsequently only the strongest are retained, the remainder being cut out. This throws the vigor into a few large canes. In Japan where snowfall is so heavy as to break down the shoots, the tops of several are drawn together and tied so that the tent like group will shed snow. No cane is sufficiently mature for cutting until four years old and unless it be cut at that age it deterlorates in market value. A grove is not profitable until about ten years of age. In California we have not given the bamboo proper space, thinning, fertilizer, or water if in well drained soils.

IMPERIAL VALLEY OUTLOOK

The 1919 acreage of cantaloupes in the Imperial Valley was something over 14,000 acres. Government experts concede a 1920 acreage of at least 20,000; leading growers in the Imperial estimate the total at 22,000, and they may be nearest correct. The outlook certainly is as promising as well could be.

The cotton outlook is equally good, or better, for last year's returns were little short of phenomenal, as viewed from past experiences, and the coming year is full of promise. Tomatoes have formed on the young plants, and the acreage is heavy, so unless some unforeseen and unexpected calamity strikes the crop the returns will be high, for the demand will be heavy.

Due to eccentricities and extremes of weather the story of the 1919 lettuce crop is not so alluring, and it is yet too early to prophesy as to its effect on the planting for 1920. Last year's acreage was variously estimated from 7,000 to 9,000 acres of which only about 2,000 were marketed, a total to date of about 2,400 cars. Rains fell so copiously and continuously that the general crop was too much forced in growth, which could not be checked. It seems as if our California climate occasionally takes the bit in its teeth and runs away, making certain crops grow whether we will or no. Then at shipping time came that bad eastern weather with its extreme cold, froze the lettuce in transit and as it was being handled in the Atlantic Coast markets, so that the losses were heavy. The crop is now nearly gone. Two or three weeks ago the shipments were from 80 to 100 cars a day; now they are less than ten. But late planted crops will probably hold the close of the season over to about April 10.

According to a United States market official who has just returned from the Imperial that valley is each year gaining heavily in more staple production. Cotton is of course a prime favorite, but mixed farming, with cattle, hogs, and even sheep in large numbers is each season more in evidence. The unusual success attendant upon alfalfa growing in all parts of the valley makes the livestock industry most alluring and a heavy increase of meat and dairy products is a tidal wave that nothing will stop. The official quoted was firm in his declaration that each year puts valley agriculture on a firmer basis; the speculative days are past, each farmer now knows what is best for him to raise with an assurance of success both as to crop and market returns. Although only passing through the Coachella Valley reports reached him of great activity and enthusiasm over the 1920 onion crop. The state department of agriculture has called a meeting there for March 27 to discuss standardization of the coming crop in packing and marketing.—E. B.

BETTER SEED POTATOES

The 1918 legislature for the first time made an appropriation for the work of promoting and protecting the California potato industry. California potato growers can now be assured of certified seed stock. Under the present program the fields are closely inspected during the growing season and a careful check kept to prevent the spread of diseases and to insure the culture of better seed potatoes. Because of the appropriation the only charge made on the seed grower is the tag tax of ten cents a sack. This is only collected when the stock is finally inspected and tagged under the California department of agriculture.

Mr. Shear, who specialized in potatoes in the East for many years, and has a wide knowledge in that line, says that several California localities have already gone into the raising of seed potatoes. The seed grown in Modoc County, for example, near the Coast, but at a high altitude, has already proved its value for the early or spring crop of Southern California. "There is no question," said Mr. Shear, in discussing mountain grown seed, 'but that seed potatoes grown in a section and at an altitude where the growing season is very short, produce a vigorous plant and an early maturing tuber when planted in extreme southern districts. There are cases, however, when the seed produces vigorous plants but not a heavy yield of potatoes. We are now checking up the experience of various growers so that we may be able to give a reasonably correct record for the benefit of potato growers. Our program is to produce and protect the industry in every way possible.

"One of the objects of my southern trip is to study the matter of grading. There is no question but that certain varieties have tender skins, rendering questionable the use of a mechanical grader. However, Florida has used and continues to use the mechanical grader, even though the Spalding No. 4 variety, raised on the east coast in Florida, is a very tender skinned tuber. The public demands the U. S grades. It looks as though there will have to be some method of doing away with the present faulty system of hand grading now being used in California potato fields. Again, the harvesting will have to be done by machinery. The present wasteful hand method of using the old time potato fork causes a heavy percentage of fork cuts. We are gathering data showing the extent of the losses in harvesting and handling, and soon will be in a position to give California growers much valuable information."

At the last sale of the California Rice Growers at Princeton lower prices were secured than for some time past, ranging about $7.

A Sturdy, Oversize Cord Tire that Establishes a New Standard for Durability and Freedom from Skidding

The Michelin Universal Cord embodies three substantial improvements in cord tire construction: *first*, a new and perhaps unequalled wear-resisting tread-compound; *second*, an improved non-skid tread that offers effective protection against skidding in every possible direction; *third*, a super-sturdy oversize body. These combined advantages result in increased resiliency and a freedom from blow-outs hitherto unknown. For your next tire get a Michelin Universal Cord.

Michelin Tire Company, Milltown, New Jersey

Other factories: Clermont-Ferrand, France; London, England; Turin, Italy

Dealers in all parts of the world

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Value of Concentrates

Would like to know where I can get some information on the values of various feeds. Is it cheapest to buy milo at $67.50, middlings at $70, mill run at $57 or barley at $70? What is the value of "Lactine, "Semisolid Buttermilk" and other substitutes for milk for little pigs?—Subscriber, Wasco.

Prof. F. W. Woll of the state university answers: "The percentages of total digestible matter in the grain feeds given are as follows: Milo 79.9 per cent, flour middlings 78.2 per cent, mill run 67.0 per cent, barley 79.4 per cent. It follows, therefore, that at the prices given the buyer pays for digestible nutrients in these feeds as follows: milo 4.2 cents, mill run 4.3 cents, flour middlings 4.5 cents and barley 4.4 cents per pound of digestible matter. Since middlings and mill run both contain a somewhat larger proportion of digestible protein (flesh-forming substances), than either of the other feeds, they are as a rule somewhat more valuable than these pound for pound of digestible matter, but the difference in the relative prices given is not marked and it will be more important to secure a good quality of the feed bought than to choose one or the other feed. In fact, a mixture of the grain feeds will prove a more efficient and palatable ration than either one of the feeds given, and I would suggest feeding ground milo and mill run in the proportion of two to one by weight. This, with either ten per cent of tankage or with buttermilk and skimmilk fed in the ratio of three to five pounds per pound of grain will make an excellent feed for pigs and will produce maximum gains in weight. As to the value of the various buttermilk products, would refer the subscriber to the reply given in last week's Cultivator. Five to six pounds of buttermilk or skim milk has been found to possess a similar feeding value to one pound of grain, and dried buttermilk contains close to ten pounds as much digestible matter as an equal weight of buttermilk. The other buttermilk preparations on the market will come closer to dried buttermilk the more solid matter they contain; many contain less than 40 per cent of solids, however, and are very expensive feeds at the prices asked for them.

Cactus Questions

Two subscribers from Ontario and Kingsburg, inquire as to books or bulletins dealing with cacti in general, as to where ornamental cacti may be purchased, and how to grow cactus from seed.

The only book on cacti is an old one by Watson, printed in England, dealing with the plants under glass in the botanic gardens at Kew; not of much value to Californians. The United States has published two or three bulletins on specific groups of cacti—but, good news—Dr. J. N. Rose, curator of the national herbarium at Washington, is getting out a cactus book that will be the best thing of its kind ever published, but it may be another year before it is out. We do not know of any dealers at present though there is a revival of interest in these plants that will no doubt develop commercial stocks. To grow cacti from seed is easy. Get good clean sandy loam, not too sandy, and without decaying vegetable matter. Sift it through a fine sieve. Fill flower pot saucers nearly full of this fine soil. Sprinkle seeds thinly on top. Cover them slightly. Water carefully with a florists (Scollay) sprinkler or "flick" on water with a whisk broom—they will stand watering freely. Keep in warm place. In a week to ten days the tiny plants will appear. When three weeks old transplant if too thick or pot in small pots.

Brandywine Strawberries

I have set out a patch of Brandywine strawberries and may set out more if reports are favorable. Are they a good berry?—Subscriber, Sebastopol.

The Brandywine is one of the best strawberries grown, being a favorite over a wider range of country, perhaps, than any other variety. But strawberries are so variable under differences in soil and climate that a matter of a few miles often demands a change in varieties grown. We would advise you to inquire diligently at to what ones have proven best adapted to your own district.

Red Strawberry Leaves

Can you tell me why strawberry leaves turn red? Spiders take to these leaves more than to others.—Subscriber, Redondo.

Without fuller information we fear we cannot tell you anything of value if your plants are adversely affected Red leaves are due to age, frosts, etc., and we are presuming that their only seeming abnormality is change of color. You do not state whether or not the plants are in poor condition. Spiders most infest the drier and more mature leaves of all plants.

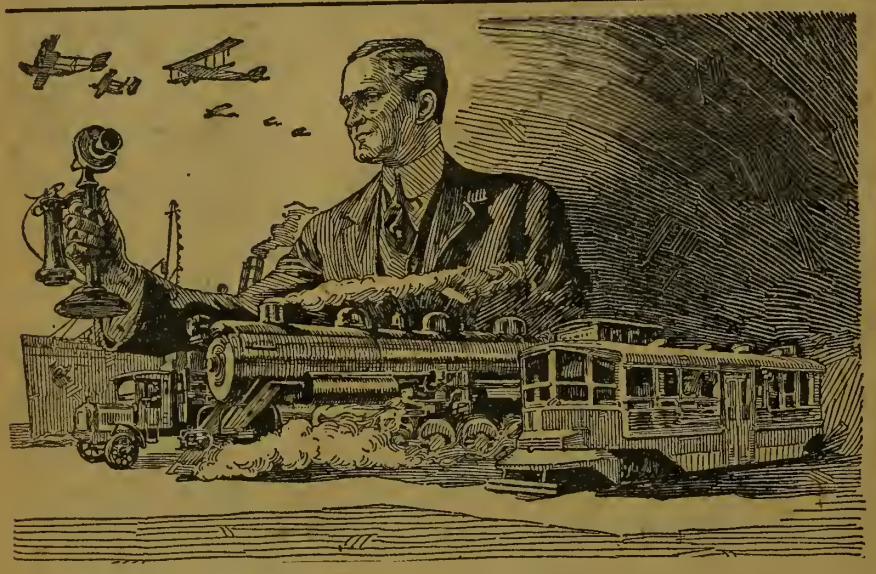
SEED POTATOES IMMUNE TO WART DISEASE RECEIVED

Dr. James G. Sanders of the Pennsylvania department of agriculture has advised the California department of agriculture that there has just been received a ton and a half of 12 varieties of potatoes immune to the wart disease. Dr. Sanders says:

"These varieties purchased by the Pennsylvania department of agriculture will be thoroughly tested for yield and quality in Pennsylvania and the best varieties will be grown in large quantity, to be distributed ultimately for seed purposes in and adjacent to the wart infested regions. Should some of these varieties prove satisfactory they will add greatly to the possibility of controlling this disease and limiting its spread.

"Last year's experiments proved the immunity of our well known varieties, the Irish Cobbler, the Spalding Rose, and the Idaho Rural, so that we now have a basis upon which to work at once.

"The introduced potatoes come from northern Scotland, entirely out of the infested district of the British Isles, and have been grown under certification of the British board of agriculture, whose officers have been very kind and have gone to no little trouble to select these varieties and prepare them for shipment to America."



The Measure of Progress

The progress of the past, as well as that of the future, is measured by criticism—for criticism exists only where there also exists faith in ability to improve.

We do not criticise an ox cart or condemn the tallow dip, for the simple reason that they are obsolete. During the reconstruction period through which our country is now passing, if the public does not criticise any public utility or other form of service, it is because there seems to be but little hope for improvement.

The intricate mechanism of telephone service is, under the most favorable conditions, subject to criticism, for the reason that it is by far the most intimate of all personal services.

The accomplishment of the telephone in the past fixed the quality of service demanded today; a still greater accomplishment in quality and scope of service will set new standards for the future.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
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One Policy *One System* *Universal Service*

RUSSELL
THE OLD RELIABLE LINE

Get All the Grain This Year

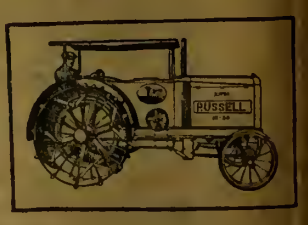
With enormous grain crops to handle this year it pays to have your own thresher, and thresh—clean—save your grain at just the right time for best grain and best market.

And with the crop bringing record prices, it is good business to pay a little more if need be for a genuine Russell and make sure of getting and saving *all* your grain.

The Russell is the World's best Thresher, backed by 79 years of success; it has the big easy-running 15-Bar Cylinder, the patented High-Finger Grate, and the patented Spiral Distributing Beater. These features are just a few of the reasons why many thousands of experienced threshermen all over the world demand the Russell in preference to all others.

All six Russell Threshers are alike in design, and have the same exclusive Russell features. Each is built *up to* the old reliable Russell standard—not *down to* meet a price.

Don't buy *any* thresher until you get our big new Catalog describing the up-to-the-minute Russell line of threshers and steam and kerosene tractors—sent free on request.



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Diener's Sweet Fodder Sudan

(August Photo, Tulare County Field.)

New production; tremendous producer of sweet, soft, palatable fodder, superior in quality to all standard fodders; high seed yield greatly increases value for silage or direct feeding. The coming fodder crop. Originated by Richard Diener, noted plant breeder.

Sold by Morse Seed Co., Special Agents, San Francisco, or by D. J. Whitney, Exeter, Cal., Grower

Dairymen, Pork Producers and Poultrymen write for circular.

Price:
$1.00 lb; 10 lbs. 9.00; 100 lbs $80.00

SLIDEWELL HALO SOFT COLLARS

Made in all the leading models and types of fabric by Troy's Master Craftsmen

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Hall, Hartwell & Co., *Makers*, Troy, N. Y.

JOHNSTON TURBINE PUMPS for irrigation

Produce water at a minimum cost. Ask for Folder No. 8 and name of nearest distributor.

AMERICAN WELL & PROSPECTING CO., MFGS.
407 E. 3rd St., Los Angeles

BASIN OF THE COLORADO

(Continued from Page 619.)

entry of the Ouray reservoir site in the state of Utah has checked the advancement of important railroad and other enterprises necessary to the development of the natural resources of Colorado and Utah, and believing there are other reservoir sites sufficient to fully care for the storing and control of all the water of the Colorado River, without the Minnie Maud or Ouray reservoir sites in Utah, which would inundate and render useless 250,000 acres of land, including several small towns and 20,000 acres of Indian allotments, and which prevents the building of a through line of railroad from Denver to Salt Lake City, that is vital to the interests of northeastern Utah and northwestern Colorado, this reservoir site should be abandoned, that the essential right of way may be granted and development assured to one of the largest and richest mineral and agricultural sections of the Colorado basin;

To Abandon Ouray

"Now therefore be it resolved: That we recommend the abandonment of the Ouray reservoir site unless it shall be shown that such site is absolutely essential to the general development of the Colorado River;

"Be it further resolved that it is the sense of this convention that private projects which do not conflict with the proposed general plan of the Colorado River development should be permitted to proceed with the fullest cooperation of the government, and that a liberal policy should be adopted toward such private enterprises.

"Be if further resolved that in carrying out the plans of the Colorado River project, due consideration should be given entrymen and settlers who have been hindered in their efforts to obtain water for their claims, and that they should be given such reasonable time as may be necessary to complete their proofs.

"We further recommend that no public lands be withdrawn from entry, or if already withdrawn, that no such lands be withheld from entry and settlement, except those proved essential for the project;

For Joint Control

"It is further resolved that the President of the United States be requested to take the proper steps, through diplomatic channels to secure —if possible—the establishment of a joint control, by the government of Mexico and the United States, of the waters of the Colorado River diverted by natural conditions through a portion of the republic of Mexico and again entering the United States, to the end that all leeves, irrigation works and canals constructed for the control of such waters may be properly maintained and protected;

"Be it further resolved that the governors of the states represented in the League of the Southwest constitute a permanent committee and as such be empowered to take such action as they may deem necessary and proper to make effective the suggestions embodied in these resolutions; and for that and the general purposes of the league, they are severally requested to obtain, if it be possible, such financial aid as may be needed from their respective states;

"Whereas, definite results in pooling the water resources of the Colorado basin and arranging a working program can only come through full presentation and study of all engineering data pertaining to irrigable areas, reservoir sites, power sites and water supply of each state;

"Resolved, that to this end a permanent engineering commission should be formed consisting of the state engineers of the several states and engineers of the United States Reclamation Service to study the basin as a whole and prepare a comprehensive plan for immediate action and early development."

The resolutions were presented by Judge Richard E. Sloan of Arizona. Members of the committee were: Gov. D. W. Davis of Idaho (chairman), Francis Cutler for California, Judge Richard E. Sloan for Arizona, Gov. Octaviano Larrazolo for New Mexico, Gov. E. M. Ammon for Colorado, R. S. Gallett for Utah, Charles P. Squires for Nevada, A. A. Jayne and Luther Brown, at large.

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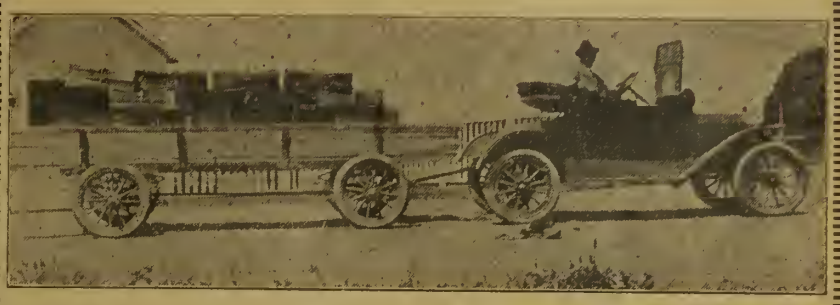

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California Peanut Industry

By Ernest Braunton

IT has been clearly demonstrated that peanuts may be grown in favorable spots in all sections of the state and are a decided commercial success. That a paying crop cannot be grown on heavy soils is equally true, therefore this factor is of first importance. The soil most favorable is a rich sand or a sandy loam, not coarse dry sand, but a light porous sand or soil that is fairly retentive of moisture. The presence of lime is important. If you market nuts in the shell a clean sand will yield a clean light colored shell, but large growers thresh the nuts and market only the meats or kernels.

Soil should be plowed deeply and made as smooth as possible, for peanuts are planted on the level and ridges should be avoided. No fertilizer is used for there is no plant that gathers more nitrogen from the air than does the peanut, and no California soil so far tried appears to lack any fertilizer element needed by the peanut, even though continuously cropped for several years. The rows are planted 30 inches apart and the nuts four to eight inches in the row. Eight inches apart is an ideal distance if all would grow, but one cannot afford to have any 16 inches apart, so close planting is practiced. A remodeled bean planter, with new parts for the seeds, which are larger in peanuts than in beans, is used and is entirely satisfactory. This plants four rows at once, the nuts being in the shells and 60 to 70 pounds used per acre. The time for planting is from April 15 to May 15.

Culture and Care

A. B. Miller, Fontana, San Bernardino County, the heaviest grower of peanuts in the state, says that irrigation is the keynote to success. As he grew 2,000 acres in 1919 and will plant 3,000 acres this year, there is no doubt but he knows the pivotal point about which crop production swings. Mr. Miller furrows for irrigation just as do the orchardists, and with similar cultivators. He irrigates three or four times during the season when the nuts are growing, once as soon as planted, again in 30 days, to be followed by one or two more applications 15 days apart, following the second, as season and soil demands. This matter must be closely looked into and as closely attended to. Failure of the proper amount of water at the right time is fatal to an early crop, though these wonderful vines will again respond, but produce a later crop. Of course cultivation and weed control present new problems in a really sandy soil, such as has proven best.

As the full crop of Spanish peanuts is produced within two inches of the surface, it is harvested with a bean cutter which reaps two rows at the same time, and by a set of small iron bars at the rear the plants are left in one row. The main harvest comes in September and is treated the same as the bean crop in Ventura County and other Southern sections. But if the crop is later and rains come, quick action is necessary, for both nuts and vines are more absorbent of water than any other crop known in the vegetable kingdom except sponges Four days after a rain peanuts lying on the soil will rot. Should an emergency arise, the plants are strung on stakes for drying just as is done with the "goober peas" in the "Sunny South." Stakes eight feet long are driven about 18 inches into the soil and six inches above the surface a piece of lath is nailed, and on these stakes the plants are strung for drying, the lath preventing the stack from coming in contact with the soil.

A Hill of Spanish Peanuts
The variety best adapted to California and the one most generally grown.

The Crop

Except the crop is sold in the shell, which may be stained by water, it is in no wise injured by rain if quickly dried. The peanuts are threshed on Mr. Miller's ranch by a remodelled bean thresher, which works perfectly When well cared for the yield at Fontana is a ton to the acre; in war time, with war time help from Uncle Sam, the production was but 1,200 pounds to the acre. All the 1919 crop from this big ranch was absorbed by Los Angeles in the peanut butter and confection factories, and the outlook for 1920 points to the same local absorption, for the demand is for at least 15 carloads of shelled nuts annually. The growers last year were paid 18 cents a pound.

The only variety planted is the White Spanish, as it is superior to others in oil content and equally valuable for other uses. While the Virginia and Georgia varieties are larger in the individual nut, they do not rival the Spanish in any other respect. The nuts contain about 45 per cent of oil and 35 per cent of this is recoverable in the oil mills. No oil has been produced locally since this country entered the world war, as the nuts are more valuable for food purposes. Mr Miller says that peanut straw is similar in food value to alfalfa and that for some livestock he prefers it. The crop of straw is about equal in weight to the crop of nuts. Few realize the extent of the peanut industry in the United States, but last year's crop was estimated at a value in excess of $100,000,000. The value for crushing at the mills has in the past been about $100 a ton, the price of course being largely controlled by the price of lard. The plants are splendid soil renovators and have few rivals as collectors of atmospheric nitrogen. The state which leads in peanut production is Texas.

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Against the straining pull of the road, four stranded steel cables hold the tires *always* securely against the rim.

For this reason Federals travel farther on the road because they cannot creep on the rim, blow out, just above the rim, shift or come off.

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Manufacturers of Federal Automobile Tires, Tubes and Sundries, Motorcycle, Bicycle and Carriage Tires, Rubber Heels, Horse Shoe Pads, Rubber Matting and Mechanical Rubber Goods

ONE KIND OF ABILITY

Hewitt—Gruet claims to have considerable ability in his head.

Jewett—Yes, I have seen him wag his ears.

SAFETY FIRST ON THE FARM

By Frank A. Huntington

While so much is being said in the newspapers and by lecturers about safety rules as applying in factories, mines, street crossings in cities, on children's playgrounds, etc., why isn't it a good time for farmers to consider accident prevention?

Newspapers constantly report accidents caused by farm machinery striking stumps or boulders in fields being plowed, cultivated, or cropped. For instance, last summer an elderly man was killed by being thrown off his binder against a transmission chain which caught his clothing and drew him into the machine. The accident was caused by a boulder against which the binder struck while cutting wheat.

After the accident the field was cleared of stones. But why wait until someone is killed or severely hurt before thinking of a cleanup? Why are so many people prone to lock the stable after Dobbin has been stolen?

Another farmer near me nearly lost a leg, due to his mower guards catching on a low hidden stump in the grass he was cutting. An artery was severed and he had a narrow escape from bleeding to death. Of course, the stump should have been marked before the grass became high enough to hide it, or, better still, I believe in blasting them out and being rid of them forever. The stump that caused this accident was taken out after it had done the damage.

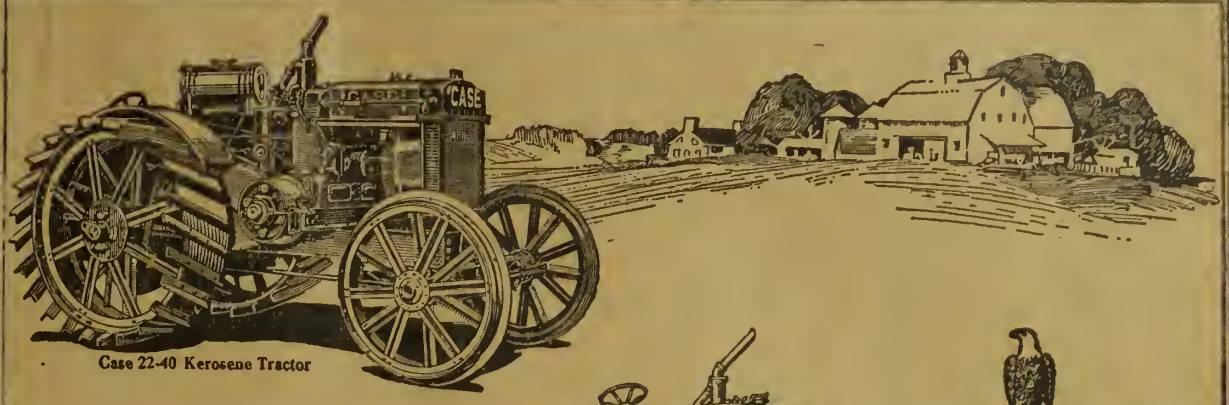
DISTRIBUTE NAPIER GRASS SEED

Packets of Napier grass seed and Merker grass seed are being distributed through portions of the extreme South and California by the United States department of agriculture for the purpose of widely introducing these closely related plants whose value, especially as green fodder for dairy cattle, is now well established. Accompanying the allotments of seed are instructions for planting and the making of cuttings in order that the growers can take care of their own and their neighbors' future needs. Napier grass was first introduced by the United States department of agriculture in 1913 from Africa and Merker grass somewhat later. Experimental plantings have shown that they will thrive south of a line drawn from Charleston, South Carolina, to Shreveport, Louisiana, also in the southern portions of Texas, Arizona and New Mexico, and in portions of California.

As forage plants both grasses are still regarded as being in the experimental stage, but federal scientists state they are both very valuable, but further data as to their value in comparison with Japanese sugar cane, corn and sorghum are needed. Attention is called to the fact that attempts have been made to apply other names to Napier grass, namely Japanese bamboo grass and Carter grass. The use of these names is not desirable, according to the government's representatives. Some of the advertisements setting forth the value of these grasses are probably too enthusiastic, but that the grasses are valuable new assets is clearly demonstrated.

THE COMPOST HEAP

A large part of the value of manure is due to the effect of humus. The small rancher with a cow or horse could greatly increase the amount of humus by developing a compost heap. It is suggested that all the leaves, weeds that do not bear objectionable seeds, pieces of sod, clippings from the lawn, straw, hay, and the like, that are lying around loose, be placed together as a layer of a compost heap. A layer of moist manure would probably follow and again a layer of dry material. In the course of a year this heap would not only increase the amount of fertilizer available but would prevent the loss of the most valuable portion of the manure pile, the fluid portion, due to leaching. The layer of dry stuff would absorb what would otherwise run off and soak into the ground. The high prices of manure fertilizer in California should make this valuable by-product one well worth conserving.—J. G. J.



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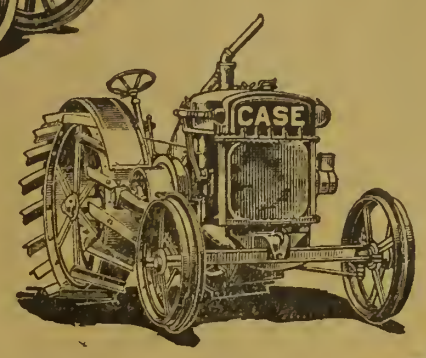
To avoid confusion, the J. I. CASE THRESHING MACHINE COMPANY desires to have it known that it is not now and never has been interested in, or in any way connected or affiliated with the J. I. Case Plow Works, or the Wallis Tractor Company, or the J. I. Case Plow Works Co.



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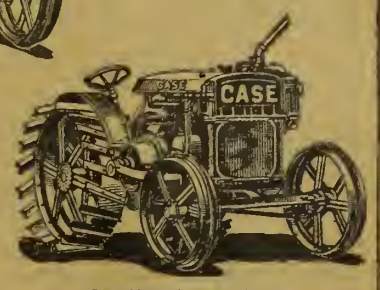
Look for the EAGLE Our Trade Mark



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We Could Build Case Tractors Cheaper— But They Would Cost You More

Built into every Case Kerosene Tractor is a high degree of immunity from frequent repairs, replacements and undue wear. These items and the delays they cause are expenses you must add to the first cost of any tractor designed and built less excellently than the Case.

It would cost us less to use iron castings in many places instead of the drop-forged steel we do use; but it would cost *you* far more for replacement of broken and worn out parts.

We could save a lot by using cast-iron open gears instead of cut steel gears running in oil-tight housings; but later on, you'd pay many times the difference for extra parts, and lose still more by delay.

Thus, all through, in design, material, workmanship and equipment, we build Case Kerosene Tractors the best that they can be built instead of building cheaply and "passing the buck" to you.

Case Kerosene Tractors are built in a standardized design of three sizes: 10-18, 15-27 and 22-40 h.p. respectively. Your proper choice depends only on your power requirements. They are uniform in dependability, durability and simplicity of operation and adjustment.

Back of Case Kerosene Tractors is the great line of power farming machinery built by the J. I. Case Threshing Machine Co. Of this line, each unit is unexcelled in its class; within this line is equipment for keeping a Case Kerosene Tractor profitably employed throughout the year. Write for free catalog descriptive of Case Tractors, and listing our great line of tractor drawn or driven machinery.

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CASE

TRADE MARKS REG. U.S. PAT. OFF. AND IN FOREIGN COUNTRIES

KEROSENE TRACTORS

An Unusual Holstein Offering

In the usual public sale of registered Holsteins the buyer of young heifers and heifer calves has a small range of selection, but here is a sale made up entirely of heifers and heifer calves, and a lot of choice young bulls.

This is a COMPLETE DISPERSAL of the young registered Holsteins at

Bonita Stock Farm, Lodi, Cal.

Tuesday, April, 20, 1920

This herd of young things is one of the typiest offerings yet made in the state. They are well grown, well marked, in splendid condition, and of most substantial breeding.

63 Heifers and Heifer Calves

There are a few bred heifers in the offering, and the rest range from yearlings down to young calves. A large number are sired by SUPREME GLISTA PIETJE, whose dam twice made over 32 pounds butter in 7 days and made 631.35 lbs. in one year, and his sire's dam made 827.31 lbs. butter from 18623.7 lbs. milk in one year. The dams of these heifers are splendid young cows, a large number with official records up to over 26 lbs. butter in 7 days, and most of them have cow test association yearly records that will be valuable in guiding the selection by buyers.

27 Excellent Young Bulls

Every bull in the herd will be offered in this sale. Quite a number are now ready for service, and most of them are sired by SUPREME GLISTA PIETJE, mentioned above, and out of some of the best cows in the herd. This is one of the real opportunities of the season for dairymen to secure good young bulls.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; NO ANIMAL TUBERCULIN TESTED.

Catalog free on request to management.

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, California.

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. John A. Davis, Manteca.

DISPERSAL SALE

75—Registered Holsteins—75

Leeman & Kilgore Ranch, Ripon, Cal.

Wednesday, May 12, 1920

To dissolve the existing partnership between Leeman & Kilgore it is necessary to offer at public sale the high class herd of registered Holsteins now owned by them. This is rated as one of the best bred herds in California, and is a collection of good individuals that will be offered in good physical condition.

High Record Cows

MISS GELSCHE WALKER KORNDYKE, the great 32 pound daughter of Prince Gelsche Walker, is among the many high record, highly bred young cows in the sale, and there is a choice selection of A. R. O. cows and heifers of most attractive breeding.

Daughters of High Record Cows

The young things in the sale include daughters of such famous bulls as King Mead of Riverside, King Morco Alcartra, Segis Pontiac De Kol Burke, and Sir Aaggie Korndyke Alcartra, out of the high record cows in the herd.

An Extra Choice Selection of Bulls

The offering of bulls in this sale is unusually attractive. The two herd bulls will be sold. The senior sire is Sir Aaggie Korndyke Alcartra, who is by Prince Alcartra Korndyke, son of Tilly Alcartra. The junior sire is King Gelsche Walker Korndyke, son of Miss Gelsche Walker Korndyke and King Morco Alcartra, son of Tilly Alcartra. The sale also includes some richly bred young bulls by such sires as King Morco Alcartra, Sir Aaggie De Kol Acme, King Korndyke Pontiac 20th, It, and Sir Aaggie Korndyke Alcartra.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER. EVERY ANIMAL, EXCEPT A FEW AT THE END OF THE SALE, TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

Catalog free on request. Management

California Breeders Sales and Pedigree Company

J. M. Henderson, President C. L. Hughes, Sales Manager
Sacramento, California.

Burr Farm Consignment

To Southern California Holstein Breeders Sale

At Clearwater, Cal. April 27th and 28th

Richly bred cows that have milked over 100 lbs. per day; 2,500 to 3,000 lbs. per month.

Very fine individuals bred to our great herd bull, Sir Veeman Korndyke Pontiac. Also four choice yearling heifers.

Come and see them at our farm

26th and Downey Road, L. A.

Every cow has an A. R. O. record or is on yearly test now. Two extra choice bull calves by our Sir Veeman Korndyke Pontiac.

Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

April 20, Bonita Stock Farm, Lodi.

April 27-28, Southern California Consignment, Clearwater.

May 5, W. J. Higdon, Tulare.

May 6, R. C. Sturgeon and others, Tulare.

May 12, Leeman & Kilgore, Dispersal, Ripon.

June 17, C. W. Anderson, Burkbank. Dispersal.

Milking Shorthorns

May 5, Thos. Harrison, Santa Rosa.

Poland Chinas

April 24, W. T. Dice and Harrold Waltz, Hanford.

Announcement has been made that Professor O. E. Reed has resigned as head of the department of dairying at Purdue University, Lafayette, Indiana, to become superintendent of live stock production for the Gossard Breeding Estates, operating farms at Martinsville, Indiana, Preston, Kansas and Axial, Colorado. Professor Reed is well known to the dairy interests of this state, having served as judge at a number of California shows.

Thos. Harrison, proprietor of the Santa Rosa Stock Farm, Santa Rosa, has claimed May 5 as the date for his sale of milking Shorthorns. The forthcoming sale will be the first sale of milking Shorthorns ever held in the West.

C. R. Thomas, manager of the Los Angeles Livestock Show has just returned from a successful business trip to the livestock sections of the Middle West. Putting into practice his preachments along the line of livestock improvement for the coast country, Mr. Thomas has placed no less than 106 pure bred Shorthorn and Hereford bulls in California and Nevada since early February. He is now pushing to completion plans for holding one of the biggest livestock shows ever put over on the Pacific coast. All forces and interests are being carefully and systematically organized to make livestock a supreme factor in this big annual event.

The Toyon Farm Association, San Francisco, announces that which they believe to be a new world's record in the eight months after calving division. Their Lady Aaggie Echo Hengerveld produced 24.69 pounds of butter from 494.4 pounds of milk in seven days as a senior three year old, exceeding the previous record of 453.8 pounds of milk and 23.09 pounds of butter by 40.6 pounds of milk and 1.60 pounds of butter. This new world's record holder is safe in calf to Sir Pietertje Ormsby Mercedes 443d, one of the best sons of the great yearly record sire Sir Pietertje Ormsby Mercedes, out of Aaggie Wayne Peep three times over 30 pounds in seven days and four wonderful yearly records averaging over 1,000 pounds in the year. This calf with a world's record dam and combining the popular blood of Sir Pietertje Ormsby Mercedes on the sire's side with that of Spring Brook Bess Burk 2d carried on the dam's side through Sir Johanna Canary De Kol, the sire of the dam's dam, has a brilliant future in prospect.

The last Poland China sale of the season will be held at Hanford, April 24, at which time W. T. Dice and Harold Waltz will offer about 60 head of sows and open gilts. Many of the sows were purchased by Mr. Dice on his recent trip through the East and come from some of the leading herds of the cornbelt. The past season has been a notable one in Poland China activities in this state and it is felt that the Dice and Waltz sale will furnish a fitting close to a prosperous season.

The highest price ever realized for a grade dairy cow at a reported public sale was registered at the sale conducted by Rhoades and Rhoades at their salesyards at Clearwater for Bost and Johnstone on March 31. The record cow had produced 600 pounds of butter fat in a year and was sold to I. J. Scott of Pomona for $700. The bidding on the cow was very spirited up to the $600 mark and from there it narrowed down to a contest between Mr. Scott and J. M. Mayo of Compton. The entire consignment of 26 head sold by Bost and Johnstone averaged $268. One important feature in connection with the herd was the fact that every cow had a creditable rec-

HEALTH
FAMILY A Square Deal in Holsteins QUALITY
PRODUCTION

Toyon Farm Association

Mills Bldg. San Francisco

ANNOUNCES

They have established a

FEDERAL Accredited Herd

on their Farm at Brentwood and have placed their Los Altos herd under Federal supervision as the first step toward accreditation.

¶ ¶ ¶ ¶

These herds are the first of any breed in California to make this important milestone in dairy history of the state..

¶ ¶ ¶ ¶

Every animal has been subjected to a searching physical examination and tuberculin test by veterinarians of the

United States Bureau of Animal Industry and The State of California

¶ ¶ ¶ ¶

A Federal certificate of tuberculin test goes with every animal we sell.

HEALTH
FAMILY A Square Deal in Holsteins QUALITY
PRODUCTION

ord in the farm bureau cow testing association and the owners were able to furnish the proofs of production. Having association records back of good cattle is of great value in the sales ring.

STOCKMEN TO MEET

California cattlemen gather in Blanchard Hall, Los Angeles, next Thursday, Friday and Saturday, April 15, 16 and 17. California cattlemen have been confronted by the problem of no pastures and continually advancing feed and continually declining prices for their cattle. We imagine there will be some very pungent questions asked in the convention, but we fear there may be none qualified to give conclusive answers. In any case, the sessions will be filled with interest and we trust prove profitable to the industry.

THE GOAT INDUSTRY

(Continued from Page 607.)

California Cultivator of May 18, 1918, remains to be seen. California Gretel was a pure bred Toggenburg and in 365 consecutive days produced 2,941.5 pounds of milk and 97.41 pounds of butter fat. This amount of fat would produce 120 pounds of butter, enough to supply a family the entire year.

Mr. McLaughlin has reason to believe that several of his coming producers will equal, if not exceed, the record of his Polly-Mac. To be more respectful, the full name of this little creature is Rosemont's Polly-Mac No. 1263. Her greatest production in 24 hours was 15.4 pounds of milk, or 452.6 pounds in one month. Both Polly Ana and Lassie Mac have produced materially above the amounts quoted by the university test.

There are literally hundreds of goat dairies around the city of Los Angeles. There are also many near San Francisco though they have not been such great favorites in that section as they have farther south.

* * *

By Ernest Braunton

The Toggenburg goat comes to us from Switzerland where this breed has been selected from the wild goat and bred for milk production for centuries, therefore has as long a line of ancestry as any breed of domestic animals. Those now in California are still largely high bred grades, but eligible to registry. The progeny of a half breed Toggenburg, if sired by a registered pure bred may be registered. Investigation by the writer shows a liberal number running seven-eighths or more Toggenburg, but five-eighths are more common. Half breed does are bred to a pure bred buck and then bred back to a male offspring. More of these were found in new herds than any other class. Nearly all of them are wonderful milk producers and it is no doubt because of this fact that the rancher does not go a step higher; the breeder does. Many pure bred sires are imported though but very few dams.

Results of Experience

Before the world war it was estimated that 75 per cent of the households in Germany and Mediterranean countries kept goats. They were not confined to the poorer classes but the prosperous middle classes depended upon them for milk, butter and cheese. In some countries goat meat is a favorite article of food and during the last few years' stress abroad the goat has played a far more important part in life saving than in America. Back in 1910 an Australian wrote: "We had a terrible season last year and lost heavily in sheep, but the goats kept us in milk at all times and they are now furnishing our family of eight with all necessary butter and milk. In the dry days I overcame prejudice against goat flesh and ate and keenly relished it."

Jensen, in "Milk Hygiene," gives the following composition of milks:

	Goat	Cow	Human
Water	87.30	87.75	87.92
Casein	3.00	3.00	0.58
Albumin	0.50	0.50	0.52
Fat	3.90	3.40	3.43
Lactose	4.40	4.60	7.12
Salts	0.80	0.75	0.25

In California results have been highly gratifying, especially in regard to low cost of keep. A few years ago a rancher was pasturing and feeding does and charged one dollar a month. The writer interviewed two breeders at Pasadena and Altadena, and both said the total cost per day for milch does throughout a six months' production season is never more than 15 cents a day and these produce an average for the season of from four to five and a half quarts daily. One claims the latter amount for a full seven months' period for one doe for the past five years, the animal in question being seven years old. It is certain that compared with cost of keep they yield more than any milch producing animal.

Breeders usually prefer having a considerable range in period of productivity and consequently breed some early in September and October, and others from January to March. E. W. Patrick of Altadena is at present milking eight high grade does with kids but a week or two old. He takes the latter away as soon as born, even if he has to sit up nights at times to be present at the birth.

They are fed on the bottle for from three to five months, though they will begin to nibble hay and green food at about six weeks of age. Corn meal is cooked, merely brought to a boil, in a very thin gruel, and this is gradually mixed with the milk, beginning when the kids are three to four weeks old, and continued until they eat solids. Green stuff and hay is given them at three months and they gradually fall into the eating of it. The milkers are fed bran and beet pulp, nearly equal quantities, sometimes a dry mash, at other times wet. Alfalfa hay is the one fundamental feed and on sandy soils where alfalfa will not grow elephant grass proves a good ration. After weaning some oats are fed and some feed oats to milkers. Goats like a variety and so love to range the hillsides.

Mrs. Aurora L. S. Hansen
251 N. Craig Ave. Pasadena, Cal.
BREEDER OF
PURE TOGGENBURGS
and High Grade Toggenburgs from the Heaviest Milking Strain

Veramont Hereford Bulls

VERAMONT HEREFORDS scored $975 top and $537.50 average for 8 head at our Davis Sale. Prince Patrician, the top, and three others sired by Patrician 5th.

This splendid grandson of Paragon 12th and Lord Erling is proving a wonderful breeder. Watch his get at future sales and shows. A few more bulls for sale. Address:

H. M. BARNGROVER
Santa Clara Cal.

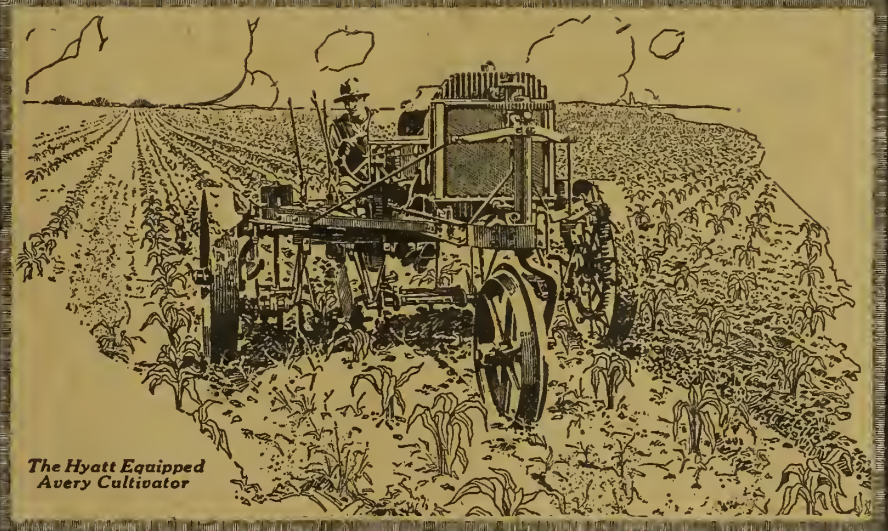
ANGORA GOATS

For sale, 650 Angora Nannies, eight months clip, Yearlings up, extra good quality, portion registered, with about 400 kids.

Maurer Cattle Company
912 Citizens National Bank Bldg.
Los Angeles, Cal.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

HYATT
ROLLER BEARINGS
For Motor Cultivators



The Hyatt Equipped Avery Cultivator

IT is a significant fact that practically every motor cultivator on the market today, built with anti-friction bearings, is equipped with Hyatts.

Hyatt Bearings keep the cultivator wheels running true, prevent wear and save hours of oiling, because they need the oil but once a season instead of twice a day—and do all this under hard duty amid dust and dirt, giving a permanent, care-free performance.

And such are the reasons for the predominance of Hyatt Bearings, not only in motor cultivators, but in all power farming machinery, such as tractors, grain binders, plows, threshers, wind mills, trucks, etc.

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Tractor Bearings Division, Chicago
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"FEEDFINE" FEEDS

are scientifically compounded in proper proportions for dairy and all livestock feeding, of the following ingredients with the most economical results always in view.

YEAST — A concentrate high in PROTEIN and FAT content, sterilized and predigested.

CANE MOLASSES — The richest of feeds in carbohydrates—produces increased appetite on account of its palatableness. Its consumption results in increased energy and it is the best tonic known for animals.

ALFALFA MEAL — Gives body to the ration and supplies the mineral matter which is absolutely essential to all animals.

The greatest known combination for health, strength and productiveness.

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Economy Stock Powder
will keep your pigs in condition by acting on the liver, kidneys and blood. Will keep the stomach sweet, expel worms, aid digestion and prevent white scours and thumps.
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Have all Breeds of Registered

Draft Stallions and Mammoth Jacks

Shorthorn and Hereford Bulls

Registered and Unregistered.

All Animals Sold Under Guarantee.

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is some boar. As an individual he ranks as one of the best in the state. His get are the type that experienced breeders demand. Let me fill your order for anything in the Duroc line. You will be pleased with your purchase.

H. C. WITHEROW — Live Oak, Sutter Co., Cal.

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where efficiency is the watchword. Heavy milking Holsteins and big type Polands. A few choice individuals of each breed for sale at very reasonable figures. Write for information.

R. F. Guerin — Visalia, Cal.

Livestock Auctioneers---Hammond and Bradley

Our big 2 days sale at the Fuller Bros.' Ranch (cattle, mules and implements), Imperial Valley, March 5-6, was the biggest and most successful sale of its kind ever pulled off on the Pacific Coast.

At the R. L. Vorhies sale of 82 dairy cows at Artesia, March 17, we broke the Pacific Coast record on prices for grade cows—$530 being the top price for the day. Write or wire for dates, terms, etc.

Office 1053-55 South Main St., Los Angeles — Phone 63545

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Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. — Los Angeles

Shasta County Declares for Pure Breds

By Parker Talbot, Farm Adviser

During the two years of its existence the Shasta County farm bureau has been instrumental in accomplishing considerable in the improvement of livestock. The work was started last year by bringing into the county pure bred pigs for the boys' and girls' pig club. This work, carried on in cooperation with 40 boys and girls, has been the means of spreading the influence of pure bred hogs to many farms.

During the current year the farm bureau has planned to do its utmost to extend the interest in beef cattle. The start was made at the Fall River fair in the eastern part of the county last fall. The best stock of the valley was brought to McArthur and placed in classes which were judged by W. M. Carruthers, a prominent breeder of Live Oak.

At a meeting of the local stockmen's association at the close of the fair a committee composed of James R. Day and Dennis Cessna was sent to Davis and vicinity to buy eight head of registered Shorthorn bulls. The animals purchased were young and stood the buyers $300 a head.

After the Anderson fair in the western part of the county a party of ten stockmen went to Davis to buy pure bred bulls. Five head were purchased from the Caledonia herd, all first class animals. These bulls went to E. A. Stopher of Balls Ferry, Charles Hufford of Millville and Money Hickman of Gas Point.

At the time of the stockmen's week at Davis, during February, a party was made up of Henry Lonquist, Perry Opdyke, Vernon March and Ralph Bidwell from Hat Creek, E. A. Stopher and W. W. Foster of Gas Point, to attend the cattle sales and bring back some bulls averaging $450 per head.

One Hereford bull, eight head of Shorthorn bulls and two Shorthorn cows were purchased at the auction sales. The average price was $400 per head.

W. W. Foster bought 12 head of pure bred Shorthorn bulls at a private sale on the Conway Ranch.

Within the last six months about 40 head of pure bred bulls have been introduced for use on the range and they have gone into four different parts of the county.

The distance from the Fall River Valley to Gas Point in the western part of the county is about 100 miles, showing that the interest in better cattle is not centering around one locality.

The farm bureau has planned to follow up the start made by bringing in ten head of Shorthorn calves which will be placed with ten boys and girls, who will be members of a calf club organized under the auspices of the college of agriculture.

The California Shorthorn Breeders Association has authorized their secretary, David J. Stollery, to select the calves. The Northern California National Bank of Redding will pay for the entire shipment and arrange with each boy or girl to take their note in case they do not have the ready money to pay for the calf. The main requirement is that the new owner can show that he has the feed.

Why Federal Accreditization for California Herds?

It is axiomatic that no business can ultimately reach its full logical development unless all elements of that business be raised to the highest standard possible. Our dairy industry in California, as at present constituted, has not complied with this demand of good business. We have built up good herds, good in milk production, good as show cattle, raised under excellent conditions of soil and climate. Our show herds are forcing the East to the acknowledgment that the West coast must be reckoned with in the great Eastern show rings. With all this mass of excellence there is the deep underlying current of work not well done. From the practical side why is it that foreign buyers to a great extent pass us by? Important buyers landing in San Francisco look to the east and north and seldom consider the cattle of this state. The answer is plain. Our lax position on the vital question of bovine tuberculosis; our laxity in not following the precept of the majority of the states of the Union in the matter of federal accreditization.

California, in the forefront in most constructive movements, has chosen to ally itself with a pitiful minority of three states in this fundamental consideration. Our failure to take a stand in this matter is being construed by breeders elsewhere as an admission that the health conditions in our herds are such as to discourage their owners from tuberculin testing. Once this thought germinates fully and it is proven by further demonstration that we do not care, we will not only block purchases from overseas but will block purchases from within our continental limits.

This whole consideration is not of purely present moment. Inevitably state and federal legislation backed by the demand of our medical profession and local boards of health will require the eradication of this scourge. Happy then is the forehanded breeder who has developed a clean herd. This condition is as absolutely inevitable in the future as the rotation of the seasons.

The mechanism now extant which will ultimately mean the practical eradication of bovine tuberculosis, first in the important herds of pure breds and later the grade herds, is state and and federal accreditization. The practicability of cleaning up a herd by this method is, of course, a matter of opinion, but it has had marked success in practically every state in the Union. State after state has fallen into line until all but three are now in the ranks, and one of the three is California.

The present method of procedure is in substance as follows: The rules were formulated by the unanimous action of the United States Sanitary Association and by representatives of pure bred cattle breeders' associations.

1. A tuberculosis-free accredited herd is one which has been tested by the subcutaneous method, or any other test approved by the bureau of animal industry, under the supervision of the federal bureau or a regularly employed veterinarian of the state in which cooperative tuberculosis eradication work is conducted under a joint agreement. Further, it shall be a herd in which no animal affected with tuberculosis has been found upon two annual or three semi-annual tuberculin tests, as above described, and the physical examination.

2. Any or all cattle shall be tested or retested at the option of the state or federal authorities.

3. An accredited herd in which not more than one reactor is found at a subsequent tuberculin test may be reinstated to the list if the entire herd passes a successful test without reactors; said test to be applied not less than six months from the date when the reactor is removed from the herd and farm.

4. No cattle other than accredited cattle shall be added to an accredited herd unless they have passed two tuberculin tests applied at intervals of not less than 60 days or more than 90 days by a regularly employed state or federal veterinarian.

5. When a herd has been officially accredited continuously by the United states department of agriculture and state for a period of two years, it may then be tuberculin tested annually by any veterinarian whose name is on the accredtied list of veterinarians.

6. Before a herd can be accredited the stables and premises shall be placed in a sanitary condition.

7. Prior to each tuberculin test satisfactory evidence of the identity of the animals shall be presented to the inspector.

8. All removal of registered cattle

For the Prevention of

ANTHRAX

Of all livestock diseases, anthrax is one of the most fatal.
For the preventive and curative treatment of anthrax we offer

ANTHRAXOIDS

(Spore Vaccine)

For immunizing cattle, horses, sheep and mules.

Anthraxoids are Anthrax Spore Vaccine in pill form. Each Anthraxoid is a dose ready to be injected under the skin of the animal.

Antianthrax Serum

A serum to be used when animals show symptoms of anthrax.

Anthraxoids-Antianthrax Serum

(Simultaneous Treatment)

Double vaccination with serum and vaccine. Used when anthrax is established or suspected to be in a herd.

Write for free booklet on the Prevention of Anthrax.

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300 Weanlings

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Duroc - Jerseys

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California's Defender and Crimson Wonder

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$15.00 Each

Diablo Stock Farm
DANVILLE, CAL.

A Boar to be Great

must stamp his individuality upon his offspring and they must measure up to a high standard of excellence.
The get of Vaughn's Jones court comparison with the get of any boar in the state. Come and see them, they will please you.
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Col. Ben A. Rhoades
Harold B. Rhoades

Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References. The leading breeders in the state. Write or wire for dates and terms.

Rhoades & Rhoades
1501-3-5 South Main St.
Los Angeles, Calif.

Beef Cattle Specialist

For 30 years I have been devoting my entire time to pure bred beef cattle. I know where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited. R. M. DUNLAP, Hotel Land. Sacramento, Cal.

from the herd, either by sale, death or slaughter, shall be reported promptly to the state or federal officials.

9. All milk and other dairy products fed to calves shall be produced by an accredited herd or if from outside or unknown sources, shall be adequately pasteurized.

Strict compliance with the regulations governing accredited status entitles the owner of the herd to a certificate "Tuberculosis-Free Accredited Herd" to be issued by the bureau of animal industry and the state live stock sanitary authority.

A supplementary list shall be made to the accredited herds list to contain the names of the owners of pure bred herds that are found free from tuberculosis on two annual tuberculin tests but in which the herd bull reacted. Such herds shall not receive an accredited herd certificate. The reacting bull may be used under the following conditions:

1. He shall have passed a satisfactory physical examination and be kept in isolation and quarantine under state supervision.

2. When it is desired to breed cattle to the reacting bull, such cattle shall be taken to the bull and bred on neutral ground. The bull shall be controlled on a staff or halter.

The mechanism here described in brief is naturally difficult. It means labor, time and money to evolve a herd that will meet the rules. This labor, time and money has been expended by progressive owners in practically every state and they are satisfied and are beginning to reap the harvest of their good accomplishment. It makes the path a little easier to contemplate if we recognize that pasteurization of impure milk is merely the legalization of disease. Such legalization is bound to fall in the future. It is the compromise for a temporary condition and as soon as sufficient time for education has elapsed it will cease to be the main reliance of the health authorities and will be merely an added safeguard. The logic of this statement is apparent. The answer to the progressive breeder is also apparent. He will recognize the condition and clean up his herd against the day when his neighbors will come to him and say, "To stay with the breeding game I must do as you have done. I have come to buy." That time will be the time of extra profit. A reward to him who has seen the writing on the wall and not only seen but read the answer.

The federal government at present stands ready to conduct this work in this state. They, as a matter of fact, already have a man here for the purpose, who on account of the state's present inability to cooperate, is doing work other than that originally intended for him. The state veterinarian is at present practically helpless, due to the lack of funds. These funds will probably not become available unless there is a demand made for them. It has however been possible in the case of one Holstein breeder to start this work under state and federal supervision, due to the fact that accredited herds were bought in other states and kept under the regulations governing, upon arrival in California. To this breeder is due much credit for initiating this movement here. That his lead will be followed is certain and then California will be relieved of the stigma of endeavoring to play a losing game.

ADVERTISING LIVESTOCK

There are many ways of securing live livestock advertising. Perhaps one of the best, next to a reputation for always putting out dependable goods, is the agricultural fair. Next to that possibly comes the farm paper, and if the breeder has a line of stock with grand champions at some of the national shows, the large national breed journals afford profitable mediums. But in addition there is the printing press always available and often near at home. Earle McCune, a Poland China breeder of Lemoore, Kings County, is using the printing press most effectively. He sends out legal size envelope with neat card on upper left hand corner with enclosure of blotters of good quality on which are calendars, this time for the month of April, and a short note as to the Earle McCune ranch at Lemoore. In addition Edith Rose gets a neat little notice with a few words as to her breeding. It's good advertising.

Lendorris Liberty Bond and Young Jumbo

assisted by BUSTER LEN comprise our battery of herd boars

From the standpoint of popular bloodlines and individual excellence they are unexcelled.
Our sow herd is worthy of mating with our three good boars. The young stock for sale have the size and feeding qualities so much desired.
We solicit your correspondence.

W. L. Haag and Son Hanford, Cal.

Giant Bob, Grand Champion

and the son of a champion, assisted by Golden West King and Blue Valley King are three reasons for the popularity of our herd and indicate why you should join our rapidly growing list of customers.

These three boars are siring the class of pigs the public demand. Write us regarding your wants. We feel confident we can please you.

A. Buckland & Son, R.F.D., Fresno, Cal.

The Grand Champion Giant Bob

highest priced boar in the West heads my herd.

He is ably assisted by The Sequoian, a young herd boar of great promise. These two boars are siring a fine lot of big growthy pigs. They are the right type. Spring pigs, both sexes, $25 and up.

Z. M. Dickey Dinuba, Cal.

Trewhitt's Big Type Poland Chinas

are found in many of the leading herds on the Coast where size and quality predominate. Select your Poland Chinas where the big type ONLY are bred. When you secure a Trewhitt bred Poland China you get something better—not just ordinary.

W. D. Trewhitt Hanford, Cal.

King's Big Bone Leader

is siring the big stretchy kind of Poland Chinas so much in demand. Giant Bob 2nd is justifying our expectations as a young boar of great possibilities.
These boars and their get will meet with your approval.

Les McCracken Ripon, Cal.

McCune's Quality Herd

of BIG TYPE POLAND CHINAS

attained their prominence only by constructive breeding and careful selection as to type, size and quality. This should be the deciding factor in seeing that your next Poland China comes from this herd.

H. D. McCUNE, Lemoore, Calif.

For easy feeding, early maturing Poland Chinas,

Secure the Get of Model Big Fellow

He was Reserve Grand Champion

at the last state fair and is a sire of remarkable worth. I solicit your patronage.

J. F. McSwain Merced, Cal.

Satisfied Customers

are my specialty. Recent sales to old customers prove to me that Forrestview Bob, a son of Caldwell's Big Bob, is siring the class of pigs that have made this great family of hogs famous.
Write me your wants. I strive to please.

J. H. Cook Paradise, Cal.

Aviator

A boar of outstanding individuality and one that is proving to be a sire of unusual merit. His pigs find a ready market. Order yours today. Satisfaction assured.

CROSS BROS MERCED, CAL.

I AM OFFERING

exceptional values at present. A few bred gilts left. Some choice pigs ready for shipment. Write for prices, they are reasonable. Full description sent on request.

Eugene Miner Lodi, Cal.

MEETING OF CALIFORNIA HOLSTEIN-FRIESIAN ASSOCIATION

At a meeting of California Holstein-Friesian Association, held at Sacramento, March 24, a number of matters of importance to the interests of the breed in California were acted upon.

Gion W. Gibson, Williams, was elected to serve on the committee in charge of arrangements for the coming California Dairy Cow Competition, which will be in charge of Prof. F. W. Woll, University Farm Davis. H. V. Bridgford, Knightsen, F. L. Morris, Woodland, W. J. Higdon, Tulare, and Horace L. Hill, Jr., Los Altos, were elected as delegates to represent the state associa ion in the annual meeting of the Holstein-Friesian Association of America, at St. Paul, Minn., in June.

A resolution was introduced and unanimously carried commending J. M. Henderson for the splendid work he is doing in behalf of the dairymen of California in the organization of the producers associations. It was voted to present a registered Holstein heifer calf to the agricultural high school student winning the high place in the judging of Holsteins at California state fair this year.

R. P. Royce, livestock editor of California Cultivator, made a strong plea for support of the California International Livestock Show at San Francisco, and it was the sense of the meeting that the show should be strongly supported by the Holstein breeders of the state.

An invitation was extended to the Holstein Association by Tulare Livestock Association to hold a meeting at Tulare on the evening of May 4, and the invitation was unanimously accepted.

President H. V. Bridgford presided at the meeting, which was attended by about 100 breeders representing practically every section of the state. —C. L. Hughes, Secretary.

REMARKABLE HERD PRODUCTION

B. D. Mason, state dairy inspector for Humboldt and Del Norte Counties, in his report to the California department of agriculture states that Mr. Buzzini of Crescent City is the possessor of a herd of 19 cows of remarkable production. During the period March 1, 1919 to February 1, 1920, these 19 cows produced 233,269 pounds of milk and 9058.6 pounds of butterfat, which brought to the owner the tidy sum of $7,069.44. This gives as averages per cow 12,277.3 pounds of milk, 476.7 pounds butterfat, and $373.07 gross receipts. The cows were grade Holsteins. Mr. Buzzini apparently knows how to feed and care for his stock. This demonstrates that it is possible for dairymen not only to have cows, but to have cows that give milk.

THIRD LOS ANGELES LIVESTOCK SHOW ANNOUNCED

Plans are on foot for launching the third livestock show at Los Angeles. The board of directors at present consists of E. W. Murphy, Harry Chandler, Harold Braly, Clinton E. Miller, F. E. Lewis 2nd, H. B. Woodill, Walter M. Ross, Herman Hauser, Albert H. Paul, Dr. Frank F. Barham, Fred H. Bixby, Frank Wiggins, Walter P. Story, H. A. Jastro, Chas. H. Hill, Geo. M. Brown, Frank Simpson, T. H. Dudley, J. C. Adams, Edward A. Dickson and Geo. Lichtenberger.

Officers are: President, E. W. Murphy; first vice president, Clinton E. Miller; second vice president, Harold Braly; secretary and manager, C. R. Thomas; treasurer, Albert H. Paul.

Z. M. Dickey, Dinuba, has an excellent show prospect in his junior herd boar The Sequoian. As yet Mr. Dickey is most too busy with vineyard work to think of the fall shows, but it is to be hoped that he will decide to give this youngster an opportunity of competing with the big fellows next fall.

The veteran Poland China breeder and showman, W. A. Young, Lodi, has a futurity litter sired by Long Big Bone Jr. and out of Black Beauty C., reserve grand champion at Sacramento last fall that Mr. Young feels will "be there" on show day. The bulk of his show herd, including one outstanding yearling sow, will be sired by this good breeding boar and so far Mr. Young believes he has as toppy a lot of young stuff as he has had in some time.

Southern California Holstein Breeders' 1920 Spring Sale

120 Registered Cows, Heifers and Bulls

Rhoades & Rhoades Sale Pavilion
Clearwater, California

Tuesday and Wednesday, April 27-28, 1920

This offering features one of the best collections of the breed yet offered in Southern California. An extraordinary lot of heavy producing cows, fresh or heavy with calf to some of the state's foremost bulls, will be an attraction of more than ordinary interest.

KING PAUL KORNDYKE VALE, one of the most richly bred bulls in the west, will be sold, as he heads the herd of W. D. Millard, Arcadia, which will be dispersed in this sale. The sire of this remarkable young sire is King Korndyke Sadie Vale, the only 40 lb. bull to produce a 40 lb. daughter, and the dam is a 31 lb. daughter of Sir Sadie Cornucopia.

SOME EXTRAORDINARY COWS with good short time records and excellent 305 day records will be sold by Burr Farm, Los Angeles, most of them bred to the sensational young sire Sir Veeman Korndyke Pontiac, whose first daughters to freshen have made up to over 24 lbs. butter in 7 days as 2 year olds.

ROSAMAINES RANCHO, Riverside, will sell granddaughters of Prince Gelsche Walker and Tilly Alcartra, bred to King Pontiac Netherland Segis 3d, whose first daughters to freshen have made records that place him among the leading younger sires of the breed.

P. H. KRICK, Anaheim, will make an offering that is made up largely of granddaughters of the great King of the Pontiacs, most of them bred to King Winnie, son of the first cow to make over 1200 lbs. butter in one year in California.

CHAS. S. HARRINGTON, Compton, sells a number of granddaughters of the famous producing and breeding cow Pontiac Clothilde De Kol 2nd, the first cow to make over 1200 lbs. butter in one year or over 37 lbs. in 7 days. These are out of highly bred dams with records up to over 30 lbs. butter in 7 days.

BOST & JOHNSTONE, Corona, sell a granddaughter of King Segis and a granddaughter of King Korndyke Sadie Vale, two heifers of exceedingly rich breeding.

AGEE BROS., Rivera, sell some well bred females bred to TOYON FAYNE VALDESSA, who is a son of King Valdessa, and out of a 30 lb. daughter of King Hengerveld Aaggie Fayne.

W. T. McALISTER, Los Angeles, has a choice offering composed almost entirely of granddaughters of such famous animals as King of the Pontiacs, King Segis Pontiac, and Tilly Alcartra.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; NO ANIMAL TUBERCULIN TESTED

Catalog free on request to management

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, California.

Auctioneers: Col. Ben A. Rhoades, Harold B. Rhoades, Los Angeles.

A Sensational Holstein Offering

The dispersal of the W. J. Higdon herd of registered Holsteins, excepting the daughters of King Korndyke Pontiac 20th, ranks as the outstanding event of the year in Holstein sales.

This herd is one of the greatest collections of the breed ever on one farm in the west, a herd that was selected at the beginning with rare judgment, has been developed along the most constructive lines, and is today composed of outstanding young cattle that are only just at the start of their usefulness as producers and breeders. The sale will be held at

Tulare Sale Pavilion, Tulare, California

Wednesday, May 5, 1920

Six 30 to 36 Pound Cows Go Under The Hammer!

The list of high record cows includes HOLLYWOOD LILITH PONTIAC, 36.20 lbs. butter in 7 days as a senior 3 year old, the California record, also the two cows that were originally selected from Mr. Higdon's herd to go to the St. Paul Sale. The offering also contains

A COW WITH OVER 1000 LBS. BUTTER IN ONE YEAR!
A 2 YEAR OLD WITH OVER 800 LBS. BUTTER IN ONE YEAR!
A 3 YEAR OLD WITH OVER 800 LBS. BUTTER IN ONE YEAR!
DAUGHTERS OF MANY OF THE GREAT COWS THAT HAVE BEEN DEVELOPED IN THE HERD!
A WONDERFUL LOT OF DAUGHTERS OF PRINCE RIVERSIDE WALKER, THE FIRST TO FRESHEN WITH RECORDS UP TO OVER 22 LBS. BUTTER IN 7 DAYS AS 2 YEAR OLDS!

The female offering has never been exceeded in quality in any public sale offering in the west, even the picked sales, and it will be a very rare opportunity to buy high record, clean young cattle of very high type.

Who Will Own King Korndyke Pontiac 20th?

KING KORNDYKE PONTIAC 20TH will pass into new ownership in this sale, and the man who is fortunate enough to buy him will have at the head of his herd one of the greatest of the present day Holstein sires. He has everything required in a real herd bull, and his two first daughters to freshen prove his transmitting ability.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

Catalog of Sale Free on Request

Management

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, California.

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare.

THE BEST SOURCE

of Nitrogen for Citrus Fruits is

NITRATE OF SODA

because of its instant availability as plant food. Growth is promoted immediately after the application is made.

It is taking chances to apply any Nitrogenous Fertilizer which is not Immediately Available as food for plants, because of the tendency to unduly prolong growth and to delay maturity. It is also fatal to apply high-grade fertilizers too late.

In California, on alkaline soils or soils having alkaline tendencies, apply Nitrate of Soda with an equal quantity of acid or superphosphate. This combination will tend to diminish any black alkali present.

CHILEAN NITRATE COMMITTEE

231 Douglas Bldg., Los Angeles, Cal.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS, MARCH 21, 1916.

of California Cultivator, published weekly at Los Angeles, Cal., for April 1, 1920.

STATE OF CALIFORNIA,
County of Los Angeles, ss.

Before me, a Notary Public in and for the State and County aforesaid, personally appeared Frank H. Thomas, who, having been duly sworn according to law, deposes and says that he is the publisher and business manager of the California Cultivator and that the following is to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

NAME OF—	POST OFFICE ADDRESS
Publisher, Cultivator Publishing Co.,	Los Angeles, Cal.
Editor, C. B. Messenger,	Los Angeles, Cal.
Managing Editor,	
Business Manager, Frank H. Thomas,	Los Angeles, Cal.

2. That the owners are (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding one per cent or more of the total amount of stock).

Cultivator Publishing Co.,	Los Angeles, Cal.
Frank H. Thomas,	Los Angeles, Cal.
R. M. Teague,	San Dimas, Cal.

3. That the known bondholders, mortgagees, and other security holders owning or holding one per cent or more of total amount of bonds, mortgages, or other securities, are: (If there are none, so state).

None.

4. That the paragraphs next above, giving names of owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holders appear upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is ——. (This information is required from daily publications only.)

FRANK H. THOMAS, Manager.

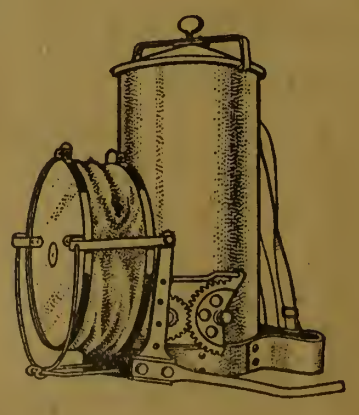
Sworn to and subscribed before me this 31st day of March, 1920.

(SEAL.) ROBERT WHITFIELD.

Notary Public in and for Los Angeles County, Cal
(My Commission expires April 4, 1923)

Red Spider!

The American Beauty Dust Sprayer Kills Them



Thousands In Use

PRICE $18.00

The California Sprayer Co.

6001-11 Pasadena Ave. Los Angeles

SANTA FE LUMBER CO

16 CALIFORNIA ST.
SAN FRANCISCO

TELEPHONE
KEARNY 2074

Simplex Silos Are Scientifically Correct

To Ranch Owners,
Everywhere.

Gentlemen:

Briefly, this year's feed situation is summed up in the following three short paragraphs taken from the California Cultivator for March 13, 1920:

"Twist or turn as we will and develop water from every possible source, this will be a dry summer. Presumably there will be less alfalfa, and although the recent rains have assured many a hay field, there will still be a shortage of grain hay. Millions of California livestock, while not actually hungry, may not put on as plentiful streaks of fat as the consumer desires.

"But the situation may be helped very materially by planting more soiling crops and more sorghums or other large grasses for pasturage and for silage. We predict there will be a greater building of silos than any preceding year.

"It is none too early to have plans taking definite shape. Let it be a pit in the ground, let it be built of brick, of concrete, or wood or of iron; but let it be something to hold feed to take the place of $40 hay. Even some of the weeds make excellent silage. First alfalfa cutting with a liberal sprinkling of foxtail has been declared one of the best of our silage crops."

In view of the above your attention is invited to the "Simplex" Silo. The "Simplex" is made air tight by the use of one-piece staves the entire height of the silo, thus eliminating splicing and end joints. The clear Oregon Pine (Douglas Fir) gives it an inner surface smooth and perpendicular. The Crissel Tangent Top, patented Interlocking Anchorage System, and sturdy steel hoops, is a triple assurance of strength and stability.

These are fundamental features of the silo. Nearly every silo has one of them. But because the "Simplex" has all of them, agricultural experts have pronounced it scientifically correct.

It is just as easy to own a "Simplex" as any other kind of silo; but on account of the big demand which will be even greater this year, you are urged to let us hear from you at once.

SANTA FE LUMBER COMPANY,
16 California St., Dept. A, San Francisco, California.

Please send me folder describing Simplex Silos; also information about Papec Ensilage Cutters.

Name .....

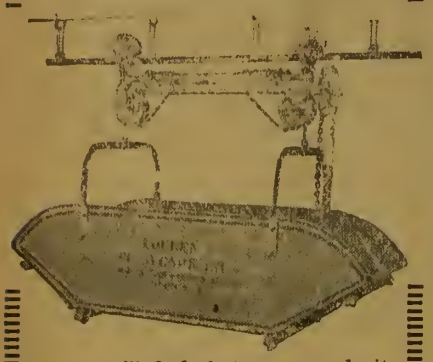
Address .....

Very sincerely yours,

SANTA FE LUMBER COMPANY.

Simplex Silos Are Scientifically Correct

How Long Does It Take To Clean Your Barn?



You will find that you can do it in from ONE-THIRD TO ONE-HALF the time it formerly took, after you install a

LOUDEN Litter Carrier

Labor saved and time saved. No more back-breaking shoveling and wheeling it out in small loads. Now you let the Litter Carrier down to the ground—fill it up (holds 10 bushels)—hoist it up and push it out right over the manure pit where you dump it, liquid and all, because it's WATER-TIGHT.

Write for Free Copy of the Louden Barn Plan Book together with big illustrated Louden Catalog.

American Pump Co.
73 Fremont Street
SAN FRANCISCO
420 E. Third Street, Dept. B
LOS ANGELES

Bunting's Mission Herefords Are Profitable

They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.

JOHN A. BUNTING
Mission San Jose Calif.

DIAMOND G HEREFORDS

are the kind that make good under all conditions. They have the size, bone and constitution that the range operator wants. Herd headed by Don Perfect 2d, one of the best bulls in the West. Correspondence invited and visitors welcome.

H. H. Gable Esparto, Cal.

Brighton Farm Herds

Registered Shorthorns
and
Berkshires---Both Sexes

H. L. & E. H. Murphy

Perkins, Cal.

One Man Saws 25 Cords a Day

The Ottawa Log Saw falls trees or cuts off stumps level with ground. Saws up logs, cuts up branches, ice cutter, runs pump jack and other belt machinery. Mounted on wheels. Easy to move anywhere. 10 Year Guarantee. 30 Days Trial. Write for Free Book and Cash or Easy Terms.
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OF EVERY DESCRIPTION
Bought, Sold and Rented
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When writing advertisers, mention the Cultivator.

Urges That Mares be Bred

The best thing a farmer can do this spring is to breed his good mares to a first class stallion, says Wayne Dinsmore, secretary of the newly formed Horse Association of America,

"Because: The demand and price for good horses and mules is increasing in cities; farm demand is improving; there is a shortage of good horses and mules of all kinds.

"City trade is improving because transportation users of all kinds have discovered after years of experience that horses furnish the cheapest source of power on short hauls. On this Harry Vickers, president of the Fuel Cartage Company of Chicago, says:

" 'There is work today that the horse can not do—long distance hauling with rapid transportation—but the motor can never take the place of the horse because the horse can do the work on short hauls just as rapidly and at a lessened cost of 25 to 40 cents on the dollar. Conscquently we never allow a truck to displace a team. We will buy a truck to do the work that a horse can not do, but we don't send a truck to do the work that a horse can do. It would be like having a dollar and throwing away 40 cents.'

"Of the farm demand W. S. Corsa says: 'Farmers are determined bidders in country sales and prices for good horses have gone up $35 a head in the last 30 days, while mules are bringing from $800 to $1,000 a pair.'

"Of the shortage W. T. McGreavy of the McGreavy Transfer Company, Minneapolis, says: 'What we teaming contractors want is good horses. We don't want scrubs, light of weight, incapable of hard work and selling cheap. We want horses that will weigh 1,700 pounds or more and we are willing to pay for them. A teaming contractor in this city paid $800 for a pair of five year olds yestcrday that weighed 3,200 pounds. The big trouble is that the farmer expects us to pay a high price for a green horse, one that is liable to distemper and isn't properly broke. The buyer of such a horse is taking a big chance that he'll die or be laid up and, consequently, won't pay as much for him. Give us good, sound, big horses with a little experience behind them. We can't get enough of them and the demand will never run out.'

"Claims of truck and tractor manufacturers that horses and mules are destined soon to disappear are very properly met with the query, 'Why should horses and mules, which according to your views, are obsolete and destined to speedy disappearance, be in greater demand and at higher prices than ever?' "

Arizona Range Problems

Just now the main problems with regard to range management in Arizona, says Dr. R. H. Williams, animal husbandman, University of Arizona, according to their greatest interest may be named as follows:

More Range

In the past the stockmen have been crowding each other. New men have come into the country and the crowding has gradually continued. Three years ago we began an active land leasing and purchasing movement in Arizona. Some of the old time outfits that were a little conservative and refused to buy land or lease it have found that their range has slipped away. Active steps must be taken for them to stay in the business. The value of ranges nas gone up until now there is a commercial valuation of $15 to $50 for the range that will carry one cow and about from $5 to $8 for the range that will carry a sheep. For the most part these ranges are not deeded property, but with some land that is owned outright. The most strategic locations have been taken, either by purchase or lease and as much additional range as possible secured on the public domains, national forests and Indian reservations. The situation has become extremely accute, for there is an active demand for more range. The cure for the range problem is that of increasing the carrying capacity of our present ranges.

Increasing Carrying Capacity

In the early days grass was hip high and could be found almost anywhere in the Southwest. At the end of the dry period commencing the first day of July, 1919, there was little or no grass in Southern Arizona. The ground had been denuded of virtually all palatable vegetation. Last summer and fall and this winter the rains have been extremely abundant in this country and the palatable grasses have come ahead rapidly. In places around water tanks and over-grazed pastures and other places where it was believed all vegetation had been killed out, tbe perennial grasses came in last summer, making a good growth. This just goes to show that our palatable grasses are very resistant and will grow whenever given an opportunity. A summer like last year would do more for reestablishing and increasing the carrying capacity of Arizona ranges than three like the preceding.

Certainly ever nook and corner in Arizona has been occupied by stockmen and the only way that we can increase the number of animals that can be maintained is to handle our ranges properly and increase their carrying capacity. This can be very easily done. Thus, in 1903 when the Santa Rita range reserve was fenced a cow would starve on 100 acres. For the past few years this range has carried one head to an average of 22 acres. During this time it has been extremely dry. The surrounding neighbors have lost cattle, but mighty few have died inside of the reservation. The calf crop inside of the reserve has been increased greatly over that secured on surrounding ranges and last year they sold their calves at $5 a head more than other outfits in the district. The proper management of the ranges we have in Arizona will easily make it possible to double the number we can maintain in the state.

Improved Breeding

When a man has secured control of a large area of range and has improved its carrying capacity, the next consideration is how to secure and maintain and utilize every bit of grass that grows. The first consideration in this work is to make certain that only the most profitable animals are used. It is a crime to maintain a Mexican steer that can hardly be sold as a yearling even at a reduced price, but must be maintained until it is two years old and then receive only as much for it as a well bred yearling would bring. Buyers of cattle from the Northwest and other districts receiving Southwestern stock are becoming more and more discriminating. It is impossible for some of the outfits that have refused to breed up and improve to sell their calves or yearlings. In the future yearlings will be bought according to their outcome and every herd will be known according to the quality of its cattle. The stock will be sold by weight and improved breeding on better ranges will do wonders to increase the financial yields secured in the business. Many other phases of the range management may be mentioned. One of the most important is a system of managing the animals on a range; supplementary crops for ranges, and feeding range cows to tide them over the periods of drouth.

ROOTS MAKE MILK

Roots are among the best feeds for dairy cattle and fortunate is that dairyman who has a plentiful supply, according to Profcssor H. P. Davis of the department of dairy husbandry, University of Idaho. While they are watery, roots should be classed as watery concentrates rather than as roughage. In analysis they are high in carbohydrates and low in protein. The dry matter that they contain is very valuable and will give as good results as grain pound for pound.

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reason why root crops are so valuable and, compared with corn silage, they are almost one-third more digestible. Besides the feeding value and the ease of digestion, roots furnish succulence in almost ideal form. In this respect they rank ahead of silage and are to be preferred to that crop if available.

Not the least important value of roots is the tonic effect upon animals. This can be noted on all classes of animals, but it applies with perhaps the greatest force to dairy cows. With plenty of beets in the ration a dairyman has much less to fear from a cow going off feed even when she is fed large quantities of grain.

As to the feeding of roots to dairy cows, the usual ration varies from 25 to 50 pounds per 1,000 pounds of live weight, although larger quantities are frequently fed. Before feeding, the roots are sliced in a root chopper or are cut by hand. Almost any kind of roots can be used successfully with cows, but red beets, sugar beets, mangels and carrots are more largely used. Turnips or rutabagas, because of their strong flavor, often taint the milk, and when used should be fed immediately after milking.

Where roots can be grown without too much cost, they furnish a very desirable addition to the dairy cow ration and there can be no doubt that larger milk yields will result when they are fed.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Eczema on Udder

I have a large five year old cow that has eczema on her udder and hind legs. What is best to give her to thoroughly cleanse her blood?—Subscriber, Fillmore.

This may be a case of cow pox, but in any case of eruption on the skin it is safe to give salts to cleanse the blood. Mix three pounds of epsom salts, two pounds of common salt, four ounces of powdered gentian and two ounces of powdered nux vomica. Of this mixture give a handful in the feed once a day while it lasts. For outward treatment we would advise using a lotion of permanganate of potash, enough to make the water a deep red. Apply the lotion once a day all over the surface as far as the eczema extends. To prevent conveying the disease to other cows the milker should wash thoroughly before going near another cow and it would also be best to milk this cow last.

Hog Paralyzed

I have a gilt that has been paralyzed for over two months. She does not seem to be in any pain but can not use her legs to get up. She eats well and farrowed ten pigs a month after she became this way. We let her keep five of the pigs which seem to be doing fairly well. Have been feeding bran and middlings as a wet mash. Have also given her two kinds of condition powders but notice no improvement. Is it worth while keeping her?—Subscriber, Wasco.

After so long time it is doubtful if she recovers. However, you might try this. Dissolve half a dram of iodide of potash and one grain of strychnia in eight ounces of water. Give a teaspoon of the mixture in the feed twice a day. Also keep her in the sunshine as much as possible but not exposed to the cold or dampness.

Lumps on Udder

I have a heifer coming fresh in about two months. She is just making bag now. On the side of her udder is a cluster of lumps about the size of marbles. They are soft and have a slight purplish color. They grow as the udder grows. I would like to know what it is and what remedy to apply. —Subscriber, Wright.

They may be warts. Open them and if they are solid inside cut them out, leaving as much of the skin as is not involved in the growth. If they just contain liquid they will not need cutting out. Dress the wounds with a solution of permanganate of potash, using one dram to the pint of water. Use a swab and apply the lotion once or twice a day.

Injured Hoof

Have a horse that was badly cut in the hoof by wire fence two years ago. It is the right frout foot. The horse was thrown over the wire and dragged 20 feet or more. The foot bled terribly when cut. The wound healed but the foot does not harden. It keeps cracking around the hoof when I ride him. What will harden the hoof?—Subscriber, Lincoln.

Probably the coronary band around the top of the hoof, from which the hoof grows, has been destroyed or injured so it does not secrete the hoof properly. Try this. Mix four parts vaseline and one part pine tar. Melt them together. Use the ointment freely around the top of the hoof. Keep the hoof pared so the foot will stand straight.

RULES FOR SHIPPING FURS

First see that your furs are properly packed and your bundle securely wrapped. Remember to put your name and address on a card inside your bundle; then if the tag on the outside is accidentally torn loose or the writing blurred there will still be some clue to the owner of the furs.

Address Tag Plainly

Write your name and address on the outer tag plainly or, if necessary, print it, and of course include the name and address of the fur house to which you are sending your furs. Some large fur houses furnish special shipping tags free to trappers for their convenience in shipping.

Saving Shipping Costs

There are many little ways you can save shipping expense. For instance, always cut off opossum tails and muskrat tails from your furs, as they have absolutely no value and only add to the weight. Remember, too, to remove all surplus fat and flesh from the hides, as it is just extra weight and may start to decay at any time.

When you ship furs in a box or barrel you pay charges on a lot of worthless wood. Burlap will answer the same purpose, and even if you have to buy it, will be cheaper in the end.

Don't Ship by Freight

You should never ship furs by freight. The best way is to send them either by express or insured parcel post and always get a receipt. Make sure that all bundles sent by insured parcel post are not sewed or sealed, as they must be open to the inspection of the postal authorities. Usually a parcel post bundle should not exceed 50 pounds. In the first and second zones, however, 70 pounds can be placed in one package.

Mail shipments of furs are becoming more and more popular and in most cases have proved just as safe and as quick as express. Besides, they are much more convenient.

Send Special Instructions

If you have any particular instructions to make to the fur house regarding your shipment, they should be sent with the bundle. If you are expressing, put your letter of instructions inside the bundle. If you are sending by mail, place your letter in an addressed envelope and attach it to the outside, but be sure the letter carries first class postage.

If your furs are prepared right, packed right and shipped right, they are sure to arrive at the fur house in first class shape and merit the best grading.

Cotton planting in the Salt River Valley of Arizona has been delayed somewhat owing to cool weather, nevertheless a large proportion of the acreage will be planted by the first of April.

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Baby Chicks from my carefully selected, thoroughbred Breeding Pens of S. C. White Leghorns. Good, strong chicks at $15.00 per 100. Orders booked now for May, June and July delivery at reduced prices. Write for particulars. Every order receives my personal and most careful attention. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

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For Sale—Registered Duroc-Jersey Sows, bred to First Prize Boar of Grand Champion Stock. Weanling Pigs sired by same boar. Also fine lot of fall gilts. Green Canyon Ranch, Fallbrook, San Diego County, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Wondergerst, California's leading Poland China sire—big himself, bred big and his pigs show the same qualities. His dam was Giantess Wonder, his sire Big Jones—both big, both winners—a combination of the greatest blood of the breed. Breed big type Polands. Start right by using this blood. Write for special offer. A liberal consignment made to the Tulare Poland China Associated Breeders' sale held Tulare, October 21st. OXBONE Herd Poland Chinas, Tipton, California.

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

The Pacific Herd—Has fall pigs, both sexes for sale. Satisfaction guaranteed. Nettie E. Andrews, Rt. 1, Box 46, Modesto, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Guaranteed growthy big type Polan Chinas, not pampered, selected for general farm conditions. Stock all ages. Walter Ficklin, Box 946, Fresno.

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Big Type Polands—Herd boar Belle's Hanford Boy. A. R. Doctor, Van Nuys, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

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BERKSHIRE GILTS
BRED FOR EARLY FARROW TO
"ACHIEVER"
CASTLEVIEW RANCH.
SANTA ROSA, CALIFORNIA.

ANCHORAGE FARM BERKSHIRES
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BRED GILTS FOR SALE.

3 Long, Stretchy Boar Pigs farrowed July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St., at Third, San Francisco. In charge of Natomas Land Sales.

Lark Meadow Ranch Berkshires. Choice gilts and sows safe with pig to noted boars. Priced for the rancher. Papers furnished promptly. Geo. A. Stingle, 1 Monte, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Cala Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

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For Sale—Ducklings, Pekin and Indian runner, also several hundred laying Pekin Ducks, heavyweight stock, immediate delivery. Beresford Poultry Farm, San Mateo, California.

White Pekin Baby Ducks—White Pekin Duck Eggs for hatching. 152 East Spruce St., Inglewood.

White Muscovy (Quackless) Ducks, Eggs, Ducklings, Breeders. Free circulars. Caldwell Farm, Box 274-E, Los Angeles.

White Mammoth Pekin Ducklings—Two days old 50c each. Eggs $1.00 a dozen. A. Surtman, Petaluma, California.

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ARIZONA IRRIGATED LANDS.
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BUTTE CITY RANCH
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Having more land than we can conveniently handle under present conditions, we have decided to sell a portion of this well known property.

It is deep, rich sediment, river bottom land. There is no better soil in the world for prunes, pears, walnuts, pecans, vegetables and alfalfa.

Part of this tract is already in prunes, walnuts and alfalfa; Riparian water right from the Sacramento River.

Splendid opportunity to breed registered livestock in connection with business already established on Butte City Ranch, and in a district famous as a breeding center.

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Oranges and Grapefruit, beautifully equipped farm home, delightfully situated, good neighborhood, near city; 21 acres; some rich muck land; orange grove, also grapefruit, peach trees, pears, plums, figs, guavas; good seven-room house, outbuildings, beautiful lawn, shrubbery, rose bushes, magnolia shade; immediate sale imperative; quick buyer gets wagons, plows, machinery, horse, 12 hogs, all fruit, only $3500; easy terms. Details page 56 Strout's Spring Catalog Bargains 33 States, copy free. STROUT FARM AGENCY, 831 E J, 405 South Hill St., Los Angeles, California.

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10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.
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Buy cheap, good alfalfa and fruit land in the easy lift water district near improved dairy and hog ranches. $50 to $75 an acre, one-fifth cash. Send for circulars. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

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For Sale—20,000 Sour Seedlings, year old; 1000 Eureka Lemons, 500 Small W. Navels, Supply Co.'s buds; several hundred Rangpur Limes; the mother tree yields a revenue $20.00 to $40.00 yearly. Fruit sticks tight—like the Valencia—the only Lime that sticks. Get in while they last. $1.50 each; $14.00 100. Budding cloth 70c yd. Cyrus W. Wilhite Citrus Nurseries, Glendora, California.

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New 1000 gal., $43.75 2000 gal., $59.75
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1 Hoover Potato Planter practically new.
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All worn parts renewed. Phone or address Rio Hondo Rancho, 234, Compton, California.

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Wanted—Position as caretaker or foreman. Dairy or fruit ranch. Married; American. References. 112 Castillo St., Santa Barbara, California.

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R*O*S*E*S—$1.50 per doz. Fruit and Ornamental trees, plants, vines, etc. Write for special price list. Kavan Bros. & Currier, San Bernardino, California.

"Tomato Plants, A. & M. First Early, field grown, hardy plants, $5.00 per M." AGGELER & MUSSER SEED CO., Los Angeles, California.

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Write amount and kinds of seed wanted. Four kinds of alfalfa, 25c and up; free samples. Box 501, Fowler, California.

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Only 2c a Gallon For feeding mix one part of **Milkoline** to 50 parts of water (small feeding 5 tablespoons to gallon of water). Feed either with water or mash feed. **Milkoline** keeps their appetite keen and its action is highly essential to normal egg production. When fed as directed **Milkoline costs only 2c a gallon** or less. Trauhaft & Newman, Lankershim, Calif., say: "We would not go back feeding straight buttermilk at any price."

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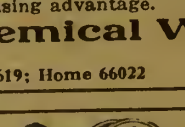

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Feeding the Little Turkeys

By Jean A. Koethen

EVERY turkey farmer has his or her own method of feeding poults, and none of these methods is guaranteed to suit all cases. The raising of little turkeys seems to be something of a gambie at the best. You feed them in the same way year after year and think you have turkey raising down pat; then comes a bad year and they die in spite of the most exacting care. To be sure, these untimely deaths can always be laid to the weather or to weakness of the breed ing stock, but the truth is the poult has a very delicate digestion, and the perfect ration, guaranteed to raise every poult under all conditions, has not been found.

The best we can do is to imitate nature. The turkey mother, when left to herself, feeds her charges very little, and that little consists mainly of greens and animal food (bugs, worms, and later grasshoppers), with a lot of sand and grit to digest it. On good range a turkey mother will care for her babies without assistance and bring them up to a healthy vigorous maturity. If we can arrive at her methods and follow her example, we shall be more likely to succeed.

Not What But How Much

The experts of the Rhode Island station, who have done more work with turkeys than any other investigators, insist that it is not what is fed but how much that counts. They have adopted what they cail the time basis of feeding, limiting the amount fed at any one time to what can be consumed in two or three minutes and removing the trays at the end of the period, no matter how the poults beg for more, and they are quite emphatic in asserting that this is the real crux of the matter. To quote from Extension Bulletin No. 2: "As previously pointed out, we are probably not yet in a position to state that one food is essentiaily better than another for poults that are on range. Vigorous flocks have been raised on corn meal alone, while equally good flocks on a neighboring farm have never tasted it; and on another the sole ration for the young birds is bread and milk which gave equal success. In none of these instances is it the kind of food that counts so much as the manner and amount in which it is fed as a supplement to the food obtained on the range. The successful turkey raisers of the present day—and they are few in number—are those who understand the feeding of turkeys from the quantitative point of view—who have succeeded in adapting a certain method of supplementary feeding to the conditions existing on their particuiiar range."

This statement, it is evident, applies only to range fed birds. If your turkeys must be raised in confinement there is nothing in it for you. If you have range, then the first thing you have to do is to study its possibiilties and balance the food the poults get for themseives with what you give them. That is, if the range is rich in animal food, but without grain or seeds, the supplementary feed must contain grain but may perhaps be altogether lacking in animal food. This station has no advice to offer as to the feeding of pouits in confinement. For that we must go elsewhere.

Rhode Island Ration

Bearing in mind the fact that it is intended only to supplement range feeding, let us examine the Rhode Island method. The coops are ranged along the side of a fieid where the poults find abundant range as soon as they are oid enough for it.

The first meal is given when the poults are from 50 to 60 hours old and consists of about two teaspoons of finely chopped boiied egg and dandelion or lettuce, haif and half, for 12 to 14 poults. The trays are left before the birds for from five to seven minutes and then removed. The mothers have previousiy been given each a handful of whole corn, but they aiso share the pouits' meal.

At eleven o'ciock the same feeding is repeated, and after it a handful of whoie corn is given the mothers.

At two o'ciock the pouitryman comes again, this time with trays of stale bread thoroughly soaked in sweet miik. At five he comes for the iast time, bringing another two teaspoons of egg and green.

Next morning the poults again get their two teaspoons of boiled egg and green (iettuce or dandelion), but with a little roiled oats added to the mixture. At 11 o'ciock they receive two teaspoons of chick grain; at 2, bread and milk, and at five the egg mixture again. They are now fairiy broken in to five different kinds of feed, egg, greens, bread and miik, roiled oats and chick grain, and it is part of the system of the station to keep up this variety ration.

The third day's feeding is like that of the second. On the fourth day the poultryman comes in the morning, at noon, and at 4:30, omitting the 11 o'ciock meal. One meal consists of the egg mixture, one of chick grain and one of bread and milk. From this time on the birds are never fed more than three times a day and the meal may consist of any of the feeds already given or occasionaily of only a handful of dry rolled oats.

At the end of the first week time feeding begins. The trays are left before the birds three minutes and no longer, sometimes not so iong.

After ten or 12 days the egg mixture is omitted and the ration limited to chick grain, rolled oats, green feed and bread and milk, but always the time limit of three minutes for the meal is observed. On stormy days when the poults are confined to the coop they are fed lightiy four times instead of three, to make up for the lack of range.

Sour milk is not fed till the end of the third week. At first a quart of clabbered miik morning and night is aliowed for every 35 or 40 poults (inciuding the mother hens). Later the amount is increased gradually to a quart for 20 birds.

During the second month the ration is not materially changed. Rolled oats are fed, chopped with an equal amount of green feed, such as onion tops, lettuce, dandelion, etc. Green feed is always given liberally. Chick grain and bread and milk (sour or sweet) completes the ration. It is during this month that blackhead is most likely to develop, and the greatest care is taken to prevent overeating. As the birds are on range their ration may be cut down to two meals a day and each meal limited to two or three minutes.

The only test of the sufficiency of the ration is the behavior of the poults themselves. If they come clamoring, ravenously hungry, every time the caretaker appears, they are not being overfed. Whenever they seem less eager for food something is wrong, and in most cases it is that they have been overfed.

For Confined Poults

Mrs. E. B. Martin has been very successfui in raising turkeys in confinement. After they hatch they are given nothing but grit for 72 hours. At the end of this time they are given a fountain filled with sour milk, and some time the fourth day real feeding begins. The nursery feed, which is continued with siight change for six weeks, consists of hardboiied egg, chard or lettuce, and onion, all chopped fine and mixed with a littie sand or grit. Two onions, a couple of handfuls of chard and one egg, making in all what wouid fiil a quart measure, is a sufficient meal for 100 poults This is fed twice a day on a board or tray and at noon the birds have aii the cottage cheese they will eat. They are never fed more than three times a day, but as they grow older the amount fed is gradualiy increased and the amount of egg in the mixture is also increased. No grain of any kind, no bread or cereal food, is given tiil the poults are about six weeks oid.

When eggs cannot be spared, a littie beef scrap is sprinkled over the chopped green. Mrs. Martin beileves that poults cannot digest starch when tiey are very young and that their diet must consist absoiutely of greens and animal food untii their digestive organs can bear starch. Corn she considers

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absolutely fatal. Once a day charcoal is added to the mixture. Onion is never omitted. It may be young onions or old, or onion tops, but they get onion in some form at every meal.

Some time between the fourth and sixth week, the poults get their first grain. A very small amount of rolled breakfast oats is added to the mixture of egg and greens which has so far been their main ration. The amount of rolled oats is increased and the amount of egg diminished till, by the end of the third month, the ration consists of rolled oats and chopped greens.

After the third month, by which time the birds have "shot the red," the turkeys are gradually weaned to a feeding of barley at night. No corn is given during the summer. They also have, during the second three months, a mash of bran, beef scrap and charcoal constantly before them. This, with all the green they will eat, and the night feed of barley, is their ration up to the time when fattening begins in October.

Keep Them Hungry

The important thing in feeding very young turkeys, all experts agree, is to keep them hungry. Whether this is done by limiting them to two or three minutes to a meal or by feeding out of the hand, as is easily done with a few, taking care that they are as ravenous at the end of the meal as at the beginning, does not matter. I used to feed a teaspoonful to ten turkeys at the start, and the mother got some of that. We used to be given the rule, "Feed little and often," now we are told to feed little and not often. The amount given at a meal should be increased with great caution, for, while the larger turkeys require more, they are getting more for themselves, if they have any range at all.

Poultry Queries

Conducted by J. A. Koethen

Soft Droppings

The droppings of some of my hens are soft and yellowish or brownish. I feed milo, wheat, a commercial egg mash and an abundance of greens. My rabbit hutches are in the same yard and I notice the hens are constantly underneath them picking. Is it possible that this is affecting the droppings?—J. N. M., San Diego.

As I have had no experience with rabbits, I do not know what the hens are picking up under the hutches, but I think it much more likely that the soft droppings are due to too much beef scrap in the mash. Many persons who use these commercial mashes dilute them with an equal quantity of bran. Better try this plan for a short time, or you might give the hens plain bran for a week, then put them on the diluted mash. Hens have a good deal of intelligence about eating things they should not have, but it is better not to keep them in the same yard with rabbits or ducks.

Hens and Barley

On one side of my henhouse is a field planted to barley which is now three inches long. If I turn the hens on now will they kill the barley? If I wait till the grain is longer is there any danger that the long blades will cause cropbound? I lost two hens recently with that trouble, in spite of the fact that I followed the directions in "Poultry for Profit."—Subscriber, San Diego.

It is astonishing how quickly a flock of 75 hens will make a field of young barley look like 30 cents. Better wait till the barley is at least six inches long. The hens will not fill their crops with the long blades, they nibble them off. Those directions for operating on crop bound hens were written by a surgeon, I suspect, and are not easily followed by an amateur. Sometimes it is possible to empty the crop by means of massage and to wash it out with a syringe. If this fails, an operation is the only cure, but it should be undertaken only as a last resort.

Purchasing Cockerels

What time of the year should I purchase a White Leghorn cockerel to mate to pullets hatched in March? I shall not need him till next February. Is it necessary to order him now?—Subscriber, Antelope Valley.

October or November is ample time for purchasing a cockerel for next year's use, and you do not need to order him beforehand. There is never a shortage of cockerels.

Paralysis or Rheumatism?

I have a hen that seems to be paralyzed in both legs. Her comb is red, and she eats when I hold her up. Is there any remedy?—Subscriber, San Diego.

The hen's legs may be paralyzed because of some pressure due to constipation, indigestion or an egg that she is unable to lay, or the trouble may be rheumatism, which is always caused by dampness in house or run. In either case a dose of Epsom salts (one-half teaspoon in moist mash) and a liberal feeding of greens is in order. Keep her in a warm, sunny place. If warmth, physic, and greens do not soon improve her condition, better kill her.

RHODE ISLAND WHITES

By M. E. Bemis

Rhode Island Whites have been making records in the egg laying contests of the country since 1914. In 1917 a 291 egg hen was produced in the All-Northwest egg laying contest at Portland, Oregon. Last year in this same contest they made the best breed average, and at the national egg laying contest at Mountain Grove, Missouri, they broke all previous egg records. The two leading pens were Rhode Island Whites, one pen of five birds laying 1,217 eggs, or an average of 243.4 eggs. The second pen averaged 233 eggs. The leading pen in the contest, also a Rhode Island White, laid 306 eggs for the year.

Rhode Island Whites in the show room are attracting more and more attention each season. This popular breed is backed by one of the strongest specialty clubs in the country.

The 1920 year book of the Rhode Island White Club of America has just been issued and may be obtained of the secretary, H. E. Caldwell of Canutillo, Texas. The price, 25 cents. Anyone desiring any information regarding this breed should write to the secretary.

THE CARE OF HATCHING EGGS

Hatching eggs should be taken from the nest as soon as possible after they are laid, lest they be chilled or the germ begin to develop under a broody hen.

Keep them in a room where the temperature is around 50 degrees and turn every day. Some poultrymen keep their hatching eggs in wire racks with the large end up, but this is not necessary. It is advisable, however, that they be laid out side by side on a plate or in a pan, and not piled one upon the other. After eggs have been shipped it is a good plan to let them lie quietly for a day before putting them under the hen.

The sooner an egg is under the hen or in the incubator the better. An egg under a week old is more likely to hatch a good, strong, livable chick than one over a week old. Two weeks is the very limit of time to which an egg should be kept, and ten days is better. There seems little doubt that many of the failures of eggs to hatch are due to the fact that the germ was already weakened by time before incubation began.

Hatching eggs should not be kept where a drying wind will strike them nor in a kitchen where there is a good deal of steam, nor should they be washed. The room in which they are kept should be dry, cool, and well ventilated.—J. A. K.

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Los Angeles Markets

Los Angeles, April 7, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 56 cents.

Dairy Exchange prices last week on extras:

March	24	25	26	27	29	30
'20 ...	62	62	59	59	56	56

CHEESE

Brokers' prices:

California, lb., 29, price to retail merchants, 29@31.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 41 dozen; case count Produce Exchange closing price 40 dozen; pullets, Produce Exchange closing price 38 dozen; pewee pullets, 29.

Dairy Exchange prices last week on extras:

March	24	25	26	27	29	30
'20 ...	38	38	38	39	39	39

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POULTRY

Price to producers: Hens, lt., 35; heavy, 37; colored over 4 lbs., 39; broilers, 32-38; fryers, 40; roasters, 38; old roosters, 16; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 20.

LIVE STOCK

Los Angeles, April 6 — Weighed and delivered off cars without food or water: Hogs (hard-grain), 125 to 175 lbs., 16.00, 175 to 225 lbs., 16.50.

Cattle (on foot, gross weight)—Steers, good, 12.00@12.50; medium, 11.50@12.00; cows, good, 10.00@10.50; medium, 9.50@10.00; bulls and stags, 7.50; calves 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, April 6, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Market strong, prices higher. New stock: Stockton: Burbanks, fancy and special brands, 7.75@8.25; choice, 7.00@7.50; Idahos: Russets, fancy, 7.75@8.25; choice, 7.00@7.50. Rurals, 7.25@7.50. Local stock: lug boxes, 3.00@3.25; poor low as 2.50. New stock: local Early and White Rose, 12½@14 per lb.; 3.85@4.25 lug.

Sweet potatoes: Market strong. Lugs, 2.75@3.25.

Onions: Demand and movement moderate; market weak. Homegrown and Stockton: White Globes, per cwt., 8.00@10.00. Yellows and Browns, 7.00@9.00 per cwt.; lugs, 2.50@3.00; per lb., 8@10. Garlic, lb., 40@50.

VEGETABLES

These are the actual prices obtained April 6, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.15@1.35.

Asparagus: Supplies liberal. Delta section: 10@17½ per lb., fair quality, 7@9. Imperial Valley, 15@20 per lb. Local 18@20 per lb.

Beets: Doz., 45@55; lb., 4@5; sk., 2.50@3.25.

Cabbage: Little good stock. Per lb., 3½@4½, mostly 4@4½; per crate best, 4.00@4.50; others, 3.00@3.50; sacks, mostly 4.00. Red cabbage: 4@6 per lb., mostly 5.

Carlots: Demand and movement moderate, market weak, little change in prices. Winningstadt and Cannonball, mostly Cannonball, carloads f. o. b. usual terms, straight and mixed cars, 40.00@45.00.

Carrots: Doz., 45@50; lb., 1½@2; sk., best, 1.80@2.25.

Cauliflower: Supplies very light. Local stock; per dozen, best, 1.60@1.75; others low as 1.25; field crates, scarce, 3.00@3.50; pony crates, 1.75@2.00.

Celery: Market steady for good stock. Local and northern per dozen bunches, best, 2.00@2.50; crates, 5.50@6.50; fancy shipping stock, 8.00@8.50; poor stock low as 2.00 crate.

Cucumbers: Illinois: Hothouse, wide range in price, 2.75@3.25 per dozen, according to size.

Peppers: Floridas: Bells, 40@45 per lb., Chilis, 40@45.

Lettuce: Local stock, market firm, demand active, supplies scarce. Per dozen, 30@40; crates, best 1.50@1.75; poorer low as 1.00.

Carlots: Demand active, movement moderate, market strong, prices higher. Los Angeles District: California crates Iceberg, straight and mixed cars, best 2.50@2.75; others 2.25@2.40. Imperial Valley; straight cars, 3.00@3.50.

Parsley: Doz., 15@30.

Parsnips: Lugs, 1.10@1.25; sacks, 3.00@3.25; per dozen, 45@55.

Peas: Local and Imperial Valley: Market firm; best, 10@12 per lb.; others 8@9.

Rhubarb: Strawberry, bx., 2.00@2.25; Crimson Winter, 1.25@1.50.

Spinach: Doz., 20@30; lb., 2.

Squash: Summer, cr., 2.00; lb., 4½@5½. 4½@5½.

Tomatoes: Mexican: crates, best, 2.75@3.00; lugs, repacked, 3.00@3.50; lb., best, 10@15.

Turnips: Per dozen, 50@60; per sack, 2.80@3.25.

FRUITS

These are the actual prices obtained April 6, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: White Pearmains, 2.50@2.75; 4@6 per lb.; Yellow Newtown Pippins, 4-tier, 2.00@2.50; 4@6 per lb.; Romes, 2.50@3.50.

Bananas, 8@8½; Red, 9.

Pears: Winter Nelis 6½@7½ lb.; bx., 3.00@3.60.

Grapefruit: California and Arizona: per box, 4.00@4.50; other, 3.50@3.75. Local, 2.00@3.00 per box.

Lemons: San Fernando Valley stock; fancy packed, 4.00@4.50; loose, 3.50@3.75; juice, 2.50. Local stock; packed, 2.50@3.00; loose, 2.00@2.25; some low as 1.25 box: 2@3 per lb.

Oranges: Market slightly weaker. California Navels, packed, 4.50@5.50; best brands, 6.00@6.50; others low as 3.00@3.25. Local stock: packed, 3.50@4.75; large sizes low as 2.00. Tangerines. No carlot arrivals. California stock, mostly 6@9 per lb.; some best high as 14; 2.75 lug.

HONEY

Demand and movement slow, market weak. Supplies cleaning up. Carlot f. o. b. usual terms: White orange blossom per lb. 18; extra light amber, 17@18; light amber sage, 17@17½; light amber alfalfa, supplies very light, mostly 15. Beeswax, demand and movement good, market strong, little change in prices, l. c. l. lots 40@42.

BEANS

California Lima Bean Growers' Association fixed prices October 6, but market falling. Limas, 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	27.00@30.00
Barley	26.00@30.00
Alfalfa	28.00@32.00
Barley Straw	10.00@13.00

Alfalfa Growers of California, f. o. b. Los Angeles: Choice alfalfa, 38.00@39.00 per ton; choice dairy alfalfa, 30.00@38.00; No. 1 dairy alfalfa, 33.00@36.00; No. 1 alfalfa, 34.00@36.00; standard alfalfa, 33.00@34.00; standard alfalfa, 30.00@33.00.

GRAIN AND FEEDS

Price bid local grain exchange, April 6:
Barley: 2.96¼.
Corn: bulk, Yellow, 3.20@3.26¼.
Eastern Kafir: 2.52½.
Milo: 2.95@2.98¾; Eastern, 2.55@2.65.
Wheat: Mixed feed, 4.60.

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San Francisco Markets

San Francisco, April 6, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	58½
Prime Firsts	57

Mar.	30	31	Apr. 1	2	3	5
'20 ...	58½	59	59	59	58½	58½
'19		58½	58½	..	61½	62

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	32
Ore. Trips	30
Cal. Flats	27@30½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	43½
Firsts	40½
Extra, pullets	37½
Undersized	33½

Mar.	30	31	Apr. 1	2	3	5
'20 ...	45	44½	44½	44½	43½	43½
'19		46	47½	..	46	46½

POULTRY

Wholesale prices are:

Leghorn, 40@42; small, 41@43; large, 42@43; roosters, young, 43@45; old, 23@25; broilers, 43@50; fryers, 52@58; turkeys live, 42@43; dressed, 51@52.

Ducks, Indian Runner, 30@32; Pekin, 33@35. Squabs, 70@75; pigeons, doz., 2.35@2.50.

Belgian hares, live, 22@25; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle — Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 11@12; do 1,200 to 1,400 lbs., 10@10½; do, second quality, 8@9; thin, 6@7.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4@5.

Calves—Light weight, 12@12½; medium, 9½@10; heavy, 7@9.

Hogs—Weighing 100 to 150 lbs., 16; 150 to 225 lbs., 16½; 225 to 300 lbs., 16; 300 to 400 lbs., 15.

Lambs: Milk, 15@16; Yearlings, 13@13½.

Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle—Good steers, 1000 to 1100 lbs., 12@12½; top steers, 1100 to 1200 bs., 11½@12; good heifers, 1000 lbs. and over, 9@

9½; No. 2 cows, 1000 lbs. and over, 8@8½; canner cows, 5@6; good bulls, 6@6½.
Calves—Light, 13@14.
Hogs—Top packer, hard and well finished; 100 to 150 lbs., 16; 150 to 225 lbs., 16½; 225 to 300 lbs., 16; over 300 lbs., 15; under 100 lbs., 14½.
Sheep: Ewes, 9@9½. Wethers, 11@12. Yearlings, 13@13½. Milk Lambs, 14@15.

POTATOES

Wholesale selling price:
Per 100 lbs.: Rivers, fancy, lh., 7@8; Idaho Gems, lb., 7@8; sweet, 6@7 per lb.

ONIONS

Wholesale selling price:
Onions: Fancy brown, 6.25@6.50; choice, 4.50@4.75; white, 5.00@5.25. Garlic, China, 40@45; Green onions, 1.25@1.50 box.

VEGETABLES

Wholesale selling price:
Artichokes, No. 1, 65@75; No. 2, 40@60.
Asparagus: lb., 5@7½.
Beans: So., 13; Hothouse, 20@22 lb.
Brussels Sprouts: lb., 8@9½.
Carrots: sk., 1.00@1.50.
Cauliflower doz., 1.25@1.45.
Cabbage: lb., 2½@4½.
Celery: doz. bunches, 35@45; cr., 2.50@5.00.
Cucumbers: Eng. doz., 2.50@2.75; hothouse, bx., 3.00@3.50.
Eggplant: lb., 15@25.
Lettuce: L. A., 1.00@1.50 cr.; Imp., 2.75@3.25.
Peppers: Fla., 35@40.
Peas: lb., Bay, 10@12½; So., 6@7.
Radish, 7@9 doz bunches.
Rhubarb: bx., 2.00@2.50.
Tomatoes: Southern. 2.00@3.00.
Spinach: cr., 1.00@1.50.

DECIDUOUS FRUITS

Apples: Newtown Pippins, old stock, 2.15@2.25; California storage, 4-tier, 2.15@2.25; Oregon, 2.50@2.75; Spitzenberg, choice, 2.50@3.00; fancy, 2.50@3.25; Winesaps, fancy, 3.75@4.00.
Bananas: lb., 7@9.
Loquats: lb., 10@12.
Pineapples: Doz., 3.50@6.00
Strawberries: Imp. cr., 4.50@5.00.

CITRUS

Box: Lemons, fancy, 4.50@5.00; choice, 3.00@3.75; standards, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00@2.50. grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 3.00@6.25; limes, 1.00@1.50 crate; tangerines, 1.50@3.25 per crate.

RICE

The California market is unchanged, some sales being consummated at $11.85 for fancy. Fancy generally is being quoted from $12 to $12.20 for spot and futures; choice 25 cents less. There is good demand for brewers and screenings, but practically no stock available.

BEANS

Jobbing price per cwt.: Small white, 6.20@6.25; large white, 6.00@6.35; cranberry, 6.90@7.00; red Mexican, 7.75@8.50; pink, 6.35@6.50; California Bayo, 9.25@9.50; blackeye, 7.10@7.25; red kidney, 13.00@13.25; lima, 11.00@11.25; Garvanza, 9.00@9.50; Kotenashis (in bond), old crop, 5.25; new crop, 5.75.
Dried Peas—California, 5.25@5.50 per cental for green, recleaned.

HOPS

1919 crop, 70@85c per lb.; older growth, 45@55 per lb.; prices to growers for 1920 crop, 50@65 per lb.

HAY

Under date of April 3, Scott-Magner & Miller says:
Market continues dull and arrivals unusually light. Oregon cheat and Nevada alfalfa make up the bulk of the city receipts and what little trading goes on here is being done in these two latter commodities. Interior demand has been a little better than last week. Reports on weather conditions are not so favorable this week, the cold north winds have been bad for both pasturage and stock and have created a moderate demand in sections that were anticipating getting along with the growing grass for a while.
We quote today wholesale prices in carload lots as appear from dealer's transfers upon the hay market in San Francisco, for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat or Wheat and Oat hay	35.00@38.00
No. 2 Wheat or Wheat and Oat hay	33.00@35.00
Choice Tame Oat hay	37.00@40.00
Other Tame Oat hay	33.00@37.00
Wild Oat hay	Nominal
Barley hay	Nominal
Alfalfa hay	32.00@37.00
Stock hay	29.00@32.00
Oregon Cheat and Oat mixed	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, April 7, 1920.

A heavy run of large sizes is still somewhat embarrassing the market but demand for regulars continues steady. As an indication of the demand f. o. b. California quotations on large offs are around $2.75 while 150's and smaller are commanding around $5.

Large supplies of foreign lemons are in port unsold and still larger quantities afloat. Shipments of Californias are being reduced.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 13,617 cars; lemons, 2,653; total, 16,270. To same date last season: Oranges, 14,232; lemons, 3,344; total, 17,576. From Central California this season: Oranges, 3,751; lemons, 279; total, 4,030. To same date last season: Oranges, 2,289; lemons, 251; total, 2,540. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

"Like a Friend Who Goes Out of His Way for You"

That is the way a Mohawk user recently characterized the Mohawk tire.

It is just a sample of the way Mohawk owners, the country over, feel about Mohawk tires. What this saying means is, of course, that the owner of Mohawk tires is getting more than he expected.

For seven years, Mohawk tires have been giving mileage consistently greater than the average tire user is used to.

The reason Mohawks really *do* surprise automobile owners with greater mileage is because they are honestly and sincerely built.

The purest rubber is only used in them. No shoddy, reclaimed rubber—no glue, rosin or any other "filler."

They contain the strongest fabric made from the toughest cotton produced—and in most sizes an extra ply of fabric

They are hand-made by expert builders—no machine processes, because *every* Mohawk must be *right*.

If you like people "who go out of their way for you"—if you believe they are worth knowing and worth keeping as friends—you will, in the same way, like Mohawks. Of those who have used them, records prove that 85% will use no other tire.

MOHAWK RUBBER COMPANY, AKRON, OHIO
Branch: 1436 Van Ness Ave., San Francisco
Branch: 1726 South Flower St., Los Angeles

MOHAWK "Quality" TIRES
HAND MADE

BIG GROWERS OF
GRAPES APRICOTS PRUNES
ALL FRUITS AND VEGETABLES
USE THE
International Dehydrator
The Clean, Sanitary and Rapid Process of Drying
The Best Crop Insurance in the World

EASY TERMS PAYMENTS
GET YOUR ORDER IN
We are now booking orders for this season's deliveries. Save all of your fruit and vegetables and get Dehydrated prices for them.
CUT OUT AND MAIL TODAY
Write for demonstration appointment

Date .....
International Dehydrator Company,
Chamber of Commerce Bldg.,
Los Angeles, California. C.C.4-20.
Send me full particulars.
Grower of .....
Tonnage .....
Signed .....
Address .....
City ..... State .....

Now is the time to plant
Napier or Elephant Grass

Price	Per Doz. Postpaid	100 Postpaid	500 F.O.B. here	1000 F.O.B. here
Dormant Joints	$ .75	$4.00	$12.00	$20.00
Rooted Sprouts	1.00	5.00	18.00	30.00
Divided Crowns	1.25	6.00	24.00	40.00

WRITE FOR CIRCULAR

Now is the time to establish
SMILO PLANT CROWNS
Per 1000—$4.00
Complete Catalog Now Ready. Write
Aggeler and Musser Seed Co.
620 So. Spring St. Los Angeles, Cal.

We can fill any size order—from sack lots to carloads.

We handle all kinds of raw materials and prepared fertilizers.

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When Writing Advertisers, Mention the Cultivator.

Place Your Order
NOW for
Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or ex steamer to arrive.

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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Can You Lift a Ton?

THE Glenn County farm bureau is issuing a weekly market bulletin which manifests considerable real life. It is giving information as to buying and selling prices and under the title "Economy" presents some very forceful lessons as to the advantages of cooperation. The bulletin says:

Cooperation spells economy. If it did not, there would be no reason for our existence. The country's present wasteful system of selling its products, and more wasteful system of buying its needs, has been the natural outgrowth of individual buying and selling on a credit basis. In place of collective thinking and individual buying, as in the past, we must have individual thinking and collective or cooperative buying.

Farmers calling on dealers for their needs expect the dealer to have a stock of goods to satisfy their every whim. They have not anticipated their needs and dealers have had to buy more or less blindly. The time of the dealer and his clerks is taken up in finally making a selection. Dealers are expected to have a creditable display room for which a high rental is paid. They pay high wages to their clerks. The farmer has come to expect the dealer's salesman to call on him, in company with a highly paid factory representative, or alone. All these men must be paid and the expenses incurred must be included in the final prices paid by the farmer.

When the farmer has bought from his dealer, he has asked for credit. The dealer in turn must ask credit from his jobber, and the jobber from his manufacturer.

Manufacturers, like farmers, prefer cash for their products and make their lowest prices only to jobbers who pay cash. Jobbers likewise charge more to dealers who do not pay cash. And the dealer must add all these additional expenses to the legitimate price for which the manufactured article should be sold to the farmer. Yet none of these agencies make exorbitant profits. The farmer pays for the system, for which he is in part responsible.

Cooperative movements must avoid this wasteful procedure if the members are to be benefited. Members must cooperate to the extent of anticipating their needs. By communicating these needs to their cooperative agent, he can lump the requirements of many farmers in one order to the jobber or direct to the manufacturer. The jobber, knowing that these goods will be paid for promptly on arrival, bills them at the lowest prices. With cash in hand he buys from the manufacturer at the lowest price and the saving is effected all along the line.

True cooperating requires the eliminating of useless expense. Standard articles of national reputation and proven merit, sold under a guarantee of satisfaction, can be safely purchased through your cooperative agent. No frills and little sales expense will leave more of your hard earned dollars where they belong—in the pockets of the producers.

Can You Lift a Ton by Yourself?

Command profitable prices by better farms, better farming and loyalty.

Cooperation is profitable for the farmer because:

1. It enables him to buy his farm supplies at wholesale. One man cannot lift a ton without some machinery, but 20 men can do it easily by lifting together. The purchasing power of 20 men used at one time and on one article is many times greater than the power of one man at 20 times or on 20 articles. Farmers are manufacturers. They should buy all raw materials, feeds, seeds, fertilizers, machinery, etc., at wholesale rates. Until they cooperate they buy at retail and sell at wholesale prices. No other business could live a year if it did this.

2. It enables the farmer to sell his product at a better or a more stable price. The average farmer sells his products on the local market for what he can get. He has neither reliable information nor necessary confidence in other markets. Through such an organization as the market department of the Glenn County farm bureau he may learn true market conditions and can command profitable prices.

3. It makes better farms and better farmers. Better farms and better farmers are possible only as the business of the farm is made more profitable and that can be done only by adopting modern business methods.

But a cooperative organization cannot succeed unless it has a loyal membership. In an ordinary stock company the cooperation is with money only. In a cooperative organization like ours there must be a spirit of loyalty as well as money. Loyalty is more necessary than capital. Twenty members who will get in and stick to a cooperative organization are better than 200 who get in and kick.

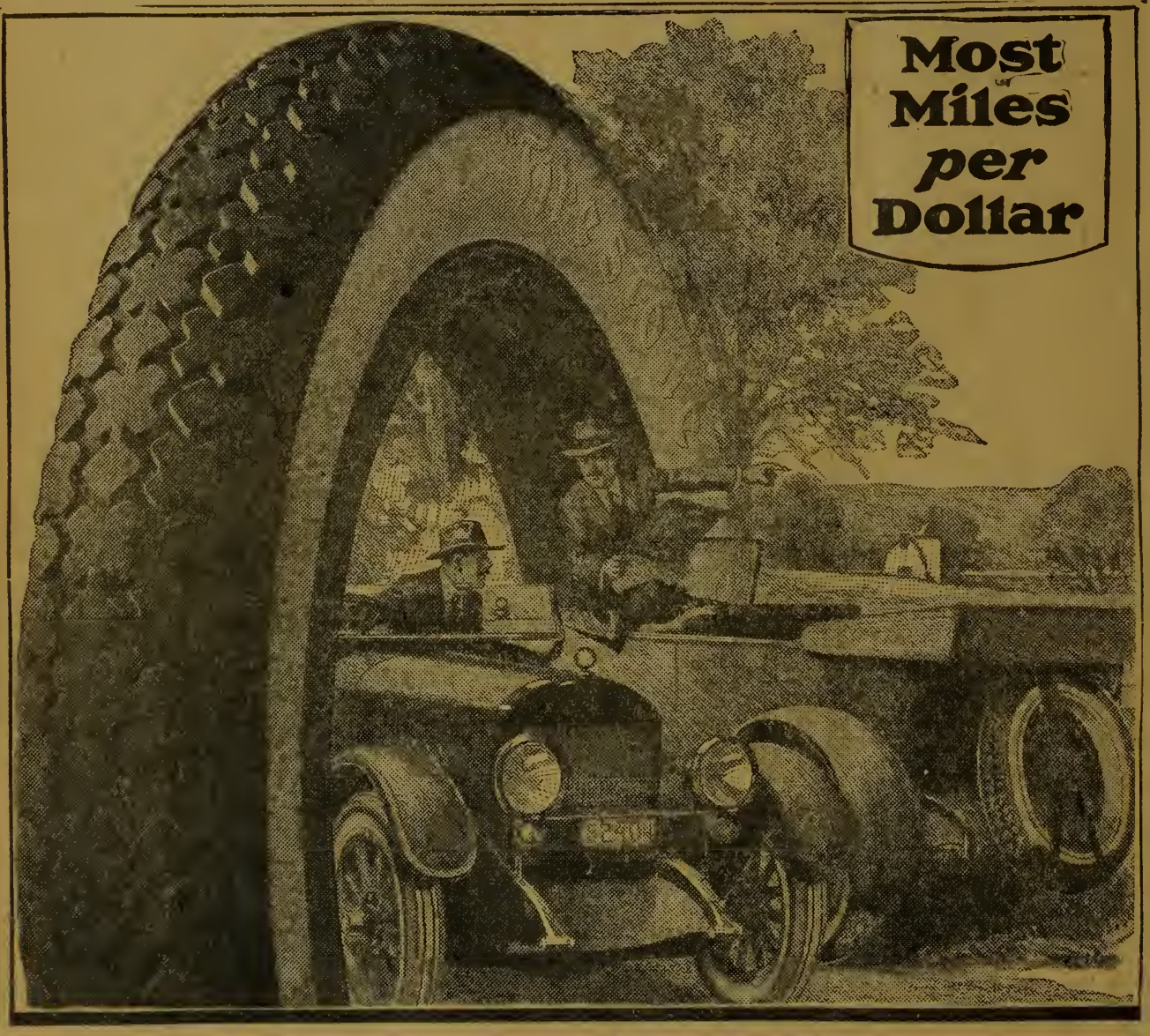
As we said before, cooperation is an achievement, not a gift. You have to get it yourself and the way to get it is to work for it. You have to work to get it and then you have to work to keep it. Cooperation is self discovery. It is finding out who you are and what you can do. The word "cooperation" means the act of working jointly together towards a common end. Cooperation is not a new idea. It has been successfully applied to every form of business and life. Our school system and our government itself are in reality large cooperative enterprises.

Again, the only way to strengthen a muscle is to use it. The same thing is true of cooperation. There is no such a thing as completing your edution—it is only comparative. In one sense the purpose of cooperation is to teach us how little we can do individually and how much through cooperation.

A MODIFIED "POTATO DIP"

The following formula for the treatment of potatoes before planting has been received from County Horticultural Commissioner O. E. Bremner of Sonoma, and as this dip was used last year with success it is desirable that those interested be given the information.

"The dip is practically the same as that used for bluestoning wheat but is not used in quite the same proportions. Dissolve 1 pound of bluestone in 10 gallons water. Soak the potatoes in this for from 5 to 10 minutes. Remove, drain, and immediately dip in a solution of slaked lime at the rate of 2 pounds to 10 gallons water. The potatoes should then be dried, cut, dusted with dry sulphur and they are ready to plant. The advantage of this dip is that it prevents decay of the seed so that if the potatoes are planted in damp ground or should it rain following planting, the seed will not rot but produce a stand. This dip also prevents development of any of the fungus diseases such as rhizoctonia, scab, etc It is certainly worthy of trial."



Part of the "Good Roads" Program

WHEREVER men and cars meet, "good roads" is pretty sure to be discussed.

You want good roads chiefly because they improve farm conditions, facilitate the use of car and truck, and because they will increase the life of car and tires.

The Firestone cord is part of the program because it gives you most miles per dollar. It is the tire that led the industry with the new standard oversize last year. It has made good as "the best buy" in tires, because of its unequaled performance records.

The new standard oversize means more rubber and cord, more air space, better riding, better traction, and much more mileage.

Firestone cord tires are made by workers financially interested in the business as holders of its common stock. They form a practical industrial community; dedicated to low cost transportation—the most for the money in tires.

Get your share of these savings by having your dealer put Firestones on all four wheels.

FIRESTONE TIRE & RUBBER CO., Firestone Park, Akron, Ohio
Branches and Dealers Everywhere

Firestone

Household Department

IF YOU CAN'T BE A PINE

If you can't be the pine on the top of the hill,
Be a scrub in the valley—but be
The best little scrub by the side of the rill;
Be a bush if you can't be a tree.

If you can't be a bush be a bit of the grass,
And some highway happier make.
If you can't be a "muskie," then just be a bass,
But the liveliest bass in the lake.

We can't all be captains, some have to be crew,
There's something for all of us here;
There's work to be done, and we've all got to do
Our part in a way that's sincere.
If you can't be a highway, then just be a trail.

If you can't be the sun, be a star;
It isn't by size that you win or you fall;
Be the best of whatever you are.
—Maryland Training School.

SIR STUPE ID AND THE ROSEBUD CHINA

By Clara Peterson

IN a ramshackle castle at the end of a long avenue in the city of Idron lived the young giant Sir Stan Id—Stupe Id the people had nicknamed him. He was seven feet tall and had been stalwart and brown and handsome, but now he was as fat and awkward as one so young could possibly be.

The government of the city had been given to the Id family when they had known enough to rule wisely and well, but Stupe had so long been careless and idle that now his people were listless and unhappy. Even the vineyards and the orchards did not seem to care about giving their usual purple grapes and ruddy apples.

Stupe was the very laziest person imaginable. The people did not know whether this was because he was so fat or whether he was so fat because he was lazy. At any rate, they all were very careful to go inside their houses when he passed, so they would not have to doff their caps or bonnets and bow.

Now it was Stupe's custom to crawl out of bed at about ten o'clock each morning, yawn while he washed, yawn while he dressed, and yawn while he stamped down stairs. He did not really awaken until he got into the dark beamed dining room and saw his breakfast on the table.

There was only one servant in the castle—old Hilga—who cooked such immense kettles of potatoes each day, who boiled such stacks and stacks of heavy fruit pudding, who prepared so many quarts of mustard sauce that she was worn out from bending over table and stove.

The Id family had always been hearty eaters. Even Stan's mother, the comely Lady Gretchen, had thought nothing of eating a whole stuffed chicken at a meal, and his father had often disposed of a goose, but Stan was three times as greedy as they had been and, moreover, he cared nothing for cereals and soups and the smooth milk puddings Hilga had prepared in the olden days. He had grown so big and coarse that for breakfast he must have a stack of buckwheat cakes three feet high (which did not improve his complexion at all), for lunch he ate dozens of sausages, and for dinner poor Hilga often had to use a whole cheese in concocting a Welsh rarebit.

After each meal Stupe went straight to sleep and usually did not awaken until the next was on the table. He was always too filled up and drowsy to know or care what was going on in the city, and he never realized that the people were beginning to mutter against him. In fact, Stupe was so contented when he had his stomach full and was lying in the canvas hammock on the grass-grown upper terrace that he did not even know that the castle was going to rack and ruin. All the gardeners and housemaids had deserted and there was no one but Hilga to dust the whole inside of the place, but this did not matter, as Stupe never saw any room but his own and the dining hall.

However, one day Hilga fell ill. When Stupe got down for breakfast he found her sitting on the old rocker in the kitchen, a wet cloth around her head.

"O Sir Stan," she groaned, "I am afraid I cannot get your breakfast. I'm so sick——."

Now Stupe wanted nothing in the world so much as a great pile of flapjacks and a platter of pork steak and gravy, but he was kind hearted, so he said to Hilga:

"You go home to your daughter for a week and I'll get another cook. I'll go down to the city and look now, as I must have breakfast right away."

So Stupe put on his shabby cap and went out of the castle into the morning air. It was the first time in years that he had been out before breakfast and he was so hungry that he felt very wide awake. He started down the winding walk which once had had beautiful flowering shrubs on either side, but he had gone only around to the front of the castle when he stopped. There was no path; it was entirely covered by weeds, and thistles bent their lavender heads high above the spindly bushes.

Stupe felt a little ashamed, but he was anxious for his cakes, so he plowed through the grass and down into the city. The streets were dusty and dirty and most of the houses needed paint. The people he met stared, then looked away and did not even bow. Usually Stupe would not have noticed, but now he frowned as he hurried on. He went first to the Id Restaurant, which his father had founded long before. Inside the door he called:

"Send your best cook to the castle at once."

But there was only an old man in the place, who peered in surprise and said:

"Your Highness, there has not been a cook here for months. There are no travelers to feed; the city is dead and going back to dust."

Stupe looked at the empty tables and strode out. From place to place he went. The employment office was closed. The eating houses were empty. There was only one place in town that seemed to be open for business. This was a little white store where a rosy cheeked girl stood in the window and prepared roast beef sandwiches. On the spotless shelves over her head were rows and rows of shining dishes, thin and white with sprays of painted rosebuds straying over them.

The girl stopped spreading butter as Stupe came in. He tried to squeeze between the counters to talk, but he was so fat that he could not manage it. The young woman watched him a moment and waited, then she turned and began cutting thin slices of beef from a juicy roast. Stupe stood looking at her, puffing from running up the steps. At last he pulled a torn handkerchief from his pocket, wiped off his chins and stammered:

"Could—could I hire you to come up to the castle and cook for me? I haven't had any breakfast—the cook is sick and I'm starved. You won't need to stay more than a week."

The girl came out from behind the counter, and Stupe, whose eyes were open wider than for many months, saw that she was about his own age, tall and slim and beautiful. She stood looking at the overgrown fellow, then she said:

"Your Highness, it happens that I am the only cook left in the city, for the place is so very dead that all who could have left. You do not look starved, but I am leaving here this afternoon and if you desire I will be your cook for a week. However, you must let me serve the meals on my own rosebud chinaware. (She pointed to the shelves.) I have never worked with any other dishes and do not desire to do so."

Stupe opened his mouth to say that she might serve the meals on stones if she cared to, just so she began to turn out the buckwheat cakes, but there was something so proud and dainty about the girl that he felt quite out of place and, bowing awkwardly, stumbled through the door, muttering:

"Expect you soon as possible, then."

The next morning Stupe was up early, for his stomach was very empty from the picked-up lunches of the day before. As soon as he opened his eyes he remembered that it was the new cook's first meal. Dorance was her name, he had learned, and long ago her father and his own had been great friends. Stupe had left a note

SHE has a good time at *her own* party—does the hostess who serves Ghirardelli's Ground Chocolate. Whether it's an "afternoon at home"—an informal evening—or some guests who "drop in" unexpectedly—Ghirardelli's offers the happiest solution to the refreshment problem. So delicious, so economical, so easily made!

Never sold in bulk—but in cans only.
In ½ lb., 1 lb., and 3 lb. sealed cans—
at the store where you do your trading.

Say "Gear-ar-delly"

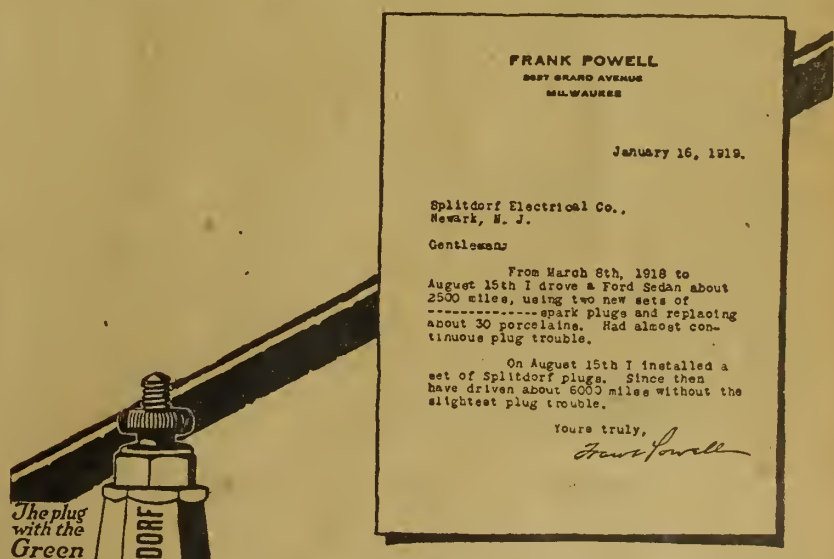
D. GHIRARDELLI CO.

Since 1852 San Francisco

(F1)

GHIRARDELLI'S Ground Chocolate

One set of Splitdorfs replaces 30 porcelain plugs


FRANK POWELL
BEST GRAND AVENUE
MILWAUKEE
January 16, 1919.
Splitdorf Electrical Co.,
Newark, N. J.
Gentlemen:
From March 8th, 1918 to August 15th I drove a Ford Sedan about 2500 miles, using two new sets of ----------spark plugs and replacing about 30 porcelains. Had almost continuous plug trouble.
On August 15th I installed a set of Splitdorf plugs. Since then have driven about 6000 miles without the slightest plug trouble.
Yours truly,
Frank Powell

THERE is a type of Splitdorf Green Jacket Spark Plug best suited for every engine of car, truck, or tractor. Each one is absolutely guaranteed against breakage. Send for booklet which tells you the correct plug for *your* engine.

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96 Warren Street, Newark, N. J.

TRADE SPLITDORF MARK

Established 1858

When Writing Advertisers, Mention the Cultivator.

"A Quick Shave—"

. . . is a COMFORT shave with

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No mussy "rubbing in" with the fingers—no razor-pull—but a fast, cool, refreshing "once-over."

Use Colgate's and get through your shaving quicker and easier.

When you Lather with Colgate's You Shave with Comfort.

Send 4c for trial size—
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199 Fulton Street New York

Either form you prefer —Stick, Powder or Cream

Good tea costs about ⅓ cent a cup. Poor tea costs more—it is weak in tea-flavor; doesn't go so far.

So what's the use of paying the same price for poor tea and good tea?

Don't think so much of the cost per pound. Think of good tea—that comes first.

Schilling Tea costs less per cup.

There are four flavors of Schilling Tea—Japan, Ceylon-India, Oolong, English Breakfast. All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere

A Schilling & Co San Francisco

in the kitchen, ordering five dozen batter cakes and a platter of chops. In spite of the way his mouth watered for this and in spite of his longing to eat and get out into the sun for a nap, Stupe could not help but remember Dorance's bright eyes. Blushing so that even his third chin grew red, he sewed a couple of buttons on his coat and tried to smooth down his tousled hair. Then he lumbered toward the stairs.

Every window in the dining room was wide open. There was a white cloth on the table and a place set for one with, beside it, a spray of apple blossoms in a silver vase. Stupe walked over to the table and looked down. Instead of his own great blue plate with the crack down the middle—one of the Id family set—he saw a dainty, pink-sprigged plate and beside it an eggshell cup which the sun was trying its best to shine through. Stupe began to feel uneasy, but the door opened and in came Dorance.

"Breakfast is ready, Your Highness."

She poured fragrant coffee into the cup, she brought from the kitchen six slices of hot toast and two soft boiled eggs with a large pat of butter. Stupe stared, but he was so very hungry that when the girl went back into the kitch- he sat down and devoured everything in two minutes.

Dorance re-entered with a little plate of corn meal johnny cake cut into squares. She looked at the empty dishes and asked in surprise:

"Have you finished so soon? I suppose you will not care for this, but I thought you might be extra hungry after yesterday. Please taste it."

Stupe opened his mouth. Could it be possible that she thought she had given him a breakfast? Then he smiled rather sheepishly.

"I'll try a bit," he murmured. Dorance musn't think him a pig.

After Stupe had finished the cake he was as hungry as he had ever been in his life. Dorance was bustling around in the kitchen and somehow he felt ashamed to face her, so he stepped through the long dining room window onto the balcony and swung himself over the railing to the grass below. This was the first exercise he had taken for years and his arms began to ache at once.

Stupe scuffled through the weeds to the hammock and lay down. Then he closed his eyes—but there was a lark singing in the oak branches above him and Stupe turned on his side and looked around. As far as he could see, tall grass covered the terraces and the weather beaten wood of the balcony over which he had just swung looked as though it was falling to pieces. The giant sat up and groaned. Leaning against the castle were a rusty lawn mowing machine and a scythe. One last time Stupe tried to close his eyes, but he did not feel a bit stuffed and drowsy, so he scrambled out of the hammock, and searching in a shed for the oil can, was soon hard at work.

(Continued Next Week.)

HOUSEHOLD QUERIES

Crystallized Fruit

Will you please tell me how to make crystallized or candied fruits? I want to use the different varieties as they come along.—Subscriber, Modesto.

The following directions are given by W. V. Cruess of the state university.

Puncturing, peeling and cutting.—Small crab apples, apricots, plums, cherries, and ripe but firm figs are used whole after puncturing in numerous places with a wooden toothpick. Peaches and pears are peeled and cut in half. The peels of citrus fruits are used without the pulp. Peeled and cut fruits do not require puncturing.

Cooking until tender.—After preparing as above, the fruit is cooked gently. This requires from three to five minutes for most fruits. Hard fruits require longer. Citrus peels may require 30 minutes or longer. Too much cooking will spoil the shape and texture. Too little will result in slow penetration of the sugar, dark color and toughness.

Placing in syrup.—Make a syrup of 25 degrees Balling about one part sugar to three of water. A little more sugar for very sweet fruits. Heat the syrup to boiling and pour over the cooked fruit placed in an earthenware pot while still hot.

A Balling saccharometer is convenient when working on a large scale, but is not necessary for small quantities. Half the sugar in the first syrup may be replaced with Karo or other liquid glucose. This prevents the hardening of the finished fruit by crystallization and makes it more translucent.

Increase of sugar.—Keep submerged in syrup. Remove the syrup every 24 hours, increase five degrees Balling by the addition of about one quarter the amount of sugar used originally, boil, and pour back on the fruit. When the syrup reads 68 degrees Balling (as thick as honey) it is dense enough.

Drying.—Leave in the last thick syrup until it has penetrated the fruit (three to four days) and then place on a wire screen to drain a few days until the outside of the fruit ceases to be sticky. The fruit will drain more quickly if placed in the sun or other warm place.

Packing.—The finished fruit may be packed in candy or cardboard boxes lined with paraffin paper or in open jars. In air-tight containers they may mold; some ventilation is necessary.

Beef Tallow for Shortening

Can you tell me if there is any way to use beef tallow for biscuits, bread, etc.? I can fry with it nicely. Recently killed a beef and successfully canned good supply of roast beef, but cannot seem to use the fine tallow I have. Would a butter merger help?—Subscriber, Somerton, Arizona.

The butter blended with beef tallow would of course make fine shortening, but would turn rancid in a short time. A similar query in regard to use of mutton tallow was answered by Mrs. Kendall of Lakewood in the Household Department of the Cultivator of March 20. Mrs. Kendall wrote:

"We use one pound tallow rendered separately to one pound pure leaf lard, not bacon grease. Pour together while hot in stone jar or glass fruit jar. Add pinch salt while hot, seal and place in cool place. This makes excellent shortening and will last indefinitely."

Flannel Cakes

Will some one give me through the Cultivator, recipe for hot cakes or pancakes such as are served in hotels.—Subscriber, Lodi.

One and one-half cups corn meal, 1½ cups flour, 1 teaspoon salt, 2 tablespoons sugar, 4 tablespoons butter, ½ yeast cake, dissolved in ¼ cup lukewarm water, 3 cups scalded milk. Scald meal with milk; add butter and when lukewarm, remaining ingredients; let mixture rise over night. In the morning cook as griddle cakes.

HINTS FOR HOME BRIGHTENING

By Subscriber, Santa Paula

First of all, I like your new expression so much better than the old time "house cleaning."

"In the spring the woman's fancy quickly turns to thoughts of house brightening, to use a parody on the well known verse.

My idea of home furnishings is that they should be comfortable. harmonious and simple. Deliver me from a house that is so fussy you cannot take any peasure in living in it. Houses were made for people, not people for houses.

"This spring we took up the matting from our bedroom floor, treated the floor to a good coat of paint. First, we thoroughly mopped the bare floor, then when it was dry filled in the cracks with wood filler. As this in turn dried we added three coats of good floor paint of a dark grey green, and lastly a coat of varnish. Of course it is inconvenient not to have the use of the room for three weeks, but the paint looks so much better if given plenty of time to dry.

The woodwork of this room had been enameled, but had become worn in spots, so was given a coat of paint and a second coat of old ivory enamel.

Cream colored curtains at the window and a pretty wall paper colored old ivory with lavender flowers made a new room of it.

The Japanese toweling, white with either blue or green figures on it, makes very pretty side drapes for windows, also nice covers for dresser or small tables. For bed spreads the

The Cultivator Patterns

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2488 Dress for Misses and Small Women. Cut in 3 sizes: 16, 18 and 20 years. Size 18 requires 5 yards of 36-inch material. The skirt measures about 1⅞ yards at the foot. Price, 10 cents.

3172. Girl's Dress. Cut in 4 sizes: 8, 10, 12 and 14 years. A 12 year size will require 4⅛ yards of 36 inch material. Price, 10 cents.

3161. A Handy Apron. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. For a Medium size 4¼ yards of 36 inch material will be required. Price, 10 cents.

3171. Child's Play Garment. Cut in 5 sizes: 1, 2, 3, 4 and 5 years. A 4 year size will require 2⅜ yards of 36 inch material. Price, 10 cents.

3175-3174. A Pretty Costume. Waist 3175 cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. Skirt 3174 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. The width of the skirt at lower edge is 1¾ yards. For the entire dress in a Medium size 6¼ yards of 36 inch material will be required. Two separate patterns, 10 cents for each pattern.

3185. Girl's Dress. Cut in 4 sizes: 4, 6, 8 and 10 years. For a 6 year size, 2¾ yards of 42 inch material will be required. Price, 10 cents.

2800. A Comfortable Breakfast Costume. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 4⅝ yards of 38 inch material. Width of skirt at lower edge, is about 2 yards. Price, 10 cents.

3165. Child's Night Dress. Cut in 5 sizes: 1, 2, 3, 4 and 5 years. A 4 year size will require 3¼ yards of 27 inch material. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

toweling joined with heavy lace or crocheting and with a narrow border of lace or crocheting is very pretty and inexpensive.

In the bargain basements one can find very pretty marquisettes in plain white or cream color that make lovely curtains. They wash nicely and are quite inexpensive. At 35 cents a yard have found some very pretty pieces. Also, if you watch the remnant counter you can often pick up desirable patterns for curtains.

Crinkled dimity, which can be purchased by the yard at the larger department stores, makes nice bedspreads and is much less expensive than the ready made spreads. It is light, easy to wash and does not soil easily.

One thing which brightens up a house is to get rid of some of the old knick knacks that take up room and collect dust and have outlived their usefulness. Any of the worthy charitable institutions will be glad to get contributions of household articles and used clothing. As one of them says, "We can use anything but rusty tin cans and broken glass." These old articles are sold to poor people, after other poor people, usually those unable to do heavy work, such as cripples and women with little children, have repaired them. Of course they are sold at a nominal sum and so help lots of people who have too much self respect to beg.

For cleaning the outside of your windows, get one of the window cleaners that all good hardware stores carry now. They are simply a piece of rubber attached to a long handle, but are fine for cleaning the outside of windows.

A good home made dust mop can be made of old stockings. Cut them in lengthwise strips and when you have enough to make a good mop half way in the middle sew a strip of heavy cloth. Then place in a mop handle. Dip the mop when needed in O Cedar or other floor oil and use on painted or hardwood floors, and you have a good dust mop. When it gets dirty, clean by immersing it in hot water to which has been added a half cup of Gold Dust and a little household ammonia. Then after the mop has dried oil again and use as before.

These are a few hints that have proved of use to me and hope they will help someone else among the Cultivators. "Brighten the corner where you are."

PINK BEANS ARE GOOD EATING

By E. J. T., Stockton.

I am going to give you a recipe for cooking pink beans a new way—not new to me but never before published—and I think it will be a big (?) help to the bean industry, for after tasting these delicious pinks everyone will buy them by the sack. This is no joke. You will want them three times a day.

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1 quart beans (dry), cook till half done or more; 1 large onion, 1 red pepper, 1 slice bacon; ½ cup salad oil or olive oil; pinch of black pepper; salt; ½ can tomatoes; 1 large pinch Spanish herbs (use a litle more of the leafy herb than of the seed. Tie these two herbs together in cloth and add everything named except salt when beans are beginning to soften. Salt when about done.

These herbs are unknown to many people, and can be bought only of large groceries, Italian groceries particularly, and five cents worth of each lasts a long time. I will give the address of one firm that carries it, and this can no doubt be obtained of the publishers of this paper in case it is against the rules to publish it.

And here is another good one:

Bean Pie

Cook pink beans till very done. Mash through a colander. Thin with milk, sweeten, flavor with vanilla and tiny bit of salt. Use one whole egg or yolks of two. Beat whites to a stiff froth and sweeten. Bake pie just as you do a custard in one crust. Put whites on top and brown. Tastes much like chocolate.

SPRING VEGETABLE DISHES

This is the time of the year when a new way of cooking vegetables or making a vegetable salad is most appreciated. An unusual vegetable combination and a super extra good cabbage salad are here given by a friend of the Cultivator:

Cabbage Salad

Three cups finely chopped cabbage. Put in a dish in layers with a little salt and pepper sprinkled between.

Dressing: 2 teaspoons butter (fairly heaping), 2 teaspoons sugar, 2 teaspoons flour, 1 teaspoon mustard, ¾ cup vinegar, 1 well beaten egg. Stir all together and let come slowly to a boil.

Pour over and mix well with the cabbage. Cover until it is cooled.

Vegetable Combination

Two onions, 4 tomatoes, 2 Chile peppers, taking out most of the seeds, 2 summer squash, small, but not the tiny ones.

Peel and chop all together. No water if you have a double boiler; if not a little water may be necessary. Be careful it does not burn. Cook slowly for half to three-quarters of an hour, when it should be a little softer than mashed potatoes. Season with salt, pepper and a little butter. Serve hot.

THREE PARTICULARLY GOOD ONES

Spanish Cake

Half cup shortening, 1 cup sugar, 1 egg, ½ cup milk, 1¾ cups flour, 4 teaspoons baking powder, 1 teaspoon cinnamon.

Cream shortening, add sugar, beaten egg yolk and mix well; add alternately a little at a time, the milk and flour which has been sifted with baking powder and cinnamon; fold in white of egg beaten stiff. Bake in loaf pan 35 to 45 minutes or in individual cake tins 20 to 25 minutes.

Sponge Cake

Three eggs, 1 cup sugar, 4 tablespoons cold water, 1 teaspoon flavoring extract, 1 cup flour, 1½ teaspoons baking powder, ¼ teaspoon salt.

Beat yolks of eggs with sugar and stir in water and flavoring; sift dry ingredients together and add to previous mixture, beating well for five minutes; fold in well beaten whites of eggs and bake about 40 minutes in moderate oven.

Thin Rich Cookies

Three eggs, 1 cup sugar, ½ cup butter, pinch of salt, enough flour to roll out.

Roll as thin as possible, brush the surface lightly with well beaten egg, sprinkle with granulated sugar, cinnamon and finely chopped nuts. Cut in squares and bake till brown.

AN INQUIRING YOUTH

"Bobby, you were very naughty to go on the ice when I told you not to."

"Well, m-mother, I didn't go to slide. I j-just went to find out wh-why you told me not to."—Life.

So far it is only a treaty of pieces.

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The fabric tire is made of a close woven fabric and the cord tire is made of layers of cords which tend to increase the elasticity of the tire.

The Fisk Cord is the maximum in oversize, has larger buttons size for size and having the standard Fisk Non-Skid design it is superior in its protective qualities. It is an economical tire although its first cost is greater than that of the fabric.

Fisk Cords are made in all sizes from the 30x3½ " Clincher for your small car to the 40x8" for your truck. Consult your dealer and tell him that you want a Fisk for your next tire.

Incidentally, we have something useful that you may find handy - some art blotters of convenient size which illustrate our various tires. We shall be glad to send you a set with our compliments on request. For your convenience use the coupon below.

Very truly yours,

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Please send me, without charge, the set of art blotters illustrating golf, polo, hunting, boating and one of your Time to Re-tire boy.

I own a (give name)_____car.

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Address _____

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — April 17, 1920 — No. 16

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Settlement of the Public Land of the Imperial Valley

Professor Elwood Mead has brought more lands to the landless and more homes to the homeless than any other, and the end of his efforts in this direction is not yet. Australian land settlement plans worked out many years ago have proved a great blessing nationally and to the individual settlers. Durham settlement details are not all worked out yet but more than a hundred families in a hundred contented homes (which were not two years ago) are beginnings which prove that both the state's loyal citizenry and resources are increased. Now Dr. Mead has another dream—this time for the Imperial Valley. He spoke before the League of the Southwest as follows:

HOW to help landless men own farms is a vital social problem. It is the most important which this league has to consider. The largest area of irrigable public land in this country is in the Southwest. The Colorado River has a large unused water supply. We have to consider how this land and water may best be put to human use, and this is an appropriate time. The lower house of congress has passed a bill directing the secretary of the interior to prepare a plan for the complete irrigation of the Imperial Valley. If this bill becomes a law these plans will include the irrigation of 300,000 acres of public land now arid. They will show where the water is to come from, what the reservoirs will cost, and what each acre of land will have to pay. That is the engineering and money part of the problem.

The method of dealing with the water supply is good. The whole problem is to be thought out to a conclusion. Preparations of the engineering plans by the reclamation service insures their success. The achievements of this service are a source of pride to the nation. Nothing in our history is finer than the honesty and capacity of this corp of engineers. The dams and canals it has built stand the tests of service. We can be confident that if their plans are carried out, the water problem will be solved.

The human problem remains to be dealt with. How is this land to be settled? It will provide farm homes for 10,000 families. For every family that lives in the country there will be one or more families in the town these farms support. How and where are these towns to be located? Who is to plan them? The value of this development will in the end be measured almost exactly by the amount of time and thought we give to plans for settlement befor settlement begins.

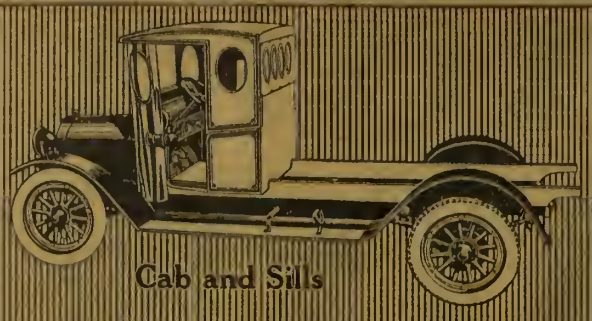
Neat, Livable, Comfortable, Homey

A farm cottage at Delhi built by the commission. Where the farmer prefers he builds his own home, but if he desires the state will attend to the construction.

The Starting of a Great Vineyard Section

Hundreds of thousands of Thompson Seedless cuttings are being planted in nursery rows at Delhi. Another year they will be reset in vineyards.

We have talked a great deal in this country about getting back to the land. But for the poor man to get a farm in this area some way must be provided for him to get generous credit because there will be no income and no payments on land or water until the farm is improved and equipped. The improvement of a 40 acre farm, including payment for the water right, will cost close to $200 an acre. How much of that money ought the settler to have? How and where is he to get the remainder? What interest is he to pay? How much time is he to be given? All these are vital questions. Where this money is to come from should be decided before the land is thrown open to settlement. If a settler can get money at 5 per cent for improvements the yearly interest charge—(Continued on Page 658.)



Cab and Sills

Fruit and Truck Gardener's Van

"Carry-All"

"Grain-Tight" Box

Stock Rack

REO

Time—Time!

Time is the essence of everything to the Country Business Man.

The element of time is of even greater importance to the agriculturist, the stock raiser, the dairy or truck farmer, than it is to the urban business man.

In seed-time, haying or harvest time, the loss of a day may mean the loss of a large part of the season—and much, if not all, the net profit on the year's work.

For weather and growing crops will not wait.

Nor will the markets—either local or national.

When a broken farm implement necessitates taking the team off urgent work for several hours to get the repairs or replacements, it often means loss of many times their value—less acreage in crops—or grain lost through over-ripening.

That's when the pneumatic-tired Reo "Speed-Wagon" proves its worth and quickly pays for itself.

It leaves to the horses or the tractor the field work while it does all the road running.

This Reo "Speed-Wagon" markets at twenty miles an hour instead of four.

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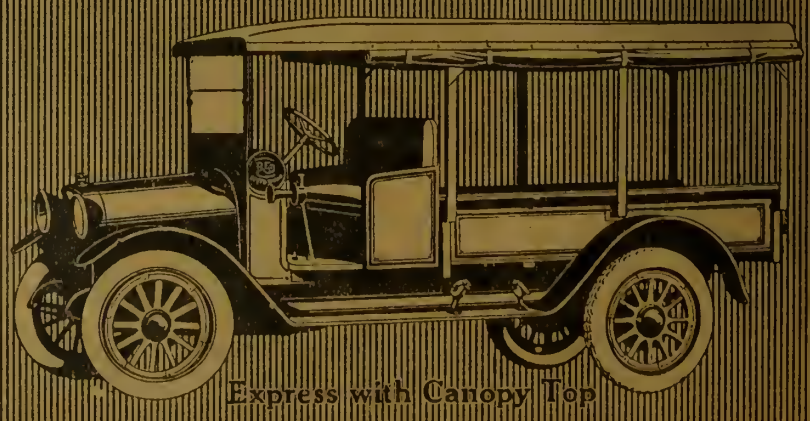

Express with Canopy Top

"THE GOLD STANDARD OF VALUES"

California Cultivator

Vol. LIV, No. 16 | Los Angeles, April 17, 1920 | One Dollar Yearly

Uses of the Newer Grasses

By Ernest Braunton

ALL are familiar with the uses and abuses of the blue grass of lawns, Bermuda grass and Johnson grass, but there are many other good grasses somewhat common and new ones are coming to us for trial from all parts of the world.

Among the hardy grasses somewhat used for many years are the Australian and Italian rye grasses, Lolium perenne and L. Italicum, respectively. Both these make good lawns, especially in shade where Kentucky blue or June grass slowly fades away. They are also excellent pasture grasses, particularly good on damp soils. And this is largely true of meadow fescue, Festuca elatior, and its smaller variety, F. pratensis.

Other good pasture grasses are smilo, Oryzopsis milacea; water grass, Paspalum dilatatum; and Toowoomba Canary, Phalaris bulbosa. The latter, an introduction from Australia, is as yet little known here but so far as tried it promises well as it is resistant to extreme drouth, grows well on sandy desert soil and, like the two others, has a fine anchorage in the soil so stock cannot pull it up when grazing. The paspalum also has a running root system that makes for rapid sprcad. The brome grass, Bromus inermis, is also a favorite, hardy, able to stand much moisture and even submergence by flood waters for several weeks without apparent injury. In Texas another brome, B. unioloides, seems to have surpassed all other annual grasses in spreading over thousands of acres, much improving the natural pastures.

The Newer Grasses

Para grass from Mexico, Panicum-muticum, is rapidly becoming a favorite here as elsewhere in similar climes. In appearance it is much like Johnson grass but with none of the latter's bad qualities. It roots on the surface only and does not make seed in this climate so it is easily gotten rid of and cannot spread by seeding as does the Johnson grass. It forms dense mats that smother out all other grasses and grows throughout the winter when others of its class remain dormant. In California it has grown to seven or more feet high but is usually cut for hay when three to four feet high and if tops are killed down by frosts it has an equal feeding value with the green crop.

It cannot, however, grow where frosts are severe, yet is not killed, merely losing its top. It may be as well to state that Para, Rhodes, Napier and half hardy grasses should not be close cut late, as is so often done down to October. August should be the last month for mowing. Then the tops will grow sufficiently to protect the crowns from cold. Para grass will grow in shade and under shrubs, near to water, will propagate from either stems or root division and has many other merits. If allowed to grow it might fill water ditches but it is easy of control. It may be cut three to five times each season, makes excellent pasturage, and may be planted at any time of the year.

Rhodes grass, Chloris gayana, comes to us from South Africa and will grow under conditions similar to Para grass but is somewhat hardier, standing about ten degrees more of frost. It has become more popular in Florida, Texas and Arizona than in California, yet it has given excellent satisfaction here wherever tried. It will also run out Bermuda grass and weeds of all kinds, and such infested lands, when finally plowed, are free from plant pests.

Teff grass, an eragrostis, is a late comer and not well known in California. From personal investigation the writer has found it pulls up very easily so that stock would soon destroy it as a pasture grass. For a quick growing catch crop for hay it serves a purpose. It is quite tolerant of alkali and catches well from seeds on a variety of soils and under harsh conditions.

Guinea grass, Panicum Jumentorum, is one of the most promising of the newer grasses and has a wide range of possibilities. In South America stockmen have two forms, one lowland, the other highland. The latter is used for general stock range or pasturage and is an extremely resourceful grass. The lowland form is used for dairy feed. It is quite hardy and propagates easily by joints of the stem or through division of the roots, but does not seed well. It is, however, quick growing and of heavy food value.

So much has been written of late about Sudan grass that we will skim lightly over the subject for either much or little should be written of it and it is worthy of a separate article. It first came to us in 1909 from Khartoum, Africa, a hot dry climate that is harsher than any in California except that of the acknowledged desert regions. Sudan bears a striking resemblance to Johnson grass in gross appearance but there the similarity ends, for it has all of the good points of Johnson grass with none of the bad. Botanically it must be classed as a variety of Andropogon Sorghum and not of the Johnson grass, which is A. halepensis. In California its success and popularity is assured. It is not exacting as to soil requirements, being even quite tolerant of alkali. Unlike Johnson grass it is an annual. It endures extreme heat and also thrives with excessive moisture. It grows rankly over a long season.

Now we come to the greatest of all, in size at least, the elephant or Napier grass from tropical Africa, introduced to cultivation by one Colonel Napier. This grass has proven a great success in California and still is growing in popularity. It will endure cold of 18 degrees, Fahrenheit, but probably not a lower temperature. From all sections of California, where warm enough, come favorable or phenomenal reports. Two months after sowing cuttings in furrows it may be grazed or in three months it may be cut for hay or silage and if supplied with water in hot sections may be cut once a month thereafter. If allowed to grow it soon gets ten feet high and may be cut or grazed to the ground and yet responds more strongly than ever. All kinds of stock eat it with avidity and one goat raiser says his animals prefer it to alfalfa, seem to keep in better condition on it and the amount of croppage is several times greater. He says no more alfalfa for him. And it thrives on soils too light and dry for alfalfa.

H. L. Musser of Los Angeles has a private plat near his residence where all the grasses mentioned, and many others, have been and are being tested from year to year. This "grass patch" has been visited by the writer and results herein recorded.

Rations for Baby Chicks

By Jean A. Koethen

THE feeding of baby chicks is a topic that seemed to me to have been gone into quite fully on this page the last three months, but several inquiries that have come in indicate that there is still something to be said. One asks for general information as to raising chicks and another wishes to know "just about how much and in what proportion" animal feed should be given.

To begin at the beginning, chicks are not fed for at least 48 hours after they are hatched. Expert incubator operators leave the chicks in the nursery two full days after the hatch comes off, not two full days after the last chick hatches, but two days after the majority of the chicks are out of the shell. Then the chicks are put in the brooder and kept there nearly another whole day before they are fed. Suppose, for instance, the 21st day of incubation is Saturday. In a normal hatch the chicks will begin to pip the shell Thursday night or Friday morning, and by Saturday morning the hatch is practically out, though there may be a few late chicks still in the shell. The chicks are left in the incubator nursery till Monday morning and then transferred with great care to the brooder. If they are to be shipped as day-old chicks they are now placed in pasteboard shipping boxes and sent to their destination so that many will hardly get their first meal before Tuesday morning, three whole days after the hatch is off. When the chicks are transferred at once to the brooder, however, they are kept quiet and warm until toward evening and then given their first meal just before bedtime.

The First Feed

There are so many different nursery feeds and so many ways of using them that I cannot do better than give a few sample methods. Many persons place a fountain of sour milk or buttermilk before the chicks as soon as they are in the brooder in order that they may become accustomed to it from the very start. The lactic acid tones up the digestive organs and is considered something of a preventive of white diarrhoea and coccidiosis. The chicks will not drink much the first day but they get a little and are ready for their dry rolled oats or steel cut oats or hard boiled egg at supper time.

A variety chick ration which had excellent results at Cornell was as follows:

First to third day: 8 pounds bread crumbs, 2 pounds hard boiled eggs moistened with sweet skim milk. This amount was fed five times a day to 110 chicks, and a grain mixture consisting of 3 pounds wheat, 2 pounds corn and 1 pound hulled oats, with a little bran, was kept before the chicks in a tray.

Third to seventh day: Gradually substituted for the bread and egg was a johnnycake made of 4 pounds corn meal, 1 dozen infertile eggs, 2 pounds sour milk, 5 teaspoons baking soda. This was fed twice daily, the scratch grain was thrown in the litter two or three times daily, and wheat bran was kept before the chicks in a separate trough or hopper.

The egg and bread nursery feed is a standard one, but because it is a good deal of trouble and rather expensive, experiment stations in more recent years have been working toward a simpler ration.

At the university farm at Davis water is put before the chicks as soon as they are in the brooder, and they spend their first day learning to drink and picking at the sand on the floor. The first two days they are given a grain mixture composed of equal parts fine cracked wheat, fine cracked corn and steel cut oats. This is left before them in a wooden chick hopper so that they can pick away at the grains and learn how to eat. When they have learned to eat the grain is scattered on the sand for a day to teach them to scratch. Then a light litter of alfalfa or clover is put over the sand and from this time on all grain is fed in the litter. No mash is given till the sixth day when the following mixture is fed at ten o'clock, but is left before the chicks for only a short time: 2 parts bran, 2 parts shorts, 1 part corn or barley meal, 2 parts beef

(Continued on Page 676.)

Agricultural News Notes of the Pacific Coast

Northern California

Sutter County is making war on squirrels.

Vacaville growers expect an early cherry season.

April 24 is Picnic Day at the university farm at Davis, Yolo County.

Short courses in agriculture at the university farm at Davis will begin June 1.

May first is opening date for a large new cannery at Gridley, Butte County.

Members of the Yolo County farm bureau are planning to form a county wool pool.

Buyers of wine grapes are offering to contract for Yolo County's next season's crop at $50.

Local centers of the Solano County farm bureau have established fire fighting stations.

One concern will ship 2,000 carloads of vegetables out of Sacramento during the coming season.

It is anticipated that the fruit season will open at many of the canneries two weeks earlier than last year.

H. A. Weinland, formerly farm adviser of San Diego County, has taken up the same work in Sonoma County.

The land owners of the Glenn Colusa irrigation district have declined to become a member of the water users' association.

Fifty-three automobiles were required to carry the farm bureau delegates on their trip through the Sacramento Valley.

The seven largest asparagus canneries in the world are located in Sacramento County. The 1920 pack will exceed 750,000 boxes.

A state inspector of dairies reports the best conditions generally prevailing in the dairies of the Durham Colony of any section of similar size.

Apple growers in the district about Soulsbyville, Tuolumne County, are discussing the erection of a fruit dryer and cider and vinegar plant.

The price of asparagus to delta growers will be around six or eight cents per pound, said to be the highest price in the history of the industry.

Apple growers of Tuolumne County met recently at Soulsbyville to try and decide on three or four of the best commercial varieties of apples for future planting.

Irrigators of Alameda County have been circulating a petition for the formation of a district to secure waters for lands not now irrigated.

Farm bureau meetings will be held in Placer County at Penryn, April 12; Bowman, 14; Allen, 16; Applegate, 19; Weimar, 21; Forest Hill, 22; Mt. Vernon, 24; Roseville, 26; Colfax, 28.

Attorney General Webb in the name of the people of California will protest before the United States reclamation service in Washington against any project for draining Lake Tahoe for commercial uses.

Relative importance of agricultural and power interests in the use of Sacramento River water was the subject of discussion at the first meeting of the Sacramento River Watershed Water Conservation and Flood Control Association held recently in Sacramento.

Central California

A big milk products plant has been constructed at Tulare at a cost of $200,000.

The Raisin Day committee at Fresno expects to entertain 150,000 people April 30.

The annual convention of county road engineers was held at Merced March 26.

Wine grape growers are being offered 15 to 18 cents a pound for dried black grapes.

Bakersfield will finance a movement for the building of a cotton gin at Arvin, Kern County.

Planting of broom corn in the Lindsay district, Tulare County, will begin the middle of the month.

The Tulare County citrus sections are rapidly finishing the pack of Valencias. The output is larger than anticipated.

A hog auction under the auspices of the California Farm Bureau Marketing Association was held at Modesto, April 6.

The members of the California Tobacco Growers Association met at Fresno, March 26, to consider marketing their crop.

A dam is to be constructed on the San Joaquin River which will inundate Millerton, the first county seat of Fresno County.

The Monterey County Tax Payers Association has been organized to secure greater efficiency and economy in county administration.

The close of the fourth month of the farm bureau egg laying contest at Santa Cruz shows total number of hens laying 59 per cent.

The San Jose grange has taken formal action protesting against any movement looking towards bringing Chinese labor into the country.

Modesto irrigators are asking for retirement of water directors who are declining to take action in needed improvements of the irrigation district.

Hog growers of Kings County have decided on November 28 as Pork Day. One feature of the day's observance will be the sale of 25 carloads of hogs.

A dehydrating plant is contemplated for Tulare for which 500 acres of sweet potatoes have already been contracted. It will have a capacity of six tons vegetables daily.

County Dairy Inspector Peairs of Tulare County is endeavoring to secure more complete following of standards established by state dairy bureau. Tulare has some exceptionally fine dairies.

The state railroad commission has authorized the San Joaquin Light and Power Corporation to increase its rates for electricity by an average of 11 per cent. The order became effective April 1.

The Central California Berry Growers Association with headquarters at San Jose are taking a decided stand against deceptive berry packs with "nice large berries" on top and "unnice small berries" underneath.

Supervisors of Kern County have passed resolutions protesting against the passage of the Osborne acqueduct bill which provides for the withdrawal of public lands in certain districts, giving preferential rights to the city of Los Angeles.

Southern California

Experts are directing the fight against codling moth of the walnut.

Hemet, Riverside County, reports "Outlook good for crop of apricots. Never more promising."

Practically every farm adviser of the southland accompanied the farm bureau trip through Sacramento Valley.

Santa Paula, Ventura County, has a new citrus packing house with 16,000 square feet and thoroughly up to date equipment.

Los Angeles County Cow Testing Association now has a membership of about 2,500 cows. Some excellent work has been done.

Ventura County cattlemen recently met at Santa Paula and elected W. H. Hoffman president and Gerald Waterhouse secretary.

So far as can be judged this early most fruit sections will have exceptionally large crop and fruit will be much earlier than last year.

The Hemet Walnut Growers Association recently met and received reports of managers. The annual business aggregated about $15,000.

The largest chick hatchery of the Southwest is promised to Riverside. There will be an incubator capacity of 80,000 chicks every 21 days.

By the provisions of the senate agriculture bill now under consideration Los Angeles County will be given $73,580 for tree planting on watersheds.

Citrus shipments have been seriously interfered with by the yard men's strike. Pickers have been stopped and no more deliveries are being made at the packing house.

Riverside County Cow Testing Association has 38 cows testing 40 pounds or better. The two best cows ran above 80 pounds of fat, both belonging to R. E. Babcock.

Southern California regional conference for home demonstration agents was held in Los Angeles last week. Mrs. Eddy, state leader of home demonstration agents, presided.

The California Fruit Growers Exchange estimates that Southern California will ship between 50,000 and 60,000 carloads of oranges and 15,000 and 20,000 carloads of lemons annually within the next few years.

There will be meetings of stock raisers at Ventura April 7, at San Diego April 3, Brawley April 10, preliminary to the semi-annual convention of the California Cattlemen's Association at Los Angeles April 15 to 17.

The Dominguez Ranch, 25,000 acres near Torrance, Los Angeles County, is being cut up into small tracts and rented and sold. The acreage is being put into beans, tomatoes and other crops suitable for that section.

There is much of contention between Arizona irrigators and California irrigators as to weir construction and diversion of the waters of the Colorado. At present Yuma is denying Imperial Vailey's right to construct a weir.

The Imperial irrigation district will call a bond election for voting on an all American Canal to cost approximately $30,000,000 and construction of the first leg of the canal from Laguna Dam to Hanlon heading to cost $9,000,000

The Coast and General

Sherman County, Oregon, is pushing a farm bureau campaign.

Arizona reports by far the greatest demand for pumping plants in its history.

Arizona is planting greatly increased acreage in cotton — exclusively Pima.

Pacific ports are sending great quantities of modern machinery into China.

The University of Arizona is giving out information as to testing wool fabrics.

Washington County, Oregon, farm bureaus are holding a series of poultry schools.

After a month's repair campaign the Salt River Valley irrigation canals are running bank full.

Farmers in New York and other Eastern states are appealing for more dependable farm help.

Linn County, Oregon, is planning construction of six large buildings on its fair grounds at Albany.

The first cargo of products out of Mexico to Germany since the war was carried in an American vessel.

Ranges near Williams, Arizona, are being greatly improved by melting snows releasing much pasturage.

Arizona is shipping 200,000 bales long staple Pima by the way of Port Los Angeles to English cotton mills.

The largest cow testing association in Oregon is that of Coquille Valley. It contains 75 dairymen with 15,000 cows.

Two thousand acres will be planted to Pima cotton on the Colorado River Indian Reservation near Parker, Arizona.

Oregon dairymen are waging war against milk distributers and asking more fair division of the consumer's dollar.

Farmers at Toledo, Oregon, are uniting and purchasing phosphates in car lots. More than 100 farms are being supplied.

Recently elected officers of the Pima County farm bureau, Arizona, include W. Hodgson, president; C. A. Travers secretary.

Cattlemen of Oregon recently met a Le Grande and discussed methods o beef production at present prices o feed and of livestock.

The Navajo Indians of Arizona have coined a new word for automobile. It is "Sinnapaschugy" an means "a wagon that goes with chug."

Arizona stockmen are finding silag excellent and economical in replacin deficient pasturage and especially i it proving satisfactory with rang calves.

Texas grain growers are askin congress for reimbursement becaus of wheat losses aggregating $5,000 000. They are charging the loss t Hoover.

Share holders in the Salt River Va ley Water Users Association propos to assess themselves $1.14 an acre fo extension of canals and another $2 pe acre for drainage system.

Arizona cotton growers are arrang ing for importing Mexican labor fo its 200,000 acres of long staple cotto to be grown this season. It is est mated the state will need 20,000 add tional laborers.

Housing of Ranch Labor

By J. D. Culbertson

AGRICULTURE is the one basic industry of the world. It is the industry that feeds and clothes mankind. So fundamental is it to the welfare of humanity that its efficiency must be kept at a maximum and its costs as low as possible consistent with that efficiency. The one big cost item to be reckoned with is labor.

Supply Declining

That agriculture has been the basic industry of the United States is well sustained by the fact that up to the year 1912 agricultural products constituted over half of our total exports every year, without exception, since the founding of the nation. Seventy years ago 80 per cent of our exports were agricultural, and still above 50 per cent at the outbreak of the European war. A hundred years ago 83 per cent of all individuals eugaged in gainful occupations in the United States were engaged in agriculture, 83 per cent of the sons and daughters of America were being born on the farm and apprenticed to agricultural life. Today scarcely more than 30 per cent of our working population is engaged in agriculture and probably even a smaller percentage of the children raised on the farm. The proportionately greater task devolving on the farmer of today, as compared with the farmer of a hundred years ago, is most evident, while his potential supply of labor is on the rapid decline.

This startling reduction in the percentage of agricultural workers has been offset largely by improved methods in agriculture, particularly by the introduction of labor saving machinery. It is probable also that 100 years ago a goodly number of those listed as engaged in agricultural pursuits were doing, on a small scale, the work now performed by the great meat and food packing industries that are not regarded as strictly agricultural industries. These offsets, however, have not been sufficient to maintain the relative status quo between agricultural production and agricultural labor supply that has generally prevailed until the last few years. This was not fully appreciated until America called on 3,000,000 of her sons for military service abroad and summoned other hundreds of thousands to engage in war industries, while at the same time the annual half million immigrants from Europe failed to come. Nor was that all. Under the stress of war more and more food was needed from America, and the government urged upon the public the use of every additional acre of land that could be brought under cultivation. Every such acre has called for additional labor.

Man Power Per Acre

According to the census of 1900 each agricultural worker in the United States on an average performed annually all of the labor required on 40.5 acres. In the Dakotas the acreage per man was highest, 135, and lowest in the District of Columbia, where each worker handled but four acres. The present average for the nation is probably about the same as 20 years ago. In Southern California the total annual labor of one man is required to properly care for two to three acres of full bearing lemons, pick the fruit and pack it for shipment. Three to four acres of full bearing oranges require about as much labor as two to three acres of lemons. This means a stupendous labor charge—so great, in fact, that during our pessimistic moments we wonder how long the citrous industry can continue to prosper under the burden. Yet the most successful citrus growers have proceeded on the policy that "what is worth doing at all is worth doing well," and their labor charges have been among the heaviest per acre.

Seasonable Demands

The labor problem associated with modern intensive agriculture of any kind is very like the labor problem associated with manufacturing or mining industries. It involves large numbers of employes and a dependable, efficient labor supply. Unlike manufacturing and mining enterprises, however, agriculture is not able to expand or contract its operations more or less at will. Neither is it possible to so regulate the work that a uniform number of employes can be kept busy regularly the year through. Subject to the seasons, the vagaries of the wind, the rain and temperatures, agriculture knows its labor needs only from day to day.

Following the comparison a little farther, agriculture finds itself at a great disadvantage as compared with most industries in that its work is scattered over wide areas, miles in extent, and of necessity far out beyond the reach of the working population of towns and cities. In lines of agriculture which have a very pronounced harvest season in midsummer, requiring a large number of employes but for a few days, such temporary labor usually can be secured quickly from the cities, and the season of the year permits of temporary and inexpensive housing in tents or other improvised shelters. A relatively moderate wage will attract to such work countless city families and many men who enjoy the change of occupation and regard the experience in the light of a summer outing, as well as an opportunity for all members of the family to earn a bit of extra money.

All the Year in Citrus Orchards

The citrus grower has a different problem. His harvest season is almost continuous the year through and his other labor needs fit into the picking cycle to make possible steady, annual employment for much of his help. This involves the question either of housing steady, dependable help on the premises, or of transporting daily whatever miscellaneous supply may be available from the nearest village or town.

On many of the larger properties a dormitory for men with a boarding house in conjunction has met the need fairly well, particularly while the orchards have been young. But today the lure of the city industries and trades makes it almost impossible to hold on the ranch a sufficient force of men without families. This applies not only to our American labor but as well to foreign. It was only 15 years ago that so called single Japanese were available in abundance and cheaply housed in dormitories. Today the few that apply want apartments for themselves and wives. In 1910 it was an easy task to secure detached Mexican men laborers, young and old, even if one had only the plainest of sleeping quarters. At the present time it is next to impossible to persuade any appreciable number of young and unmarried Mexicans to move out of town for work in the country.

Single—Married

Because he could be housed more cheaply, secured with the least complications and, if unsatisfactory or not needed, discharged with only casual reluctance, the single man has always been preferred as a ranch or farm hand. The necessity for holding down costs has been responsible for this, just as it has been responsible for the employment of the cheapest labor available. Now that the supply of single men, both American and foreign, has proven so altogether inadequate, the farmer and fruit grower is giving more and more attention to the family unit as a source of labor. Experience has shown that at prevailing ranch wages, men with families are almost always available if comfortable housing can be supplied them. This is especially true if there is opportunity for the women and older children to obtain work a portion of the time. During the past five years those who have had generous housing facilities for married men have had few labor problems of any kind.

More Dependable

Taken as a class the married man is more dependable than his bachelor brother. He is more willing to do a full measure of work each day, takes better care of his team and implements, and is more disposed to apply the same principles of thrift and industry to his employer's interests that he would apply to his own. On the average he is an older man with more mature judgment and, given an opportunity to live in respectable quarters with good school facilities, steady employment and a wage that will enable him to save something above his living expenses, he is the ideal workman in agriculture.

Joy for Once for Farmer

The excessive rents that prevail just now in our towns and cities are decidedly favorable to the rancher who is in a position to offer an employe a house at a nominal rental or perhaps no rental at all. If free water and a garden patch is added, so much the better.

Throughout the ages the actual tiller of the soil has been caricatured as the clodhopper, the hayseed, the country jake with long hair and long whiskers, big feet and slovenly attire. Though the fruit of his toil has supplied every luxury for others, it has been his lot to eat the plainest of fare, to wear the cheapest of clothes and to occupy the humblest of dwellings. Yet withal he has been the world's very symbol for genuine honesty, hospitality, industry and morality. And half the world has been foolish enough to imagine this tiller of the soil has been perfectly contented, satisfied with his attainments, satisfied with his living conditions. Nothing could be farther from the facts. He has worked his long hours and lived modestly and without conveniences, ever sustained by the hope that he might not always have to live thus. When he was not an owner he saved and dreamed of the day when he would be an owner, and when he became an owner he cherished a vision of that new house with modern conveniences, a more complete education for the children, a safe bank balance and a hired man to do part of his work so that he himself might have more leisure for seeing the world and sharing in its wider problems.

Hoover Says:

In a recent magazine article Herbert Hoover made substantially this very true and significant statement: "All human effort, when reduced to its final analysis, is exerted to improve living conditions." If a man is worth anything at all he will be discontented if he is not steadily improving his condition. His fellow men are disappointed in him if he has no incentive to this end. When he takes employment he does so with this as his objective, and if he is disappointed he is quickly dissatisfied and either seeks other employment or works perfunctorily without interest or loyalty.

Me for the City

If we cannot dispute this reasoning we must admit its soundness. It follows, therefore, that if agriculture cannot offer to those engaged in it substantial evidence that they will better this condition, then agriculture will want for its sustaining workmen. If the farm laborer cannot own or rent a home near where he works he will seek other work where he may rent or buy. If he is offered accommodations that have no conveniences, are poorly built and exposed to the free entry of the weather and the rats, he may possibly accept them, if he is "broke," but only until he can improve his condition by securing something better. Every one of you, fellow citrus growers, would do exactly the same thing, and if you were offered such accommodations three times in succession you would probably resort to the vernacular of the street and say to all the world, "To hell with your ranch work—me for the city."

Some of us think that a house is a house even if it is only a shanty built 50 years ago, but how many of us think an automobile is a real auto unless it is the latest model? If a lot of you citrus growers and walnut growers and bean growers and grain farmers and all other ranch owners would drive that splendid old car an extra year or two, you could build the hired man a real nobby house that he would want never to leave, and, furthermore, you would have something to show for your money. Your neighbors would think more of you and, what is more to the point, the hired man and his whole family would think more of you because they would feel that you think more of them. And above all, you would think more of yourself.

More Homes

If we have vision enough and courage enough to plant our fields to intensive crops we should not forget that only the labor of human hands can crown the undertaking with success. If we are not disposed to subdivide these acres into family units and sell them to those who will build their own homes and will do the needed labor themselves, then we must provide the homes for those we hire to perform this labor. These homes and the prerequisites that go with them, together with the wages paid, must compete favorably with the attractions offered by other industries, principally in the cities. Except where such an equilibrium is generally established the supply of farm labor will be short and constantly diminishing. This may require readjustments of the prices which the public must pay for agricultural products, but the public must be fed as well as keep its factories running.

(Continued on Page 663)

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

MEAT WEEK

This has been Meat Week. Presumably we have been living on liver and oxtails. If so, we have lived well. But in watching the meat corner there hasn't appeared to be any great reduction in the demand for porterhouse and loin cuts.

CONTRACT TREES

Nursery trees will be in more limited supply next year than they have been in the past. The price will he no lower; it may be considerably higher. One thing is sure; the wise planter will anticipate his needs and place orders today, and today does not means tomorrow in the matter of next year's fruit trees. We understand some nurserymen have already reached the stage of making their promises for next season's delivery with certain limitations.

WATER RUNS DOWN HILL

In speaking of reclamation of the West William J. Bryan gave warning to those who would use any development along this line made by the will of all the people for purposes of private profiteering. "I warn you not to take this great power out of the hands of the people or deprive the people of the blessings which will come through the cooperative spirit in the wonderful development of the West. There is one lesson the American promoter must learn: 'Water will run down hill.' And equally as sure will hlight come if these great projects are used in exploiting the people."

Fortunately we are learning the lessons of cooperation.

REPORT THE CROPS

How are the apricots, almonds, apples, herries, peaches, pears, prunes promising as to the coming crop? It's the time of the year when the shipper, the canner, the dryer and the grower are all asking the same question. It is too early to give definite answer, but approximations may be made with most of these crops, so we are asking our subscribers to look over the trees in their own neighborhoods and send us the best estimate which can be made at this time. Will it be a half, three-fourths or full crop? We have seen apricot orchards loaded; we have seen others with a lesser crop. In the Santa Clara Valley rains came at blooming time. "Not a third of a crop" is one man's guess. Ventura County promises better. Southern San Bernardino County and northern Riverside County were caught by frosts. "Crop greatly reduced."

But we will await letters from our subscribers some of which we hope will come in time for next issue.

STANDARDIZING

Director Hecke of the state department of agriculture has given out the information that a great step forward has been taken in standardization. It is in effect a great cooperative movement between the county, the state and the federal officials. Until state legislation permits more effective methods, this will result in fairly close cooperative effort. Heretofore there has been too much independent work on the part of county officials, again, on the part of state officials, and sometimes, federal officers, all working on the same problem. Now there will be cooperation, even in local matters. This cooperation is not only along the lines of work but in compensation. Conditions in the federal department and the state law unite in securing underpaid officials, which has resulted in continual loss of effective helpers. Through more recent arrangements combined compensation will secure more efficient service.

The best feature of this combination will be in giving assurance to Eastern trade of thoroughly dependable stock leaving this state. As noted in another column, F. W. Read, formerly in charge of the bureau of markets work in Los Angeles, will be transferred to state work and take charge of state standardization. He will not, however, be in active control at Sacramento until May 24.

PLANT FIGS

Figs are in the dumps. Last year many sales were made at 15 and some even at 20 cents. The offer for the 1920 crop is around five cents. It is claimed that there are 2,500 tons of the 1919 crop yet unsold. This is nearly one-third of the crop of the San Joaquin Valley. Because of this situation we have a suggestion for the orchardist. This suggestion is: "Plant figs."

Californians often follow the practice of planting trees or crops, which require years to come into bearing, on the impulse of a moment. Today while prices are high everybody plants; tomorrow's discouraging conditions induce even the uprooting of those which were planted, and so we bat the shuttle back and forth.

California grown figs are staples. We have lessons yet to learn in curing and marketing. Western Asia still can teach us how to cure these figs, and Americans are bright enough to learn. Let us grow more of the best.

Years ago George Roeding wrote an article for the columns of the California Cultivator. It had to do with the planting of peaches. Mr. Roeding recommended planting more of the best varieties. In the same breath he admitted that the most fortunate of dried peach producers had been selling around two cents per pound. He appealed for greater care in pruning, producing a finer output, great increase in the amount of peeled peaches, for peaches are a staple which the world will continue to demand. Those two cent peaches became 20 cent peaches last year.

Now will not this story be repeated by our fig growers?

In any case, to repeat a homely illustration, "Let us use that thing on top of our shoulders for something besides a hat rack."

INFLUENCING LEGISLATION

Now comes the national chamber of commerce with a resolution "that it is necessary for the business interests to have a home in the seat of national government." As a reason: "The tremendous influence which organized labor has exerted in national legislation is largely attributable to the fact that the American Federation of Labor has a large building in Washington in which all of its various memberships and activities are housed and centered."

In addition the farmers of the land are erecting a great building in Washington "to influence legislation." Why not commerce? The commercial building is to cost $3,000,000. It should be quite influential.

Perhaps it is not strictly a parliamentary suggestion, but, for what it is worth, here it is. Why not secure our legislation directly through these large interests which build large and imposing buildings at our legislative headquarters? Why is a congress? Apparently not to look into the needs of the country and then meet those needs with sane legislation, for according to the confession of these large interests it is necessary to use certain influences to secure that which should belong to all the people. We, the common people, are a peculiar set and we will continue to take a lot from our friend the legislator.

CARELESS HABITS

We note in an Eastern publication:

"He stated that an investigation of the California statistics resulted in the discovery of a great many fires due to using lighted incandescent lamps upon extension cords for bed warming purposes. The practice seemed to be confined chiefly to that state."

This may he intended as a slam on California climate, but we will have to admit that this practice is sometimes followed. A few homes burned will perhaps aid in correcting such habits, though it must be confessed we will continue to he more or less careless in regard to fires. The farmer whose buildings were constructed half a dozen years ago and who has had no experience in buying lumber and plumbing within recent months has no idea of building costs, hut if he will accept a hint from the Cultivator he will make every possible provision against the day of replacement of fire losses. Besides the buildings there are the fields and the forests. It has not been a very wet season; let's all he careful.

Let's be awfully careful.

PHYSICAL EDUCATION

Senator Arthur Capper is pushing for a bill "To provide for the promotion of physical education in the United States through cooperation of states, etc." In a personal letter Senator Capper writes:

"The propriety of this legislation has heen suggested to me by the draft statistics showing more than one-third of our young men disqualified from full military service and by the reports of investigations showing a large percentage of our school children suffering from remediable physical defects.

"I am opposed to compulsory military training but helieve that universal physical education in the schools will give the youth of the country most of the practical benefits argued for military training without the insidious undesirahle effects of compulsory military training; furthermore, physical education in the schools will benefit the girls of our country.

"I believe that legislation of this sort, while providing federal assistance and stimulus, should fully safeguard state autonomy in the administration of education and health matters."

We believe there is need of encouragement of physical education The number of young men who failed to pass the physical examination was appalling. There should be encouragement of this movement to bring the standard up, this not so much as a military as a peace measure, hut—and we are sure the but should hegin with a capital—so long as the bill calls for "an appropriation of $10,000,000 for the first year, and for each subsequent year an amount sufficient to allot one dollar per child of school age to each state which shall have accepted the provisions of the act," it appeals to us that in these times of Hi Cost, Hi Taxes, and, worse, of depreciating Liberty Bonds, that Washington should give every encouragement to the economy it is recommending. The country seems going wild in the matter of expenditures, and the cue is being given to the rest of us every day by officialdom in Washington. It is reported that there are thousands of unnecessary clerks and attaches in every department, and certain it is that while Washington is recommending most severe economies in the matter of print paper, it is sending out literally thousands of tons of paper in the form of propaganda, and unfortunately at times purely political propaganda, until we, the common people, are compelled to ask, "Where is the end?"

Perhaps Senator Capper may raise the point that the suggestions we are making have no connection with his bill, and doubtless it is intended to be of material benefit to the mass of the people. Still the question will persist, "Where is the end?"

CAN'T BE BORROWED

Speaking of federal farm loans there is one kind of capital which land banks can't supply, that is intellectual capital, the biggost factor in money making on the American farm

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"THE use of Goodyear Cord Tires on our trucks enables us to load fruit at the trees and deliver direct to the packing house without resorting to slow team hauling at all. The heavy sand in the groves makes it an utter impossibility to use solid tires in this work unless loads are transferred from teams to trucks at the road, a wasteful method."— W. F. Belcher, Packing House Manager, John S. Taylor Company, Citrus Fruit Packers, Largo, Florida

THE all-round ability of Goodyear Cord Tires on trucks, as evidenced in many cases like this, reduces much farm work connected with hauling, as well as the actual time, labor and cost of the hauling itself.

A truck on the tractive Goodyear Cord Tires easily penetrates the plowed, miry and sandy interiors of farms, whereas a truck on solid tires, handicapped by lack of traction, must have crop loads brought to it at the roadside.

Where men's shoulders must help budge sticking wagon wheels and horses are injured by hard pulling, the gripping Goodyear Cord Tires roll through easily, quickly and quite smoothly.

They are here, there and everywhere, keeping up with pickers and threshers, supplying grinders and cutters, doing chores between hauls and going to town and back with a saving of time that is intensely valuable.

All their advantages, curtailing manual work and assisting motor work on the farm, are combined with an extraordinary toughness by Goodyear Cord construction, a result of that thought and care which protect our good name.

The farm records of many sets of Goodyear Cord Tires, detailing savings effected and mileages ranging from 12,000 to past 35,000, can be obtained by writing The Goodyear Tire & Rubber Company, Akron, Ohio.

GOODYEAR
CORD TIRES

Dried, Evaporated or Dehydrated?

By Arthur W. Christie

THE removal of moisture by drying in the sun has been used as a method of preservation for fruits and vegetables since Biblical times. We are now witnessing the phenomenal growth of a new industry which bids fair to disturb and possibly to overshadow the earlier methods. This industry proposes to dry our fruits and vegetables by artificial means and not to depend on "Old Sol," who sometimes forsakes his disciples. A large number of drying machines of varying construction have already appeared on the market, and frequent additions to the family are reported. A variety of terms has been used in naming these machines as well as their products. The most common terms are "dryer," "evaporator," and "dehydrator." Since there are no well defined distinctions between these various terms the use of a number of different terms meaning essentially the same thing is confusing.

This confusion was most noticeable at the recent convention on evaporation of fruits held in San Jose, February 7, 1920, under the auspices of the agricultural extension division of the University of California. Several of the speakers used the terms "dried," "evaporated," and "dehydrated" indiscriminately, it being often impossible to ascertain the speaker's real meaning. In order to clarify the terminology used in fruit drying a committee on nomenclature was appointed by the chairman of the convention, Professor W. T. Clarke. The committee included in its membership a representative of the agricultural experiment station, the United States department of agriculture, and several men closely in touch with the commercial aspects of the situation. The membership of the committee was as follows: Chairman, A. W. Christie, University of California; P. F. Nichols, E. M. Sheehan, S. C. Simons, H. C. Rowley.

After thoroughly investigating the nomenclature of dried fruits and vegetables as well as the various devices for their production, this committee makes the following recommendations:

The same drying nomenclature shall be applied to fruits and vegetables.

The term "dried" is applied to all fruits and vegetables preserved by removal of moisture, irrespective of the method of removal.

There are but two general classes of dried fruits or vegetables, namely, those dried principally by solar heat and those dried principally by artificial heat.

The class dried principally by solar heat shall be designated "sun-dried," by which is meant the removal of moisture by solar heat without control of temperature, humidity or air flow.

The class dried principally by artificial heat shall be designated either "evaporated" or "dehydrated." The committee finds at this time no sufficient reasons for distinguishing between "evaporated" and "dehydrated." These two terms are synonymous and may be used interchangeably.

The above recommendations were first submitted to the college of agriculture of the University of California. Dr. H. J. Webber makes the following statement:

"The nomenclature proposed by the committee has also been adopted by a committee of the college of agriculture of the University of California for use in their publications on dried fruits and vegetables."

The nomenclature committee recommends that the above definitions be adopted by all concerned. The committee feels that this would largely eliminate the existing confusion.

COOPERATIVE CANNING PAYS

The best proof of the success of a business is the results obtained. The efficiency of a manufacturing plant is determined most surely by the record of its operations.

What would be your opinion if you were told that a cannery packed upwards of 12,000 tons of fruit and vegetables in one season, a total of over 300,000 cases, containing nearly 7,000,000 cans; that the customers of the cannery have repeatedly expressed their satisfaction with the quality and grade of the products; that the producers of the fruit and vegetables would receive for their fruit practically $150,000 more than they would have been paid by other canneries; that additional profits had been made which have been used in the creating of permanent capital investment? A fair answer would be that it is a remarkable record. In the light of the conditions which surround the operations of the particular cannery which accomplished these results these facts become little short of phenomenal.

The California Cooperative Canneries broke ground for the big plant at San Jose on April 4, 1919. On June 12, with construction work going on at full blast, the canning of cherries was begun. This was done at the urgent insistence of a few growers who had suddenly discovered that the market for their fruit had dropped out from under them. Under the most unfavorable of conditions 116 tons of cherries were handled and the growers were paid 8 cents for the fruit upon delivery. When the season is closed they will be paid additional amounts which will bring the average for all grades of fruit to a little better than 12 cents, or twice what commercial canneries were offering when the announcement was made that the Cooperative Cannery would handle cherries.

With construction work in progress and continuing almost to the close of the fruit season, the canning of apricots was started on July 7, 1,637 tons of 'cots were put through the cannery, a flat price of $50 was paid upon delivery, and the average return to the growers for all grades will be approximately $115 per net ton. Some growers will receive as high an average as $135, the price varying according to the quality of the fruit delivered. These figures bear favorable comparison with the prices paid in other sections of the state, ranging from $... to $75 per ton, and even compare favorably with the prices paid in the Santa Clara Valley itself where the leading canning interests paid as high as $100 per ton, and some of the smaller concerns had to go even higher to secure their fruit. Would it be out of place to suggest that possibly the reason the prices in the Santa Clara Valley were $25 or more higher than other sections of the state had anything to do with the operations of the California Cooperative Canneries.

When it came to peaches the Cooperative Canneries handled about 50... tons of local fruit on a cooperative basis for which an average of over $100 per ton will be realized, but the local canneries were competing so strongly for fruit and paying such high prices for cling peaches that in order to operate the big new cannery at its capacity it was necessary to go down into the San Joaquin Valley and purchase enough peaches. The big Visalia pool was still unsold. It amounted to about 7,000 tons and the best prices that had been offered up to that time were from $75 to $80 per ton and those only for small portions of the pool. The big interests did not even bid although they had several plants close at hand to handle the fruit. Possibly they thought that they could buy these peaches to better advantage if the growers were forced to deal with them as individuals instead of through their association. At any rate the representative of the Cooperative Cannery appeared on the scene and offered to buy the whole pool at a price of $92.50 per ton for the clings, and $55 for the freestone. The growers accepted this proposition and thereby saved for themselves at least $15 per ton (some of the growers say even more than that).

The California Cooperative Canneries had taken a big job on its hands and predictions were freely made from the side lines that they would not get their money, etc., etc. Well they did get boxes enough (some growers even say that it is the first time

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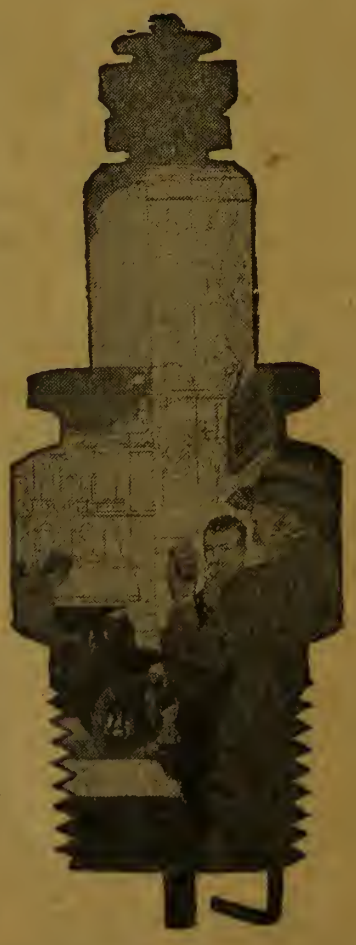

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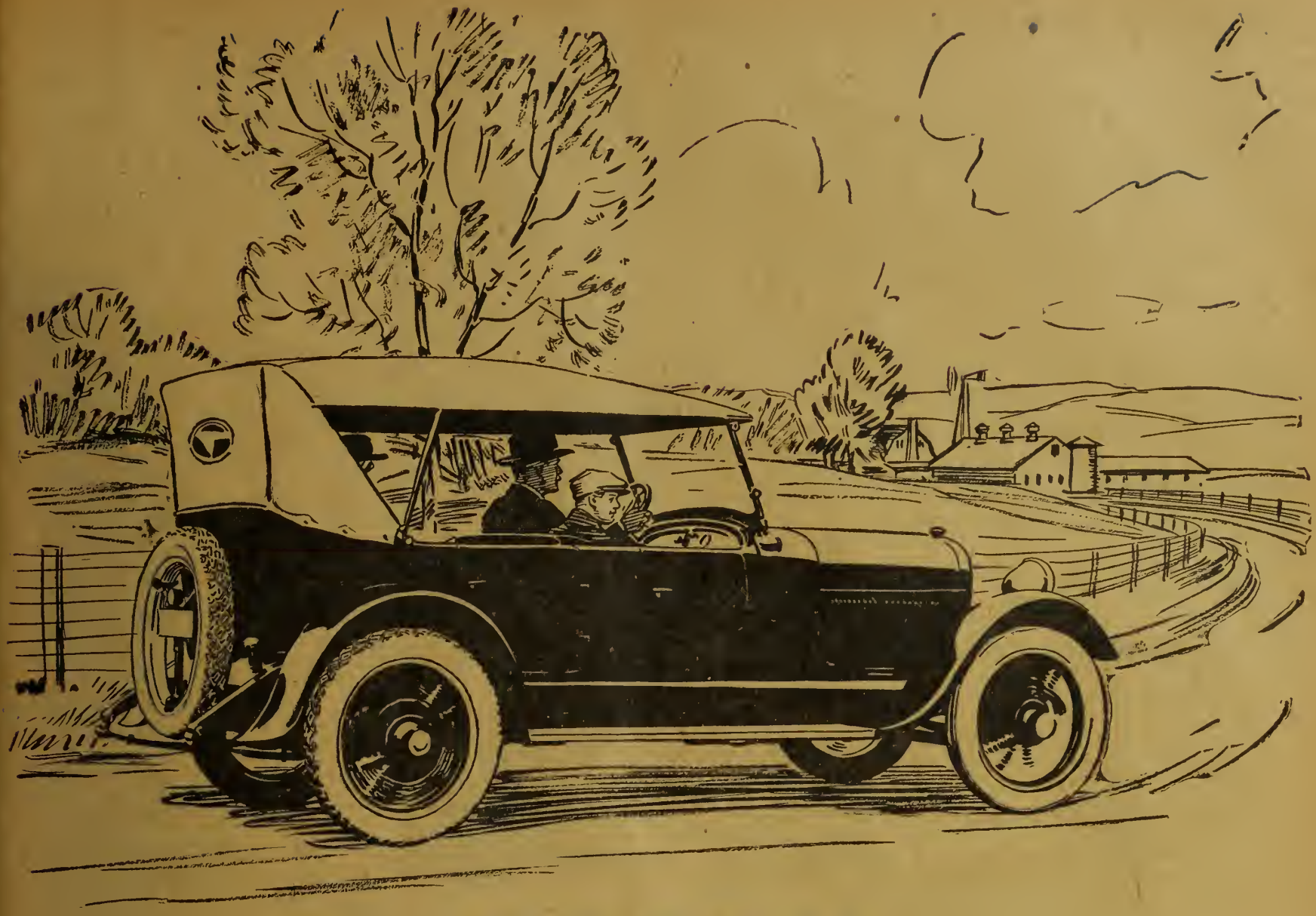

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The Most Beautiful Car in America

The True Meaning of Economy

Webster defines Economy as the "wise, careful administration of our affairs". Please note that word, *wise*. Also note that there is no reference to cheapness or frugality.

In this definition you will find the proof that Webster was not merely a master of the English language, but a philosopher as well.

The cheap expenditures are never the wise ones. The near-wool clothing, the "marked down" shoes and the cut price harvesting machinery cost less to be sure—*in the beginning*.

But cheap clothing shrinks to boy's size in the first spring shower. The cheap shoes wear out after a few months of service and the cheap harvesting machinery fails you at the critical moments. So—in the long run—your cheap purchases become shockingly expensive.

And so it is with a motor car.

There are many cars that sell for less money than the Paige. We could readily build them ourselves if we considered that policy the best one. But we don't.

We firmly believe that Self-Respect, Comfort and Enduring Satisfaction have an actual market value. So we build those things into our product.

We take just a little more time—just a little more care in selecting materials—just a little more pride in our work. And the result is a *real* motor car—not a makeshift or compromise.

Unless we are greatly mistaken the new "Glenbrook" five-passenger model is just the kind of car that you want. It is built to *endure* and it is worth every penny of its price.

If you are truly Economical—truly wise and careful—it will be the car of your choice.

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they have had enough boxes); they did get the cars there; they shipped the bulk of the fruit nearly 300 miles, canned it, sold it, and the growers have received all of their money. It took nearly 300 refrigerator cars to handle this fruit, it took 130,000 new picking boxes, and they all had to be shipped from the mills and made up within less than two months; it took a big force of field men, car loaders, receivers, hox makers, etc., not one of whom had been in the employ of the concern before the fruit was purchased. But the job was done, the growers received their hig prices, upwards of $40,000 was paid the railroads and for handling the fruit, and still the canneries made a profit of over $60,000.

It is not surprising that the Visalia growers have been doing some figuring and have discovered that they could have built a cannery, kept their fruit at home and paid for the cannery and more besides out of the profits they would have realized. They are proceeding to do this very thing before another season rolls around.

Sulphur and Crop Yield

By R. A. Ward

THE alfalfa lands of this country have also responded quickly to the use of gypsum as a fertilizer. The gypsum, however, was rapidly exhausted and had to be applied at least once every year. Experiments conducted by the Oregon experiment station, and particularly by Mr. Reimer of the hranch experiment station at Talent, Oregon, showed that a large proportion of the benefit derived from the gypsum was due to the 18 pounds of sulphur which it contained and not to the 82 pounds of lime. Mr. Reimer also secured some wonderful results in the Medford country by the use of pure flour of sulphur on alfalfa Following this lead, the office of county agricultural agent experimented with a few sulphur demonstrations in Des Chutes Valley two years ago. The results were so gratifying that the demonstrations were enlarged, during the past season, to take in ahout 15 representative farms.

The soil of Des Chutes Valley contains about six per cent lime, while it is our understanding that the average lime content for the earth's crust is about two and one-half per cent. This being the case, it was poor business on our part to apply gypsum, when the benefits we were deriving were undoubtedly due to the sulphur which it contained. The sulphur in the gypsum being in the sulphate form, was rapidly consumed and exhausted by the plant. In applying the pure flour of sulphur, this form is broken down gradually into the sulphate form and the process may take two or three years. During this time the beneficial results of the sulphur continue.

Our first applications of sulphur were at the rate of 200 pounds per acre. When applied very early in the season, that is, before the first growth of alfalfa started, the crop increase on each cutting was remarkable. In some cases this amounted to an increase of 100 to 150 per cent on each of the two alfalfa cuttings, not only during the first year it was applied, but also in the second and third years after application. Professor W. L. Powers of the Oregon experiment station reports the beneficial effects carrying well over into the fourth year in Klamath County. This was a great point in favor of the sulphur. If we could apply it only once in three years the cost of lahor and materials would, of course, be greatly reduced.

The sulphur requirements of alfalfa are much heavier than has been commonly supposed. It is generally recognized today that the amount of sulphur in plant materials, as determined in the ash, is in most cases entirely too low. Analyses by the Osborne method show that the alfalfas and plants of the cabbage family are fairly heavy sulphur consumers. It is held by some investigators that sulphur may be what is known as a limiting factor in plant food supply. That is, there may be sufficient nitrogen, phosphate and potash in the soil to produce a yield of alfalfa of five tons to the acre, but there may be such a great deficiency in sulphur that this five ton yield can never be obtained until this sulphur deficiency is supplied. Our demonstrations seem to hear this out. We have several trials where the yield per acre has been brought up to five tons on land which formerly never exceeded two to three tons per acre per year.

In cooperation with the Oregon experiment station we have conducted trials with the sulphur in comparison with gypsum, nitrate of soda and superphosphates, and in every instance the sulphur treated areas have yielded the greater amount of hay. One trial was conducted in comparison with gypsum applied during the current year against sulphur applied in 1917. The sulphur plot outyielded the gypsum plot by 1,000 pounds to the acre.

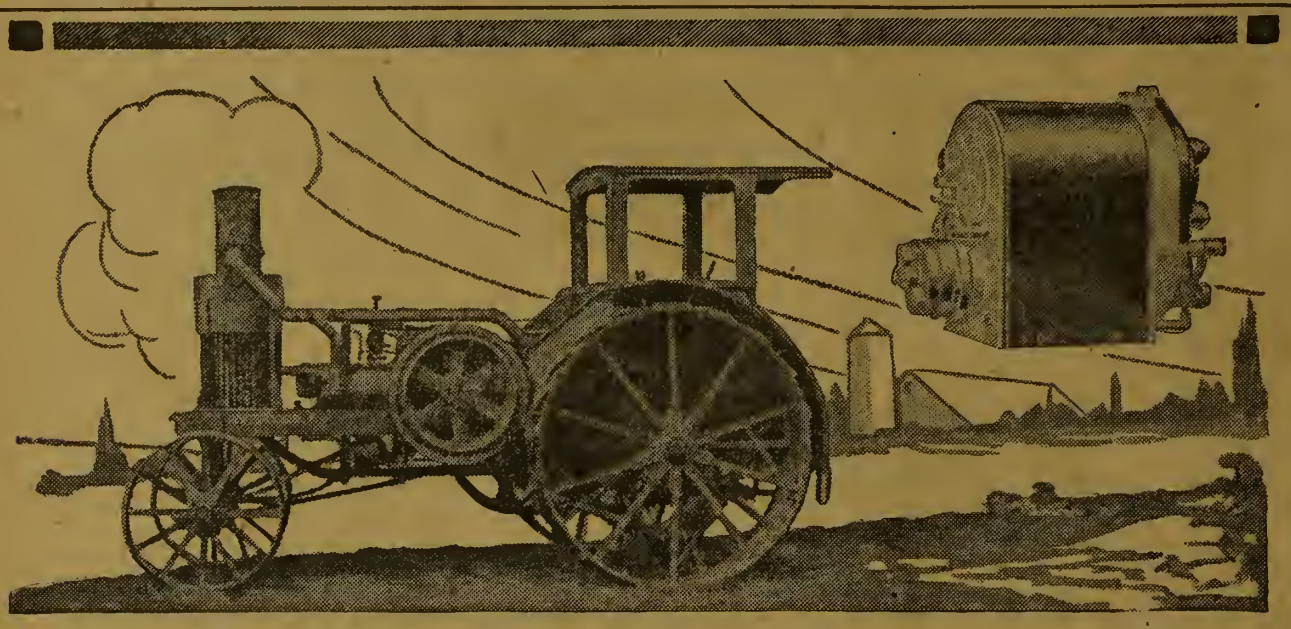
Seven conclusive experiments completed to date have shown an increase in the yield of hay from the use of sulphur as a fertilizer, ranging from 90 to 150 per cent. Farmers were urged to visit the plots and see the results themselves, or else assist in weighing the experimental yields. The results of the demonstrations were so conclusive that it was decided to make a direct application of them to the entire alfalfa crop of Des Chutes Valley. Accordingly, the Sulphur Alfalfa Club was organized. Members of this club agreed to take at least 500 pounds of sulphur, and as much more as they wished, and use it on their alfalfa fields during the coming year. They also agreed to report to the county agent the results they obtained by comparing, whenever possible, the yield on five acres of sulphur treated alfalfa land with the yield on five untreated acres. Membership blanks were prepared and arrangements completed for securing a community shipment.

The first community shipment brought in amounted to about 180,000 pounds and was secured at a direct saving to the farmers of ahout $2.000 by purchasing in large lots direct from the producers. This shipment did not suffice to meet the needs of all of the alfalfa growers so that at present another shipment of 80.000 pounds is being made up. The total shipments will treat about 3.000 acres of alfalfa, and from the conclusive experiments which have been conducted during the past two years. will result in an increased hay yield in Des Chutes Valley of at least 3.000 tons. This is a very conservative estimate, as actual trials sbow that the increase in many instances will be more than one ton to the acre per annum. At present hay prices of $20 per ton for alfalfa in the stack, this will mean $60,000 worth of new crop in Central Oregon next·year.—Better Fruit.

ORANGE PROBLEMS

By John E. Wilbur

"BUD Selection—Stock Selection—Efficiency," hy C. B Messenger, in your issue of March 20, 1920, has been read with a great deal of interest by me, as I lived in Florida and helped pack one of the first cars of trees that was shipped to California. I lived at South Lake Weir then and the Gillett Brothers were the shippers. The Gilletts only had a small nursery that year of about 35.000 trees and they were budded with such trees as the demand called for in Florida. Among them was your famous and now much sought after Valencia, known to us as the Hart Late of Federal Point, Florida. I met in Florida several years ago a man from California who told me he hought one of these Hart Late trees from the nurseryman who bought them here. When this tree began to hear it ripened in August and a hrother of his budded enough trees from this tree to plant five acres. When the grove came into bearing the fruit was shipped to New York. It came in at the same time as the Valencias from Spain and as the shape and size of the California orange was nearly like the fruit from Spain, they dubhed it Valencia, and this name stuck to it. Now all the Hart Late oranges from Florida use the same name.



READ this leaf from the tractor experience of Frank Gerry, St. Charles, Minnesota, who bought the first Avery Tractor back in 1911.

There are thousands of tractor owners like Mr. Gerry who would be just as surprised and enthusiastic if they once tried a K-W Magneto—because it is specially designed for tractor service.

The first tractor manufacturers had much to contend with. The Avery Co. early appreciated a magneto specially built for tractor work—became one of our first customers and have used K-W Magnetos continuously.

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"My first tractor was equipped with an ..... Magneto when I got it and it did such unsatisfactory work that the company replaced it with a ....., which did very well, but was of such delicate construction that it failed to stand up to the rough usage a Magneto gets in tractor service and was replaced with a .....

These outfits did what I supposed was good work until I bought a small tractor for field work equipped with a K-W High Tension Magneto, and after operating it a few days, I got a K-W Model TK Magneto and put it on my Avery rig, and in all the time I ran it, it never failed me once starting or in running under any weather conditions.

"The 25-50 Avery I now have came equipped with a K-W Model HK and gives the very best service."

TRADE K-W MARK Magneto

Fires Any Fuel—Gets Maximum Power Out of Every Drop

Sulphur

It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards 6 times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of Sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100% pure, in double sacks, for Dry Dusting and making Paste Sulphurs.

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food and prevent smut in grain, drill into the soil 110 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR, 100% pure. This has increased various crops up to 500%. Send for Circulars No. 6 and 7.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dusting Sulphur Mixtures, etc.

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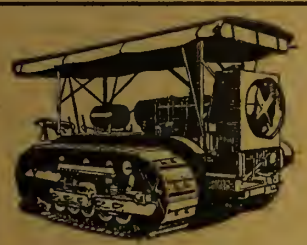

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About 20 years ago M. E. Gillett started the Buckeye Nurseries at Winter Haven. He sent to the Teague Nursery at San Dimas for 1,000 Valencia buds and got 153 trees in his grove to live from these buds. He also budded in this grove about 500 trees of the Hart Late. When they came into bearing you could detect little if any difference in the fruit, only that about six trees of the California Valencias were nearly seedless and rather less thornless. From these trees he has selected bud wood from year to year until he has trees in a 1,000 grove under his care that are almost entirely seedless. From these trees he is budding his trees now that he sells as Valencias. They are also very full bearers.

The method used by the Buckeye Nurseries to obtain plenty of budwood where buds from the bearing trees are scarce is to bud, say 2,000 trees in the nursery rows with the varieties wanted, then when they sell the trees they cut off all the wood that will do as budwood and pack it away in sawdust until needed to bud with in the spring. They generally keep these 1,000 trees in the nursery until they are two years old. The reason they use this method is that they cannot get the right kind of budwood in the spring, as the trees are all started. In the fall they are full of fruit but enough can be obtained to bud the nursery trees. This gives a very vigorous eye bud and one that makes a very good growing tree, and if anyone would follow up the bearing of these trees they would find them good strong bearers.

The sweet seedling in Florida has always been a shy bearer one year and a good one the next. The sour orange root or the rough lemon root make much the best regular bearers, and if enough fertilizer is used each year to make a good wood growth as well as to mature the crop, then you will get fruit every year.

Deep plowing in an orange grove in Florida has cut short more crops than bad budwood ever did. It also produces there dieback and Frenching, also gum disease. The agricultural department sent out two experts some years ago to travel all over the state to find the cause that produced these diseases. Before they started I told one of them that the trouble was caused by three things—water, too much strong fertilizer applied close to the roots, cutting off the roots with a plow. Six months later I saw the expert and he told me that they found it just as I said.

Dr. Ross, president of the Citrus Exchange, and who has a fine 80 acre grapefruit and orange grove at Winter Haven, said in my presence a few years ago that he had discovered that plowing his grove late in the fall and cutting off more or less roots injured his crop of pineapple oranges so that they began to dry up a month before they should, and he doesn't use a plow any more in his grove.

MORE PEARS

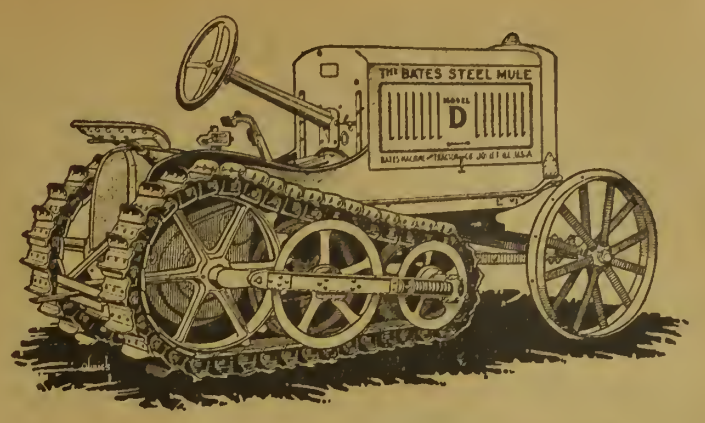
We recently gave figures as to pear production, quoting from Vol. V, No. 3, of the Monthly Bulletin of the state commission of horticulture. These were observed by C. F. Kinman, pomologist of the U. S. department of agriculture, and he writes:

As pear growing, like all other branches of fruit industry, has made great progress in recent years, it seems to me that it would be well, by way of correction, to present the figures given on the acreage in pears by Volume VIII, No. 4, of the Monthly Bulletin of the state commission of horticulture. This gives the figures for 1918 and credits Los Angeles County with 834 acres of bearing pears instead of 311; Sacramento County with 3,500 instead of 3,000; while Lake has 700, Placer 2,150, Santa Clara 2,100, Solano 1,500, Sonoma 959, Contra Costa 900, El Dorado 1,000, and Yolo 975.

DADANT'S CATALOGUE

The Dadant Bee Supply House has issued its 1920 catalogue of practically everything needed by the beekeeper. In addition to the supplies listed and illustrated there are points for beginners and hints of value.

Sonoma County grape growers are perfecting organizations and making plans for the selling of the coming grape crop.



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THE Bates Steel Mule does its work fast in all soils and under all conditions, but on seed bed work it is supreme.

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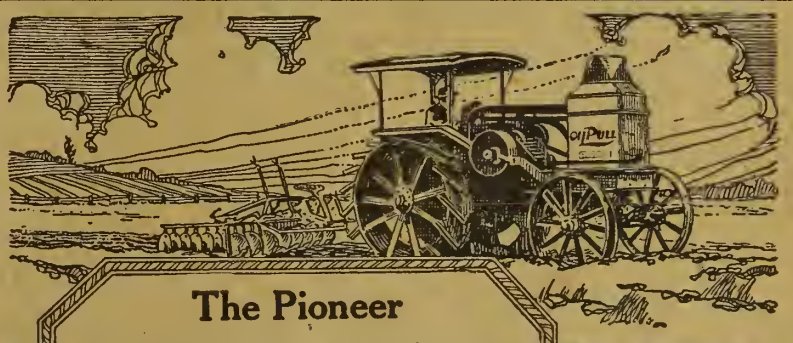

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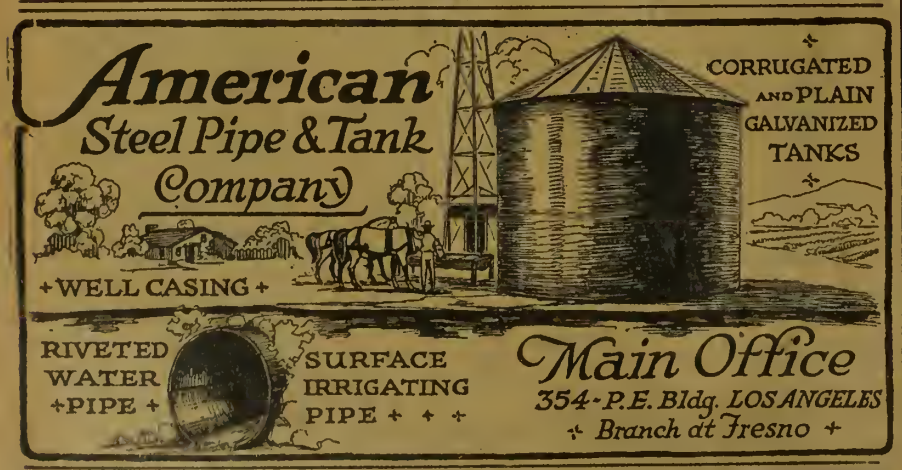
City ..... State .....



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Protect the Beans

ONE of California's most important industries, bean growing, is being menaced by the constantly increasing importation of Oriental beans. Should they continue to arrive in the same volume as during the past three years, and no relief is given by congress in the way of an adequate tariff, it may mean the practical annihilation of one of the largest and most important agricultural industries in California. The situation is becoming very acute, and, according to those who have made a study of the question, unless a tariff of at least four cents a pound is passed, we will see the passing of an industry which will mean the loss of millions of dollars annually, in addition to the abandonment of thousands of acres of land to less productive and less valuable crops.

The organized bean growers of California have presented to congress an application for a tariff upon foreign grown beans of four cents a pound. At the present time it is 25 cents a bushel. The committee, which went to Washington last October, offered in support of its request the following facts:

During the past four years the cost of production of beans has more than doubled, and in California is in excess of 6½ cents a pound, while in the Orient the average cost does not exceed 2 cents a pound. The average normal production of beans in the United States is approximately 10,000,000 bushels, while that of the Orient is about 200,000,000 bushels. The field laborer of Asia receives less than 40 cents a day, against $4 a day in this country.

It is stated that the Orient produces a close imitation of nearly every variety of bean grown in this country, the Kotenashi bean being identical with the Small White, which constitutes 42 per cent of this country's production. The Kotenashi bean was sold in San Francisco in 1919 as low as 3½ cents a pound, or about one-half the cost of production of beans in the United States, and is now quoted in every market at from one-fourth to one-half cent a pound below our domestic product.

During 1919 more than 2,000,000 bags of beans were imported from the Orient, and the receipts between July, 1918, and July, 1919, were 20,000,000 pounds a month. The Orient has productive resources sufficient to supply every demand of the American bean market. As a result of this competition with cheap Oriental beans a large proportion of the 1918 crop of this state has found no market, even at prices below the cost of production. This has worked a financial hardship on thousands of growers in this and other states, in some instances bringing about bankruptcy.

Beans are the only important food product which have no ready market and must be carried throughout the season until the consumer is ready for them, and also the only important food product which has been sold at prices materially lower than that of the previous two years, and the only one that has been sold below the cost of production.

There are many reasons why California, as well as other bean producing states, should have this protection. California has grown nearly one-half of the beans produced in the United States; the crop has been second in value to only one other agricultural product in the state and has brought to the state as high as $50,000,000 of new wealth in one year. In many of our counties it is the most important crop and thousands of acres of the richest lands are unsuited to other crops. The bean is the greatest aid in adding fertility to the soil and improves the land for other uses.

There is no question but that the loss of the bean industry through the importation of these from the Orient would cause great loss and harm to banks, merchants and business men generally and its effect would be felt in every channel of trade. The industry can be saved only through a protective tariff sufficient to cover the difference of the cost of production in America and Asia. Those who are interested in the general welfare of the state and its industries should use every means to acquaint their representatives in Washington of the importance of the subject and bring every effort to bear in demanding the passage of an adequate tariff.

It Once was Called "Desert"

The Imperial Valley has about 400,000 acres that will qualify as alfalfa lands, for the grower of lettuce, cantaloupes, onions, or asparagus stipulates that the land must first be used in growing alfalfa. After this period of demonstration it is ready to grow anything, even to savings bank accounts. The same is true of the Coachella Valley. And both are looking to greatly increase the irrigable acreage in the near future. When present plans are carried to fruition Imperial Valley will place the numeral "1" before the figure given and it will read "1,400,000 acres."

R. G. Risser, manager of the crop production department of the California Vegetable Union, was down there last week and states that in spite of the unfavorable weather, both east and west, during the shipping, the lettuce acreage will probably be as great next season as during the past one. But as the planting is done mostly in October it is yet too early to safely predict the acreage. The shipping season is nearing its close. On the day of writing the valley shipped 12 cars; Los Angeles, 29 cars. If there was Eastern market for its lettuce it could be shipped from coastal counties every week in the year.

The Country's Crop

During the past season about 6,000 cars of lettuce were shipped in the United States. Of these about 2,600 were sent from Florida and a like number from Imperial Valley. This was an increase in Florida's production, as against the previous season, of 1,000 carloads. California as a state still leads, for the figures given are for one valley only and do not include the smaller centers of production, both north and south. Some lands cleared of early lettuce are already planted to cantaloupes, though the main crop of melons is growing before lettuce is harvested. But late crops are still going in while the large fields are receiving their first cultivation.

The first of the onion crop is now being shipped, the season opening April 15. About 85 per cent is Yellow Bermuda, the remaining 15 per cent Crystal Wax, a white of the Bermuda type. This latter is a little earlier than the yellow and is preferred in a few markets. Of course the Texas crop, from 12,000 acres, will prove a strong factor in the market to the eastward. Added to this come the unwelcome news that 75,000 bags of onions from Egypt have reached New York. These came by way of Liverpool where they were sorted and repacked. In spite of this precaution some arrived in bad condition. To fight against this foreign invasion the growers of Texas and California should combine and act quickly. The Coachella growers are now experimenting with thrips control through use of dust spray, with very gratifying results. Inspection looking to strict standardization is having its first season in the valley, a gratification to every good grower. The general requirements they have always voluntarily complied with and now the slackers must also make good. These inspectors are appointed by the Riverside horticultural commission and paid by Riverside County, but they have the cooperative guidance of the state department of agriculture.

E. B.

When Writing Advertisers, Mention the Cultivator.

TOBACCO EXTRACT

The state department of agriculture has issued statement as to various nicotine or tobacco extract commercial mixtures. The statement shows percentage of nicotine from samples which, we suppose, were purchased on the general market. The following are the findings:

Black Leaf 40, 40.8 per cent nicotine; Rose Nicotine, 11.1; Lenox Tobacco Soap, none; Sulfo-Tobacco Plant and Animal Soap, 0.4; Nico-Fume Liquid, 41.7; Floral Nicotine, 12.6.

COST OF ANT CONTROL

The very direct relation of the Argentine ant in the control of mealybugs of citrus trees was demonstrated in 1915-16, in several infested orchards in the San Gabriel Valley of California during an investigation of the common mealybug. The trees rid of this ant quickly became freed of mealybugs and continued in a commercially clean condition, while trees frequented by ants remained severely infested.

The cost of treating orchards for ant control is said to be cheaper than fumigation or spraying, and so low that the owner of infested property can ill afford not to avail himself of this method. In response to a petition of the citrus fruit growers in the Upland district, control measures against the citrophilus mealybug were instituted and a campaign started in September, 1917, in an orchard infested by both mealybugs and the ant. An inspection of the orchard in April, 1918, showed that 98 per cent of the trees of the first half treated were free of ants, and that 62 per cent of the part treated in November were clean.

The effectiveness of the syrup in the first demonstration was so apparent within a few weeks after its distribution that control efforts were rapidly extended to neighboring orchards and by the beginning of 1918 more than 150 acres had been treated. At the present time the ants have become not merely controlled, but totally eradicated over this extensive area.

This ant work has been extended during 1918 by more than 350 acres, practically all of which is in commercial control. An area of approximately 650 acres of citrus orchards practically in a solid block has been subjected to control of the Argentine ant within 18 months following the institution of a demonstration at Upland, and stands as an example of the possibilities in control and eradication of this insect through persistent and concerted action of fruit growers.

The following is the Barber formula for poison syrup, modified to meet arid conditions: Granulated sugar, 12 pounds; water (distilled), 10 pints; tartaric acid (crystallized), 0.25 ounces. Boil 30 minutes, cool, add distilled water to allow for evaporation. Dissolve sodium arsenate (C. P. only), 0.75 ounces in hot water (distilled), 1 pint; cool. Add poison solution to syrup and stir well. Add to poison syrup honey (strained), 2 pounds. Mix thoroughly.

SAVING TOBACCO SEEDS

Whether the present agitation for the restriction of the general use of tobacco will result in lessening the crop remains to be seen, but so long as we plant we should aim to improve. There is no crop where improvement is more easily accomplished, for one good plant will produce seed enough for 12 or 15 acres. Therefore few plants need be saved and great care should be observed in choosing these. Wherein does your crop fail to qualify?

One of the most important factors in California is early maturity, so the plants may be quickly grown. Some varieties mature in three months, others require six. By a continuous system of selection one may gradually come into possession of a crop closely approaching the ideal in the conformation to local demands of soil and climate. Watch carefully the most vigorous and early maturing plants that have the greatest proportion of perfect leaves, right in size and shape, avoiding those bearing narrow top leaves or those too close together on the stalk, for the latter are difficult to sucker and to cure. Remove the lower branches so the upper flower heads may receive the full vigor of the plant. These heads may then be covered with muslin bags if thought necessary to prevent cross pollination.

Specially Designed for the Fordson Tractor

AGRICULTURAL engineers and designers of motor driven farm machinery have proved that better results can be secured from tractor operation by using equipment specially designed for the make of tractor employed.

For the Fordson tractor, there has been specially designed the Little Giant tractor belt — and thousands of farmers have found that it is the most satisfactory belt to use with the Fordson.

If yours is an average farm, over 40% of your tractor work should be belt work. Your tractor can be used every month in the year on some kind of belt driven farm machinery, thus giving you a greatly increased return from your investment in the tractor as well as getting the work done quicker, better and more profitably.

The Little Giant tractor belt is endless and is built of four-ply of extra weight, highest grade canvas, specially treated to increase its toughness and wearability. Another distinct advantage over other belts is possessed by the Little Giant because of its extra stitching especially on the edges which practically eliminates the effects of edge wear. Because of its special design the Little Giant belt will run straight and true, always.

Its slip-proof grip makes possible the delivery of full power of the Fordson to the belt machine and the full benefit of satisfactory performance of thresher, sheller, grinder, ensilage cutter, hay-baler and other power driven machinery.

Your Fordson dealer has a stock of the three lengths of Little Giant belts—50 ft., 75 ft. and 100 ft. If he hasn't, write us direct.

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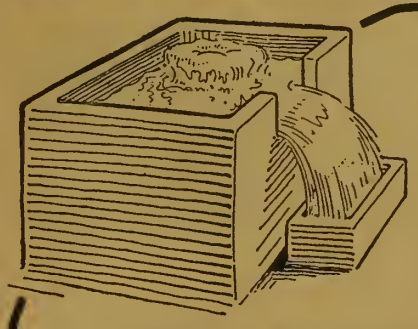
Chicago, Ill.
Distributed in California by
WM. A. HUGHSON, SAN FRANCISCO.

For sale by all authorized Fordson Dealers



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One farmer writes us that he has used this trap continuously for 14 months without a single failure. We want you to try it. Will return your money if not satisfied. Only a few hundred for distribution this season. You follow instructions, we guarantee results. Every day the gopher works you lose. Price $1.00 postpaid.

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When You Want It—Save You $15 to $500. Any Style—Stationary, Portable or Saw Rig. Any Size—2, 3, 4, 6, 8, 12, 16, 22 or 30 H-P. Cash or Easy Terms. BOSCH Ignition on order. Catalog FREE.
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PLANT NOW Growers making $1,000 and over per acre annually. Splendid results in six months. Also berries and small fruit, etc. Write for catalog and price list to the originator, J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Calif.

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Build Up Your Soil With Whip-Poor-Will Cow Peas

WHAT THEY WILL DO:

They make the best summer covercrop.

Maintain a moist surface mulch.

Will prevent June drop.

Require less irrigation than other crops.

Need no irrigation where soil moisture has been conserved.

Build up poor soils with more nitrogen bacteria and humus than any other covercrop.

Afford the best kind of pasture for cattle and hogs.

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Will improve your silage.

There is no better Bee Pasture.

Thirty pounds of seed is sufficient to plant one acre.

Our seed germinated 96%.

PLANT WHIP-POOR-WILL COW PEAS

Buy Your Seed From

AGGELER & MUSSER SEED COMPANY

620 So. Spring St., Los Angeles, or

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Our Seeds are handled by your local dealer

Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

SETTLEMENT OF THE PUBLIC LAND OF THE IMPERIAL VALLEY

(Continued from Cover Page.)

on $200 land will be $10 an acre. If he has to pay 8 per cent, it will be $16 an acre. This difference on 40 acres means $240 a year. It may mean a difference between meeting payments and not meeting them, between a discouraged family and a hopeful, confident one. If a settler gets amortized payments and 20 years time the returns for crops will meet his payments. If he gets a short time loan there will have to be a renewal of mortgages and heavy charges.

Our methods of giving or selling public land in the past have been crude and inefficient. They ought not to be continued. They were wasteful and costly, but would work when land cost nothing and water rights were cheap. They will not work in this area with its costly water rights and heavy expenses in preparing the land for irrigation. Under the old methods there would be no selection of settlers, no adequate advice or direction. It would be a case of "first come, first served." Men who did not need farms or who would fail at farming would get land and thereby restrict the number of worthy and capable settlers. Unwary and oversanguine settlers would be victims of the land shark and the loan shark. The district under this plan would start handicapped by the evils of non-resident owners and alien tenants. There would be high interest rates and slow costly improvement of farms.

We do not have to speculate as to what changes should be made. The methods and policies of the state land settlement act furnish the answer. These should be adopted in the development of this area. Under this act, privately owned land is now being bought, subdivided into small farms, made ready for cultivation and sold to worthy landless settlers on long time payments. These settlers are helped in the preparation of land for irrigation, in planting the first crop, in building houses, in the purchase of livestock, by loans of money at a low rate of interest. In many ways they have been aided in avoiding the mistakes and delays of inexperience. As a result, settlers who started with little money were, before the end of the first year, living in comfortable homes, meeting their payments, cooperating in buying and selling and creating an attractive social life. A new agriculture and a new social fabric are being created. All these valuable results are being secured without any expense to the state's taxpayers.

If this plan and policy is applied in the development of this area, it will men that the vicious land speculator will have no show, that this land will be settled by people of American blood, who have the hope, the courage, and the independence of the pioneer of California. It will mean that the farm laborer will live in his own house, own his garden, will have a position of dignity and self respect that the importance of this calling justifies and which we have hitherto done so little to secure. His children will grow up in comfort and independence and will be the farm owners of the next generation.

Such results are not a matter of theory or happy accident. Methods developed by a quarter of a century of study and experience have been followed. Success comes because success is deserved; because the needs of settlers have been visualized and preparation made to meet them. These settlements mean equality of opportunity. They bring to settlers at the start, the advantages of cooperation and community organization and thus save the waste of an immense amount of money and time.

If this 300,000 acres is settled under the methods of the state land settlement act, preparation for settlement will include:

1. A Soil Survey

The soil of this 300,000 acres is not all alike. Some of it is very fertile and will grow anything which can be grown in California, some of it is underlain with hardpan and some poisoned with alkali. The areas of good, bad and indifferent land ought to be clearly known before settlers go there. A soil survey and a soil map will show these things.

2. A Contour Survey

The value of these farms will depend in large part on the roughness or smoothness of the surface. There are 40 acre farms in this area that can be prepared for irrigation at an expense of less than $25 an acre and there are other 40 acre areas where the cost will be $100 or more an acre. A contour survey will show the smooth and the rough land. It will show where lateral ditches ought to go, the direction in which the borders of the irrigated farms ought to run. It is needed in fixing the prices of the farms and in the development of farms.

3. Planning the Farms

The soil map should be a controlling feature in fixing the size of the farms. The contour map would govern their shape. The rectangular surveys of the government ought not to be retained as the boundaries of the farms. These farm boundaries ought to fit the canals and roads like blocks fit city streets. The farms at Durham and Delhi are so planned. All who live there and all who go there admire the convenience and value of this feature of rural planning.

4. Locating and Planning the Towns and Roads

The settlers on 300,000 acres will not all be farmers and farm laborers. There must be carpenters and blacksmiths, lawyers and doctors. Towns, stores

(Continued on Page 662.)

For Bigger, Better and More Profitable Crops Use

Agri-Gypsum

Your soil may be ever so rich in the elements that are necessary for plant growth, but—

Are you sure these elements are free and available?

Are they in such proportions as the plant roots demand nitrogen, sulphur, phosphorus, potash and the many other elements so necessary to make good crops?

AGRI GYPSUM, by its chemical action with other contents of the soil, makes more nitrogen, sulphur and calcium available—all necessary to plant growth.

Alfalfa Grows Better if AGRI GYPSUM is Applied to the Land

Alfalfa needs sulphur. AGRI GYPSUM contains a high percentage of sulphur. Nearly all soils are deficient in sulphur. Beans, peas, cover crops, beets and many others planted now are greatly benefited by the use of AGRI GYPSUM, especially if the soil is inclined to pack, or contain black alkali. It may be sowed with the crop or put on broadcast when the soil is being prepared.

AGRI GYPSUM is a specific for black alkali, changing the nature of the alkali, and making possible the production of good crops on soil formerly surfaced with it.

Gardens will show marked improvement in growth if AGRI GYPSUM is applied and the grass in lawns and parks, requiring sulphur, nitrogen and phosphorus, will immediately respond with vigorous growth.

Stable manure retains its ammonia when AGRI GYPSUM is applied.

It will pay you to experiment with a little sample on any crop this year, just to see what AGRI GYPSUM will do. Sow a strip across your field and note the difference.

AGRI GYPSUM is made by the largest producers of Gypsum in the world. Be sure of the brand and you will be sure of the analysis and material ground fine giving the best results.

Dealers handling AGRI GYPSUM will be found in all farming sections. If your dealer cannot supply you, write

United States Gypsum Company

(Sole Producers of AGRI GYPSUM)

902 Citizens National Bank Bldg., Fifth and Spring Streets

Los Angeles, California

HOUSING OF RANCH LABOR

(Continued from Page 649.)

The more completely we study the fundamentals of this problem the more thorough will be our conviction that adequate and respectable homes for agricultural workers in close proximity to their work is the most promising and permanent solution of our agricultural labor problem, not only for this generation but for the next as well. There is not a grower present who would prefer foreign labor if satisfactory and sufficient help at a permissable cost could be secured from the ranks of his own fellow citizens. Better housing conditions will hasten the day when such an ideal can be realized. With the further development of cooperative selling organizations and cooperative purchasing of supplies the elevation of agriculture to the status of a modern industry will be an accomplished fact. Then, and not till then, will it be in a position to choose all of its workmen from the ranks of those who should constitute our future citizenship.

At Limoneira

In closing these remarks it may be of passing interest to call your attention to a ranch labor housing problem with which it has been my privilege to be associated. On the properties of the Limoneira Company near Santa Paula labor is required for some 500 acres of full bearing lemons and about 400 acres of lemons now about five years old. In addition to this citrus acreage there are 240 acres of full bearing English walnuts, some 300 acres of Lima beans and 300 acres of dry hill lands cropped to hay. Near the very center of the citrus orchards are located the lemon packing plant, walnut house, warehouse, barns, etc. Already our labor requirements exceed 400 during the peak load in the spring and never less than half that number throughout the year.

For Mexicans

Five miles from the nearest town, we have had no alternative but to house our labor on the ranch. For our Mexican employes we have 160 family cottages of the common type so familiar to all of you, built here and there over the properties in groups of from ten to 36. We are now erecting 16 more in another group.

For Japanese

For the Japanese, who perform about half of our packing house work and one-third of the pruning, we have three large dormitories, one of which contains 18 apartments. They operate their own boarding house on a cooperative basis. For our single men we have two dormitories situated a mile apart, each accommodating about 40 men, each supplemented by its own boarding house.

For Americans

Up to a year ago we had provided for American families a total of 23 residences and cottages and a group of six plain apartments. They have always been filled with only temporary exceptions and could have been filled twice over while, of recent years, our dormitories have rarely been filled to capacity.

Resulted In Satisfied Workmen

Our experience along this line has been so consistent, year after year, that as our need for help has increased we have decided to increase our housing accommodations for American families to whatever extent satisfactory workmen can be efficiently added to our forces. Putting this policy into effect, we are now completing the first 36 units of a cottage group arranged on the court plan. How far we shall be able to go in extending this group will, of course, depend on the results obtained from this initial development. These cottages are constructed of hollow tile with plastered exteriors. Full plumbing and sewer system, electric lights and gas make these cottages in every way modern and comfortable, even if they are not so very large. We have been unable to complete them as rapidly as they have been engaged, though we have largely restricted occupants to the condition that each family must supply one steady employe at least, two during the heavy picking and packing season. Rentals are nominal, averaging from $8 to $10 monthly per house. Water is free and the front yards are to be parked and cared for at company expense. There is no restriction against children, except that they stay in their own back yards.

Drawing of Limoneira Farm Homes

Contented workmen are reasonably sure when attractive surroundings, as shown above, are supplied.

Company Store

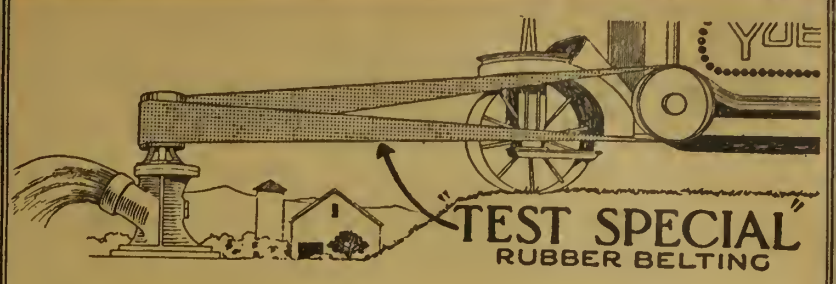
An innovation in our organization within the last week is the opening of a company store where employes only may purchase all staple provisions and a few articles of staple wearing apparel at prices that will pay the operating expenses of the store, and possibly low interest on the money invested, yet net our employes a very appreciable cash saving.

Small Town on the Ranch

Out of regard for the business interests of our local merchants we have deferred as long as possible the opening of this company store, but now that there are over 200 families on the ranch we are assuming the character of a small town all by ourselves. The wasted effort and expense of distributing all supplies from a point five miles away through a dozen different sources must ultimately be paid for by our employes. Some of them need credit at times, particularly when first entering our employ. This can be handled much more easily and more safely by ourselves than by the merchant. Relieved of the heavy overhead expenses carried by the town merchant, and with the policy of making merely an incidental profit on the store sales, it goes without saying that we can reduce the living expenses of every family, an important item these days. We believe this will attract and help to hold the ranch worker.

Humans—Livestock

A glimpse of our new lemon curing plant—the old plant built over—would suggest that we have built as well for our employes as we have for our lemons. The day when a farmer could "get by," while building relatively better accommodations for his horses and cows and products than for his family and his hired help, has passed.



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It is the best rubber belt made and especially adapted for hard outdoor usage.

We guarantee it to give better Service than any other belt used under same conditions.

WRITE TODAY, giving the R.P.M. and Diameter of the driving pulley—also driven pulley and distance between centers of same, also give the rated horse-power of your motor or engine, and name kind of machinery you are operating. We will reply immediately giving you our recommendation as to kind of Belt to use.

Write us today.

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(31)

Alfalfa
From the Field to You

From the green fields of California's greatest ranches you can obtain your supply of the finest alfalfa. No middleman handles the product before it reaches you and not a cent of the cost is invested in anything but QUALITY. By this arrangement, prices for hay are stabilized and are always as low as they can be made, commensurate with the cost of production.

Uniform quality—never varying from the high standard set by the Alfalfa Growers of California—is guaranteed. Each grade is carefully selected and follows exactly the specifications for color and texture.

Make sure that your next order for baled alfalfa calls for the A. G. C. grades. If you cannot be readily supplied, communicate with us.

Alfalfa Growers of California, Inc.

General Offices: 408 Pacific Electric Building, Los Angeles
Telephone: Pico 54

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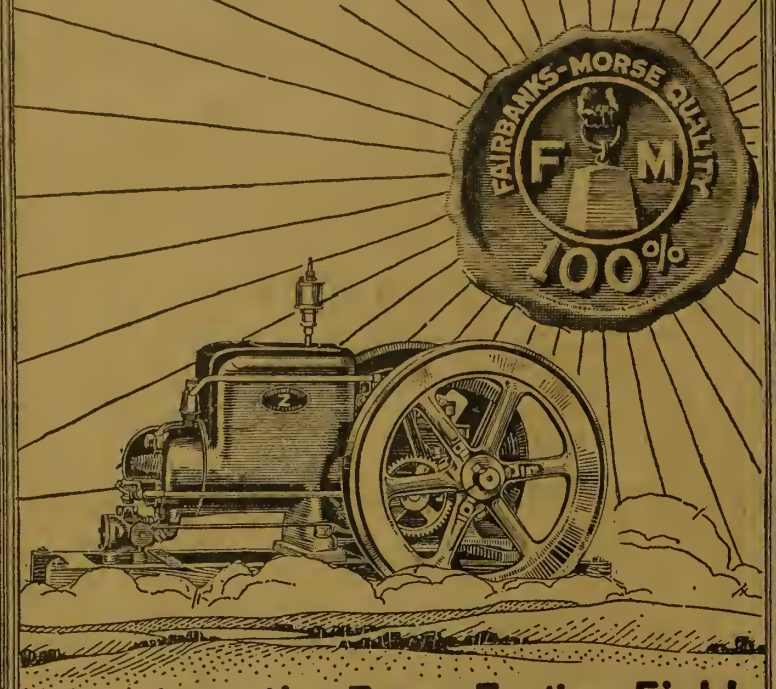
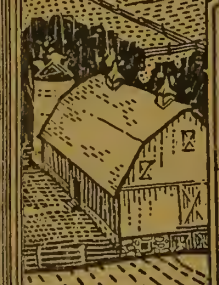
Fairbanks-Morse "Z" Engines



Dominate the Farm Engine Field



KEROSENE

replaces distillate and the man who owns a "Z" is ready for the change. The "Z" is especially designed to operate on kerosene and runs as well on gasoline. Important to consider. ¶ Mechanical perfection—expert workmanship—sturdy construction—right price—these are the qualities that make the "Z" America's supreme farm engine.

Your dealer will show you the "Z". Call on him today.

Prices: 1½ H. P., $75.00; 3 H. P., $125.00; 6 H. P., $200.00. All F. O. B. Factory.

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We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

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The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

Five, Too Many! You Take This One

By L. S. Thomas

"FIVE, too many! You take this one."

Pausing in her hurried short step running to and fro long enough to kick a dog away from her youngest and to make the funny little jerky bow with which the people of her race greet a caller, she made this offer. Can you blame her? Twenty men to cook "licie" for, to say nothing of the fish to clean, clothes to wash, the big trough or tank in the bath house, or shack, to fill by means of an "armstrong" pump, the fire to keep up under said tank, as well as in, or on, her huge plank and mud "range" that had the whole blackened roof for a chimney. These few little items of daily duties, added to a garden to care for, a hundred chickens to herd out of above mentioned garden, five little Japs under five years old to care for (and they are kept amazingly clean) make the life of the Jap "tule" farmer's "picture bride" rather interesting to the student of economics.

Remember, Mr. American Farmer, that whenever you raise a crop of potatoes, onions, asparagus, celery, corn or any cultivated crop in California you are in competition with producers who have this standard of living. The same applies to the fruit business in a lesser degree.

Remember also that these children, welcomed by their parents or not, are American born and will some day be working their wives, or being worked, to fatten their purses at the expense of American ideals of the self-respecting home; also that these said purses will be opened freely to purchase land, land, the fundamental source of all life, ideal, or otherwise, at prices prohibitive to one who has been raised as the average child of American parentage is raised.

It isn't so much a question of, "Is it possible to Americanize an Oriental?" as it is, "Will he stay Americanized?" The son of a comparatively wealthy delta Japanese farmer finishes high school and speaks our language perfectly, returns to the island farm camp and in six months one can notice he begins to have difficulty with some of our words, and in five years he can hardly make himself understood.

America for Americans is fine, but American soil for American farmers and home builders is, to me, a more interesting theme. The last three years have taught us that speculation in foodstuffs is unquestionably an economic crime. This being a fact proves that speculation in the source of all foodstuffs (as well as all other necessities of life), land, is the greater crime and should be generally recognized as such. On the contrary, at present the man who picks up a piece of easy money on a real estate deal is considered a good business man, and if he continues his good work (?) long enough he becomes "one of our leading citizens."

I don't mean by this that with economic freedom as near an accomplished fact or condition as freedom in our political or religious life of today, there would be no need or opportunity for real estate dealers, for I believe in private ownership of land (thereby differing from Henry George and his followers), but I do believe there is too great a difference between the so-called market value and the productive or location value of land, and that it is altogether too easy for land to be held entirely or comparatively idle by a speculative owner when there are young child rearing couples burning the pep out of the best years of their lives in an effort to establish a real American home of the class from which we will get the generation that will settle this Oriental question for all time.

The man or woman who buys one city lot for any other reason than immediate personal use is, from an economic standpoint, as much a menace to American ideals, as I see them, as the Miller-Lux interests.

Speaking of Miller and Lux makes me think of the income tax to which they contribute so much. Just notice that they pay their percentage of their net income, which is part of their gross income derived from the productive portion of their wealth, and are allowed to pay all taxes on whatever unproductive land they hold from gross income from the productive portion, thereby lessening the net or taxable portion.

When Thomas Jefferson wrote the Declaration of Independence and with the aid of Truthful George and the other old patriots established this glorious old nation, they provided for religious, political and economic freedom. Freedom is a three phased word and we have allowed it to get lopsided. They invited the home loving, freedom hungry, pioneering people of the world to come where by the simple act of establishing a home a clear title to a generous slice of land was given, and little dreamed that in this short time away across there in the unexplored West their children would reach "the end of the trail" in a maze of concrete highways along the western edge of the world, where their children of the fourth generation would welcome their firstborn under the stigma and burden of the lease and mortgage.

Proper Methods of Stretching Furs

Every trapper needs definite and adequate information on the proper way to stretch furs. Slipshod methods often cost the trapper a great deal of money, while a careful following of the approved directions always means an increase in the value of his furs.

Perhaps the first thing you should know about stretching is which furs should be stretched fur side out and which pelt side out. The following guide is correct:

Stretch these furs fur side out: Coyote, wolf, fox, marten, fisher, lynx, lynx cat and wolverine.

Stretch these furs pelt side out: Muskrat, mink, skunk, opossum, civet, otter, ringtail cat, house cat and white weasel.

Stretch these furs as nearly square as possible: Raccoon, bear, badger and wild cat. Beaver should be stretched round.

Steel Stretchers Best

Many trappers use board stretchers of the home made variety, and these, if shaped carefully, are sure to give a moderate degree of satisfaction. Many times, too, it is impossible to get any but wood stretchers, and hence necessity often dictates their use.

But steel stretchers have easily proved themselves the most desirable of all. These stretchers are so constructed as to allow the air to circulate through the skin. Not only does this hasten the proper drying of the fur, but it also prevents molding and mildewing setting, in, which often happens when skins are stretched tightly over boards.

Steel stretchers are adjustable and can be fitted accurately to the different sizes of skins. Sharp notches on the side of the stretcher hold the pelt securely in place and assure its drying in perfect shape. Every trapper should have a good supply of these improved steel stretchers; they are light and strong and may be easily carried.

Steel stretchers do away with the danger of over stretching or under stretching. If a pelt is stretched too much the quality of the fur is damaged and its value consequently lessened. If the fur is not stretched enough before it is thoroughly dry, a good part of its value is lost, too, for very little stretching can be done after it is dry.

Stretching "Open" Furs

When skins have been taken off open, as is done in the case of raccoon, bear, badger and wild cat, the proper way to stretch them is by lacing them to a square frame. The edge of the hide is tightly sewed to the frame and the skin drawn tightly on all sides. Beaver should be stretched round and a hoop is the best thing for this purpose. The skin should be fastened to the hoop at four

squally distant points and then the slack parts taken up by sewing the skin to the hoop with a large sacking needle.

If, in stretching the cased furs, you have good stretchers and put the proper side out, you will be sure of satisfaction. It takes no longer to follow the correct directions; in fact, the proper methods add speed to your efforts. And they make your trapping profits bigger.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Married Woman in Business

Is there any way by which a married woman can engage in business independent of her husband? If so, can she convey title to real estate acquired in the course of such business and invest and control monies gained in such business as her separate property?—Subscriber, Watsonville.

A married woman may become a sole trader by the judgment of the superior court of the county in which she has resided for six months next preceding the application. In order to procure such right, she must publish notice of her intention to make application to become a sole trader in a newspaper published in the county at least once a week for four successive weeks, in which notice she must specify the date upon which application will be made, the nature and place of business proposed to be conducted and the name of her husband. Ten days prior to the date named in the notice, she must file a verified petition setting forth that the application is made to enable her to support herself or others dependent upon her giving their names and relation, the fact of insufficient support from the husband and the cause thereof, and any other ground which might be a good cause for divorce and the reason why the divorce is not sought and the nature of the business proposed to be conducted and capital invested therein, if any, and the sources from which it is derived. She may invest in the business a sum derived from the community property, or the separate property of the husband not to exceed $500. There is no limit upon the amount which she may invest from her separate property. Upon the hearing, opposition may be made whereupon the court hears the proofs and enters its decree, denying the application or authorizing applicant to carry on the business. Upon the entry of the decree, she must make and subscribe an oath to the effect that the application is not made to hinder, delay or defraud creditors of the husband, and that not more than $500 is invested from funds of the husband. Thereupon she is entitled to carry on the specified business in her own name; the property and the benefits of the business belonging exclusively to her and not being liable for any debts of the husband. In order to extend her business into another county, it is necessary for her to record a copy of the judgment and affidavit in such other county. The husband is not liable for her debts unless contracted with his written assent. She becomes liable for the maintenance of any minor children.

Pasture Bills

What is the rule governing the collection of pasturage bills, and if I desire stock taken out of the pasture, how can I compel owner to take it out? A horse was placed in my pasture when I was absent. I do not know the name of the owner. He has not returned for five months and the horse is worthless.—Subscriber, Thermal.

Liverymen as well as persons pasturing horses have a lien dependent upon possession for their compensation. If the lien holder is not paid the amount due within 20 days after it has become due, he may proceed to sell the property so as to satisfy the lien and costs of sale at public auction by giving ten day's previous notice of such sale by advertising in a newspaper published in the county in which the property is situated. Proceeds of the sale must be applied to discharge the lien, costs of keeping and selling the property, and remainder, if any, paid to the owner of the stock. Following out the procedure indicated, would probably be the safest way for you to proceed.

GREAT ACTIVITY IN SQUIRREL CONTROL

Following a recent tour of inspection throughout parts of the state, Superintendent of Rodent Control W. C. Jacobsen finds that squirrel control is progressing with unabated vigor. In Northern California where the Oregon ground squirrel is coming out in full force from its long period of hibernation, a spring poisoned grain campaign is being waged in order that maximum benefits may be derived. Field Assistant A. E. Gray has been sent to the counties of Modoc and Lassen to assist in organizing drives for the spring months.

Throughout the great valleys the carbon bisulphide warfare is being pushed to the extreme limit owing to most satisfactory condition of the ground as a result of the heavy rains which have been experienced over the state. Such a large quantity of jute balls has been used or ordered through the state department of agriculture that the supply is practically exhausted and the manufacturers of this commodity are working day and night to meet the demand. Up to the present time approximately five million balls have been ordered for use, of which three and one-half million have already been placed in squirrel burrows for the purpose of making a complete eradication in some of the large areas. No carbon bisulphide or labor shortage has existed this year as was the case last winter. The possibility for the continuance of the gas method with carbon bisulphide until late in the season will be very favorable, owing to the amount of moisture due to the late rains.

Many of the county horticultural commissioners in the state are looking forward to the best record yet obtained in squirrel eradication as a result of this opportune season.

"SOME MILES"
WHO ITHS TH BLAME NOW DADDY?
HENRY WENT OUT RIDING,
HIS CAR WAS HARD TO BEAT,
HE PASSED EVERYTHIN' GOIN' AN' COMIN'
FOR HORSE SHOE TIRES ARE FLEET!
For a long hard run—use Horse Shoe Tires

Results show at Harvest Time

IF your seed bed is not properly prepared, take an inventory of the clods—the rough stuff in the field—and enter every single one of them in your ledger as a liability. They are just like so many pores letting out that precious subsoil moisture. You cannot spare that stored power if you want bumper crops.

International Tillage Tools put your seed bed in prime condition. In this deservedly popular line of implements are **disk harrows, spring-** and **peg-tooth** and **combination harrows, culti-packers,** etc. The disk harrow, for instance, slices and destroys the clods until the close-knit covering guards every bit of subsoil moisture, while permitting the absorption of additional supplies from above.

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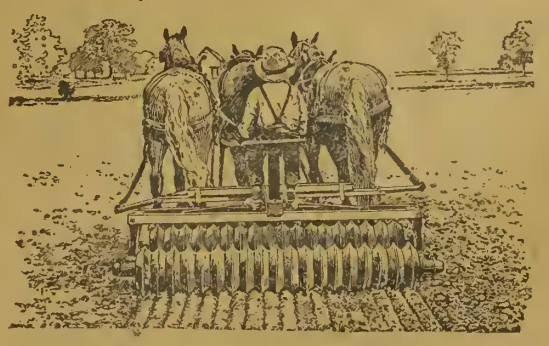
Let us mail you descriptive folders of these tillage implements so that you will know just a bit more about the preparing of Spring seed beds. With every implement goes an alert, responsive and intelligent service. The International dealer will serve you direct.



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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Lime-Sulphur for Red Spider

Please give proportions lime and sulphur for making lime and sulphur spray for red spider, etc., on citrus fruits. Also, what kind of lime is used and how many pounds of above for gallon of water?—Subscriber, Buena Park.

Probably the best procedure would be to buy the regular commercial lime-sulphur solution. Especially is this the case unless one wants it in large quantity, and even then some of our large orchardists find the labor saving ready mixture more desirable than having it prepared by the ranch labor. The container will usually give proportions to use, but for citrus trees or any tree in leaf a gallon of the lime-sulphur solution to about 33 gallons of water is the usual proportion. For the home made mixture here is the formula given in our spray special of August 9, 1919: Stone lime, 50 pounds; sulphur (sublimed or powdered), 100 pounds; water to make 50 gallons. Heat in a cooking barrel or vessel about one-third of the total volume of water required. When the water is hot add all the lime and at once add all the sulphur, which should previously have been made into a thick paste with water. After the lime is slaked another third of water should be added, preferably hot, and the cooking should be continued until a clear orange colored solution is obtained (usually 45 to 60 minutes), when the remainder of the water should be added, either hot or cold, as is most convenient. The boiling due to the slaking of the lime thoroughly mixes the ingredients at the start, but subsequent stirring is necessary if the wash is cooked by direct heat in a kettle. After the wash has been prepared it must be allowed to settle and then be strained through a fine sieve as it is being run into the spray tank. The resultant product is a concentrated solution of lime-sulphur, which should be diluted about six times with water for winter spray. If dry lime-sulphur or "dust spray" is preferred, use three-fourths sulphur and one-fourth hydrated lime.

Apple Stock

Will young apple trees grown from seeds of Newtown Pippin and Bellefleur make good root stock for nursery? If not, why? What seeds are best for nursery stock?—X. Y. Z., Watsonville.

Seedlings of any sort do not give absolute assurance, though much used. Those most particular have secured real Northern Spy wood, but seedlings of the same should also be somewhat resistant to woolly aphis—the chief reason why this particular variety is used. In fact, it is not essential to any orchard to use aphis resistant stock. We see no reason why your seedlings will not qualify, but would throw out the weakly and use only the strongest and most vigorous.

Testing Automobile Cylinder Oil

Where can I get automobile oil tested as to viscosity and flash test?—Subscriber, Porterville.

This calls for expert with proper equipment. The chemists of Los Angeles and San Francisco are fitted for such work and it is possible Tulare County may have such experts. Of course all oil companies are fitted to make the test.

Dressing for Wounds

Is pine tar injurious to fruit trees—that is, in pruning trees and cutting out large limbs and painting over the wound with pine tar?—Subscriber, Hoaglin.

Bailey's "Pruning Book" says: "Paint and tar are the dressings most universally recommended. Tar and coal tar are popular with foresters, but it is certain that they often injure the cambium and bark of fruit trees. Dressings of tar, and even bandages of tarred paper, made to protect plants from borers, often destroy the bark, particularly on young trees." Again, warning is given in applying tar to cherries, peaches and plums. From this we take it that if the application is carefully made to the cut portion only it will be beneficial, but if applied in large quantity so that it runs down over the bark, especially with the trees mentioned, they will be injured.

Spray for Worms in Apples

What is a good spray for apple trees? Last year the fruit was very wormy.—Subscriber, Anaheim.

Spray when trees are finishing blooming, again in ten days to two weeks, and at other intervals two or three weeks apart with neutral lead arsenate paste, 5 to 10 pounds; water, 100 gallons; or, if dry or powdered lead arsenate is used, use half the quantity.

Killing Bermuda Grass

Please tell us how to kill out several small patches of Bermuda grass we have found on our place. Soil is sandy.—Subscriber, Orosi.

The best treatment of Bermuda grass is a chisel toothed cultivator with tractor or good stout team. Cultivate, cross cultivate, then cultivate some more, and continue it, if not weekly, at least often, and it will wipe out the worst Bermuda pest we have ever seen. There is no satisfactory chemical remedy within economical bounds.

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See the care and completeness, even in the smallest details. Its riding comfort, its smooth, quiet running ease, with the suggestion of well-contained reserve power, are qualities comparable to the finest of high-priced cars, yet you gain all the advantages of the light weight type, more important today than ever.

Judge the Essex, not by the lightweight standards that you have known, but by the much more exacting requirements of the large, costly cars. Measure it by the highest standard of performance and fine quality, rather than by its moderate price.

You, too, will find the appeal that has won 30,000.

In all Hudson's unmatched records this important fact is clear—No ability is sacrificed in one direction to gain supremacy in another.

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Hudson is the fleetest. Its stock car speed records have never been equalled. On the speedway its racing cars won more points than any other team ever gained.

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Hudson Motor Car Company, Detroit, Michigan

(2055—173)

HUDSON SUPER SIX

SETTLEMENT OF IMPERIAL

(Continued from Page 658.)

workshops, schools and social centers will all be a part of its activities. A telephone service will be a time and money saver and should be a part of the scheme. Plans for towns and for community needs ought not be left to blind chance or to real estate agents. Here is an opportunity for California to show the nation what art, science and trained minds can do to enhance the comfort, convenience and beauty of country life. Our rural progress, in this direction, has not kept pace with the rest of the world. When Australia made ready to settle 350,000 acres of land along the Murrumbidgee River, it sent to America for a city planner to locate and design the future cities and towns of that area. That settlement is being built on an up to date foundation. The public land of the Imperial Valley gives an opening for us to assume a leadership.

5. Fixing the Price of Farms

To sell good land and poor land at one price is bad business and is unfair. If there is to be equality of opportunity, the prices of the farms must be based on their location and character. Only in that way can they be all made equally attractive. The prices of the farms at Durham were so fixed and as a result they varied from $48 to $235 an acre, yet when the applications were all in, every farm was the first choice of some settler. If they had all been sold at the same price and no attempt made to have the price correspond to value, the best farms would have been over-applied for and the culls would have been left.

6. Plans for Houses

The Imperial Valley has a long hot summer. The farm homes ought to be planned to suit and mitigate the

climato. This area ought to have an architecture of its own just as does India in the tropics, or Sweden in the wintry north. The plans should include advice about trees to secure shade and the kind of roofs that will help keep the house cool. Every house ought to have a bath and be protected against mosquitoes. These are things that ought to be thought out in advance of settlement. The comfort, convenience and attractiveness of the homes at the state settlement in Durham show what great benefits can be wrought in this larger area.

7. Choosing Settlers

In the cultivation of the land in California, alien tenantry has become a grave social question. There are too many non-resident owners and too many tenants in the Imperial Valley. Both should be kept out of this extension. It should be a home of small farms cultivated by their owners. It should be a mecca for the aspiring farm laborers who want to live in their own home and have their own fruit trees. These settlers should all be citizens. They should be men who take farms not to sell at a profit, but to live on and improve; men who like rural life, who have training or aptitude to succeed. It will be a waste of land, an injury to the district and unjust to worthy settlers to take anyone but those to whom this will be a real opportunity, because if this district is developed along the lines indicated, there will be far more applicants for farms or farm workers' homes than the land will provide. Those who seek to come here will be numbered not by thousands but by tens of thousands.

Before the 50 farms at Delhi were thrown open to settlement on the 23rd of last month, 6,000 people had asked to be notified of the opening or had applied for farms. They came from all states in the Union. I have read hundreds of these letters. Many are tenant farmers in the Middle West. They write that land prices have become so high that they cannot hope to buy and pay for farms there. Settlers from the rich states of the Mississippi Valley write that they want to get away from districts where more than half of the land is farmed by dissatisfied tenants and where owners will make no improvements. They want a home in a farm settlement like those at Delhi and Durham where every man owns his home, where there is cooperation and a friendly neighborhood life.

8. Financing Settlers

The financial aid which the state gives settlers at Delhi and Durham ought to be given to these settlers. Under the state land settlement act any settler can borrow up to $3,000 for the improvement and equipment of his farm. If he borrows to build houses, barns or level land, the payment can extend over 20 years at five per cent interest. If he buys cows and implements, he can get five years' time to repay.

In addition, the plans should include advice and direction for settlers after they go on the land. The settler should be aided by expert advice to form cooperative associations and in deciding what crops to grow and when to plant them. It would not be an aggregation of individual farms, each owner looking out for himself and making his struggle alone. It would be organized communities of convenient size, whose members would cooperate in buying and selling, who would have a social center and a neighborhood life, helping each other in many ways and gaining strength and courage by touching elbows together.

This league can render no greater service to the section it seeks to conserve and develop than to create at this meeting a committee to work for a planned development of these lands and the proper financing and helping of settlers.

9. Soldier Settlement

Thus far I have said nothing about making this a soldier settlement. I believe that for ex-service men who like rural life and have an aptitude for farming, it presents alluring opportunities. I have protested against the selling of this land to speculators and urge that it be used to create homes for landless men and especially for landless soldiers. I have appeared before a congressional committee to advocate this and believe that the action taken by congress was influenced largely by the belief that ex-service men would be given a preference in the settlement of this land.

This discussion has dealt with the needs of rural civilization and of landless poor men. Whatever will help the civilian will help the ex-service man. Our soldiers represented the picked youth of this country. They had the strength, health and courage and a great many came back from the war stronger and better fit than they left. They are therefore better equipped to succeed than many who tried to enlist and were rejected. If the opportunities of soil and climate in this region are joined to the social and economic opportunities of the state land settlement act, which have brought such striking results at Durham, a soldier settlement here would be an ideal foundation for an agriculture and a patriotism worthy the efforts of this league and of enduring benefit to the whole country.

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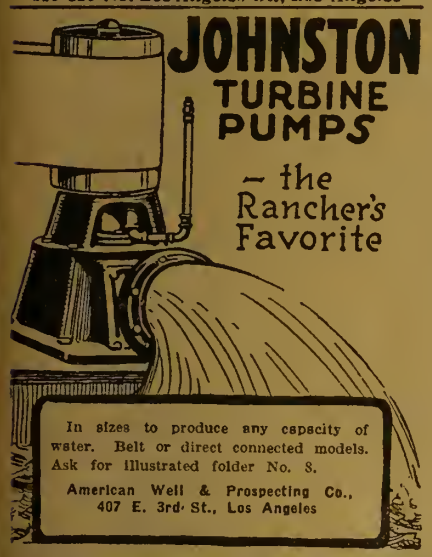

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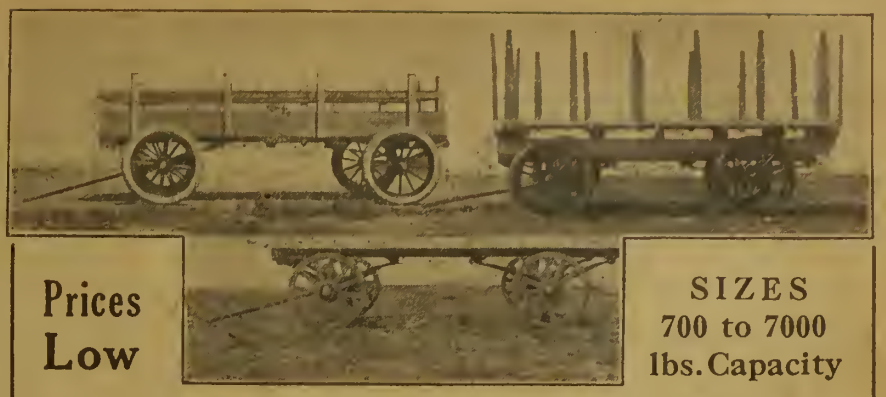

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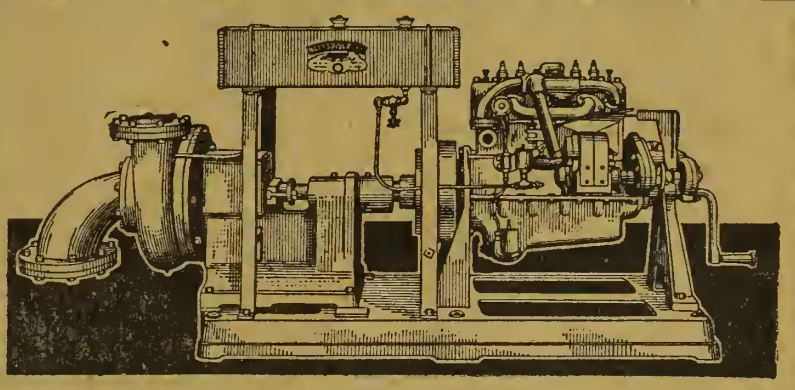

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Deep Tillage of Loams

The indiscriminate breaking of the subsoil of loam ground is not always profitable, though never likely to be damaging, as the subsoiling of sandy ground may be. Owners of loam will do well to study the characteristics of their own particular land rather than confine their attention to any particular implement or process.

Loams vary in fineness of texture. The coarse types always are open and loose down deep unless they have been abused. The fine types, however, often become puddled under a small amount of bad treatment. Both types may have plow sole, both may be tramped by pasturing stock, particularly in a corner of a field where the animals spend much time: and both may be badly compacted where a road or path crosses.

Where loam is well filled with organic matter and has had a proper rotation of crops it is not likely that it will be improved by blasting. When compacting of any kind, at any depth, has occurred, blasting is the best way to begin the restoring of natural, productive conditions. Those who have had experience in trying to get a road again under cultivation will best appreciate what a great help it is to thoroughly loosen the ground with explosives. Every time the ground is loosened deeply crops should be grown to fill it with roots and other organic matter to keep the loose soil from puddling.

There is a widespread condition prevailing throughout loam sections which must be mentioned here, that of mixed strata of loam and clay or other soil. Unfortunately for calculations the pure loam seldom extends down below root depth. The result is that many soils classed as loam have a subsoil demanding blasting just as much as out and out hardpans and stiff clays. The soil auger should be used in every piece of ground. A hole per acre is not too much to put down to learn the underlying conditions. If a layer of soil is encountered that roots may have difficulty in penetrating, that will not let water through freely, or in which plant food may not be available, in short, if it is not properly granular, it should be blasted almost without regard to the loam above or below it.

In blasting the aim should be to break to the surface without throwing out a crater and if possible to break through the tighter layers to something open and porous beneath, such as gravel or sand. When the depth to such a loose layer is more than six feet, however, and in some cases only four to five feet, it does not pay to break entirely through. The charges then should be placed 2½ to 3½ feet down, and if properly loaded they will loosen and fine all the soil above, which will make sufficient root pasturage if well developed by cover crops and other agents of fertility.

Alfalfa Weevil Checked

The alfalfa weevil in some sections not only causes financial loss but even threatens actual ruin. Heretofore the control methods were only partially successful. Flooding the alfalfa fields, cultivating them when dry, and dragging them with a brush harrow, seemed to check this pest only in a measure. Also, the growth of a second cutting was so delayed and often so short that the crop as a whole was much reduced.

Work by the Salt Lake City office of the bureau of entomology, United States department of agriculture, showed that best results came from spraying the alfalfa fields with a solution of arsenate of lead when the larvae of the weevil were doing the greatest amount of damage on the first crop. Demonstrations were held in various sections of the great Salt Lake Valley in cooperation with the county agricultural agents. During 1919 this work was extended and the demonstrations carried forward by the county agents indicate that an effective and cheap method of stopping the destructiveness of this pest has been found.

During the past year 4,263 acres of alfalfa were treated by spraying, and it is estimated that the net saving on these demonstration fields totals $41,371. By this method the first crop of hay is saved. The cost is only about $1.50 an acre, as but two pounds of arsenate of lead are mixed with 100 gallons of water and applied at this rate to an acre of alfalfa. Power pumps which force the spray through extension nozzles make it possible to apply a fine, driving spray over a wide strip quickly and effectively.

The demonstrations proved a considerable increase in the production of hay to the acre. This sometimes amounted to from 1,500 to 2,000 pounds. In Sevier County, Utah, demonstrations conducted on 1,700 acres showed an average increase of 800 pounds an acre. At the prevailing price of alfalfa hay, $20 a ton, the resulting saving should total $13,600 in that county alone.

CLEARING LAND BY BURNING

Considerable misunderstanding exists in California as to a landowner's right to use fire for clearing land of "slash," brush or other material. To correct any misunderstanding and to direct attention to the necessity of preventing and suppressing uncontrolled fires, the state board of forestry gives out the following information with a plan for the use of controlled fires.

Both state and federal laws permit the use of controlled fire, either for the disposal of "slash" within the timber belt or for clearing land outside the timber belt. There is no law against a man or a group of men setting fires on their own lands, providing the fires are kept under control. The unlawful act (so recognizezd by state and federal laws) comes when uncontrolled fires are allowed to spread to the lands of others. Such fires are a menace to the entire community and often entail great expense to combat.

As a result of the misunderstanding that has existed it is possible that some men, fearing to use fire openly for clearing their land, have resorted to a "touch the match in secret" policy and then have left the scene permitting the fire to run at random.

Protective organizations should be formed by landowners for the purpose of protecting their improvements, ranges and crops from uncontrolled fires. With the same organization landowners can get together and use controlled fires to clear land. This can be done lawfully and without great risk if proper precautions are taken.

When a member of a fire protective organization finds it advisable to use fire for clearing land, or for any other legitimate reasons, he should notify the other members of the organization and request them to come to his aid. Fire lines should be prepared and when the wind is right fires should be set inside the fire lines around the entire area to be burned. Nobody should attempt burning unless enough men are present to properly patrol the fire lines.

Some counties have adopted ordinances requiring that permits to burn brush or other material must be secured from the county fire warden. In these counties the county law must, of course, be complied with. The state, however, does not require a permit for a man to burn on his own property.

By following out the above plan farmers can lawfully make fire their servant at the season of the year when it will do them the most good. It is not "light burning" that th

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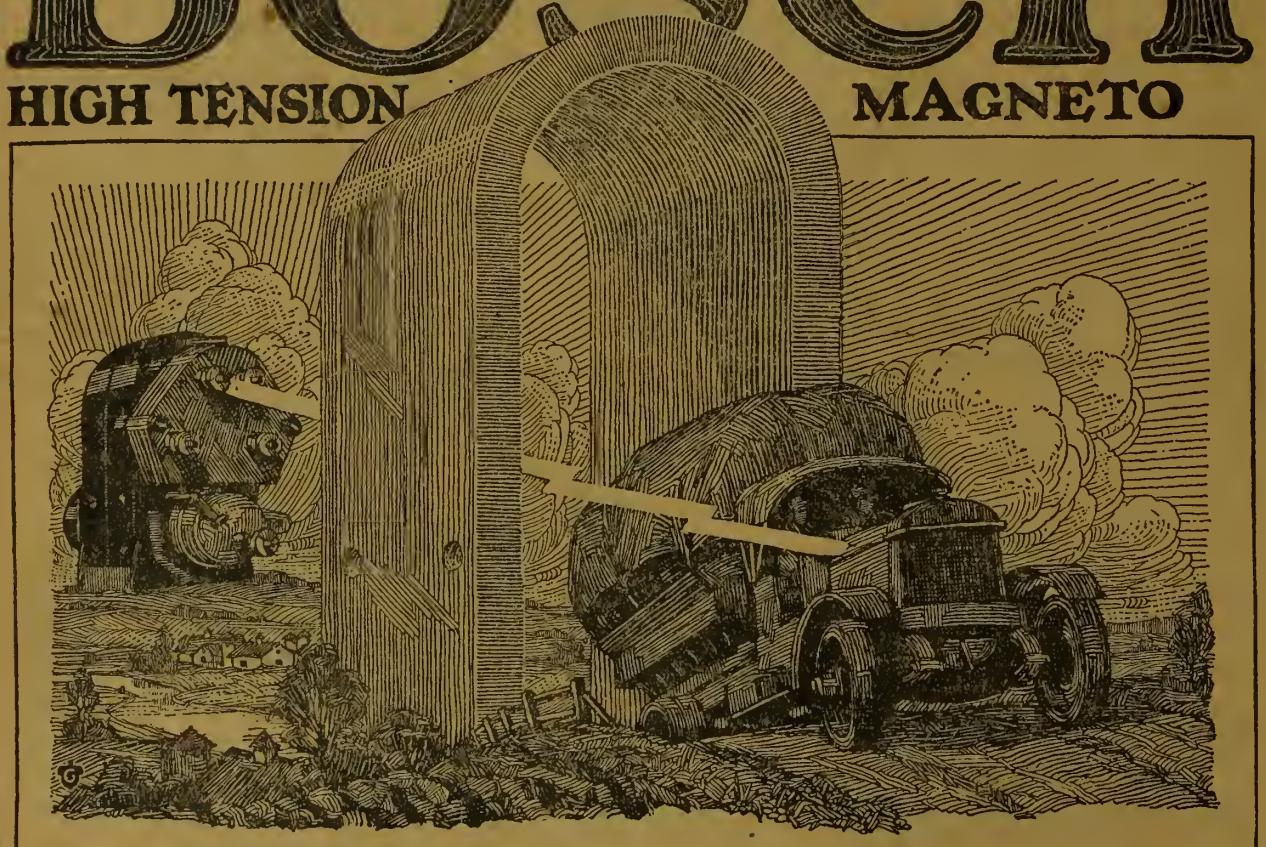

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Sacramento Motors Service Co., 813-17 L St., Sacramento, Cal.
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You must have power you can *depend* upon—and you must have it now, *this* season.

Your truck, your tractor, your stationary engine, your automobile must do its work for you all the time without let-up or tie-up, that's what you are paying for. And its ability to serve you dependably and profitably depends entirely upon the ability of its ignition to stand up and deliver *all the time.*

There is one word in the gas engine world that stands for absolute dependability and that word is *BOSCH.*

Bosch High Tension Magneto Ignition—the sturdy, responsible, self-contained producer of the life-giving stream of fire, has sustained the dominant position in ignition fields through years of supreme service to three million users.

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AMERICA'S SUPREME IGNITION SYSTEM
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farmer or the stockman wants. They want honest-to-goodness hot fires that will rid their land of brush or other undesirable material. Such fires are extremely dangerous unless properly safeguarded, and for this reason a man, wishing to burn, should notify his neighbors of his intention so that they may be present to lend a hand if necessary. Every precaution should be taken during the coming summer months to prevent and suppress uncontrolled fires.

While land owners may legally use fire to clear their lands they should take every precaution to keep these fires under control, bearing in mind the fact that they will be held legally responsible should the fire escape

BEES ON THE FARM

California fruit growers well know the value of bees in the orchards. In olden times it was urged that bees injured fruit, but we now know that bees have no organs or other means for piercing skins of fruits and so do not work on any unless it has been first mechanically injured or the skin broken by sun, wind or rain. That bees are highly beneficial in assisting pollination of all fruits is equally well known.

The ravages of bee diseases a few years ago led to discouragement of ownership by farmers, but these diseases are now under official inspection and easy of control and no longer prove a menace to the farm apiary as a side line. California leads the states in production of honey, our mild winters exact but a minimum of care, risk of loss through cold is eliminated and natural food supply usually good. As the monetary returns have been satisfactory for many years past there seems no good reason why every farm should not produce at least sufficient honey for family needs. Aside from good books and farm journal treatises on beekeeping the United States department of agriculture supplies a number of bulletins on beekeeping which may be secured free by writing for them. They are Farmers Bulletins: 442, Treatment of Bee Diseases; 447, Bees; 503, Comb Honey; 653, Honey and Its Uses in the Home; 695, Outdoor Wintering of Bees; 820, Sweet Clover: Utilization; 961, Transferring of Bees to Modern Hives; 975, Control of European Foul Brood; 1012, The Preparation of Bees for Outdoor Wintering.

FARM LABORER, RENTER, OWNER

If California young men desire to become the owners of California ranches when their elders get through with them, they will usually find it necessary to begin as workmen, then renters, and in due time owners. This is the normal, natural process of attaining land ownership. If the present owners of ranches are ambitious to be succeeded by their sons and neighbors sons as owners, conditions both of remuneration and environment must be made attractive to this type of citizen. Since our city populations are largely augmented by the drift of young men and women from the country to the city, our cities have a vital, selfish interest in the type of citizenship on our ranches, for as the country is peopled today, the cities will be peopled tomorrow.—Dean Van Norman.

REGARDING STRIKES

"The statement has been made so often that organized workers have an inherent right to strike when and wherever they please, that the public has accepted the statement as being true. Recent events and happenings however, indicate that the country generally is giving this question serious consideration and, as a result, there is a demand that some other method be employed to bring about the settlement of controversies between employer and employe. This demand is more pronounced on the part of the farmers of the United states than of many other classes for the reason that they are affected more directly than most other classes.

"No great city could be built up if it were not for the fact that those who live in them may depend, first, on the farmers of the country to produce an ample supply of food for all, and, second, on the railroads or other transportation facilities to function properly at all times and deliver farm products to city consumers with regularity and as needed.

"It naturally follows that those who believe that labor has an inherent right to organize a strike, believe that such organizations have a right to starve the people of the cities to death, on the one hand, and to destroy the property of the farmers on the other. No such right has ever existed and no such right exists now. No set of men has ever had the moral or legal right to destroy property or cause suffering by conspiring together and the welfare of all the people must ever remain superior to that of any class or group of people.

"What would be the verdict of the people if the farmers should suddenly decide to go on a strike? They would be condemned from one end of the country to the other and the fact would be pointed out that they, as the owners and tillers of the land, had no right, either moral or legal to bring about such a calamity.

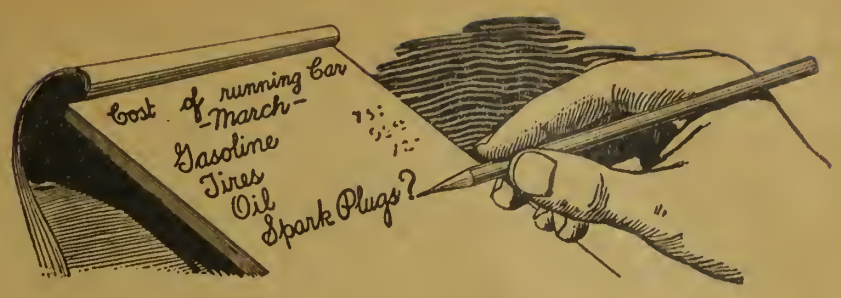
"The farmers must look to Congress to solve this great question in the light of fairness for all and not for the benefit of the few, at the expense and perhaps misery and suffering for all." —Resolutions of farm organization delegates in convention assembled in Washington.

PAINTED LADY BUTTERFLY

Fred M. Reed of Riverside writes:

"An interesting item just now is a remarkable flight of the "Painted Lady" butterfly (Pyrameis cardui), which since yesterday are in the air in countless numbers. As their chief food plants are said to be composites of the thistle tribe no especial harm is expected, unless the young caterpillars should take to more valuable crops if their regular food supply should fall short."

If the fruit grower takes care of his orchard, his orchard will take care of him.



Are spark plugs an item of YOUR car up-keep?

VEXATIOUS delays, due to bad spark plugs, cost you more than the price of the plugs. Whether on the road or in the field, whether it be a truck, car, tractor or stationary engine, each delay adds to your operating costs.

The Splitdorf Spark Plug—"The Plug with the Green Jacket"—is break-proof as well as leak-proof. It insures you against delays due to the breakage of inferior plugs.

East India Ruby Mica exclusively is used for the insulation of Splitdorf Green Jacket Spark Plugs. It never chips, breaks or cracks—there's no porcelain to break to put your plug out of commission. Splitdorf Green Jacket Spark Plugs cost no more than porcelain plugs—once installed you say "Good-bye" to spark plug troubles. And Splitdorf Green Jacket Spark Plugs are absolutely guaranteed against breakage.

Send for booklet showing the correct plug for your engine. There is a type of Splitdorf Green Jacket Spark Plug best suited for *your* engine.

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STYLEPLUS CLOTHES

Which is it with you—
Is it highest price or Styleplus?

Are you going to pay an extravagant price to insure getting good clothes—or buy Styleplus, which guarantee you style and all-wool quality at moderate price?

The all-wool Styleplus fabrics are splendidly tailored. The clothes have *style*. Every suit is *guaranteed* to give satisfaction. Yet you pay a moderate price! A *known* price printed on the sleeve ticket!

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"The sleeve ticket tells the price

Trade Mark Reg.

Dispersal Sale

28 Registered Holsteins

L. B. Van Blaricon Herd

El Monte, Cal.
Saturday,
May 8, 1920

This is one of the best small herds in Southern California.

The owner has milked and handled the herd himself for the past six years, and under ordinary herd conditions has developed a large percentage of his milking females to official records up to over 26 pounds butter in 7 days.

The herd has been regularly tuberculin tested and no reactors have been found for over three years. The cattle will be sold under certificates from a Deputy State Veterinarian.

This is also a highly bred offering, details of which will appear in later announcements.

If you want to buy from one of the cleanest herds of its size in the state don't miss this sale.

Catalog free on request.

Management:

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Los Angeles, Calif.
618 So. Spring St.

San Francisco, Calif.
440-442 Sansome St.

The farmers of Shasta County are uniting and securing funds for the establishment of a hospital.

Infectious Abortion in Sows

By Fred M. Hayes and Jacob Traum of the Division of Veterinary Science, University of California

REPORTS from the Middle West and from some sections of California indicate that infectious abortion in sows is becoming of considerable importance. This disease is already widespread among cattle, particularly dairy cattle. Its extension to sows calls for additional vigilance to prevent greater loss and if possible to confine the disease within the limits in which it has lately been recognized. Within the past three months three outbreaks of considerable size have been investigated in California. Answers to a questionnaire recently sent out to swine raisers show that the disease is perhaps more prevalent than is generally recognized, but not alarmingly so.

Cause

Results of investigations thus far carried out by the division of veterinary science of this station in the three herds referred to have indicated that the abortions were due to an infection with a germ indistinguishable from the abortion bacillus of cattle. Pure cultures of this organism have been obtained from the afterbirth, vaginal discharges, and the organs and body fluids of the immature fetuses. Since abortion in cattle is so widespread it is assumed that the source of the infection in swine is probably infected cattle. In cattle this disease is indicated not only by abortion of the fetus, but also by retained afterbirth, barrenness, inflammation of the womb and ovaries. The infection in sows probably enters the system through the digestive tract mainly, as in cattle, but the boar through service may be a factor. The relative importance of these channels of infection is yet to be determined.

Symptoms and Diagnosis

The symptoms thus far recognized do not vary greatly from those observed at the normal farrowing time. In a few cases a slight greyish discharge has been noticed just prior to the abortion. Abortions may occur at any period of pregnancy. Those occurring early result in the expelling of the litter without visible effort. More labor is required the nearer the end of gestation period that the abortion occurs. There is some evidence at the present time to indicate that what appears to be a normal birth of a litter in an infected herd may be one accompanied by infection with the abortion bacillus. This is particularly true where all or some of the pigs are dropped underdeveloped, weak or dead. Some sows show a greyish discharge from the genital organs for several days after the abnormal farrowing. The afterbirth also shows an accumulation of this material on the surface that has attached it to the mother's womb. From the appearances of the sow or the farrowing act, it is difficult, if not impossible, to determine whether or not the sow and pigs are infected. Occasional abortions are claimed to result from undue exposure, accident, spoiled food, and deficient food elements. Diseases like hog cholera, swine plague, etc., are known to cause abortion, but infectious abortion should be suspected in all cases where, prior to the act of abortion, the sow shows no evidence of disease. The most practical means of determining whether or not this infection exists in a herd is either to isolate the germ from the fresh afterbirth or fetus or perform the agglutination test on the blood serum of suspected sows. The division of veterinary science is willing to perform the agglutination test on the blood of sows if the swine raisers will have the blood collected and sent to the laboratory.

What the Test Means

Reaction to the agglutination test for infectious abortion indicates that the animal is infected with the disease or has been infected at some previous time. It is not an indication, however, as to whether or not a sow will abort. The reaction of a number of animals in a herd shows the presence of active abortion infection in the herd.

These interpretations are based upon experience with infectious abortion in cattle. The limited work done at this station or reported from elsewhere on this disease in hogs, does not warrant any more definite interpretation. Should future observations of this station or reports from other stations permit different interpretations, such information will be contained in the letter reporting results of the test.

Drawing and Shipping the Blood

The most convenient place to draw the blood for the test is from the marginal vein of the ear. The vein lies on top of the ear and from one-half to one inch from the outer edge. The skin over this region should be thoroughly cleansed. Rubbing the ear and squeezing it near the base will distend the vein and make it more visible. The vein may be incised with a sterilized knife or razor blade and the blood allowed to drop into a clean, dry and preferably sterile bottle. About one tablespoon of blood is sufficient. A few minutes after the blood has clotted the bottle should be shaken to separate the clot from the sides. The knife should be sterilized by boiling before use and also cleaned before using on another sow.

It is difficult to draw blood from the ears of some sows. In such cases the blood may be drawn from the tail. After thoroughly cleansing a small piece may be clipped off, or an incision of about one-quarter inch may be made crosswise on the underside of the tail at about two or three inches from the root and the blood allowed to flow into the bottle. The blood flow from the tail can be stopped by tying a string around it and painting the cut area with tincture of iodine. Samples may be shipped by express, or by parcel post to Division of Veterinary Science, University Farm, Davis, California.

Treatment and Prevention

We have no information at the present time that drugs or vaccines are of any value in c ntrolling abortion in sows. Drugs have proved of no value in controlling this disease in cattle, and vaccines are only in an experimental stage. Our efforts, therefore, should be directed toward the prevention of the disease and, in the light of our present knowledge, should consist in observing the following precautions.

Where infectious abortion in swine does not exist: Keep sows away from cattle and new born calves. Pasteurize all milk fed to hogs. Milk may be pasteurized by heating to 145 degrees Fahrenheit, holding it at that temperature for one-half hour, and cooling immediately.

Newly purchased sows, especially if they are settled in pig, should be kept isolated until farrowing unless there is a clean history of no such infection in the herd from which they came.

Sows shipped away to be bred should be kept separate from the balance of the herd into which they go and also be isolated upon return home unless there is a clean record of no abortions in the herds.

Where infectious abortion in swine does exist:

Remove the healthy sows to non-infected pens or pastures, if abortions occur in any group. The sow that has aborted or reacted to the agglutination test, and the aborted fetuses and afterbirths are centers of infection from which the disease may be controlled to prevent the spread of the infection

Remove and destroy by burning or burying the aborted fetuses and afterbirths so that other sows will not come in contact with them.

Keep the aborters closely confined until all evidences of a discharge have ceased. The discharge after apparently stopping may begin again. It is therefore advisable to be cautious about releasing suspected sows from quarantine.

Before turning out an aborter, or even a sow that has farrowed normally in an infected herd, she should be sprayed or scrubbed with a disinfectant solution. Particular attention should be directed to disinfecting the region around the external genital organs. Clean and disinfect the pens frequently and especially after they have been occupied by a farrowing sow.

Sows that appear healthy but have reacted to the agglutination test should be carefully watched and handled as expected aborters. Even if a reacting sow farrows a normal litter she should be treated as an aborter because experience with cattle show that in such reactors a normal birth may be accompanied by infection.

Southern California Breeders Spring Sale

100 REGISTERED HOLSTEINS

Rhoades and Rhoades Sale Pavilion
CLEARWATER, CAL.

Tuesday and Wednesday, April 27-28

An offering of registered Holsteins of high merit, including many of the best bred things ever sold in Southern California; wonderful producing cows with both short and long time records; cows that have milked over 100 lbs. in one day; cows that are now milking from 60 to over 90 lbs. per day; daughters of great producing dams by highly bred sires; cows and heifers in calf to some of the best bulls in the state; and an offering of bulls that contains real herd bulls and young sires that should improve any high class dairy herd.

Some Females to be Sold:

A GRANDDAUGHTER of both the former world's record cows Aralia De Kol and Riverside Sadie De Kol Burke. Her three nearest dams average 1060.7 lbs. butter and 2626.5 lbs. milk in one year.

DURMELIA 2ND, First Prize cow at Riverside Fair. Now on yearly test and has made over 12,000 lbs. milk in first 4½ months. She is bred to the sensational young sire Sir Veeman Korndyke Pontiac .

TEN DAUGHTERS OF ARALIA DE KOL PONTIAC SALAMBO, whose three nearest dams average 1032.17 lbs. butter and 24158.2 lbs. milk in one year. Some of the strongest long time production backing to be found.

SEVERAL GRANDDAUGHTERS OF PONTIAC CLOTHILDE DE KOL 2ND, the first cow to make over 1200 lbs. butter in one year or over 37 lbs. in 7 days.

SEVERAL GRANDDAUGHTERS OF TILLY ALCARTRA, bred to bulls of outstanding quality.

SOME CHOICE COWS AND HEIFERS bred to King Winnie, whose dam was the first cow in California to make over 1200 lbs. butter in one year.

TWO DAUGHTERS OF SIR VEEMAN KORNDYKE PONTIAC, whose first daughters to freshen are placing him among the very top bulls yet developed in the west.

MANY COWS WITH OFFICIAL RECORDS up to over 25 pounds butter in 7 days; cows from dams with over 30 lbs. butter in 7 days; cows and heifers by yearly record sires and out of high record dams.

Some of the Bulls to be Sold:

KING PAUL KORNDYKE VALE, who sells only because Mr. Millard is making an absolute dispersal sale. He is by King Korndyke Sadie Vale out of a 31 lb. daughter of Sir Sadie Cornucopia. He is a big bull and sires big framed, stralght calves. His dam and sire's dam both weighed over a ton each and he is transmitting their great size. You don't have to look beyond this fellow for a real herd sire.

A SON OF KING PAUL KORNDYKE VALE out of a 21 lb. 3 year old whose three nearest dams average 1,060.7 lbs. butter from 26,264.5 lbs. milk in one year. The dam is granddaughter of Riverside Sadie De Kol Burke and Aralia De Kol, both former world's record cows.

SEVERAL YOUNG SONS of Aralia De Kol Pontiac Salambo, whose three nearest dams average 1,032.17 lbs. butter and 24,158.2 lbs., milk in one year.

A SON OF KING PONTIAC NETHERLAND SEGIS 3D, whose daughters are making splendid production records, out of a great 28 lb. cow that has a 25 lb. 3 year old daughter and a 17 lb. junior 2 year old daughter.

CHOICE YOUNG SONS of AAGGIE DE KOL COLANTHA, and of TOYON FAYNE VALDESSA, two royally bred herd sires.

Contributors to Sale:

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(Complete dispersal)
P. H. KRICK, Anaheim
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EVERY ANIMAL IN SALE POSITIVELY GUARANTEED TO BE A BREEDER; NO ANIMAL TUBERCULIN TESTED

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Sacramento, Calif.

Cleaning and disinfecting must be thorough and the disinfectant of sufficient strength. A good disinfectant can be prepared from one pint of compound solution of cresol to four gallons of water; or from one pint of a dip of uniform composition and the same amount of water.

NAVEL OR JOINT ILL CAN BE PREVENTED

"In the spring, at foaling time, great care should be taken to prevent 'navel ill' or 'joint ill' in colts," is the advise of Dr. W. R. Kidwell, assistant professor of veterinary science in the University of Idaho. "This is an acute infectious disease that occurs within the first month. It is characterized by a swelling of the leg joints which usually appears a few days after birth. The swellings are hot and painful and often rupture and discharge pus. Any movement of the legs is made with difficulty and the animal appears lame. The disease frequently results in chronic inflammation of the joints and permanent enlargement of the joints. In some instances the joints are unaffected, but the navel swells and becomes hot and painful and sometimes even discharges pus. Abscesses occasionally are formed in the internal organs. With either kind of infection the animal refuses to suck, is depressed and lies down most of the time.

"If the bowels are affected the animal will have abdominal pains. When lifted to its feet it is rarely able to stand; the temperature is high, around 105 degrees Fahrenheit and breathing is difficult. The death rate is high, running as much as 90 per cent in some cases, and if the animals recover they are usually stunted and fail to do well for some months.

"The treatment of this disease is not very satisfactory—the best treatment being prevention. Proper care should be given the colt at birth such as painting the navel with tincture of iodine and then dusting with an antiseptic powder. The stall where the mare is kept before foaling should be clean and should be thoroughly disinfected with creolin or some satisfactory dip, then bedded with clean straw and that sprinkled with disinfectant. In light attacks painting the swelling with tincture of iodine and providing clean, dry quarters are of help. Severe cases require the attention of a veterinarian."

MORE GOOD HORSES NEEDED

The thing most needed in the production of work horses for American farms is greater care in the selection of the stallion and the brood mare, say animal husbandry experts of the United States department of agriculture who have been studying the present situation with respect to horses. Not only was there a net decrease of approximately 373,000 in the number of horses on farms on January 1, compared with a year ago, but the experts are of the opinion that there has been an even more marked decrease in the number of mares bred during 1919. The extent of this decrease can not be accurately determined until the colt crop of 1920 is estimated. However, if the decline in breeding is as great as conditions now indicate, the country will be confronted with a seriously depleted supply of good horses within the next few years.

Many farmers are using up their work stock without making any provision for the future. Such a policy is short sighted and will have serious results, according to department of agriculture representatives. The present need is to increase the percentage of efficient horses by the careful selection of parents. One of the principal factors from which the market is suffering is the breeding of too many low grade work animals. There is a strong demand for high class horses, at good prices, the department says.

SWINE FIGURES

The United States department of agriculture estimated that we had on farms: 70,978,000 head of hogs January 1, 1918; 74,584,000 head of hogs January 1, 1919, 72,909,000 head of hogs January 1, 1920.

This shows a decrease of slightly over two per cent in the total number of hogs during the calendar year 1919. However with that decrease there has been an increase in the number of hogs registered by the various swine record associations during the same period. In the year 1918 there were approximately 315,000 head of hogs recorded by all the associations as compared with 424,000 recorded in the past calendar year. This shows an increase of almost 35 per cent in the number of registrations. With it there should be a somewhat comparable improvement of the quality of our swine.

It is interesting to note that since the beginning of the practice of recording pure bred hogs in this country there have been approximately 3,500,000 head of hogs recorded during the period of about 45 years during which associations have been keeping the records. A large percentage of the total number of hogs which we now have carry some of the blood of the hogs of the various breeds; many of the hogs are pure breds but have never been kept recorded; and too large a number of our hogs today show no good breeding from any of the pure breeds. There is still an abundance of room for improving our swine.

The Fifth Annual National Swine Show will be held on the Iowa state fair grounds, Des Moines, Iowa, October 4 to 8. With a few exceptions, the classification will be identical with that of previous years and will include $2,000 classification for each, the Berkshire, Chester White, Duroc-Jersey, Hampshire, Poland China and Spotted Poland China breeds, and $1,000 classification for each, Large Yorkshires and Tamworths. The Duroc-ersey futurity will carry a $2,000 classification this year instead of $1,000 as has been the custom in the past.

IMPORTANCE OF CAN DRYING AFTER STERILIZING

Clean, sterile, dry cans for milk and cream are constantly becoming of greater financial importance to the milk plants, creameries, cheese factories and ice cream factories of the state. It has been estimated that a saving of from $200 to $5000 per year in each plant, depending on output, could be effected by proper can drying. Loss not only results from the short life of the cans but the quality of the product is also affected.

The application of live steam for a given length of time to the inside of a can kills most of the bacteria and molds. However, to be effective this must be followed by hot, dry sterilized air, which prolongs the sterilization, aids in the destruction of sport forming bacteria, and thoroughly dries the can. Rust and oxidizing influences, so destructive to containers, are checked by this drying.

After sterilizing a can by live steam, condensation from the steam remaining in the can takes place, and unless removed by artificial drying this moisture affords an excellent breeding ground for bacteria.

Cans sterilized and dried may be covered immediately and shipped long distances or held for indefinite periods and retain their sweetness. This not only results in saving the life of the can but insures further improvement in the quality of the product and minimizezs danger of metallic taste or oxidation.

WHICH ONE?

There was a man in our town and he was wondrous wise, he didn't buy his tractor until he'd used his eyes. He watched a lot of tractors work upon the neighboring farms and noted their advantages, their weaknesses, and charms. He saw that while they all were good, that one was far the best, and at its work, in field or belt, it far outshone the rest.

San Diego County has a new farm adviser, J. G. France succeeding Mr. Weinland.

Sensational ? Yes!!!

An offering of registered Holsteins equal to the W. J. Higdon herd would be a real sensation in any Holstein community in the world, for few men in their entire lifetime succeed in gathering and developing a herd of equal merit. Selection of the foundation animals for this superb herd was made with extraordinary judgment, as later events fully proved, and the development of these cattle has written one of the bright pages in the history of constructive work for the breed. With the exception of the young daughters of that wonderful young sire KING KORNDYKE PONTIAC 20TH, the entire herd will be sold to the highest bidder at

Tulare Sale Pavilion, Tulare, Cal.

WEDNESDAY, MAY 5, 1920

55 Registered Holstein Females and Bulls

Just for a moment follow this list of some of the females to be offered, most of which are bred to King Korndyke Pontiac 20th, and then weigh their tremendous value as breeding and producing animals:

HOLLYWOOD LILITH PONTIAC, 36.20 lbs. butter in 7 days as a senior 3 year old, California record in class. She has a sister by the same sire with over 38 lbs. butter in 7 days, another has just made over 35 lbs., and another now on test promises to make over 37 lbs.
COLOMBA BEAUTY BUTTER MAID, 34.71 lbs. butter in 7 days at 4 yrs. 2 mo. She also made 875.33 lbs. butter from 20,202.7 lbs. milk in one year freshening at 3 yrs. 12 days. She was selected to go to the St. Paul Sale before Mr. Higdon decided to sell his herd.
THELMA HARTOG DE KOL, 31.13 lbs. butter in 7 days, and well along with calf to a son of Mutual Fobes Longfield De Kol.
MONA FOBES, 30.11 lbs. butter in 7 days, a daughter of Mutual Fobes Longfield De Kol and one of the most beautiful individuals in California. She also was selected to go to the St. Paul Sale.
FAY TRITOMIA HENGERVELD, 30.42 lbs. butter in 7 days, and she is a daughter of Mutual Fobes Longfield De Kol.
WINIFRED HOTALING 3D, 32.19 lbs. butter in 7 days, dam of a 30 lb. junior 4 year old, and out of the same dam as two 33 lb. cows, one of which made 874 lbs. butter in one year.
HERTINGA WILLIS, 1,003.36 lbs. butter from 23,969.4 lbs. milk in one year.
WAYNE OF ROCK MARTHA, 830 lbs. butter from 21,620 lbs. milk in one year as a senior 2 year old, her dam with 800.65 lbs. butter from 17,770.3 lbs. milk in 305 days.
TWO DAUGHTERS OF THE 31 LB. COW Thelma Hartog De Kol, both bred to King Korndyke Pontiac 20th.
TWO DAUGHTERS OF THE 35 LB. COW Trout Brook Pontiac Starin, both bred to King Korndyke Pontiac 20th.
A 22 LB. JUNIOR 2 YEAR OLD daughter of Prince Riverside Walker, bred to King Korndyke Pontiac 20th.
A 28 LB. GRANDDAUGHTER OF KING OF THE PONTIACS, bred to King Korndyke Pontiac 20th.
A 26 LB. COW that made 707 lbs. butter in one year as a senior 3 year old. Bred to King Korndyke Pontiac 20th.
A DAUGHTER OF PRINCE RIVERSIDE WALKER, out of a cow that made over 800 lbs. butter in 305 days and has a daughter that made over 830 lbs. butter in one year as a senior 2 year old.
A HEIFER out of a 27 lb. daughter of Arcady Pontiac Wayne Hengerveld, bred to King Korndyke Pontiac 20th.
MODEL BONNIE ECHO, a 23 lb. show cow, bred to King Korndyke Pontiac 20th.
A 16 LB. 3 YEAR OLD daughter of a 37 lb. sire, bred to King Korndyke Pontiac 20th.
A 21 LB. JUNIOR 2 YEAR OLD granddaughter of King of the Pontiacs, bred to King Korndyke Pontiac 20th.
A 17 LB. 2 YEAR OLD daughter of Prince Riverside Walker. Bred to King Korndyke Pontiac 20th.
A BEAUTIFUL DAUGHTER OF KING MEAD OF RIVERSIDE, bred to Prince Coloma Segis, 34 lb. son of Prince Riverside Walker.
TWENTY DAUGHTERS OF PRINCE RIVERSIDE WALKER, that are positively the outstanding group of daughters of one sire ever offered at public or private sale in the west. These are good enough to go into any herd, and are extraordinary material for foundation stock.

The Bulls in the sale are as high class as the females, including several youngsters of herd heading quality of the first rank

KING KORNDYKE PONTIAC 20TH is without question the most sensational bull that ever appeared in a Pacific Coast sale ring. His breeding is too well known to require repetition here. His first two daughters to freshen have shown production that stamps him as a sire worthy of his inheritance. He stands today as one of the best known, most popular, most promising young sires of the breed, and his presence at the head of any herd will add prestige that could not otherwise be secured by the expenditure of money well up into five figures.

PRINCE RIVERSIDE MADRIGAL MOOIKE by Prince Riverside Walker and out of Madrigal Mooike 2nd, 32.91 lbs. butter in 7 days as a senior 3 year old, 755.95 lbs. butter from 20,160.5 lbs. milk in one year as a junior 2 year old.
KING KORNDYKE PAULA SEGIS by King Korndyke Pontiac 20th, out of Paul Segis, 30 lbs. butter in 7 days, she by Sir Ormsby Burke Segis, son of King Segis.
KING KORNDYKE PONTIAC LEDA by King Korndyke Pontiac 20th, out of a 30 lb. daughter of Korndyke Queen De Kol's Prince and a half sister to Tilly Alcartra.
KING KORNDYKE SENORITA by King Korndyke Pontiac 20th out of a 26 lb. dam that made 707 lbs. butter in one year as a 3 year old.
KING KORNDYKE PONTIAC 23D by King Korndyke Pontiac, out of a 24 lb. daughter of King of the Pontiacs that made 714.17 lbs. butter from 15,889.8 lbs. milk in one year as a senior 2 year old. This bull is just 3 years old, a fine individual, straight and right in every way, ready for the heaviest service.
TWO YOUNGER BULLS of rich breeding and splendid individuality that will make first class investments for owners of high class dairy herds.

Every animal positively guranteed to be a breeder: every animal over six months old tuberculin tested and sold subject to retest by the buyer

NOTE:—Mr. Higdon's herd has been regularly tuberculin tested ever since it was founded, and the very few reactors have always been removed from the herd immediately. In the test for this sale 64 head in all were tested, including some of the heifers that are to be kept, and only one suspect was found. She was immediately removed and does not appear in the sale. There has never been a case of contagious abortion in the herd, and only one cow that has failed to breed.

Catalog of sale free on request. Management

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres. C. L. Hughes, Sales Manager,
Sacramento, California.
Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare.

Write Ross Today!

IF YOU are going to need an ensilage cutter this fall *now* is the time to place your order. If you do not know the Ross dealer in your locality, write direct for all the facts regarding the heavy-duty machine that is built in sizes to match your present power *--low-speed, clean cutting, smooth running*

Ross Ensilage Cutters

Ross Cutters are built to give year after year highest grade and most economical service. The Flywheel Type machine is equipped with *Rockwood Fibre Pulleys* which absolutely eliminate belt slippage. Ross Ball Bearing, End Thrust and Extra Knife Adjustment forces the knives right up to the shear-bar--and *holds them there.*

No choking, no chattering. Just smooth, steady running and sharp, clean cutting day after day and season after season.

Get the facts now. There is a Ross Cutter to meet your requirements and to match your power--from 4 horse-power up. See your dealer--or drop us a post card.

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Have all Breeds of Registered

Draft Stallions and Mammoth Jacks

Shorthorn and Hereford Bulls

Registered and Unregistered.

All Animals Sold Under Guarantee.

Merritt-Bowers Co., TULARE, CALIF.

If you are interested in this very great breed you will find it worth your while to visit the

Ortega-Underhill-Rancho
O. U. R.
Registered Hampshires

Thos. T. Dinsmore, Manager Santa Barbara, Cal.

You will find there some of the best blood in the country and a truly great herd in course of construction.

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows.

HARVEY'S CHOICE
Grand Champion Boar
at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair

SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

A. E. Harvey, Manager Redlands, Cal.

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REGISTERED HOG SALES A SPECIALTY

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

April 20, Bonita Stock Farm, Lodi.

April 27-28, Southern California Consignment, Clearwater.

May 5, W. J. Higdon, Tulare.

May 6, R. C. Sturgeon and others, Tulare.

May 12, Leeman & Kilgore, Dispersal, Rinon.

June 17, C. W. Anderson, Burbank. Dispersal.

Milking Shorthorns

May 5, Thos. Harrison, Santa Rosa.

Poland Chinas

April 24, W. T. Dice and Harrold Waltz, Hanford.

A. W. Morris and Sons, of Woodland, have announced that Tilly Alcartra, world famous Holstein cow, gave birth to a son last week. The arrival of this youngster has been awaited with more than passing interest ever since it became known that Tilly had been sent to the court of Carnation King Sylvia, the $106,000 bull owned hy the Carnation Stock Farms, Seattle, Washington. Weighed in the scales used to measure livestock values, it is doubtful if a calf of greater potential value has been produced within the hreed. The basis for that statement is found in the remarkable combination of bloodlines back of the youngster. His dam is generally rated as the greatest dairy cow in the world and the sire is a son of May Echo Sylvia, holding a place but slightly below Tilly. The calf is entered in the National sale to be held in St. Paul next June, and one man's guess as to what he will fetch is as good as another's — if the guess is high enough. At one time an option was sought for a bull calf from the same mating at the reported price of $50,000.

. H. C. Muddux and Son of Sacramento have recently purchased from Caledonia Farms, West Sacramento, ten Scotch topped Shorthorn cows. Eight of the cows have heifer calves at foot sired by the well known Caledonia herd bulls. It will be remembered that Muddux and Son purchased, at the last California Shorthorn Breeders' sale, the Scotch bull, White Emblem, one of the top bulls in the consignment from the Black Hawk Ranch.

Giant Bob, grand champion Poland China boar at the 1919 California state fair, is dead. Giant Bob was sired by Caldwell's Big Bob, grand champion at the 1918 National Swine Show. He was developed and shown to the championship by Chas. Gatewood of Fresno and was purchased at the Gatewood dispersal sale by Alfred M. Buckland of Fresno and Z. M. Dickey of Dinuba for the record breaking price of $5,250. Giant Bob was conceded to be one of the most acceptable types of Poland Chinas developed in the West and his untimely death will be regretted by all Poland China breeders.

Frank B. Anderson, formerly secretary of the Western Berkshire Congress, has received a letter from the experiment station of Guam to the effect that the shipment of Berkshires recently selected from the herds of this state had arrived at their destination after a stormy passage. It was stated in the letter that the shipment made a very favorable impression on the island and that the initial order will probably open the way for more California Berkshires.

At a recent meeting of the executive committee of the Western Berkshire Congress arrangements were completed for Bruce S. Bennett, formerly of the Cultivator staff, to take over the work of field man for the organization. The Berkshire breeders are the first livestock organization in the West to engage the services of a field man.

Chas. E. Dack, Poland China breeder of Fresno, writes as follows: "Just a line to say that out at Berma Rancho the March litters are doing well. We have three litters by Giant Bob, also a litter from a King's Big Bone Leader gilt. We have been fortunate in escaping the contagious abortion so prevalent throughout the state. A litter of exceptional promise is one whose dam is by King's Big Bone Leader out of a daughter of Caldwell's Big Bob, and they in turn are sired

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FAMILY — A Square Deal in Holsteins — QUALITY
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California's FIRST Federal Accredited HERD

BRENTWOOD

ALSO

California's FIRST Herd Under Federal Supervision

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350 Healthy Holsteins

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LOS ALTOS and BRENTWOOD

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FAMILY — A Square Deal in Holsteins — QUALITY
PRODUCTION

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Has Imitators But No Competitors

A Safe, Speedy, Positive Remedy for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs and Lameness from Spavin, Ringbone and other bony tumors. Cures skin diseases or Parasites, Thrush, Diptheria. Removes Bunches from Horses or Cattle.

As a Human Liniment and Antiseptic for external use it is invaluable.

Every bottle of **Caustic Balsam** sold is warranted to give satisfaction. Price $1.75 per bottle. Sold by druggists, or sent by parcel post, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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Parasiticide. Disinfectant.

USE IT ON ALL LIVESTOCK

To Kill Lice, Mites, Fleas, and Sheep Ticks.
To Help Heal Cuts, Scratches and Common Skin Troubles.

USE IT IN ALL BUILDINGS

To Kill Disease Germs and Thus Prevent Contagious Animal Diseases.

EASY TO USE. EFFICIENT. ECONOMICAL.

FREE BOOKLETS.

We will send you a booklet on the treatment of mange, eczema or pitch mange, arthritis, sore mouth, etc.

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Write for them to

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PARKE, DAVIS & CO.

DETROIT, MICH.

Cure Your Horse While He Works

Don't let sore shoulders, saddle or collar galls, rope burns, etc., keep your horse from work. Bickmore's Gall Cure will quickly cure your horse—*while he works!* Your money back if it fails. At all dealers, 35c, 70c, $1.40. Also ask for Bickmore's Horse Liniment. —— For yourself, always keep handy Bickmore's XYZ Skin Ointment and Bickmore's XYZ Family Liniment. Ask your dealer for them.

Bickmore's Gall Cure

Use Shire Horses for Farm Power and Profit

Breed to SHIRE STALLIONS and raise Geldings that will top the market. SHIRES produce the largest and most powerful geldings that work well, and are selling at present from $200 to $350. The demand for good draft horses is increasing.

For Booklet or information on Shires write

W. G. Lynch, Secretary, American Shire Horse Association, Tonica, Illinois

by Giant Bob. These pigs have about as much Big Bob blood in them as it is possible to get. Big Susie has a corking litter by Prospector. The Indicator, junior herd boar, is coming along fine."

Evergreen Hutch, second prize senior gilt at the Iowa State Fair in 1919, recently purchased by J. F. Lehman, Lodi, from Henry Dorr, Remsen, Iowa, farrowed eight good pigs by Evergreen Model. As the litter are line bred descendants of Big Bob they should make something very good. Mr. Lehman expects to show both sow and litter at Sacramento next September.

Hugh Shinn, Tulare, has a good litter sired by the grand champion of the last National Swine Show, The Pilot. They are out of a Bloemendaal's Big Chief Again sow and are a very promising bunch of youngsters. The Californian, Shinn & Elliott's good herd boar, is a half brother of The Pilot and is siring some unusually good pigs, quite a few of which will be at the state fair and be featured in the big September 27th sale to be held by this firm.

Secretary Chas. W. Paine of the state fair has received word that the American Jersey Cattle Club has decided to double the amount of prize money offered by that association.

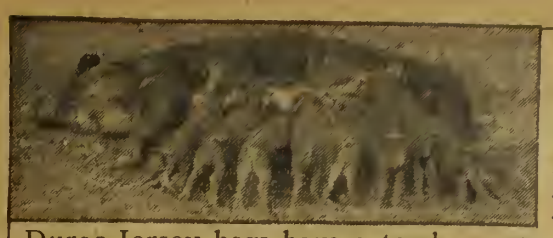
The Toyon Farm Association of Los Altos announces the sale of 15 head of Holstein cattle to Ricardo F de Ferari of Valparaiso, Chile, South America. The importance of this sale is obvious. South America and the Orient will unquestionably as time goes on draw heavily for breeding stock on America. California is the natural point of selection and shipment. This advantage of position will result in sales of magnitude, provided breeders here really go after the business constructively. In this shipment of four bulls and 11 females, the Toyon Farm Association feel they have met the requirements of future business The shipment was all that could be desired in health, quality and price. The consideration of health, the freedom from tuberculosis, not only in the particular individual but in the history of the herd, will determine to a large extent the frequence of these major sales for California in the future. Other sales from Toyon Farms include a young bull, Toyon Beauty Valdessa, to the State Veterans' Home at Yountville. This young sire is a son of Finderne Soldene Valdessa, a son of King Valdessa whose two nearest dams are the first 44 pound cow and the first 40 pound cow respectively. The sire's dam holds the world's record for a heifer with first calf. The dam is by Creamcup Pontiac Burke with 14 A. R. O. daughters, brother to the sire of Vera Wal Princess out of Beauty Ciruela De Kol Johanna who also has several A. R. O. daughters.

E. A. Byer of Byron, has purchased from Toyon Farms, Los Altos, Moxee Inka De Kol Colanthus 2d, a young cow which should be a welcome addition to any herd. The sire is from a granddaughter of Piebe De Kol Burke by a son of Fobes Tritomia Mutual De Kol and Glen De Kol Artis 3d, she a daughter of the noted Homestead Jr. De Kol, sire of the former world's champion seven day butter producer, Grace Fayne 2d's Homestead. The dam is from a daughter of Inka Wit Mercedes De Kol, by a son of Reka Ormsby Prince.

Geo. V. Beckman & Sons, Lodi, are feeling optimistic over the season's prospects. The get of Lakeside Defender is showing up well and they have several choice March litters from which to select their futurity pigs. Sherwood Beckman reports their pig crop as smaller than usual but hopes to give these extra attention.

N. B. Haydon at Hynes owns an outstanding senior yearling Duroc boar in OCK's Pathfinder Del Solano 291231. This boar combines the blood of Orion Cherry King, old Pathfinder and Crimson Wonder. He was bred by Sterling S. Smith of La Mesa. Mr. Haydon has pigs that demonstrate the real worth of such a well bred sire.

At Tu-Toc-a-Nu-La Ranch, Van Nuys, under the management of Mrs. R. E. Whitley, the young Durocs are to be seen in large numbers, and prosperous



MORE PORK IN LESS TIME

Duroc-Jersey hogs have a tendency to put on great amounts of pork at an early age. They are easy-feeding animals, and raise large families. These hogs were introduced less than 50 years ago, and yet in 1918, 51% of all the hogs marketed in the country were "Duroc-Jerseys." They are uniformly red in color. Increase your profits by raising Duroc-Jersey hogs.

Write for "DUROC-JERSEY HOGS ARE PROLIFIC AND PROFITABLE"—sent free to hog-raisers by the largest swine record association in the world. Over 12,000 members.

The National Duroc-Jersey Record Association. Dept. 130 **Peoria, Ill.**

A-1 Duroc Ranch

Where one of the state's greatest herds of Duroc-Jerseys is maintained. For years our Durocs have proven profitable to farmer and breeder alike. Better place your order now for spring pigs as what we will be able to spare will go quickly. Remember, this is the home of the state's highest priced ($1500) and most valuable Duroc-Jersey sow.

J. P. Walker, RFD 1, Box 40½, Visalia, Cal.

Sows and Gilts---GET ONE

Bred to farrow next two months. We are making an extremely low price on these to reduce our herd. At the price we won't keep them long. Write today. Quick, before they are all gone.

H. P. Slocum, Willows, Cal.

SPRING PIGS---DUROC-JERSEYS

sired by ORION'S KING GANO, a boar famous not only for his own great individuality, but for the smoothness and quality of his get. If you want some of these quick maturing, prolific Durocs, write me at once.

Donald H. Graham **Lancaster, Cal.**

Bred Sow Sale Mid-Summer

The Greatest Duroc Boar of His Age!
Choice Wonder 3d

a winner at the 1919 Iowa State fair, sired by the great boar, Mahaska Wonder, and a litter mate to the first prize junior boar of Iowa, heads our herd. He is the largest, heaviest boned, best footed boar in the state and he is being mated to the sows that have made this herd famous for futurity winners. Get your order in early for his pigs. Prices are most moderate. Satisfaction guaranteed.

JUNE ACRES STOCK FARM **V. F. Dolcini, Davis, Cal.**

Bred Sows and Gilts

These sows and gilts will give you pigs that will be ready for the high market this fall. They are registered Poland Chinas and bred to our great herd sires. They are priced so you can make money—get into the business NOW. We will be pleased to write you full particulars. Address

Geo. V. Beckman & Sons **Lodi, Cal.**

A Proven Poland China Sire For Sale

I am offering for sale Long Big Bone Jr. He was junior champion at the state fair in 1918. His get were among the heavy winners in 1919, and my 1920 show prospects are mostly sired by him. He is in his prime and sold for no fault. Price reasonable. Write at once.

W. A. Young **Lodi, Cal.**

P. S.—I can also spare a few choice individuals of various ages. Investigate.

BERMA RANCH

Size and quality predominate in our big type Poland Chinas. No better big type sows are found in the state. Buy Berma Poland Chinas and you buy wisely.

C. E. DACK **R. H. Box 196** **Fresno, Cal.**

TWO PREMIER SIRES

are found at the head of our herd. Caesar's Buster and Rosebud's Jumbo are siring the type of Poland Chinas you want. Get them early.

THOS. CAESAR & SON, Reedley, Calif.

BERNSTEIN'S RANCH

Home of King's Big Ben, where he is siring those early developing big type Poland Chinas that are ready for the market at 6 mo. They have size, bone, quality and are from the easy feeding families.

W. Bernstein **Hanford, Cal.**

the easiest way to make money-- SAVE IT

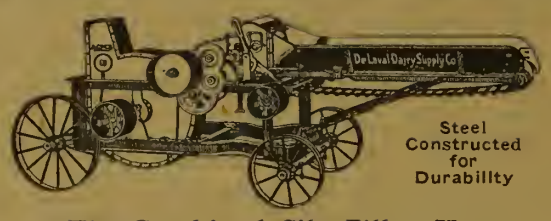
Listen, Dairymen:

Thousands of tons of hay are WASTED every year in California through the commonly used method of feeding hay from the stack into the corral. Much of it is trampled under foot—strewn all around the yard—WASTED. The coarse hay is nosed out by the stock and discarded.

This means a dead loss to you of from 15 per cent to 30 per cent—an average of over 20 per cent of your hay crop. With hay worth $30 per ton why waste $6 out of every ton you feed? How many tons will you use this year? Just figure up what you stand to lose. You can eliminate these losses in this way:

Chop all your hay with an Acme Feed Cutter and blow it ALL into the barn. Then feed it out through openings in the side of the barn into mangers in the corral. In that way ALL your hay will be consumed as food — NONE WASTED. Try it this year.

Acme Feed Cutter



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Will Save Twice Its Cost Every Season

A size for every dairy—Write for Illustrated Catalog

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San Francisco

TESTIMONIALS

"Cows increased in one week 3 per cent in milk."
A. L. McCULLOCH, Alpaugh, Cal.

"I never saw hogs do so well or grow so fast as on this molasses ration."
C. H. HARTWIG, Yuba City, Cal.

"It has enabled me to keep my stock in better condition at less expense."
J. M. HENDERSON, JR., Sacramento, Cal.

"Have one calf that refuses to drink new milk—prefers skimmilk with molasses. What do you know about that?"
R. HECKLEY, Santa Rosa, Cal.

"It has been a great advantage in getting the stock to clean up the roughage."
H. H. AMES, Chowchilla, Cal.

"One cow will turn down the choicest handfuls of alfalfa hay unless it has been 'Molassed'."
REDWOOD AYRSHIRE FARM, La Honda, Cal.

MOLASSES

cheaper than hay, but has same feeding value as corn or barley.

W. H. YOUNG COMPANY

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SUDAN GRASS

PRODUCES BIG HAY CROP

Two Carloads Seed to Sell at 15c. per pound, F.O.B.

H. E. REED Red Bluff, Cal.

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INSIST ON D.C. Semi-Solid Buttermilk

and know that your stock is getting absolutely pure buttermilk product. It's for Baby Chicks, Laying Hens, Hogs. If the tender organs of the young chicks are not given the proper care, healthy stock cannot be expected.

There is a dealer in your town.

Dill-Crosett, Inc.

San Francisco, Cal.

in high degree. With the exception of two litters they represent the get of the big yearling boar Pathfinder's Model 2d, ranging from eight to 16 pigs to the litter. There are 250 Durocs on the place today, and the equipment is up to date in all particulars and sufficient for a large expansion. A 150 acre tract is being seeded to alfalfa this spring.

A new herd of Durocs, with an old timer in command, is that owned by John Kincaid at Bakersfield. The boar in service is Orion's Cherry King J. K., with a bunch of fine pigs to his credit. He is a 1000 pound prospect. Sows in the herd are daughters of Orion's King Gano, Freddie You'll Do and Uneeda King the Colonel.

D. G. Cummins & Son, Visalia, report a fine litter of 14 Winsor's Giant Orion pigs out of Golden Sensation, the top gilt in the Winsor Ranch sale offering at Los Angeles last winter.

D. G. Maxwell, Waterloo, Iowa, has plans for the establishment of a Holstein breeding farm in San Fernando Valley.

Kern County Union High School, through the Boys' Agricultural Club, will feature a public sale of pure bred swine at Bakersfield on May 15. The get of the $1.500 Poland China boar Kern County Pilot will be among the attractions.

J. T. Dunlap is a big type Poland China fancier at Pomona. He has a Big Timm boar and five select brood sows that he brought from Iowa last fall. He has a public sale in prospect for the coming fall.

Walter Hoover, Chino, contemplates putting in a herd of milking Shorthorns.

The Pacific Coast Hereford Cattle Breeders Association announces the following membership of the executive committee: J. I. Cazier, president; H. M. Barngrover, vice president; J. A. Bunting, secretary; H. H. Gable, W. G. Briggs, W. J. Bemmerly, G. H. True and H. F. Danberg.

The Western Berkshire Congress announces that the first promotion sale will be held at Marysville, April 22. The sale will consist of 20 bred gilts.

At a meeting of livestock interests held in San Francisco April 8, preliminary steps were taken to set in motion a movement to hold a livestock show in San Francisco this fall. A committee was appointed to confer with a representative group of San Francisco business men.

At the last meeting of the board of directors of the Western Berkshire Congress the resignation of James Mills of Hamilton City as president of the congress was accepted. H. C. Muddux of Sacramento was elected president. Alex Wilson of the Italian Vineyard Company, Guasti, was elected to the board of directors to fill the vacancy made by the elevation of Mr. Muddux.

Caledonia Farms, West Sacramento, has recently sold to the university farm, Davis, two young Shorthorn bulls and a high class cow with a calf at foot. The bulls will be used on the new beef cattle project recently undertaken by the university and the cow will be given a place in the university herd. She is a half sister to the famous university cow Glenbrook's Marvel, dam of several of the noted productions of the university herd. The same herd has sold a number of young things to the calf club recently organized in Shasta County.

One of the features of Picnic Day to be held at the university farm, Davis, April 24, will be the inauguration of an annual livestock judging contest among the students of that institution. Prizes will be offered for the best judge of beef cattle, dairy cattle, sheep, hogs and horses. The contest has been planned by the students with the idea of stimulating more interest in livestock work and as a means of getting more practical training than is possible under the present inefficient organization of the college of agriculture. The contest is meeting with wide approval among the students.

Dissolution of Partnership —SALE—

75 Registerd Holsteins 75

Leeman & Kilgore Ranch

Ripon, Cal.
Wednesday
May 12, 1920

To dissolce the partnership now existing in the firm of Leeman & Kilgore, their entire herd of high class registered Holsteins will be dispersed at public sale to the highest bidder.

Although established in recent years this is widely rated as one of the best collections of the breed in the state, containing cattle of unusually popular breeding, of good type, and the herd has always been maintained in good physical condition. Some of the good things in the sale include

MISS GELSCHE WALKER KORNDYKE, 32 lb. daughter of Prince Gelsche Walker and a 29 lb. daughter of Korndyke Queen De Kol's Prince.

FAYNE SPRING FARM PONTIAC DE KOL, 26 lb. 4 year old daughter of Spring Farm King Pontiac 6th.

A 27 POUND DAUGHTER of a 28 pound cow.

A 25 POUND DAUGHTER of Segis Pontiac De Kol Burke out of a 24 lb. 3 year old daughter of King Mead of Riverside.

A DAUGHTER OF KING MORCO ALCARTRA out of a 33 lb. dam that made over 1000 lbs. butter in one year.

SEVERAL 19 TO 24 POUND COWS AND HEIFERS of splendid breeding and in calf to one or the other of the two good herd bulls.

DAUGHTERS OF KING MEAD OF RIVERSIDE, Segis Pontiac De Kol Burke, Prince Gelsche Walker, King Segis Pontiac Jannek, and other sires of great merit.

The Two Herd Bulls

SIR AAGGIE KORNDYKE ALCARTRA—Born Oct. 16, 1915. Sired by Prince Alcartra Korndyke, son of Tilly Alcartra, and out of a dam that made 860.91 lbs. butter from 21208.5 lbs. milk in one year.

KING GELSCHE WALKER KORNDYKE—Born Nov. 22, 1918. Sired by King Morco Alcartra, son of Tilly Alcartra, and out of Miss Gelsche Walker Korndyke, 32.76 lbs. butter in 7 days at 5 yrs. Six of his seven nearest dams average 30.56 lbs. butter and 692.9 lbs. milk in 7 days. Three of his seven nearest dams average 1031.56 lbs. butter from 25832.4 lbs. milk in one year. These two splendid sires will be sold, and all bred females in the sale are, in calf to them.

Every animal positively guaranteed to be a breeder; every animal over six months of age, except a very few to be sold at end of sale, tuberculin tested and sold subject to retest by the buyer.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento

Auctioneers: Rhoades and Bell

Shorthorn Prize Appropriations Over $100,000.00

The prize appropriations for the year 1920 have been very materially increased over last year's appropriations. They embrace Calf Clubs, Baby Beef Clubs, Cow and Calf Clubs, County Fairs, Association Sales, State, District and Interstate Fairs, and National and International Shows.

Write this office for special information regarding the scope of the prize awards.

Never was such an amount of money offered as prizes by a cattle breeders' association.

American Shorthorn Breeders Association

13 Dexter Park Ave, Chicago, Ill.

Ask For Literature

BREEDING DATE BOOK--FREE

We have issued a covenient little book for the keeping of breeding dates of cattle, hoping to aid the breeder and cattle owner in maintaining accurate records. We will gladly mail you a copy free if you request it. A postal will do.

CALIFORNIA BREEDERS SALES AND PEDIGREE CO.

C. L. Hughes, Sales Manager.

Sacramento Cal.

Jersey breeders of Stanislaus County have organized. D. F. Conant is president, Guy Miller, secretary.

Owing to unsettled conditions, the Poland China sale scheduled by Messrs. W. T. Dice and Harold Waltz of Hanford has been postponed. Mr. Dice has added a number of very choice individuals to his herd and hopes to soon have a sow herd second to none in the state.

Alex D. McCarty, Modesto, certainly has a real big type sire in his young boar The Westerner. One of his pigs was measured on the day it was one month old and showed a four and one-quarter inch bone. Pretty good for that age. The futurity litters by The Westerner and Calibuster are showing up with lots of promise.

The Bonita Stock Farm at Lodi offers at public auction 63 heifers and heifer calves and 27 young bulls, most of them sired by Supreme Glista Pietje, at the ranch on Tuesday, April 20. The dams of the heifers are young cows many of which have official records up to 26 pounds butter and also yearly records, to be made known at the time of the sale, which will be valuable guides to buyers in determining the worth of the youngsters.

At a recent sale of Poland Chinas held by N. K. Horan at Lockeford, the top sow, Darkness A 1st, sold to J. E. Thorp of Lockeford for $210. Prices ruled rather low, ranging from $20 to the price mentioned. The sale was managed and conducted by Cols. Leachman and Snook of Sacramento.

PRICES FOR DRAFT HORSES

The highest prices ever paid for draft horses bought in the open market at Chicago have just been placed on record. The horses were deep bodied, powerfully built drafters, averaging over 1800 pounds each in weight and costing more than $450 each, f. o. b. Chicago. One pair sold for considerably over $1000. Good judges consider this to be the best carload of draft horses ever bought on the Chicago market. They are to be shipped to farms in Maine.

The United States census for 1910 revealed 19,833,000 horses and 4,210,000 mules on farms; and the department of agriculture estimates for January 1, 1920, show 21,109,000 horses and 4,995,000 mules on farms, or an increase of 1,276,000 horses and 785,000 mules in the last decade. Besides this we exported during the nine years ending June 30, 1919, 1,149,763 horses and 376,836 mules.

PERMIT REQUIRED TO SHIP CATTLE TO OKLAHOMA

A recent bulletin received from the state board of agriculture of Oklahoma, states:

"Parties wishing to ship cattle into Oklahoma must write or wire for a permit, which will be issued in duplicate, original permit to be pinned to the tuberculin chart to be sent to this office and duplicate to be pinned to the tuberculin chart accompanying the bill of lading. We are notifying the railroads of Oklahoma not to accept cattle for dairy or breeding, grazing or feeding purposes, without a permit."

LESS WOLL USED IN FEBRUARY

Wool consumed during February was less than that used in January this year, but more than twice as much as was used during the corresponding month last year, according to the monthly report of the bureau of markets.

PREDICT NINE CENT COWS

A number of the best known cattlemen in California, after a thorough survey of conditions on the ranges and in feeding lots, have expressed the opinion that grass cows will bring nine cents a pound on the hoof during May and June. Among the large producers of cattle who have expressed this opinion is Fred H. Bixby, president of the California Cattlemen's Association.

"I believe," said Mr. Bixby, "that cattlemen will get nine cents a pound for cows during May and June. My belief is based upon the apparent shortage of cows throughout the state and the prospective demand.

"There is a good supply of steers now, but cows already are scarce and in considerable demand at firm prices.

"While I am not a prophet and do not undertake to advise other cattlemen, I expect to hold such cows as I may have for a nine cent market."

NOTES OF THE CALIFORNIA CATTLEMEN'S ASSOCIATION

The auction sales of prime cattle in cooperation with farm bureaus as proposed by the California Cattlemen's Association are receiving the approval of stockmen throughout the state. The Monterey County Cattlemen's Association has gone on record as endorsing auction sales as opposed to the union stockyards. The Salinas chamber of commerce has adopted a similar resolution.

The first definite steps towards holding auction sales were taken at a meeting of Northern California and Southern Oregon cattlemen at Montague. It was decided to hold auctions at Cottonwood, Fall River, Klamath Falls and Ashland, Oregon, some time in the early fall.

E. L. McKenzie was appointed leader for the California counties and Miles Cantrell of Rush, Oregon, was chosen leader for the Oregon counties. These two men will be the clearing house for information in these sections.

* * *

The California Cattlemen's Association is offering a trophy for a competitive livestock judging contest to be held on picnic day, April 24, at university farm, Davis. The student having the highest individual score in beef cattle judging will win the association prize.

* * *

Not content with a highly successful meeting at Santa Ynez, the cattlemen of Santa Barbara County immediately called another meeting at Los Olivos on April 3. Considerable business left over from the Santa Ynez meeting will be completed at Los Olivos.

* * *

Northern California enthusiasm for the membership campaign refuses to be downed. It had been planned to limit county meetings to the southern part of the state at this time, but the northern counties could not be restrained, and meetings were called by the Amador-El Dorado Livestock Association at Placerville and the Plumas County Cooperative Stockmen's Association at Oroville, both this week. Fred H. Bixby, president of the state association, was the principal speaker at Placerville.

GLENN COUNTY DUROC BREEDERS ORGANIZE

Between 40 and 50 Glenn County Duroc-Jersey breeders met at Willows, April 10, and organized the Glenn County Duroc-Jersey Breeders Association for the purpose of promoting the welfare of that breed in Glenn County and the upper Sacramento Valley. The meeting followed a banquet at which the necessity of organization was stressed by a number of speakers. For several years the Duroc has been making rapid strides in that county and at the present time it is thought that there are as many individual owners of pure bred Durocs in Glenn County as in any county in the state, and it has been felt that in order to place the breed on the proper footing there should be some sort of organization. The following temporary officers were elected to serve until a permanent organization can be effected: Clayton Slocum, Willows, president; B. F. Small, Willows, secretary. A committee was appointed to prepare a constitution and set of by-laws. The next meeting will be held at Orland May 8.

Senator F. W. Leavitt of Butte City presided at the opening of the meeting. Senator Leavitt announced that an effort is to be made to form a county organization for hog raisers and expressed the hope that similar organizations could be established in every county in California. Clayton Slocum told of the marked advance of the Duroc breed in Glenn County during the past few years and urged that every owner of pure bred Durocs would become identified with the new association. Mr. Guttman, a local merchant of Willows, made a stirring appeal for farmers' organizations of all kinds. Mr. Goatley, farm adviser of Glenn County, told of the work accomplished by the boys' and girls' pig clubs. Other speakers on the program included V. F. Dolcini, vice president of the California Duroc-Jersey Breeders Association; R. P. Royce of the California Cultivator; Ralph Newman of San Francisco, and B. F. Small. Mr. Hollingshead urged that a district futurity show be held at the Glenn County fair.

Every drop power-full

"Red Crown" is all-refinery gasoline — with full power in every drop. It is made to meet the requirements of your engine. Look for the "Red Crown" sign before you fill.

STANDARD OIL COMPANY (California)

The Gasoline of Quality

Burr Farm Consignment

To Southern California Holstein Breeders Sale

At Clearwater, Cal. April 27th and 28th

Richly bred cows that have milked over 100 lbs. per day; 2,500 to 3,000 lbs. per month.

Very fine individuals bred to our great herd bull, Sir Veeman Korndyke Pontiac. Also four choice yearling heifers.

Come and see them at our farm

26th and Downey Road, L. A.

Every cow has an A. R. O. record or is on yearly test now. Two extra choice bull calves by our Sir Veeman Korndyke Pontiac.

Cunningham Pulverizer

Makes a Perfect Seed Bed — Stops Evaporation—Preserves Moisture—The Best Clod Crusher ever made for Farmer, Orchardist, Vineyardist, Nurseryman and Seedsman.
Made in All Sizes. Write for Circular.

California Plow Co., Mfrs.
140 Polhemus St., San Jose

JERSEYS

Venadera Herd
Register of Merit Jerseys
Senior herd sire Altama Interest sire of 12 cows in Register of Merit.
Junior herd sire Jap's Perfection Owl, a line bred Spermfield Owl bull.
Guy H. Miller, Modesto, Cal.

All My Records
Are made under ordinary dairy conditions
The Farmer's Cow is
The Jersey
YOUNG BULLS FOR SALE
C. D. Hayworth
Modesto, Cal.

Young Jersey Bulls
For Sale
One at the head of your herd will pay big dividends on his cost. Write to
W. J. Hackett
Modesto Cal.

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right.
S. F. Williams
Chico, Cal.
Member Orland Jersey Cattle Club

CONTINENTAL GERM FREE BLACKLEG FILTRATE

Produces Lifetime immunity with one dose. It is germ free. Neither gives nor spreads disease. We challenge any and all Blackleg Products to a public test.

5,000 Reward

to any one who can prove that we do not do all that we advertise.

The only Filtrate Guaranteed.

Just as Efficient
Without Guarantee as with it.

Without Guarantee, 20c per dose
With Guarantee 40c per dose
Administered.

Hemmorhagic Septicemia
Cattle, Sheep and Swine

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DISTRIBUTORS WANTED

CONTINENTAL SERUM LABORATORIES COMPANY
MUSCATINE, IOWA

The California Cultivator
Costs Only $1 Yearly

Buyers of Young Holsteins

You will find as choice a lot of young registered Holstein heifers and bulls in the dispersal sale at

Bonita Stock Farm

Lodi, California

Tuesday, April 20

as you have ever seen in one herd. They are all well grown, in good condition and uniformly well marked.

63 Registered Holstein Heifers

The heifers range from bred heifers down to heifer calves, most of them sired by SUPREME GLISTA PIETJE, whose dam twice made over 32 lbs. butter in 7 days, and also made 631.35 lbs. butter in one year. The dams of these heifers are mostly A. R. O. cows and heifers with official records up to over 26 lbs. butter in 7 days.

27 Registered Holstein Bulls

Quite a few of these are ready for service, and they are a splendid lot, straight, well marked, growthy, and in good condition. Their dams are among the best cows recently sold from this herd.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; NO ANIMAL TUBERCULIN TESTED.

NOTE:—Bonita Stock Farm is 4 miles west of Lodi, 3 miles west of Woodbridge. Parties coming by train will be met at Lodi morning of the sale. Sale begins at 10 A. M.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Calif.

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. John A. Davis, Manteca.

THE VICTORY HERD——Holsteins and Duroc-Jerseys

Holsteins of known value, headed by Sir Piebe De Kol Segis Pontiac, a son of King Segis Pontiac Count, acknowledged one of the breed's greatest sires. A young bull from this herd is bound to prove a profitable investment.

HILLCREST FARM, H. E. Spires, Mgr., Caruthers, Cal.

Duroc-Jersey Swine of Highest Quality

Hauser's Organic Fertilizers

Built For

California Conditions

Send for Booklet, "Fertilizer Efficiency," Tells You Why

Hauser Packing Company

Los Angeles, Cal.

When Writing Advertisers, Mention the Cultivator.

The Outlook for Beef Cattle

These are uphill days for the cattle feeder in Arizona. High priced feed and low priced beef just now confront the man who thought he would make a good thing of feeding this winter.

Dr. R. H. Williams, animal husbandman of the college of agriculture, University of Arizona, sums up the situation as follows:

"According to the latest figures available as published by the monthly crop reporter there was a total of 44,399,000 beef cattle in the United States on January 1, 1919. This is an increase of about 4½ million cattle since 1916 and an increase of about nine million beef cattle and two million dairy cattle since 1914. Recently in discussing the matter with a member of the United States department of agriculture I said that I did not think the number of cattle had increased in this country as rapidly as the monthly crop reporter indicated. He stated that these figures were secured from about 30,000 reporters and they were the most reliable that can be found anywhere.

"As the United States census will be taken during the present year it will be interesting to compare the number of cattle estimated the year before the census with the number counted in the census. In 1919 the estimates were for 49,000,000 cattle and the census returns indicated that there were 8,250,000 fewer cattle in the countrty than the estimates made the previous year. The opposite conditions occurred in the census taken in 1900 for that year there were 50,500,000 cattle and the preceding year the estimate amounted to only 28,000,000 or a discrepancy of 12,000,000 between what was actually counted in the census and the estimate taken the previous year. There was not a very great difference between the estimate taken the preceding year and the number secured through the census reports for 1870, 1880 and 1890.

"I am fully convinced that the United States has fewer cattle today than in 1915. Since that time the Southwest has had three years of drouth which affected Southern California, Arizona, New Mexico and Texas. Last year the Northwest had a drouth and preceding that extremely cold winters. No doubt the western ranges are at least more lightly stocked than in 1915 or 1916. It is believed that the South, Eastern Texas and Eastern Colorado have more cattle now than four years ago, while the other parts of the country have probably maintained about the same number.

"Unless I have sized up the situation wrongly, there will be an acute shortage of cattle during the next year. Certainly the Southwest and the Northwest will aim to keep most of their females to stock up their ranges. The supply going east will also be less than formerly, for there will he a tendency to keep steers one year longer to utilize the ranges that are understocked. This country cannot expect to export a great number of cattle and the export trade in heef will be less than before the war. As I see the problem in the future the price of cattle will be higher, for there will be greater demand for stock cattle and for beef, and this should indicate that prices will increase. There has heen a distinct tendency for prices to increase in the Southwest and cattlemen are not throwing their animals on hargain counters."

Thoughts of a Cowman

By A. L. Spellmeyer

Chas. Robinson of Clay Robinson was quoted in a daily paper recently, the gist of his advice being: "Stop scrapping about packers methods and get a stockyard in Los Angeles." Now Mr. Rohinson's firm is the higgest in the country and handles much packer husiness and cannot be considered impartial in any packer-producer-consumer discussion. Part of his quoted discourse can be considered propaganda, hut the Robinson outfit shoots square. I cannot he considered a packer's pet but Clay Robinson secured good prices for me whenever I had a shipment to Kansas City, and required no watching, and in last year's heef price drive Chas. Rohinson helped several California producers get from under and gave them straight dope. If more had heeded his advice they would have heen hetter off.

He shows that all packer agitation has its direct effect on the market and the producers stand the bill. Also he favors stockyards for Los Angeles.

The California Cattlemen's Association is thoroughly without strings and has as good a hunch of straight men running it as can be found in the country, yet it is opposed to stockyards and rather favors local auction plans, etc. These men may be right hut I don't think stockyards would be a bit worse here, even if manipulated, than present marketing conditions. Certainly it would bring many new industries and provide a market all the time for any little bunches the small men have to sell.

The general opinion is that the great development of water power and land under the Colorado project will materialize, and if it does this means that the future cattle feeding district of this nation will be in the Southwest. It will mean cattle, hogs and sheep fed for the entire country and a decided change in geographical location of the hulk of livestock. It will mean further requirements for men employed in manufacturing in meat and a vast amount of alfalfa and grain products raised which must be marketed as meat on the hoof.

There is no certain market for livestock, except by private arrangement, nearer than Denver and Kansas City. Livestock prices are usually based on what the Kansas City market will permit, less freight and shrink. A stockyards in Los Angeles would certainly approximate Kansas City prices, without this difference of freight and

TULARE'S BEST CONSIGNMENT SALE

65—Registered Holsteins—65

Sale Pavilion, Tulare, Cal., Thursday, May 6, 1920

There will be no tail end, out of condition consignments in this sale, and among the animals are some of the very choicest yet offered at this popular sale place.

R. C. STURGEON, Tulare, has 38 out of the total of 65 head in the sale, which is a complete dispersal of his females of milking age, and some high class heifers, the sale being necessary on account of the sale of his ranch. All the females in his herd of breeding age are bred to SEGIS PONTIAC ABBEKERK, 35 lb. son of Segis Pontiac De Kol Burke.

R. F. GUERIN, Visalia, makes a consignment composed of some of the best individuals and most highly bred things that have ever left Sunnyside. All the females of breeding age are in calf to KING SADIE VALE IDYL SEGIS, 35 lb. son of King Korndyke Sadie Vale 27th.

ALEX WHALEY, Tulare, sells a great 30 pound cow and two beautiful heifers of rich breeding, all bred to SIR AAGGIE DE KOL ACME 2nd, five of whose seven nearest dams average 1,154 lbs. butter in one year.

THE VICTORY HERD, H. E. Spires, Caruthers, sells four choice females bred to SIR PIEBE DE KOL SEGIS PONTIAC, son of the famous King Segis Pontiac Count, and sire of the 33 lb. 3 year old state record cow of Kansas.

LES McCRACKEN, Ripon, sells ten open heifers, most of them about ready to breed, and they are good ones.

Look Over This List of Choice Females

MELBA HENGERVELD, 30 lb. daughter of Arcady Pontiac Wayne Hengerveld, bred to Sir Aaggie De Kol Acme 2d.

A 28 POUND DAUGHTER of Arcady Pontiac Wayne Hengerveld, to be fresh before sale.

A 25 POUND DAUGHTER of Arcady Pontiac Wayne Hengerveld, that has a 24 lb. 2 year old daughter. Bred to King Sadie Vale Idyl Segis.

A 24 POUND 3 YEAR OLD granddaughter of Segis Pontiac De Kol Burke, whose two year old daughters hold two state records and one world's record for yearly production. Bred to Segis Pontiac Abbekerk.

A 23 POUND DAUGHTER of Arcady Pontiac Wayne Hengerveld, bred to Segis Ponlac Abbekerk.

SEVERAL 18 and 19 POUND COWS AND HEIFERS, bred to high record bulls.

A DAUGHTER OF KING SEGIS ALCARTRA PRILLY, the three times Grand Champion bull, out of a royally bred daughter of the $50,000 bull King Segis Pontiac Alcartra.

A DAUGHTER OF KING KORNDYKE SADIE VALE 27th, out of a 29 lb. dam. Bred to King Sadie Vale Idyl Segis.

A DAUGHTER OF KING KORNDYKE SADIE VALE 27th out of a daughter of Count Segis, bred to King Sadie Idyl Segis.

A DAUGHTER OF KING KORNDYKE SADIE VALE 27th out of a 22 lb. 3 year old daughter of Changeling Butter Boy, second dam a 30 lb. daughter of Tidy Abbekerk Prince that made 985 lbs. butter from over 26,000 lbs. milk in one year.

TWO DAUGHTERS OF SIR AAGGIE DE KOL ACME 2nd, five of whose seven nearest dams average 1154 lbs. butter in one year.

SEVERAL DAUGHTERS OF SEGIS PONTIAC DE KOL LUIT, 32 lb. son of Segis Pontiac De Kol Burke.

SEVERAL DAUGHTERS OF ARALIA DE KOL PONTIAC SALAMBO, whose three nearest dams average 1032.17 lbs. butter and 24,158.2 lbs. milk in one year.

TWO DAUGHTERS OF CREAMCUP FIDESSA CORNUCOPIA LAD, whose dam made 897.09 lbs. butter from 22,751.7 lbs. milk in one year.

TEN OPEN HEIFERS, by 35, 32 and 31 pound sires, and other sires of lesser record dams but of rich breeding.

A GRANDDAUGHTER OF SEGIS PONTIAC DE KOL BURKE, bred to Sir Piebe De Kol Segis Pontiac.

THREE WELL BRED YOUNG FEMALES, all in calf to Sir Piebe De Kol Segis Pontiac.

Only Three Young Bulls In This Sale

This is essentially an offering of high class females, but there are also three well bred young bulls that should find favor with quality buyers. Two of these are sons of Sir Aaggie De Kol Acme 2nd, Alex Whaley's great young herd sire, and the other is a son of King Sadie Vale Idyl Segis, the royally bred bull heading R. F. Guerin's Sunnyside Herd.

THE CATTLE IN THIS OFFERING ARE CHOICE THROUGHOUT. EVERY ONE POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ONE OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

Catalog Free on Request. Management

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres., C. L. Hughes, Sales Manager,
Sacramento, California

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare

shrink approximating over two cents per pound.

Future increased production depends upon the little men, and surely stockyards would help them with a sure market, make a certain premium for better bred stock and allow them to replace their needs without waste of time or expense in trying to find a bunch of stock, and if they find it, haggling over a price problematical and uncertain. Stockyards would provide an element of stability at least in uniform prices. The times have about outworn the crude market abuses, and the old guard with the ingrained habit of putting these things over will be displaced by more far-sighted direction. A government controlled stockyards would be worthy of progressive California, but even a packer stockyards is better than none in my humble opinion.

Problem No. 1: If five packers slaughter ten million cattle yearly and one packer spends $25,000,000 to influence public opinion through propaganda what is the division of the packer dollar?

Problem No. 2: When hundreds of thousands of cattle producers and feeders figure their business unprofitable why are T-bone steaks 60 cents per pound?

Problem No. 3: Why the hubbub about 150 million pounds of government war beef at half price in a country of 120 million population just as our fair state expects some grass beef, after a costly drouth? One and one-quarter pounds of meat to the person is not a vast surplus and is dangerous only in the threat against one particular district. Bunk! and another bogy to scare the kids. It might flood one market but spread out might cause a healthy adjustment of retail prices for consumers and a final benefit to producers.

We hear prices are going to decline soon on California beef, and it is not surprising as the time has arrived for the annual collection when grass beef arrives in volume. There is always the refrigerator and beef keeps, and when the grass beef run stops prices rise and the world wags merrily on.

Theologians of all Christian religion expound the principle of "one fair price." Patrick Henry I believe said "Give us liberty or give us death," yet a good man prominent in meat circles of the commission business advises cowmen to stop fighting as they foot the hill in the end. It is no news but still there are some men who at times are weak enough to advocate better conditions as a matter of principle irrespective of personal profit.

Cattle prices in the range districts show strength as ten months southern yearlings have already been contracted in Arizona to the number of over 20,000 head at $42.50 per head up. Colorado and Texas are both busy. A couple of thousand coming two year olds were contracted by Colorado at nine cents or better for June delivery in Northern Arizona and they should weigh better than 750 pounds and bring $67.50 per head or more.

One of the season's jokes was the criticism of the California Cultivator for printing milk substitute and packers ads by an esteemed contemporary in the farm paper business, when Frank Thomas who runs the Cultivator was the first on this coast to take a producers stand, free and independent of any possible loss of advertising. As a matter of fact it required nerve to do what Mr. Thomas did when he did it, as 99 per cent of the people and inspired journals were unanimous in praise of the very efficient packers. The Cultivator increased in size and strength, in circulation and even in packers' ads, but held to a straight even course without weakening for producers and production.

KERN COUNTY BOYS TO HOLD POLAND CHINA SALE

Announcement has been made that the boys' agricultural club of the Kern County union high school will hold their first pure bred hog sale May 15 at Bakersfield. This sale will offer about 60 head of pure bred hogs, including three sows and litters sired by Kern County Pilot; ten tried sows bred to Kern County Pilot; 12 fall gilts bred to Kern County Pilot; 15 open gilts; five boars, three of which will be Poland China, one Duroc and one Berkshire. The remainder of the 15 head will be weanling pigs.

The boys' club has invested $5,550 in original stock, of which this sale of 60 head is the first public offering. During the winter and spring the boys have been selling to local farmers in Kern County weanling pigs at prices ranging from $30 to $75 each. These sales have amounted to about $2,500.

The high school boys' herd sire, Kern County Pilot, cost them $1,000 as a nine months' old pig. He was one year old March 1, 1920, weighed about 450 and had a ten inch bone. He is a full brother to "The Pilot," grand champion of the National Swine Show last fall.

In holding this pure bred hog sale at Bakersfield the boys' club has in mind offering the public the best of their pigs and stock to stimulate the hog industry in the southern part of the San Joaquin Valley.

RECORD BREAKING PRICES FOR DRAFT HORSES

The highest prices ever paid for draft horses bought in the open market at Chicago have just been placed on record, according to Wayne Dinsmore, secretary of the Horse Association of America.

Messrs. Richards and Slipp of Fort Fairfield, Maine, spent two weeks at the Union Stock Yards, Chicago, purchasing a consignment for shipment to the potato fields of Maine. Their selections were deep-bodied, powerfully built drafters, averaging over 1,800 pounds each in weight and costing more than $450 each, f. o. b. Chicago. One pair sold for considerably over $1,000. Good judges consider this to be the best carload of draft horses ever bought on the Chicago market.

The United States census for 1910 revealed 19,833,000 horses and 4,210,000 mules on farms; and the department of agriculture estimates for January 1, 1920, show 21,109,000 horses and 4,995,000 mules on farms, or an increase of 1,276,000 horses and 785,000 mules in the last decade. Besides this we exported during the nine years ending June 30, 1919, 1,149,763 horses and 376,836 mules.

The rise in prices for good draft horses and mules in spite of the existence of more than 21,000,000 horses and almost 5,000,000 mules on farms indicates how agricultural and transportation needs are growing. Good authorities predict a steady rise in prices of horses and mules for the next three years.

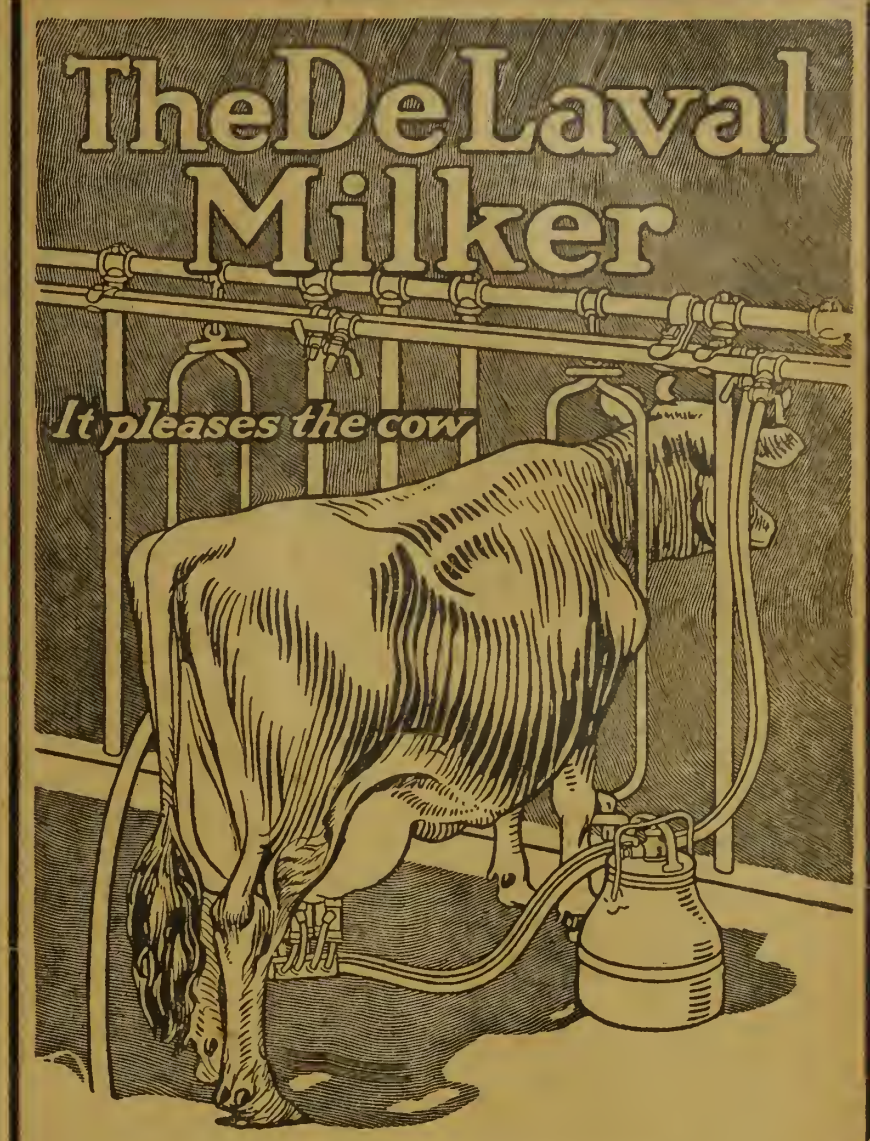
WILL SPEED UP TB WORK

Recognition of the intradermic method of applying the first test preparatory to accrediting a herd as free from tuberculosis, has just been announced by the bureau of animal industry, United States department of agriculture. The more general use of the intradermic test is expected to "speed up" the federal and state cooperative campaign against TB. In the subcutaneous method, heretofore generally used, the tuberculin is inserted beneath the skin and it is necessary to take three preliminary temperature records of the animal and at least seven soon after the test. In the intradermic method insertion is made between the layers of the skin, and, while this method requires a greater degree of skill in the operator, only one later inspection of the animal may be sufficient to indicate the presence or absence of the disease.

The federal recognition of the intradermic method provides, however, that herds undergoing it successfully must pass a subcutaneous test within a year before they can be accredited as free from tuberculosis. The intradermic test has been recognized also by about three-fourths of the 45 states now cooperating with the federal government in the TB work.

Texas recently became the forty-fifth state engaged in the cooperative campaign. The three states not yet engaged in it are Arizona, Colorado and California. Arizona and Colorado are expected to receive authority to enter the work at the next sessions of their legislatures.

The state of California annually produces about 85,000 acres of potatoes. To plant this crop, about 700,000 sacks of seed potatoes are required. Upon the quality of this seed depends the success of the potato growers and the amount and quality of the potatoes offered for sale on our markets.



Over Forty Years Ago—

the De Laval Cream Separator came to the aid of the dairy farmer. It eliminated a great deal of the drudgery from dairying and made possible a world-wide advance in the dairy industry.

The De Laval Milker is also an important invention and comes to the dairyman's aid to do away with the drudgery of hand milking. It has been thoroughly tested and has proved highly satisfactory, in practical operation on cows of every breed for the past three years, and has been put on the market with the confidence that it will add new impetus to the dairy industry and further enhance the world-wide prestige of the name DE LAVAL.

The De Laval Milker is a distinctly different type of machine, both as to design and operation, positive and uniform in action from day to day; and faster, more economical and more reliable than any other method of milking. The sanitary features are of special importance and will be much appreciated by dairymen in their efforts to produce milk having the highest market value.

An additional insurance of lasting satisfaction to users of De Laval Milkers lies in the De Laval Company's well-known facilities and reputation for service.

The Milker you have hoped for.

Write to nearest De Laval office for Milker Catalog, mentioning number of cows milked

De Laval Dairy Supply Company

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

61 Beale Street, San Francisco, Cal.

Classified Liners

The direct selling method from producer to consumer, and a clearing house for over 35,000 subscribers, weekly.
Liner rates: Single insertion 3½c per word; 35c per issue minimum charge.
Mail all classified copy to Los Angeles Office

POULTRY

BROODERS

We are offering to the California public, the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in, and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

BABY CHICKS
ELECTRIC HATCHERY
25,000 Hatching Weekly,

Vigorous, Pure Blood Stock. Special attention to mail orders. Safe delivery GUARANTEED. Anconas, Barred Rocks, Rhode Island Reds, Minorcas, Brown, Buff, MacFarlane Strain White Leghorns. Hatching eggs. Write for prices.
PEERLESS 66 EGG HATCHER
Simple, Automatic, $8.75. Express paid.
D. E. DOKE (Baby Chicks since 1908)
328 So Spring St., Los Angeles, Cal.

We Are Now Booking Orders for Eggs. Eggs from our Mammoth Bronze Turkeys, $1, $2, $3 from show stock and 50c utility stock. Eggs from Toulouse Geese, winners at seven shows, $1 each. White Muscovy Duck Eggs, 35c. White Wyandotte Eggs, $3 and $5 a setting. Young unmated pairs, White King Pigeons $2, old mated pairs $3. Pearl Guineas $4 a pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

Baby Chicks from my carefully selected, thoroughbred Breeding Pens of S. C. White Leghorns. Good, strong chicks at $15.00 per 100. Orders booked now for May, June and July delivery at reduced prices. Write for particulars. Every order receives my personal and most careful attention. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Thoroughbred Barred P. Rocks—Egg records 190-210 per hen. Fertile eggs for hatching $2.50 per 15. Chicks 30c each. We hatch and sell exclusively from our stock. Send cash with orders for 1920 season. Phone 5599 mornings. Warren Poultry Yards, 36 Little Delmas Avenue, San Jose, California.

Golden Rule Poultry Farm — Specialty breeders in profitable quality in Barred Ply. Rocks and White Leghorns. Remember the best is none too good for your foundation stock. Guaranteed hatching eggs. PENN & STAMELEN, Porterville, California.

Baby Chicks—Purebred S. C. White Leghorns, bred from our own stock. Best strain. Folder and price list mailed to you for the asking. Order now for May and June delivery. Buena Vista Poultry Yards, Sonoma, California.

For Sale — "Baby Chicks" — White or Brown Leghorns, $16.00 per 100; Rhode Island Reds, $18.00 per 100; Buff Orpingtons, $25.00 per 100; Black Minorcas, $20.00 per 100. McCune Hatchery, Orland, California.

Conklin's Heavy Laying Strains — R. I. Reds, Light and Dark Brown Leghorns. Eggs at half price (balance season). 15 eggs at $3.50 either strain. Eva V. Conklin, 1445 Portola Ave., Los Angeles, California. Phone 351283.

If You Are After Good Layers, buy your Barred Rock, White Leghorns, Ancona, Rhode Island Red, Buff Leghorn and Black Minorca Baby Chicks from the STEVENSON HATCHERY, Watsonville, California.

Barred Plymouth Rocks—Exclusively. The home of heavy winter layers since 1915. They pay their way for they are bred to lay. Hatching eggs $2 per 15, $10 per 100. HARGETT & SON, Route 2, Compton, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Thoroughbred White Leghorns and Mottled Anconas. Eggs from carefully selected stock of high laying strains. The White Leghorn Hatchery, Pomona, California.

"Watch Us Grow" Baby Chicks. Booking orders now for January and February deliveries. Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

Goldcraft Ranch—Buff Orpingtons, Columbian Wyandottes and White Leghorns. Heavy laying strains. Sturdy breeders for sale. Eggs from best pens after April 1st, $3.00 per setting. Box 13, Los Altos, California.

Baby Chicks—Every week. Several varieties. Safe arrival guaranteed. We handle large as well as small orders. Write for circular. J. H. Stubbe, Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

Beautiful Ringnecked Pheasants—Mated pairs $10. Eggs $5 setting. White Holland Turkey eggs 50c. PAUSE PHEASANTRY, Box 176, Fair Oaks, California.

For Sale—Silver Campine Hatching Eggs, $3.50 setting, postpaid. Write Silver Campine Ranch, Clearwater, California.

"Eastman's Bred-to-Lay" trap-nest Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Fowler's Reds — Win—Lay—Pay. Cockerels and eggs for sale. Send for mating list. Duarte, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7 C, Ceres, California.

Single Comb Red Hatching eggs, $2.00 per 15. W. M. Marquam, Bishop, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS

We have 128 females with records from 200 to 296 eggs during 12 months pullet year. Place your egg order now. All orders booked and filled in rotation. We have three grades, as follows, from which only one setting per week will be sold: 235 to 284 egg record $15.00 per 15; 220 to 235 egg record $10.00 per 15; 200 to 220 egg record $5.00 per 15. We guarantee 90 per cent fertility and suggest they be hatched by hens. Each egg will be marked with number of hen and number of eggs laid during pullet year. All these hens are mated to cockerels, sons of hens with records from 278 to 296 eggs. Baby chicks all sold. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trap nested S. C. White Leghorns every day in the year since 1912. Box B-337, Inglewood, California.

Spring Baby Chicks For Sale—400,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) Stock. Price during May and June, 25, $5.00; 50, $9.00; 100, $14.00. Special prices 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition; no money in advance, pay on delivery. Shipped safely anywhere west of the Rockies. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., PETALUMA, CALIF., 438 Seventh St.

White Leghorns—Chicks and hatching eggs from Curtis heavy layers. Our stock has orchard range which in connection with most modern methods assures heavy producers with excellent vitality. All chicks hatched from our own stock exclusively. Progressive poultrymen demand the best. Write for folder. O. B. Curtis & Son, Route 1, Box 29, Gardena, Cal.

Santa Cruz Chicks—We specialize on very best White Leghorns, hatching many thousands each week; also Brown and Buff Leghorns, Anconas, Minorcas, Wyandottes, Orpingtons, Barred Rocks and Rhode Island Reds. Write for folder. B. W. Archibald, Soquel, Santa Cruz County, California.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

Sly's Single Comb Rhode Island Reds—Winners and layers. Surpassing all competitors at Los Angeles shows, winning many ribbons and three silver cups. Hatching eggs from these birds correctly mated, $3.00, $5.00 and $7.50 setting. Descriptive folder free. Albert Sly, 1642 E. Middleton Place, Los Angeles.

Special Sale of Light Brahma Cockerels for breeding; large Eastern stock; $5.00 to $10.00 each; eggs $5.00 per 15 prepaid. Rouen duck eggs $5.00 per 15; grand stock. Black Cochin Bantam eggs $2.50 per 15. All stock is of either exhibition quality or prize winners. Emma V. Miller, R. F. 2, Box 534, Santa Cruz, California.

Thoroughbred S. C. White Leghorn Chicks, 100 or 1000 lots from Hoganized and Trapnested Stock. Inventors and Distributors of "Forbros" Poultry Separator and Trapnest (combined). Write for circular. Forster Brothers, 2918 Otis St., Berkeley, California.

For Sale—Thoroughbred White Wyandotte settings, $2.50 for 15 eggs, also, choice White Wyandotte cockerels from $5.00 to $8.00 each. Apply Gordon O. Tetley, 190 Edgewood Place, Riverside, California.

Day Old Baby Chix—From mature hen eggs. White Leghorns, $15.00; Barred Rocks, Black Minorcas, Rhode Island Reds, $20.00 per 100. Terms. One-third cash with order. T. C. Hawley, 504 E. Elm St., Lodi, California.

White Leghorn Baby Chix. Heavy laying. Hoganized stock. May and June delivery. $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

White Leghorn Baby Chicks—We get our hatching eggs from a flock of 1,500, two year old Walter Hogan hens that have been carefully Hoganized by an expert. Buy the best—all from one flock. Lyon Hatchery, Gardena, California.

Baby Chix from heavy layers. Barred Rocks, R. I. Reds, Black Minorcas, Buff Orpingtons, Brown Leghorns, White Leghorns. We prepay express charges. Willow Glen Poultry Yards, 580 S. 9th St., San Jose, California.

Baby Chicks and Hatching Eggs from Standard S. C. White Leghorns. We sell only strong, hardy chicks from heavy laying parent stock. Tacker's Poultry Ranch and Hatchery, Escalon, California.

Rhode Island Whites — Hatching Eggs, Chix from best matings possible. Free mating list. Phil. Lehrbach, 1608 N. Ave. 56, Los Angeles.

White Minorca Baby Chicks and Hatching Eggs—Dark Cornish and Silver Campine Eggs. Folder. Leech Poultry Yards, Baldwin Park, California.

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S. Reservoir, Pomona, California.

Baby Chicks, standard varieties, high quality, low price. Catalog now ready. Can fill large orders. Madera Hatchery, Madera, California.

White Wyandottes — Prize winning and heavy laying stock; eggs $3.00 and $5.00 per 15. Baby Chix, Cockerels. R. W. Stawetski, Route B, San Jose, California.

Gape Cure—Chicks, turkeys. Easily used. 25c. SOUTHERN REMEDY CO., Box 145, Kansas City, Missouri.

POULTRY

BABY CHICKS
FREE! FREE!

A Fireless Brooder with every order of one hundred chicks. We ship in the brooder, thus there is no chance of chilling in transit and you have an excellent way to raise them. We have the following varieties of thoroughbred chicks every week: Anconas, Barred Rocks and R. I. Reds, $20.00 hundred. Extra fancy dark R. I. Reds and White Rocks at $25.00 a hundred. White Leghorns $17.50. We guarantee safe delivery. Every one a strong, healthy chick. Orange County Hatchery, 403 E. Santa Clara, Santa Ana, California.

Barred Plymouth Rocks—"Nothing Better in Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Vodden, Los Gatos, California.

The Cheedo Automatic Poultry Door lets the chickens out easily. They get the "early worm" and exercise when they want it. Something new, easily installed in any poultry house. Size 14x30 inches. Price $2.50 each. Agents wanted. Cheedo Door Co., 450 Gladys Ave., Los Angeles.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Black Minorcas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306, San Jose, California.

For Sale—Guaranteed Day Old Pullets, S. C. White Leghorns. March delivery. One ranch here buys 20,000 a year. Eureka Hatchery, Petaluma, California.

CATTLE

Toyon Farm Association.

UNDER STATE AND FEDERAL SUPERVISION.

Small foundation herds, Heifers and Bulls.

PERFECT IN HEALTH, RIGHT IN TYPE, PRODUCTION AND BREEDING.

Mills Bldg., San Francisco.

FARMS AT

BRENTWOOD AND LOS ALTOS

350 HEALTHY HOLSTEINS.

Holstein Dairy Cows at Auction—Stockton State Hospital will sell 32 high producing grade Holstein cows at public auction at Stockton State Hospital Farm, 2½ miles north of Stockton, on Wednesday, April 21, at 1 p. m. Every cow in sale, but one, has made over 8000 lbs. milk in one lactation period. Fifteen of them have made over 10,000 lbs. milk each in one lactation period. Many fresh and heavy springers. Those bred are in calf to a son of Prince Gelsche Walker and a son of King Korndyke Sadie Vale. Every cow tuberculin tested by Deputy State Veterinarian. Auctioneer, Col. Ben A. Rhoades, Los Angeles. Sale Manager, C. L. Hughes, Sacramento.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

For Sale—Pure Bred Hereford Bulls, also one car Hereford yearlings. H. F. Bergman, Aguanga, California. Phone Hemet X991X.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

4 A-1 Registered Shorthorn Yearling Bulls; 4 Registered Yearling Hampshire Bucks. (Imp. stock.) Apply Wm. Bond, Newark, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Golden Glen Stock Farm registered Jerseys and Shropshires. Geo. W. Thomas & Sons, Riverside, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Nuevo, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

WANTED

Herdsman or Foreman (married) with college training and lifetime experience handling purebred dairy cattle. Will consider change of position, lease or partnership. Familiar with all the fine points of breeding and general dairy farm management. Box 3, California Cultivator.

Wanted—For early part of May, gardener and choreman for country home near Santa Cruz. Permanent position. Married man preferred. Give full particulars and references. Box "B," Cultivator, 112 Market Street, San Francisco, California.

Wanted—To buy two or three bottom 12 or 14 inch power lift P. O. plow; also six or seven foot double disc cultivator. Box 134, Etiwanda, California.

Wanted—To hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

Wanted—To hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin.

DUROC-JERSEYS

Pathfinder Wonder—Is son of Great Wonder I Am, the largest boar that ever lived, out of a daughter of PATHFINDER. He is one year old and measures 66 inches from his eyes to the root of his tail. We have a fine bunch of yearling gilts of King's Col. and Model Col. breeding that we will breed to him and sell at reasonable prices. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Duroc-Jersey Swine for Sale — Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

For Sale—Registered Duroc-Jersey Sows, bred to First Prize Boar of Grand Champion Stock. Weanling Pigs sired by same boar. Also fine lot of fall gilts. Green Canyon Ranch, Fallbrook, San Diego County, California.

Premo—A herd leader, one of the best Duroc types, is for sale. Son of Orion's King Gano. Write for description and photo. Ed. Benedict, Box 268, Lancaster, California.

SWEETWATER DUROCS

The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

The Pacific Herd—Has fall pigs, both sexes for sale. Satisfaction guaranteed. Nettie E. Andrews, Rt. 1, Box 46, Modesto, California.

Big Type Poland Chinas—900 lb. grand champion El Profito heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Guaranteed growthy big type Poland Chinas, not pampered, selected for general farm conditions. Stock all ages. Walter Ficklin, Box 946, Fresno.

Tohoqua Big-Type Polands—Young pigs to sell. Champion big-type breeding. Ferguson & McKaig, Orland, California.

Big Type Polands—Herd boar Belle's Hanford Boy. A. R. Doctor, Van Nuys, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

BERKSHIRES

BERKSHIRE GILTS
BRED FOR EARLY FARROW TO
"ACHIEVER"
CASTLEVIEW RANCH,
SANTA ROSA, CALIFORNIA.

ANCHORAGE FARM BERKSHIRES
Orland, California.
BRED GILTS FOR SALE.

3 Long, Stretchy Boar Pigs farrowed in July, sired by Rincon's Rival, Grand Champion Boar, weighing 756 pounds at 22 months of age. The pigs are out of the litter mate to the Reserve Grand Champion Sow, sired by the Grand National Champion Boar, Baron Duke 201st. Price for immediate sale $65.00. If you are not satisfied will refund money. Sandercock Land Co., 703 Market St. at Third, San Francisco. In charge of Natomas Land Sales.

Lark Meadow Ranch Berkshires. Choice gilts and sows safe with pig to noted boars. Priced for the rancher. Papers furnished promptly. Geo. A. Stingle, El Monte, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

DUCKS

White Pekin Baby Ducks—White Pekin Duck Eggs for hatching. 152 East Spruce St., Inglewood.

White Muscovy (Quackless) Ducks—Eggs, Ducklings, Breeders. Free circulars. Caldwell Farm, Box 274-E, Los Angeles.

White Mammoth Pekin Ducklings—Ten days old 50c each. Eggs $1.00 a dozen. A. Surtman, Petaluma, California.

FERTILIZERS

The Gypsum You Need — Best agricultural lime, complete fertilizers. H. B. Matthews, 1010 N. Madison, Pasadena.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

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ARIZONA IRRIGATED LANDS.
Make you independent of rainfall and the climate assures maximum crops. Crop failure unknown. Arizona market is sure. Ninety per cent foodstuffs consumed are shipped in from outside and local products always in active demand at high prices. Tucson Farms have abundant water supply always ready. This combination assures success of the practical farmer. It insures prosperity and happiness. Why risk dry farming when you can be safe and certain with irrigation. Cotton, Alfalfa, Sorghums, Corn, Pink Beans, Garden Truck, Grain, Hay all very profitable and two crops per year usual. Dairying, hog and cattle feeding especially profitable. General farming should net $125.00 psr acre and cotton twice as much. Farms of 40 acres and up. Prices from $175.00 to $300.00 per acre, with terms like rent. Let us send you booklet and tell you more. TUCSON FARMS SALES CO., 511 Hollingsworth Bldg., Los Angeles, California.

350 ACRES
OF THE CELEBRATED
BUTTE CITY RANCH
Also 6 Ten Acre Tracts
Having more land than we can conveniently handle under present conditions, we have decided to sell a portion of this well known property.
It is deep, rich sediment, river bottom land. There is no better soil in the world for prunes, pears, walnuts, pecans, vegetables and alfalfa.
Part of this tract is already in prunes, walnuts and alfalfa; Riparian water right from the Sacramento River.
Splendid opportunity to breed registered livestock in connection with business already established on Butte City Ranch, and in a district famous as a breeding center.
For prices and further particulars, address W. S. GUILFORD, Butte City Ranch, Box C-C, Butte City, Glenn Co., California.

For Sale—55 acres at $146.00 an acre, 12 miles east of Redding, Shasta Co. Hog fence all around and cross fence; 25 acres creek bottom; A-1 soil, all in crop, grain, potatoes, corn, beans and garden truck, under irrigation; shallow lift; 30 acres table-land for grain or orchard. Small vineyard. Some oak timber. A four-room house, one barn and chicken house, including all farming machinery; 2 horses, 2 milch cows, seven hogs, 50 chickens. A good dairy or hog ranch; ¾ mile to school, 1½ miles to postoffice, on county road. Address Owner, 420 Placer St., Redding, California.

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I Have Cash Buyers for salable farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

If Interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

MISCELLANEOUS

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For Sale—20,000 Sour Seedlings, year old; 1000 Eureka Lemons, 500 Small W. Navels, Supply Co.'s buds; several hundred Rangpur Limes; the mother tree yields a revenue $20.00 to $40.00 yearly. Fruit sticks tight—like the Valencia—the only Lime that sticks. Get in while they last. $1.50 each; $14.00 100. Budding cloth 70c yd. Cyrus W. Wilhite Citrus Nurseries, Glendora, California.

Washington Navel, Valencia, Marsh Grapefruit, Eureka and Lisbon Lemon trees. Sour stocks. One year old buds. We used "Supply Company" buds only. Nurseries Riverside, Puente. Frank A. Tetley & Son, 405 Eighth Street, Riverside.

For Sale—Placentia Perfection and Eureka walnut trees, also Eureka Lemon and Almond trees. These are all high grade stock. Ketscher's Nursery, 1101 E. 4th St., Santa Ana, California. Phone 572WK.

50,000 Florida Sour Orange Seed Bed Trees; 100,000 California Sweet Seedling Seed Bed Trees; Valencias, Eureka Lemons; Supply Co. buds. SOUTHLAND NURSERIES, 1941 East Colorado St., Pasadena, Cal. Phone, Colorado 6352.

For Sale—Olive Trees, Pichalen Roots; 5,000 Mission ⅝ to 1 inch very low figure. Roseville Nursery Co., Roseville, California. PLACER COUNTY GROWN TREES.

For Sale—Washington Navel, and Valencia late orange trees; Marsh Seedless grapefruit and Eureka lemons. Fine large trees, reasonable prices. H. H. Ford, Redlands, California.

Avocado Trees—Mathers' Avocado Nursery. Home of Field Grown Trees. P. O. Box 585, Pasadena. Nursery Phone Colorado 6044.

For Sale—Orange seed bed stock. Nursery Colorado and Huntington Drive, Lamanda Park. Paul B. Magee, R. F. D. 2, Pasadena.

Bishop's Nursery, Highland, California, has Avocado, Citrus, Olives, Rhubarb, Carob Trees, Berry Plants, etc. Write for circular.

Fine Stock Valencia Orange trees, budded Placentia and Eureka Walnuts on black root. A. R. Marshall, 1212 Ross St., Santa Ana, California.

For Sale — Several hundred Washington Navels, Valencia and Eureka Lemon trees. B. L. Byer, Upland, California.

Place Your Orders Now for all kinds of Citrus Stocks. Butler's Morningside Nursery, Lamanda Park, California.

2 Year Pedigreed Lemons, $1.35; Valencias, $1.50. Seed bed stock. L. A. Tuttle, R. 2, Pasadena.

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For Sale—Turkey Eggs, Mammoth Bronze and Wild Domestic, crosses; raise more poults, introduce wild blood into your flock. Get hardy, vigorous poults. With each order we send you formula for raising close to 90% of those you hatch and special feeding instructions. Will be worth many dollars to all turkey raisers to know the real way. Pamphlet tells you all. The WILD & DOMESTIC Turkey Home, R. D. Box 26 A, Hemet, California.

Mammoth Bronze Turkey Eggs — "Gold Nugget" and other prize stock. Flock shows enough wild blood for vigor and fine breeding has added size. NO EGGS sold from other than our own stock. Hints given for feeding and care. Turkeys have range. Guarantee fertility. Prices reasonable. Carrie Andrews, BO-K-HAUNT, Hemet, California.

For Sale—Thoroughbred Mammoth Bronze turkey eggs, also thoroughbred Mammoth Bronze Toms. Robinson Turkey Ranch, San Dimas, California.

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The Only Exclusive Rabbit and cavy magazine published in California. One year for 25 one cent stamps. Pacific Rabbit and Cavy Breeders, Eagle Rock, California, Dept. CC. "Tell them your troubles."

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Blue Hogs—Shipments desired the coming summer should be booked at once. Now shipping spring orders. These hogs are actually blue in color. They are the largest, growthiest and most prolific breeders on earth. Write for information. Mention this paper. The Blue Hog Breeding Co., Wilmington, Massachusetts.

Grape Wild Farm—Berkshires, Guernseys. Big Type Berkshire Boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

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Carruthers Farms—Live Oak, California. Shorthorn cattle and Berkshire swine of quality and select breeding.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

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1—80 H. P. Type N. B. with air starter and circulating pump.
These engines have been replaced by electric motors. All in good order, complete with fittings and connections. John L. Bishop, Riverside, California.

For Sale—Having rented 90 acres of our ranch, we offer for sale:
1 Hoover Potato Planter practically new.
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1 9-18 Holt Tractor, just overhauled.
All worn parts renewed. Phone or address Rio Hondo Rancho, 234, Compton, California.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula California

For Sale—One 3 inch Bean centrifugal pump, with 30 feet of suction line, elbow and head check valve. Almost new. Cheap. Chas. L. Beltz, Rt. 2, Box 799-A, Santa Cruz, California.

For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

Have Two New Tractors never used that will sell at a price below market value or will trade for automobile. Address B. Cultivator, Los Angeles.

Account Installing Motors we offer first-class high grade 6 to 8 H. P. gasoline engine. Brown Bulb Ranch, Capitola, California.

Agency Discontinued—New floor sample S.25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros Co., Carpinteria, California.

If You Want to sell or exchange your property write me. JOHN J. BLACK, 116 St., Chippewa Falls, Wis.

SEEDS AND PLANTS

Cotton Seed For Sale—Mebane and Durango seed, ginned from our crops, grown West Side San Joaquin Valley, which gave generous production, grading excellent staple and color. Quantity limited Shipped in new sacks weighing approximately fifty-five pounds. If ordering less than ton state number of sacks wanted. Should plant approximately twenty pounds per acre. Prices: seven one-half cents per pound; in lots of ten tons or more to one consignee, seven cents per pound. All quotations f. o. b. Southern Pacific Westhaven. Boston Land Company, Westhaven, Fresno County.

For Sale — Millions of Stone Tomato plants, grown on new land, from seed saved by myself and guaranteed. Eggplant, pepper, cabbage, cauliflower, rhubarb and other plants. Write for prices and order early. Ran short last year. Reference: Chamber of Commerce, or any bank or business man in Pomona. L. C. Johnson, 795 West Seventh St., Pomona, California. Phone 2987.

Rhodes Grass—Is making Imperial Valley famous and will make any other section famous, if it is planted, especially if the soil is hard or alkali. Write Imperial Valley Seed House for Literature. El Centro, California.

Dairymen — Hog Raisers — Poultrymen! Plant Diener's Sweet Fodder Sudan. Wonderful yield; sweet, soft, nutritious stems and abundant seed. Write for circular. D. J. Whitney, Exeter, Cal., or Morse Seed Co., San Francisco.

California Sugar Squash—Sweet, tender. Cooks quickly. Good green or ripe. Very prolific. Seed 20c per oz. C. W. Hopkinson, Crutts, California.

For Sale — Ever-bearing Strawberry plants, Progressive, $1.50 per hundred Superb, $2 per hundred; postpaid. G. M Hawley, La Mesa, California.

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"Tomato Plants, A. & M. First Early, field grown, hardy plants, $5.00 per M." AGGELER & MUSSER SEED CO., Los Angeles, California.

Sweet Potato Plants—Yellow Jersey, $3.50 per 1000, 50c per 100 f. o. b. E. W. Van Gorder, R. 5, Box 91, Santa Ana, California.

Stock Beet Seed—Any variety. Write for prices. Aurora Seed Mill, grower Stockton, California.

Kentucky Wonder Bean Seed for sale, 12½c per lb. Chas. L. Beltz, Route 2, Box 799A, Santa Cruz, California.

SEEDS AND PLANTS

For Sale—Yellow Sweet Potato plants, $3.50 per 1000. W. L. Lutz, R 3, Santa Ana.

California Wonder Corn for seed at practical prices. James McKee, Riverside, California.

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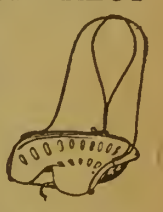

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KILL THE CATS

There are some points wherein there are violent disagreements between producers of the state and the state fish and game commission. This is caused by the radical difference in feelings of the one who sees his crops destroyed and the one who desires to maintain "sportsmanship." However, on one point there is entire cooperatioon. This is in the effort to destroy wildcats and mountain lions. The wildcat's depredations are not entirely ou the poultry of the farmer, for he feeds very largely upon birds and to a far greater degree than does the ordinary house cat. Especially is this the case with young quail. Likewise in the matter of mountain lions the lambs and the young stock are not the only victims. H. C. Bryant of the state fish and game commission writes:

"Emphasis can be laid upon the mountain lion and the wildcat as destroyers of game. It is estimated that every adult mountain lion kills on an average one deer a week throughout the year. Consequently our deer supply can be easily augmented by reducing the number of mountain lions."

The fish and game commission offers a bounty of $20 for each male and $30 for each female mountain lion killed. The commission has paid bounties on well up toward 3,000 lions. The number of bounties paid is reduced somewhat every year, which indicates that the number in our mountains is being reduced.

AUSTRALIAN SOLDIER FARMERS

A. L. Williams of Queensland, one of 97 "Anzac" farmers sent to the United States to study farming conditions and practices, called on the Cultivator and expressed his appreciation of the hospitality shown him, the valuable aid extended, the opportunities this state afforded investigators and the astounding amount of knowledge easily obtained in this most up-to-date of all agricultural states. All of which we accepted and admitted.

The 97 farmer soldiers come from every Australian state, representing every line of agricultural activity—stock raising, wheat growing, orchard and truck gardening crops. They have been in the state or neighboring states for six months, their government paying all expenses. About 25 are going back at once; the remainder will stay for four to six months longer. Mr. Williams says that he sows early wheat for hay in March, for grain in May. The harvest runs from October to December. He says many are puzzled over the name Anzac. It is formed from the initial letters of Australian-New Zealand Army Corps.—E. C. B.

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From our large, vigorous, Hoganized, bred-to-lay Rox, Reds, Anconas, 18c, each. Leghorns, 20c. We guarantee Safe Delivery. Free Book on care baby chix.

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White Leghorn Chicks

guaranteed strong and vigorous from our proven layers. Four extra with each 100: 40 extra with each 1,000. $16.00 per hundred, reduction by the 1,000. Write us for April chicks. (Reference California National Bank).

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RATIONS FOR BABY CHICKS

(Continued from Page 647.)

scrap, 1 part ground bone 0.3 part powdered charcoal. All these proportions are by weight.

At the Storrs experiment station the first feed is sour milk, and it is considered so important that if the chicks are a little slow about tasting it each chick is taken and its beak dipped in the milk so that it gets two or three good swallows before it is put into the brooder. Milk is kept before the chicks all the time the first week and longer if available.

Grit, charcoal and a little chick feed scattered in a thin layer of litter is the first feed, and nothing else is fed till the beginning of the second week. The composition of the chick feed is as follows:

Cracked wheat, 15 parts by weight; fine cracked corn, 15 parts; pinhead oats, 10 parts; broken rice, 3 parts; chick grit, 5 parts; fine charcoal, 3 parts.

At Purdue (Indiana station) the chicks are starved from 48 to 60 hours and then are given this grain mixture: 10 pounds each of sifted cracked corn, cracked wheat and steel cut oats. When the chicks are five or six days old, the following dry mash is put before them in hoppers: 10 pounds each of shorts and bran, 5 pounds each of corn meal and beef scrap, 2½ pounds charcoal. With this is fed all the sour milk the chicks will eat. If sour milk is not fed, the amount of beef scrap is increased to 15 pounds.

After the First Week

It is evident from the above sample rations that the feeding the first week is very simple and the important thing is not so much what is fed as that the ration be suitable for the delicate digestion of a very young animal, and that it be neither too early fed nor too heavy. Bread and egg for a small flock is a splendid starter, and I have had excellent success with dry bread slightly moistened with sweet milk, after the first day. It seems essential that the first meal should be dry, either the eggs and bread or oats of some sort.

Real feeding begins with the second week, and it is of vital importance that the ration from this time contain such variety and so much animal food that growth will be as rapid as is consistent with health.

At Cornell the second and third weeks the johnnycake and grain ration given above is continued, but instead of the clear bran is fed a mixture consisting of 8 pounds bran and 2 pounds beef scrap. From the third to the sixth week the same grain ration is given, and one feed of johnnycake daily, but the latter was gradually discontinued, and the chicks worked onto what has become famous as the "Cornell mash": bran, 200 pounds; corn meal, 100 pounds; middlings, 100 pounds; beef scrap, 100 pounds. The beef scrap, it will be noticed, is 20 per cent of the whole by weight, and this is not too large a proportion of meat for chicks that have no milk. If milk is used, either sour or sweet, the amount of beef scrap should be diminished.

At Davis the mash which was commenced the sixth day is continued till the pullets are ready for the laying ration and the cockerels for fattening. It is left before them only a short time each day at first, but the time is gradually lengthened till by the time they are two months old they have it all the time.

At Storrs the mash which is fed after the first week consists of 10 parts bran (by weight), 5 parts corn meal, 5 parts middlings, 5 parts ground oats and 5 parts beef scrap.

Here the question arises, what is to be done when middlings and ground oats are not to be had or are prohibitive in price, and I cannot do better than repeat the formula used by Cornele G. Ross, which was published a few weeks ago. This formula is no better than those already given, but it has the advantage that all the ingredients are now available: 35 per cent wheat bran, 10 per cent low grade flour, 22½ per cent corn meal, 10 per cent ground oats or rolled oats, 10 per cent ground milo, 7½ per cent beef scrap, 5 per cent ground bone. To each 100 pounds of mash 2½ pounds charcoal and one-half pound salt are added.

With this mash is used a scratch feed consisting of 35 per cent cracked wheat, 25 per cent cracked corn, 30 per cent cracked milo, and 1 per cent whole oat groats.

After 30 days this is changed to a growing mash in which there is more bran and less corn meal and beef scrap.

Commercial Mashes

For those who do not care to mix their own mashes there are many good commercial mashes on the market, both chick and growing mashes. Most of these are mixed with great care and while they may be a little more expensive than those mixed at home, they are also less trouble. The commercial chick feeds, however, are nearly all too fine. Little chicks do not need as finely ground grain as most of these contain, and there would seem no good reason why they should not be ground a good deal coarser. When a little whole grain is mixed with the chick grain from the start it is astonishing how soon the chicks come to prefer it. After two weeks cracked corn and whole milo and Gyp corn are eaten quite as readily as the finer chick feeds, and they are better for the chicks.

It will be noticed that nearly all the formulas given contain ground bone. This is extremely important, for we must feed first of all for frame, and frame requires good solid bone. Complaints of leg weakness frequently come from flocks where bone making material has been lacking in the mash. Chicks that have good range can do very well without ground bone, but chicks that are confined, especially in large flocks, must have it.

It seems hardly necessary to mention green feed here, so thoroughly is its importance understood. The chick does not care for greens the first week. After that it should have access to them as freely and as frequently as possible. Cut-up lettuce is perhaps the very best green for the littlest chicks. It may be mixed with egg and bread, if this ration is fed, after three or four days. If it is chopped at first the chicks eat it more readily, but as soon as they have learned to like it the leaves may be given whole. If lettuce is not available, cut alfalfa or clover or chard is nearly as good.

While cut greens may answer the purpose, there is nothing like greens on the stem (i. e., growing in the ground) for all ages of fowls. Most poultrymen provide a run with young, tender barley growing in it for their little chicks. If this is not practicable, the scheme of Mrs. C. W. Sebastian of Wasco is a good one. Mrs. Sebastian raises her chicks a hundred at a time in a small heated brooder. On one side of the hover is kept a shallow box in which barley is grown to the length of an inch and a half before the chicks have a chance at it. As soon as they have eaten the barley off this box another is put in its place. On the other side of the hover is a cool runway, the floor of which is covered with dry alfalfa leaves.

Whatever green is fed, see that it is fresh, and remember no green is quite so good as that which the chick rustles for itself. The chick on green range can manage with a good deal less other feed, and is not nearly so particular about a careful balance as the confined chick. Its appetite is keener, its digestion better, and it is not a victim to leg weakness nor the vices of toe picking and feather pulling.

Poultry Queries

Conducted by J. A. Koethen

Brownish Yolk

Two or three of my hens lay an egg with an extremely dark brownish yolk. Can you tell me the cause of this?—Subscriber, Julian.

The tint of the yolk is usually determined by the character and abundance of the green feed. When no greens are given, you will see a very pale yolk. Alfalfa gives a rich golden yellow color. I do not know just what green would make the yolk so very

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Preventive and curative of colds, roup, canker, swelled head, sore head, chicken pox, limber neck, sour crop, abscess, bowel trouble, etc. Mrs. T. A. Morley of Gallen, Mich., says: "Have used Germozone 17 yrs. for chickens and could not get along without it." Geo. F. Vickerman, Rockdale, N. Y., says: "Have used Germozone 12 years; the best for bowel troubles I ever found." Frank Siuka, Chicago, Ill., writes: "I have lost but 1 pigeon and no chickens in the 3 yrs. I have been using Germozone." C. O. Patrain, Moline, Ill.: "I never had a sick chick all last season." Bernard Hornung, Kirksville, Mo., says: "Cured my puniest chicks this spring." Ralph Wurst, Erie, Pa., says: "Not a case of white diarrhoea in 3 yrs. I raise over a thousand a year." Good also for rabbits, birds, pet stock.

GERMOZONE is sold generally at drug and seed stores. Don't risk a substitute. We mail from Omaha postpaid in new 25c, 75c and $1.50 sizes. Poultry books free.

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dark, but have no doubt the dark tint in due to something unusual in the green feed.

Electric Incubators

Will you please inform me as to where I can obtain information regarding electrically heated incubators? On the premises I am occupying I cannot use the oil heating pattern, and have only hearsay knowledge of the use of electricity.—F. B., Pittsburg, California.

I have mailed you the names of several firms which handle or manufacture electric incubators. Some of the biggest hatcheries are using them now, and there is no doubt of their efficiency. The only objection I have ever heard to their use is the expense, and now, with increased prices and poor quality of gasoline and distillate, that objection will hardly stand.

Naked Hen

A ten months' old R. I. Red hen has never grown her wing feathers and her body is practically nude, and always has been. She does not roost with the other hens and lays her eggs in a nest of her own manufacture. What's the matter?—A. B. W., Upland.

If this hen was reared in a brooder I should say she had been overheated. If she is hen-reared I can only suggest lack of vitality coupled with an insufficiency of protein in the feed while she was growing. It is always the chicks of lower vitality that are backward in growing their feathers. Probably her exclusiveness is due to the fact that the other hens tease her a little.

Blackeye Beans

I have been told that blackeye beans (cowpeas) make very good chicken feed and that the hens eat them readily, but have talked with no one in this section who has fed them. I can raise these beans to good advantage in my orchard and would feed them in conjunction with wheat, milo and barley. Please advise if they make good feed and if hens eat them readily.—Subscriber, Merced.

I have not heard of any one using them, but Professor Jaffa mentions the blackeye bean in his list of grains suitable for poultry, and this should be sufficient guarantee of their character. Their nutritive ratio is 1:3.3, while that of the common dried white bean is 1:2.9, which means that the latter contains more protein. I think you will find, however, that they need to be ground and mixed in the mash or cracked quite fine. Hens do not readily eat any kind of beans at first, but they can be taught to eat them as well as any other kind of feed by a little tact in disguising them.

Toe-Picking

I have been unable to find anything that would keep young Leghorn chicks from picking at each others' toes, and even actually killing one another. Can you give a sufficient preventive? —Subscriber, Merced.

A clever woman who raises several thousand chicks each season told me her only remedy for toe-picking was to darken the windows and put the chicks to bed several times a day. After they had eaten and played till they began to get restless she just tucked them away in the dark like naughty children till they were good again. Some poultrymen have claimed to find deep litter a preventive for this vice, and others think if they can keep the chicks busy they will not pick toes, but this woman's cure struck me as the most sensible of all.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, March 29, 1920. Report for week ending March 26.

The upward trend in production continues in the egg laying contest at Storrs. In the twenty-first week the total output was 4,329 eggs, or a yield of nearly 62 per cent. Using previous records for reckoning, a gradual weekly increase in the number of eggs produced will continue for another seven weeks. In other words the zenith of production is expected the second week in May, during which the hens in the contest will on the average lay more eggs than any other week in the year. A pen of Barred Rocks from Westhampton Beach, Long Island, won first place for the week with a yield of 63 eggs.

In reporting on the progress of the laying contest, egg production is nearly always put on a percentage basis in addition to giving the actual number of eggs laid. There are seldom or never two flocks of poultry containing the same number of hens, it is therefore obvious that the actual number of eggs laid by different sized flocks do not afford an easy comparison of the performance. On the other hand the percentage plan at once determines which flock is laying at the higher rate. To obtain the per cent production on any flock it is only necessary to divide this number into the weeks actual yield of 4,329 eggs. It is found that the birds laid last week at the rate of 61.8 per cent. The one best single week at Storrs occurred in the spring of 1918 in the twenty-elghth week of the seventh contest; the yield amounted to approximately 70 per cent or nearly 4,900 eggs.

The three best pens in each of the principal varieties are as follows:

Plymouth Rocks

Oneck Farm (Barred), 712; Jules F. Francais (Barred), 709; Merritt M. Clark (Barred), 674.

White Wyandottes

Langford Poultry Farm, 670; Herbert L. Warren, 616; Merrythought Farm, 612.

Rhode Island Reds

Pinecrest Orchards, 823; Charles H. Lane, 775; Mrs. C. O. Polbemus, 693.

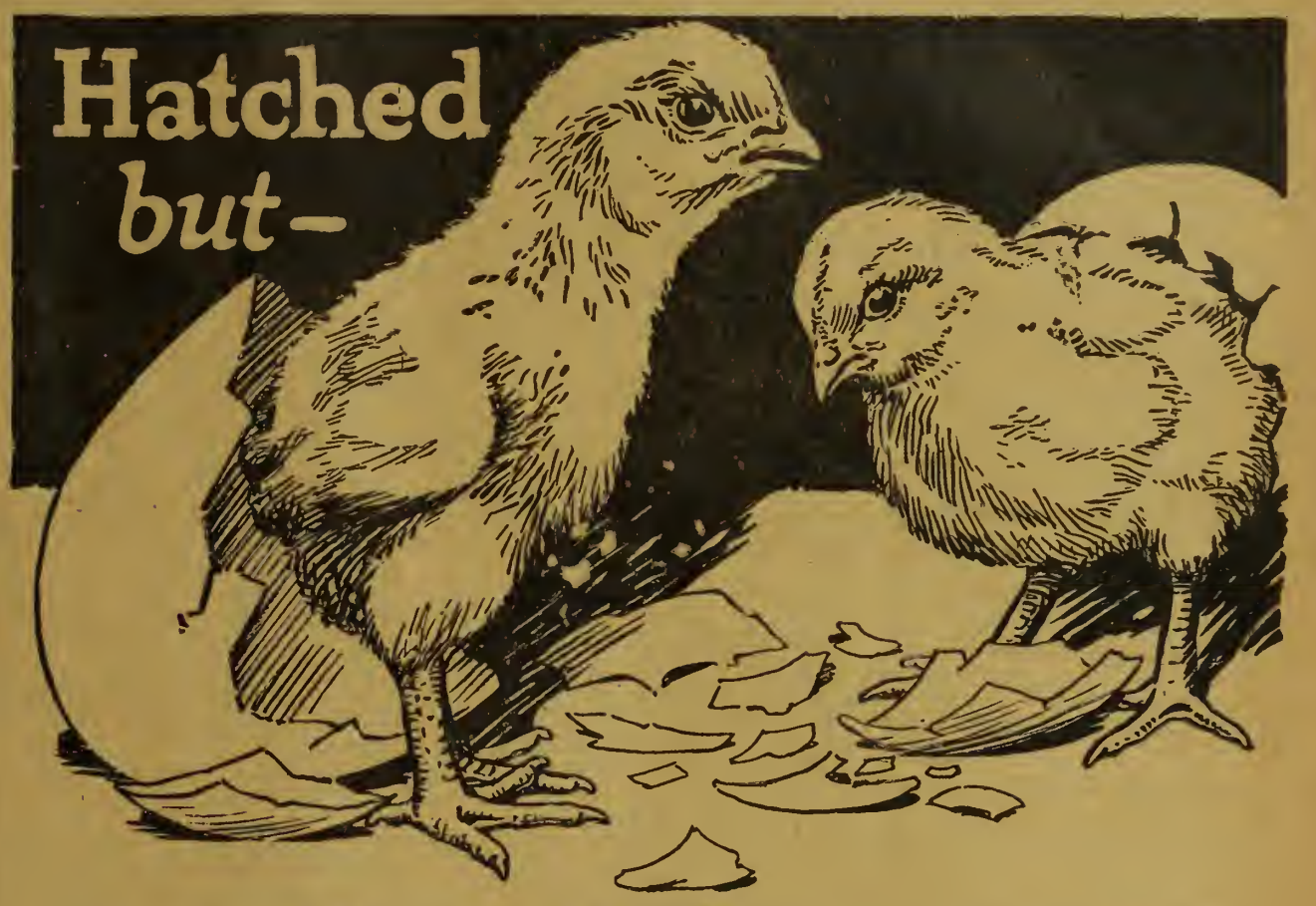
White Leghorns

George Phillips, 758; Glenhope Farm, 722; Merrythought Farm, 690.

Miscellaneous

A. L. Anderson (R. I. Whites), 740; H. P. Cloyes (Buff Wyandottes), 644; A. E. Hampton (Bl. Leghorns), 619.

GLOBE "A1" FEEDS
-Judge them on Business Principles!
FEED FOR SWINE, STOCK AND POULTRY
ASK YOUR DEALER



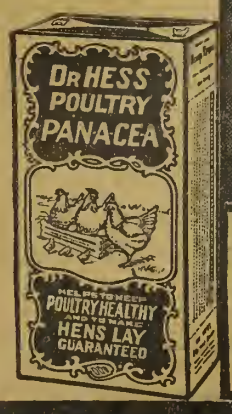
How Many Will You Raise?

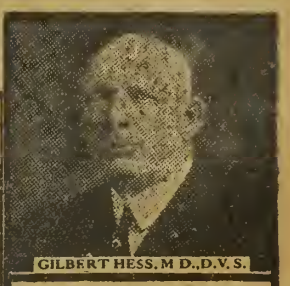
The loss in little chicks that die the first few weeks after hatching amounts to millions of dollars each year. Everybody must cut down the losses and increase production to the limit this season. How many chicks do you lose from *Gapes? Diarrhoea? Indigestion? Leg Weakness? Weakness from Rapid Growth of Feathers?* Prepare them to withstand little chick ailments by feeding

Dr. Hess Poultry Pan-a-ce-a

Remember that disease takes the weaklings—not the strong and healthy. And remember that indigestion is at the bottom of many little chick ailments.

Pan-a-ce-a prevents and cures gapes.
Pan-a-ce-a prevents and cures leg weakness.
Pan-a-ce-a regulates the bowels.
Pan-a-ce-a produces appetite; it promotes digestion.




GILBERT HESS, M D., D.V.S.

Dr. Hess Stock Tonic
Keeps Pigs Healthy and Thrifty. Drives out the Worms.

And remember good digestion is most essential during the rapid growth of feathers. A Pan-a-ce-a chick will outfeather a non-Pan-a-ce-a chick every time.

Your dealer is authorized to supply you with enough Pan-a-ce-a for your whole flock, with the understanding that it's to prevent and cure *Gapes, Indigestion, Diarrhoea, Leg Weakness;* that you are to see marked results during the growth of feathers; otherwise, he will refund every cent you have paid. 30c, 60c and $1.25 packages. 25-lb. pail, $3.50; 100-lb. drum, $12.00. Except in Canada.

DR. HESS & CLARK, Ashland, Ohio

Dr. Hess Instant Louse Killer Kills Lice

Los Angeles Markets

Los Angeles, April 14, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 56 cents.

Dairy Exchange prices last week on extras:

April	7	8	9	10	12	13
'20 ...	56	56	56	56	56	56

CHEESE

Brokers' prices:
California, lb., 28, price to retail merchants, 28@30.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 39 dozen; case count Produce Exchange closing price 38 dozen; pullets, Produce Exchange closing price 36 dozen; pewee pullets, 29.

Dairy Exchange prices last week on extras:

April	7	8	9	10	12	13
'20 ...	42	42	39	40	40	39

POULTRY

Price to producers: Hens, lt., 35; heavy, 37; colored over 4 lbs., 39; broilers, 28-34; fryers, 40; roasters, 38; old roosters, 14; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.
Belgian hares, live, 18.

LIVE STOCK

Los Angeles, April 6 — Weighed and delivered off cars without food or water:
Hogs (hard-grain), 125 to 175 lbs., 16.50, 175 to 225 lbs., 17.00.
Cattle (on foot, gross weight)—Steers, good, 12.00@12.50; medium, 11.50@12.00; cows, good, 10.00@10.50; medium, 9.50@10.00; bulls and stags, 7.50; calves 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.
Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, April 13, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.
Market strong, prices higher. New stock: Stockton: Burbanks, fancy and special brands, 7.75@8.25; choice, 7.00@7.50; Idahos: Russets, fancy, 8.00@9.00; choice, 7.50. Local stock: lug boxes, 3.00@3.25; poor low as 2.50. New stock: local Early and White Rose, 12½@15 per lb.; lug, 3.50@4.25.
Onions: Demand and movement moderate, market weaker. Homegrown and Stockton: White Globes, per cwt., mostly 7.00@8.00. Yellows and Browns, 6.50@7.00 per cwt., lugs, 2.25@2.50; few 3.00; per lb., 6½@8. Imperial Valley Bermudas, 4.00@5.00 crate; 2.50 lug. Crystal Wax, lugs, 2.25@2.50. Garlic, lb., 40@50.

VEGETABLES

These are the actual prices obtained April 13, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.
Artichokes: Doz., best, 1.00@1.35, poorer, 50.
Asparagus: Supplies liberal. Delta section: 8@15 per lb., fair quality, 6@9. Local, 17@19 per lb.
Beets: Doz., 45@55; lb., 4@5; sk., 2.50@3.25.
Cabbage: Little good stock. Per lb., 3½@4½, mostly 4@4½; per crate best, 4.00; others, 2.50@3.00; sacks, mostly 3.75@4.00. Red cabbage: 4@6 per lb., mostly 5.
Carrots: Doz., 45@50; lb., 1½@2; sk., best, 1.75@2.25.
Cauliflower: Supplies very light. Local stock; per dozen, best, 1.60@1.75; others low as 1.25; field crates, scarce, 3.00@3.50; pony crates, 1.75@2.00.
Celery: Market steady for good stock. Local and northern per dozen bunches, best, 2.00@2.50; crates, 5.50@6.50; fancy shipping stock, 8.00@8.50; poor stock low as 2.00 crate.
Cucumbers: Illinois: Hothouse, wide range in price, 2.75@3.25 per dozen, according to size.
Peppers: Floridas: Bells, 40@45 per lb., Chills, 40@45.
Lettuce: Local stock, market weak, supply heavy. Per dozen, best 75@1.10; other low as 35@50.
Parsley: Doz., 15@30.
Parsnips: Lugs, 1.00@1.25; sacks, 3.00@3.50; per dozen, 45@55.
Peas: Local and Imperial Valley: Market firm; lb., 8@12.
Rhubarb: Strawberry, bx., 1.75@2.00; best 2.50@2.75; Crimson Winter, 50@1.00.
Spinach: Doz., 20@30; lb., 2.
Squash: Summer, cr., 1.00@1.10.
Tomatoes: Mexican: crates, best, 3.00@3.50; lugs, 3.00@3.75.
Turnips: Per dozen, 50@60; per sack, 2.75@3.75.

FRUITS

These are the actual prices obtained April 13, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.
Apples: White Pearmains, 2.50@2.75; 4@6 per lb; Yellow Newtown Pippins, 4-tier, 2.00@2.75; 4@6 per lb.; Romes, 2.50@3.50.
Bananas, 8@8½; Red, 9.
Strawberries: Local, per crate 4.50@5.25; few best 5.50; per tray, 2.50@3.00.
Grapefruit. California and Arizona: per box, 4.00@4.50; other, 3.50@3.75. Local, 2.00@3.00 per box.
Lemons: San Fernando Valley stock; fancy packed, 4.00@4.50; loose, 3.50@3.75; juice, 2.50. Local stock: packed, 2.50@3.00; loose, 2.00@2.25; 2@3 per lb.
Oranges: Market slightly weaker. California Navels, packed, 4.50@5.50; best brands, 6.00@6.50; others low as 3.00@3.25. Local stock: packed, 3.50@4.75; large sizes low as 2.00. Tangerines. California stock, mostly 6@9 per lb.; some best high as 14; 2.75 lug.

HONEY

Demand and movement slow, market weak. Supplies cleaning up. Carlot f. o. b. usual terms: White orange blossom per lb. 18; extra light amber, 17@18; light amber sage, 17@17½; light amber alfalfa, supplies very light, mostly 15. Beeswax, demand and movement good, market strong, little change in prices, l. c. l. lots 40@42.

BEANS

California Lima Bean Growers' Association fixed prices October 13, but market failing. Limas, 14½; baby, 13.
F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

WALNUTS

Net prices have been named by California Walnut Growers' Association.
No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	27.00@30.00
Barley	26.00@30.00
Alfalfa	28.00@32.00
Barley Straw	10.00@13.00

Alfalfa Growers of California, f. o. b. Los Angeles: Choice alfalfa, 38.00@39.00 per ton; choice dairy alfalfa, 30.00@38.00; No. 1 dairy alfalfa, 33.00@36.00; No. 1 alfalfa, 34.00@36.00; standard alfalfa, 33.00@34.00; standard alfalfa, 30.00@33.00.

GRAIN AND FEEDS

Price bid local grain exchange, April 6:
Price bid local grain exchange, April 13:
Milo: 3.01¼@3.01¾; Eastern, 2.26½@2.80.
Wheat: Mixed feed, 5.00@5.10.
Rye, Utah, 3.00.

Make Your Valuable Orange Crop Safe From June Drop and Fungus

Are you sure there is no Black or Citricola Scale in your grove, sapping the very life out of the trees that are setting what will be a burdensome crop?

Investigate for your own good. One Black Scale will produce 2000 to 3000 more, quickly spreading to healthy trees. Left alone it retards the growth of the tree and injures the fruit, sometimes lowering the grade considerably.

You can thoroughly clean your trees and eliminate Black and Citricola Scale, Red Spider and Fungus, if you will apply

TIZIT SPRAY

There is a grove near you where TIZIT has done all we claim for it. Send for the name and address of the nearest TIZIT SPRAY user so you can see the results.

The sooner you put TIZIT on, the more work it will do. The genuine TIZIT is labeled TIZIT—Trade Mark Registered.

Folder sent on postcard request,

The Tizit Spray Manufacturing Company

1344 Willows St., Los Angeles, Cal.

Also may be ordered through The Fruit Growers Supply Co.

San Francisco Markets

San Francisco, April 13, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.
Dairy Exchange quotations, lb.:

Extras	58
Prime Firsts	57

Apr.	6	7	8	9	10	12
'20 ...	59	59½	61	61	59	58
'19 ...	..	62	59	57½	58	57½

Rcts. wk. ending April 12, 4,592 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	30
Ore. Trips	30
Cal. Flats	25@29½

EGGS

The prices paid by wholesalers to producers are eight per cent less.
Dairy Exchange quotations, dozen including cases:

Extras	42
Firsts	39½
Extra, pullets	37
Undersized	33

Apr.	6	7	8	9	10	12
'20 ...	44½	45½	44½	43½	42½	42
'19 ...	..	..	47	47	47½	48½

Rcts. wk. ending April 12, 545,890 doz.

POULTRY

Wholesale prices are:
Leghorn, 40@42; large, 43@44; roosters, young, 43@45; old, 23@25; broilers, 43@50; fryers, 52@58; turkeys live, 42@43; dressed, 48@50.
Ducks, Indian Runner, 30@32; Pekin, 33@35. Squabs, 55@60; pigeons, doz., 2.35@2.50.
Belgian hares, live, 22@25; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:
Cattle — Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 11@12; do 1,200 to 1,400 lbs., 10@10½; do, second quality, 8@9; thin, 6@7.
Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4@5.
Calves—Light weight, 12@12½; medium, 9½@10; heavy, 7@9.
Hogs—Weighing 100 to 150 lbs., 16¼; 150 to 225 lbs., 16¾; 225 to 300 lbs., 16¼; 300 to 400 lbs., 15¼.
Lambs: Milk, 15@16; Yearlings, 13@13½.
Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:
Cattle—Good steers, 1000 to 1100 lbs., 12@12½; top steers, 1100 to 1200 bs., 11½@12; good heifers, 1000 lhs. and over, 9@9½; No. 2 cows, 1000 lbs. and over, 8@8½; canner cows, 5@6; good bulls, 6@6½.
Calves—Light, 13@14.
Hogs—Top packer, hard and well finished; 100 to 150 lbs., 16; 150 to 225 lbs., 16¾; 225 to 300 lbs., 16; over 300 lbs., 15½; under 100 lbs., 14½.
Sheep: Ewes, 9@9½. Wethers, 11@12. Yearlings, 13@13½. Milk Lambs, 14@15.

POTATOES

Wholesale selling price:
Per 100 lbs.: Rivers, fancy, lb., 7@8; Idaho Gems, lb., 7¼@8; sweets, 6@7 per lb; new, lb., 10@12.

ONIONS

Wholesale selling price:
Onions: Fancy brown, 6.25@6.50; choice, 4.50@4.75; white, 5.00@5.25. Garlic, China, 40@45; Green onions, River, 50@75, Bay, 1.00@1.25 bx.

VEGETABLES

Wholesale selling price:
Artichokes, No. 1, 65@75; No. 2, 40@60.
Asparagus: lb., 6@11.
Beans: So., 13; Hothouse, 20@22 lb.
Brussels Sprouts: lb., 8@9½.
Carrots: sk., 1.00@1.50.
Cauliflower, doz., 1.25@1.45.
Cabbage: lb., 2¼@2½.
Celery: doz. bunches, 35@45; cr., 2.50@3.50.
Cucumbers: Eng. doz., 2.50@2.75; hothouse, bx., 3.50@3.75.
Eggplant: lb., 15@25.
Lettuce: L. A., 1.00@1.50 cr.; Imp., 2.00@3.00
Peppers: Fla., 30@40.
Peas: lb., Bay, 6@11; So., 5@10.
Radish, 7@9 doz. bunches.
Rhubarb: bx., 2.00@2.50.
Tomatoes: Southern, 2.00@3.00.
Spinach: cr., 1.00@1.50.

DECIDUOUS FRUITS

Apples: Newtown Pippins, old stock, 2.50@2.75; Oregon, 2.50@2.75; Spitzenberg, 2.00@3.00; Winesaps, fancy, 3.75@4.00.
Bananas: lb., 7@9.
Loquats: lb., 10@20.
Pineappies: Doz., 3.50@6.00
Strawberries: Imp. cr., 4.50@5.00.

CITRUS

Box: Lemons, fancy, 4.50@5.00; choice, 3.00@3.75; standards, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00@2.50. grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 3.00@6.25; limes, 1.00@1.50 crate; tangerines, 1.50@3.25 per crate.

DRIED FRUITS

Prunes:
Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.
Peaches:
Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:
Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.
For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2 c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special, "practically peeled," 16¾c per pound, bulk basis.
Apples:
Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.
Figs:
White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. California: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.
Pears:
Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

WALNUTS

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No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.
Raisins:
California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11¾; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12½; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾; Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, $2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

RICE

The domestic market is showing a fair amount of activity in spot fancy which is generally held at $11.75, although some lots are available at slightly under this figure. Porto Rican and Cuban demand continues, with almost daily foreign inquiries being received. Higher levels are most probable in near future.

BEANS

Jobbing price per cwt.: Small white, 6.20@6.25; large white, 6.00@6.35; cranberry, 6.90@7.00; red Mexican, 7.75@8.50; pink, 6.25@6.40; California Bayo, 9.00@9.25; blackeye, 7.10@7.25; red kidney, 13.00@13.25; lima, 11.00@11.25; Garvanza, 9.00@9.50; Kotenashis (in bond), old crop, 5.25; new crop, 5.75.
Dried Peas—California, 5.25@5.50 per cental for green, recleaned.

HOPS

1919 crop, 70@85c per lb.; older growth, 45@55 per lb.; prices to growers for 1920 crop, 50@65 per lb.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

Hard White—	Per Bus.	Per Cen.
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$2.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.00
No. 2	2.13	3.55
No. 3	2.00	3.48½

The above are minimum prices.
For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.
Oats: Red feed, 3.15@3.25.
Corn: California yellow 3.10@3.15 per cental; Egyptian white 3.50@3.65; milo maize 3.00@3.10.

HAY

Under date of April 10, Scott-Magner & Miller says:
We quote today wholesale prices in carload lots as appear from dealer's transfers upon the hay market in San Francisco, for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat or Wheat and Oat hay	35.00@38.00
No. 2 Wheat or Wheat and Oat hay	33.00@35.00
Choice Tame Oat hay	37.00@40.00
Other Tame Oat hay	33.00@37.00
Wild Oat hay	Nominal
Barley hay	Nominal
Alfalfa hay	32.00@37.00
Stock hay	29.00@32.00
Oregon Cheat and Oat mixed	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, April 14, 1920.

The strike has prevented large shipments and picking has been largely discontinued. Stock which has been delivered is commanding good prices. Some navel sections are practically cleaned up. There will he reduced shipping from other sections for a few weeks.
F. o. b. quotations on lemons running around $3. Sales in auctions have been very limited and prices have ruled low.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 14,396 cars; lemons, 2,778; total, 17,174. To same date last season: Oranges, 15,469; lemons, 3,584; total, 19,053. From Central California this season: Oranges, 4,006; lemons, 281; total, 4,287. To same date last season: Oranges, 2,298; lemons, 251; total, 2,549. From Northern California this season Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

April 7
New York: 20 car., Nav. 3.90-6.50. Sweets. 3.35-4.60. Seeds. 4.25. Mikes. 5.45-6.20.

Boston: 16 or., 2 lem. Nav. 3.05-5.75, Bloods, 3.20-4.85, Tange. halves 2.90, lem. 2.15-4.10.
St. Louis: 5 or., 1 lem. Nav. 4.75, Seeds. 3.45-4.75, Sweets. 4.55-5.25, Mikes. 5.70.
Philadelphia: 13 or., 2 lem. Nav. 2.60-5.30, Val. 3.20-4.50, Tange. halves 2.20, Mikes. 3.85-5.45, Seeds. 4.50, Bloods. halves 2.35, lem. 2.55-4.15.

April 8
New York: 16 or. Nav. 3.90-7.15, Tange. halves 2.65-3.75, Mikes. 5.55-6.60.
Boston: 16 or., 2 lem. Nav. 3.30-5.35, Bloods. halves 2.00, Tange. halves 2.50, lem. 2.90-3.90.

April 9
New York: 11 or., Nav. 3.90-7.35, Bloods. 3.55-4.55, Tange. 2.80-4.50.
Pittsburg: 2 or. Nav. 4.75-5.20, lem. 3.45.
St. Louis: 4 or., 2 lem. Nav. 4.40-5.50, Seeds. 3.10-5.55, Sweets. 5.50.

April 13
New York: 11 or. Nav. 4.65-7.85, Bloods. halves 3.10-4.00, Tange. halves. 3.05.
Boston: 6 or., 2 lem. Nav. 4.05-5.60, Bloods. 5.25-5.85, lem. 2.70-4.45.
Philadelphia: 3 or. Nav. 4.35, Seeds. 4.40-6.20, Mikes. halves 2.50-3.00, Bloods. halves 2.25-3.05.
Pittsburg: 1 or., 1 lem. Nav. 7.15, lem. 3.60-4.85.

MARKET NOTES

On account of the railroad strike there is no shipping news for the past week and this has had a depressing effect on Los Angeles markets. The new onion crop has dropped in price and so has the holdover 1919 crop. Potatoes are slightly higher, the ordinary run in carload lots being quoted at $8 straight while Idaho Russets bring $9. Summer squash has fallen to $1 a crate and peas are one cent lower. Asparagus is down to six to nine cents. Lettuce is stable in price. The only new product in local stalls is the loquat.

STATE STANDARDIZATION

The state department of agriculture has strengthened its standardization work by putting into effect a cooperative agreement with the federal bureau of markets whereby the state of California will be enabled to utilize the trained services of federal employes in an endeavor to make state laws coordinate with national laws. While this agreement has not yet been formally approved by the secretary of agriculture at Washington, the plans have progressed so far that little doubt is entertained of its final consummation.

Fred W. Read who has been in this work for the federal government for five or six years and lately in charge of the branch office of United States bureau of markets at Los Angeles, will take charge of the office of standardization at Sacramento some time in May. This will be a joint office under the California state department of agriculture and the United States bureau of markets. In the meantime Mr. Read will make a tour of the principal markets of the eastern states. The Los Angeles office formerly in charge of Mr. Read will be taken over by John W. Law some time next week. Mr. Law comes from the Denver office and is a trained and experienced food products inspector.

BULLETION ON FOUL BROOD

The department of agriculture at Washington, D. C., has issued Bulletin No. 804, five cents. It is entitled "A Study of the Behavior of Bees in Colonies Affected by European Foul Brood."

The brood diseases of bees cause annually large losses of bees and consequently of the honey crop.

The predominant attitude among beekeepers has long been how best to eradicate an invading bee disease after the attack has been made. They depend upon this procedure because little is known with any degree of certainty concerning the natural conditions which might prevent or control the onslaught of the disease. As a result of this attitude much more importance has been placed on the significance of apiary inspection and police power laws and of purely remedial treatment, the reasons for which in many cases are imperfectly understood. But the old adage, "An ounce of prevention is worth a pound of cure," has yet to be refuted, particularly with regard to beekeeping. In the realm of human medicine, for the last two decades at least, this precept has been gaining strength, so that today preventive medicine stands on a par with, if not above, most of the other branches of medicine. Why is it not logical to apply this principle to the control of bee diseases?

El Dorado County's pear crop has been slightly injured by frost but it is anticipated that sufficient remains for a fair setting.

A LIVE UNION

Secretary Hoyte of the Farmers Educational and Cooperative Union of Stanislaus County writes as to the activities and meetings of the Union being held in that county. He says:

"The Farmers Union has taken up the matter of a pure seed law for California. We advocate one with real teeth in it, espccially as regards alfalfa and potato seed. Having had dumped in this county a lot of imported alfalfa seed which contained as many as 3,000 noxious weed seed per pound, with a germination of less than 50 per cent, we realize the need of such a law. This seed was obtained by the dealer at a cost of 17 cents per pound, laid down; the farmer was charged 40 to 45 cents, which we claim is unjust.

"The condition of our potato seed and the condition of most of the potato land in California, you know, I suppose, better than I, and the need of some just legislation that will protect the public from unscrupulous dealers.

"All of our reliable seed companies, I am sure, would gladly welcome such a law.

"We would be thankful for any aid you could extend to us in the work of stimulating production, education, cooperation, and the good of the general public, not forgetting the consumer, who we all know is as essential to us as the growing and selling of better crops.

"We will soon be showing at each of our locals, through the University of California service, moving pictures of things educational in farming, hoping thereby to secure aid in getting members.

"Our organizer started work in this county last month, and we have increased our membership well over 200 in only a small part of the county. We now contemplate putting five organizers in the field at an early date.

"Our county convention will be held at Turlock on April 21, at which time we hope to have a resolution adopted by all of our members (and any other organizations that will help), and start this much needed law on its way to its proper destination in Sacramento.

"Being a strong supporter of your paper, the California Cultivator, and heartily agreeing with its policies, we hope you may be able to assist us through the columns of your valuable paper."

BLASTING CLAY SOILS

In connection with subsoil blasting of clay there is one feature often overlooked that is of the greatest importance. A clay soil naturally is rich in unavailable plant foods, but owing to the puddled and solid condition little of its fertility is available. How the condition came about is not so important as is the fact that there is little humus in the under soil, less bacterial action and poor drainage, while aeration and oxidation hardly take place at all.

It would seem that nearly every other agency of fertility waits on humus in such a soil. Given humus, in the form of roots that penetrate, or even in the slow arriving form of particles carried down from the surface by water, chemical reactions set in that eventually lead to better conditions. When a heavy crop of roots is made to grow down in one season and their bulk is supplemented by a good crop of stalks and leaves plowed under, the "sad" clay soon becomes mellow and productive. To put it another way, crops, even trees, will not send roots into unbroken, compact clay, simply because there is no inducement to do so. They have the ability to penetrate such clay, but there is no available plant food in it for them to travel after.

A way to start the upbuilding or enriching process with a rush is to open up the clay, fine it and loosen it and force the growth and introduction of organic matter. In old gardening practice we used to trench the ground, beginning at one side and working across, and going down two to four feet. In commercial gardens and orchards trenching is too expensive and blasting has been found to accomplish about the same results, its only fault being that it does not put the top dirt down and the bottom dirt up.

Owners of clay soils should make it a point, therefore, to put their clay subsoil in a properly granular conditioon. The impression is likely to prevail in many neighborhoods that blasting is not necessary or desirable for any soil that still is soft enough to break apart in the hands, but only for hardpan and other lightly cemented soils that resist the actual physical penetration of roots. This is an error. Penetration should be easy, but available plant food is more important, especially in clay, and it can be obtained in proper abundance within a few years only by trenching or blasting.

IT HAPPENED

This delightful little story we take from the Animals' Guardian, London, England:

In a Kensington by-way yesterday was a very ordinary hawker of rugs. His cart was commonplace, his horse work-a-day and possessing only one sound eye. The morning was cold, the little street deserted, and, to the seller of rugs, super-tax seemed a long way off. Not at all a good setting for a fairy act.

From a turning came an old man who asked to be shown "something nice and warm." The goods were spread out for his inspection but he was difficult to please. "I want something better," he said. "Why, there's the very thing—a thick, white fleece rug—quite the best you've got. How much?" And he pointed to the superior article, which was draped over the loins of the horse.

"Nothing doing!" was the reply.

"Come, I'll give you £5 for it," declared the old man.

"Can't be done, mister."

"Why not?"

"That there rug's the special property of old 'Wall-eye Jim,' the horse. Had it long before the war, he did. Keeps him warm on cold days. It's just been cleaned for him to wear this winter. He's been a good pal, and he'd never forgive me if I sold that—would you, mate?"

The aged horse swung his head round until his sound eye came into play, and, with, it, tried to express assent.

"Look here," the hawker went on, "you have this one, mister. It's the next best. Seventeen and six."

The old man took the rug, pressed a £5 note into the seller's hand, and, not waiting for the change, vanished.

To the empty street the hawker said "Blimy!" four times. Then he buried the note in a pocket of his third waistcoat from the top, adjusted the winter garment of "Wall-eye Jim," seized the bridle and started for home. "Come on, mate," he said. "You come and lie down in your stable and think it over. Blimy!"

Kern County farm bureau directors are indignant because the state railroad commission gave little heed to their protest against advancing power rates in the San Joaquin Valley.

WEATHER REPORT

San Francisco, California, April 10, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	1.17	20.59	40.20	56	42
Red Bluff	.78	10.32	22.09	82	40
Sacramento	.34	7.83	17.70	78	40
San Francisco	.48	9.54	20.25	71	46
San Jose	.64	8.32	15.21	78	40
Fresno	.22	7.94	8.43	82	45
San Luis Obispo	.71	13.91	18.37	80	44
Los Angeles	.22	11.64	14.39	80	46
San Diego	.24	8.22	9.08	76	52

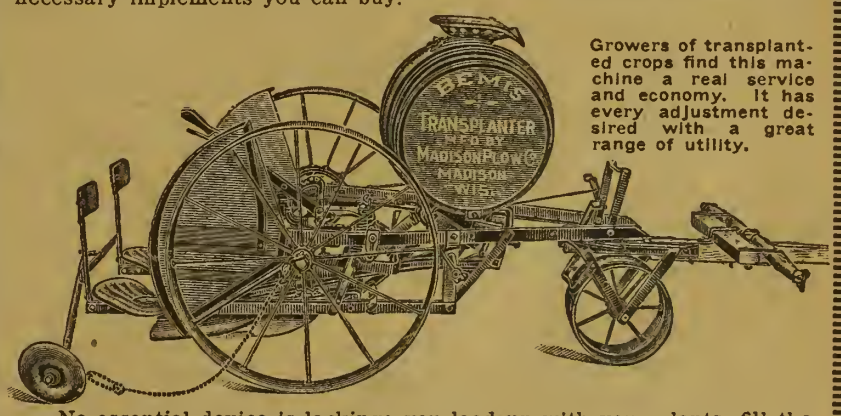
San Francisco, California, April 3, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.56	19.42	39.04	52	38
Red Bluff	.00	9.54	21.63	74	40
Sacramento	.00	7.49	17.19	79	40
San Francisco	.00	9.06	19.68	67	45
San Jose	.00	7.65	14.78	70	36
Fresno	.00	7.72	8.32	74	40
San Luis Obispo	.00	13.16	18.21	72	42
Los Angeles	.00	11.42	14.11	72	46
San Diego	T	7.98	8.91	64	43

SAVE LABOR, TIME and MONEY
BY OWNING A
BEMIS TRANSPLANTER

The Bemis Transplanter is thoroughly practical horse power transplanting machine with every feature for every purpose and every adjustment desired for transplanting tomatoes, berries, small nursery stock, peppers, sweet potatoes, celery, cauliflower, cabbage and similar crops.

It has proven its great utility and value to hundreds of growers in every state and its construction gives such a great range of usefulness and such fast operation, that it is one of the most highly desirable and necessary implements you can buy.



Growers of transplanted crops find this machine a real service and economy. It has every adjustment desired with a great range of utility.

No essential device is lacking; you load up with your plants, fill the barrel, set the floating shoes and pressure plates, get on and go and go fast. Five acres a day or thirty or forty thousand plants set out in a day is no fast pace with a Bemis Transplanter, and it does the work so much better than setting by hand, that the increased stand and yield are also very important factors. A man and two boys can operate it successfully. The floating shoes, quickly adjusted, are independent of the frame, insuring uniform planting, regardless of holes or ridges in the ground.

The pressure plates pack the moist earth firmly around the roots and the watering device supplies the moisture. Dry earth is thrown over the surface mechanically. The spacing device enables the droppers to set the plants at equal distances apart, and the work is better than hand transplanting.

The driver throws the machine in and out of gear turning around, and can lock the front truck and insure straight rows.

With a Bemis Transplanter you can quickly set out a large acreage and you don't have to wait for a rain. The Transplanter stirs the ground equal to once cultivating.

Growers who have used the Bemis Transplanter say it insures better setting, better stand and better yield of crops. It has every feature for every purpose desired, and soon pays for itself.

For sale by

E. P. BOSBYSHELL COMPANY
LOS ANGELES, CAL.

SEEDS
THAT SATISFY
Send for "Hints on Gardening"
MORRIS & SNOW SEED CO.
439 Main St. Los Angeles, Cal.

Place Your Order
NOW for
Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or ex steamer to arrive.

C. HENRY SMITH, General Agent
Pacific Coast and Hawaiian Islands
311 California St., San Francisco.

SUPERINTENDENT WANTED

For large truck farm in California. Good position to right man. Practical familiarity with commercial growing of vegetables essential. Scientific training desirable. Familiarity with packing and shipping of vegetables desirable.

R. L. Reynolds, La Habra, Cal.

When Writing Advertisers, Mention the Cultivator.

YOU CAN'T HAVE EGGS AND MITES TOO

Poultry men and farmers sometimes overlook a very important fact. It is that the best of feed, plenty of it, well balanced ration, etc., will not induce hens to lay eggs if they are compelled to roost in houses infested with mites. The little red insect saps the vitality of the hen by sucking her blood. Hens have actually been killed, virtually eaten alive, by mites. Chickens cannot lay except when their vitality is maintained. Vitality and mites cannot exist in the same hen roost. Guard against mites by giving all the woodwork inside the poultry house a coat of hot whitewash well carbolized.

The roosts and their supports should be painted all over with carbolineum, zenoleum, carpoline or kresol. These are similar products, called by different names by different manufacturers. They are cresol or tar oil disinfectants and are death to mites, while in no way injurious to the chickens. The time and cost of carrying out these suggestions will be amply repaid by the hens who will show their appreciation by an increased yield of eggs.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

Santa Cruz, week ending March 27.

D. B. Walls and Warren Wood tie for the week, each of their pens laying 54 eggs. The flock as a whole for the week laid a little better than 65 per cent. The high pens for the week are:

Wood, 54 eggs; Walls, 54; Barker, 53; Enterprise, 53; Bellows, 53; Stalling, 52; Neef, 50; Gibson, 50; Gray, 50; Gibson, 50; Amsbaugh, 49; Schlink, 49.

High pens to date: Walls, 843; Enterprise, 755; Neef, 748; Rose, 737; Wood, 717.

UNCULTIVATED LAND SEIZED

A royal decree has recently been made by the Italian government to provide for the necessity of increased agricultural production, with special reference to cereals, vegetables, and edible tubers. It has been felt in many quarters in the country that proper use was not being made of large tracts of land which had never been placed under cultivation, owing to the difficulties raised by the landowners in granting leases on adequate terms and to the indisposition of land-owners or the state to sink any capital for the development of such land. Expression to the prevalent feeling of dissatisfaction was shown on the 24th August by the organized seizure by a number of farmers of tracts of uncultivated land in 200 localities in the vicinity of Rome, chiefly at the instigation of the "League of Fighting Soldiers."

It was to deal with the situation thus created that the royal decree was issued. Under the decree farmers belonging to legally constituted agrarian associations are secured in temporary occupation of land concerning which questions of civil custom have arisen, for a period of four years. The land owner is to receive fair compensation, and when this cannot be decided by common agreement the matter will be determined by an arbitration committee. There is a right of appeal against a decision by this committee. Under certain provisos, framed in the best interests of land cultivation, application may be made before the termination of the provisional occupation for the occupation to be made permanent.

The decree also provides for the granting of state assistance where it is considered desirable, empowers agrarian societies to collect from their members payment due in respect of incoming subscriptions, repayments, etc., on the principle of the collection of direct taxes, and makes the minister of agriculture responsible for the supervision of agrarian associations and bodies.—Journal Board of Agriculture, England.

BRAEMER RANCH Santa Barbara California

Buy Pigs and Poultry

Registered Hampshires

If you are looking for a young boar or some well bred gilts, we have some that should just suit you from the best blood lines in the country now for sale at moderate prices. If possible come and see them for yourself and inspect our thoroughbred stock of Percheron Horses, Aberdeen-Angus Cattle, and Collie Dogs.

S. C. Buff Orpingtons

Start your season right with reliable birds, we have some choice cocks and cockerels for sale at reasonable prices.

Eggs for hatching in limited numbers from our Pacific Coast prize winners. Bred to win and lay, $10 for 15 eggs guaranteed to give satisfaction.

Lee Union-Alls

The Most Popular Work Garment in America

Don't wait another day before enjoying the comfort, convenience and economy of LEE UNION-ALLS. It is the ideal work suit for farmers—warm in winter, cool in summer—does away with the strains and pulls caused by suspenders and belts and protects your body from chaff and dirt. Moreover LEE UNION-ALLS are the best made work garments ever manufactured.

Dept. 4614
THE H. D. LEE MERCANTILE CO.
Kansas City, Mo. St. Louis, Mo.
Minneapolis, Minn. Trenton, N. J.
South Bend, Ind.

Remember
IT CAN'T BE A UNION-ALL IF IT ISN'T A LEE

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Swollen Ankles

I have a 15 year old mare mule that stocks up in hocks and ankles. She also has bad teeth and some difficulty in urinating. She weakens more than her team mate at the end of the day. She does not drag her feet nor seem extra stiff. After a day's work the swellings in the ankles sometimes go down to normal. I find that alfalfa, molasses and bran are the best feed for her. What would you advise doing for her?—Subscriber, San Bernardino.

You will have to get a veterinarian to fix the teeth. The trouble with the ankles is called lymphangitis. It is a defect of the lymphatic system in carrying off the worn out material. The feed of alfalfa and molasses is all right, but not the bran. Use rolled barley instead. Get half an ounce of aloin, four ounces of turpentine and two quarts of raw linseed oil. Mix all together and divide into eight doses. Give one dose each day while it lasts, unless it physics her too much; in that case give the doses farther apart. Also get four ounces of nitrate of potash, four ounces of bicarbonate of soda and six ounces of powdered gentian. Mix them and divide into 20 powders. Give one powder in the feed morning and evening

Ulcer

We have an 11 year old cow that is in good condition and giving plenty of milk. She has been tested for tuberculosis and is all right that way but has a sore just in front of her udder that we are unable to heal. We have washed it with disinfectant and used sheep dip, but it remains about the same. What could we use to heal it?—Subscriber, National City.

Those ulcers are a little hard to heal. Have your druggist dissolve two drams of chloride of zinc in a pint of water. Wet the ulcer with this solution morning and evening. Brush off the scabs so the lotion can get right on to the skin.

Household Department

THE 1920 FAMILY BUDGET

First comes the rent—32 per cent;
Your groceries are 20;
Your clothing bill is small, but still,
It's 6 per cent—that's plenty.

Insurance 4, cigars 2 more,
Amusements come to 7;
A tire, 15; 12, gasoline;
That's 98—Great Heaven!

It cost you 2 to have the flu,
And that all went for dope;
You owe the nurse, and what is worse,
The doc, too, lives in hope.

The butcher looks upon his books
And forthwith mails a dun;
The drygoods man your bill doth scan,
And so on, one by one.

Your wages spent—the last red cent,
In debt, and there you are.
Man toils and slaves but never saves;
He just must keep a car.
—E. D. Foster, in Weld County News.

SIR STUPE ID AND THE ROSEBUD CLUNA

(Continued from last week.)

Dorance an hour later was eating a piece of toast in the kitchen. Already she had stacked the castle's great cracked dishes on the upper shelves of the pantry and through the door was proudly looking at her own rows of pink and white china. Suddenly she ran to the window. A strange buzzing sound had for some time been filling the air. Dorance stared down the terrace in surprise and her eyes glowed. All the weeds had been cut away from the upper lawn and Stupe's fat body was trotting briskly along behind the mower.

The little cook clasped her hands as the sun came out and shone softly on the clipped grass where black and yellow birds were searching for bugs and tender tips. The birch trees which an old time Id had planted to outline the terrace now stood proudly with no long tendrils climbing their trunks.

"What a change!" breathed Dorance. "And so soon!" Her eyes twinkled.

As it was the first work Stan had done for six or seven years, he found it interesting and did not realize that it was two o'clock and time for lunch until his arms and legs hurt so that he could not push the mower. Then he stopped and looked back at the smooth terrace and grinned.

"Pretty good for me; I'll do all the grounds, but I must sleep the rest of today. Now for something to eat!"

He started toward the castle Hilga would have a dozen young rabbits stewed in vinegar, or a couple of fat geese stuffed with chestnuts. Stupe paused—Hilga! He had actually forgotten that there was a new cook, a slim little, trim little cook.

Dorance was standing at the dining room window. She smiled brightly.

"How splendid the terrace looks! You must be hungry; lunch has been waiting some time."

The giant sat down. There were sprays of lilies of the valley on the table now, and he sniffed toward the kitchen for the smell of his dinner above the perfume of the flowers. Then came Dorance with the tray and on it a plate of rolls, a small bowl heaped high with roast beef hash, a beautiful salad of lettuce and crimson tomatoes, a tall glass of iced tea and tiny twin molasses cakes topped with whipped cream.

It was enough for two ordinary men, but Stupe stared in dismay. Whose fault was it? Why, the dishes, of course. How could one expect that rosebud china to hold a couple of geese or a dozen rabbits? Stupe looked up at the beaming girl.

"Why—why don't you use our dishes?"

Dorance merely smiled.

"I told Your Highness that I must use my own. They were my mother's and I cannot work without them."

She disappeared into the kitchen and Stupe sat looking at the lunch. Then he tasted the hash. Delicious! If only the great Id tureen had been full of it with fifteen or twenty poached eggs for trimming—however, Hilga would be back in a week. The giant began to eat very slowly.

Directly after lunch he walked quickly out to the hammock and lay down. He pulled his cap over his eyes and prepared to sleep the day away. A moment later he pushed up the cap and gazed down into the orchard. How badly those trees needed pruning! Far down the hill Stupe could see the public highway winding around the castle grounds. At least it had been a highway once, but now it was rutted and choked with sand and there were weeds in the middle of the road. Without remembering that he had not begun his nap, to say nothing of finishing it, he jumped from the hammock and hurried over to the tool shed.

At seven o'clock the setting sun looked down in surprise upon the giant still hard at work. He had forgotten everything but getting the road finished. Three times he had been around it with scythe and shovel and roller until it lay like a curving grey ribbon. Now and then Stupe paused to look with pride toward the upper terrace, which still gleamed pleasantly green and smooth.

Three months later Hilga hobbled out of her daughter's comfortable home and through the streets toward the castle. There had been great talk about the goings-on in town and Hilga was walking so she could see with her own eyes. Had His Highness really headed a band of men to get the weeds from all the lanes and avenues? Had he himself cleaned up the parks? Had he sold his great flock of geese to the King of Kankaland and given a gold piece to each citizen who would paint his house?

Hilga during her long illness had listened jealously to the excited gossip, but now as she made her way to the main avenue, at the far end of which stood the castle, she cried out with pride. On either side the lawns were freshly cut and though it was early morning, women were out scrubbing the cream colored stone sidewalks.

A couple of blocks down, the stores commenced. Hilga forgot her tired feeling and almost ran toward them. Could it be possible—clerks busily.

A FINANCIAL PARABLE

By Strickland Gillilan

And it came to pass in these days that there dweit in the land of peace and plenty a (tolerably) certain man who obtained possession of one dollar, yea even an kopeck, an seed, an bean, an bone, an iron man.—Selah.

And when that he found himself seized of an simoleon, he mocked and said, Wotto! Thou lookest lonely, little round one! Thous shalt go immediately to join the ranks of the great majority that lie in the pockets and safe-deposit vaults of the wealthy, even the rich. Thou are too little to save.

And behold he spent it hurriedly and gat nothing except perchance a third-class headache that was not negotiable.

And it was so that he learned from this no lesson, but did likewise with every sestertius that came into his paw, even into his mitt.

And when that he was old, he would teli thee, if peradventure thou wouldst listen, of what rotten luck he had always had.—Selah.

And behold there dwelt in this same land which is called Usa, yet another man who was constructed of different material and whose coco was upholstered differently inside.

And when that he gat an dollar into his claws he said, Verily as I live this is an doliar of the daddies! It is an whole doliar! I have worked for it, and behold turn about is fair play! When I am old and unable to work so hard, this bit of silver or paper will merely be getting its second wind, and it and all its children will be working for me like mad, not asking for a day off, for an old age pension or an eight-hour day. Get to work, fair plunklet, and toil for me, so that when I am so old I lie about how good I was in my youth, thou wilt keep me in smoking tobacco and daily papers and tripe.

And it was so that, as often as he gat an coin that he did not need for his necessary pleasure or food or raiment, he chucked it into the safety-bank, even the work-house of the dollar; and when that he was old and wabbly in the knees he sat at ease and spent most of his time trying to invent ways of staving off the pleas of the other man who was forever coming to him for an loan.

And behold when that the boob of the first part looked upon the well-painted dwelling of the wiseguy of the second part, he shook his knob and said: "Some people have all the luck!"—Fort Dearborn Magazine.

Quality, Not Price Should Determine Your Choice of a Piano

In these days careful buyers are asking, not "how much," but "how good." They have learned that there is no economy in "cheap" goods, and that merchandise of quality is the only kind which enables them to get lasting value for the money expended.

In no line of merchandise is quality more necessary than in Pianos. A cheaply constructed, poorly finished instrument of mediocre tone and uncertain standing, offers neither value nor satisfaction. Price is the only talking point for such instruments.

Good piano dealers will not carry these kind of instruments. It is true Pianos of dependable quality will cost a little more—but that extra cost is nothing compared to the years of use and complete satisfaction you will have in return. We carry a most comprehensive line of Pianos—many of them very old and famous makes, such as the Steinway—but they are all of dependable quality. The prices cover a wide range, and we gladly arrange convenient payment terms.

We invite you to call at any of our stores—or write us asking for illustrated catalogs and prices.

Dealers in Steinway and Other Pianos, Pianola and Duo Art Pianos, Aeolian Player Pianos, Player Rolls, Etc.

Sherman, Clay & Co.

Kearny and Sutter Streets, San Francisco
Fourteenth and Clay Streets, Oakland
Ninth and J Streets, Sacramento
325 E. Main Street, Stockton
J and Merced Streets, Fresno
190-192 S. First Street, San Jose
Stores also at Vallejo, Portland, Seattle, Tacoma, Spokane

Thousands of Happy Housewives in WESTERN CANADA

are helping their husbands to prosper—are glad they encouraged them to go where they could make a home of their own—save paying rent and reduce cost of living—where they could reach prosperity and independence by **buying on easy terms.**

Fertile Land at $15 to $30 an Acre

—land similar to that which through many years has **yielded from 20 to 45 bushels of wheat to the acre.** Hundreds of farmers in Western Canada have raised crops in a single season worth more than the whole cost of their land. With such crops come prosperity, independence, good homes, and all the comforts and conveniences which make for happy living.

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are sources of income second only to grain growing and stock raising. Good climate, good neighbors, churches, schools, rural telephone, etc., give you the opportunities of a new land with the conveniences of old settled districts.

For illustrated literature, maps, description of farm opportunities in Manitoba, Saskatchewan, and Alberta, reduced railway rates, etc., write Department of Immigration, Ottawa, Can., or

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SURFACE IRRIGATION PIPE

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Write for Catalog and Prices

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Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

HOME DRESSMAKING

is either Drudgery or Pleasure—and the Sewing Machine the home dressmaker uses makes it so.

No matter how pleasing the patterns selected, or how beautiful the materials, it is Drudgery, and nothing else, to sew on an old awkward machine incapable of fine adjustments or good sewing. Such a machine takes the economy as well as the pleasure out of home-sewing. Besides it is a menace to good health and good dispositions.

Any woman so capable and clever as to make her own and her children's clothes deserves better than an out-of-date, hard running sewing machine to work with.

It is easily possible to get the full present worth of your old machine and forever rid yourself of its many shortcomings. Trade in your old machine on

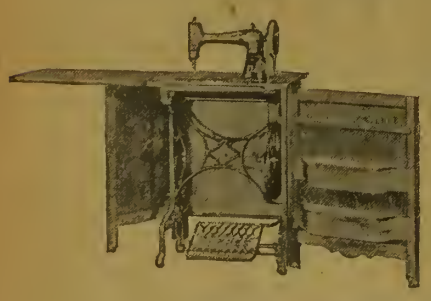
THE
"FREE"
SEWING MACHINE
Guaranteed For Life

and begin enjoying and profiting by the uses of this machine called rightfully, for its many perfections, "The Sewing machine of Today."

The "FREE" has these proven advantages:

It sews faster; it runs lighter;
It lasts longer because it has less vibration;
It makes an absolutely perfect stitch;
It is easier to operate; and lastly,
It is a beautiful piece of furniture.

Two Illustrations of the "FREE"



In the illustration above, the unique and satisfying features of the "FREE" cabinet are shown, with the case open and extended. On the left is the same machine closed when not in use. In the "FREE" all the old, time-worn defects of imperfect sewing machines have been eliminated.

Barker Bros. will accept your old machine in part payment on a "FREE" and will allow convenient payment terms on the balance.

If you want to know how to get full present value for your old machine, applied on the purchase of a "FREE"—and at the same time enjoy Barker Bros. convenient payment terms on the balance, write us fully, describing the make condition and age of your old machine, and we will tell you how you may easily and quickly begin to enjoy sewing on a "FREE."

Barker Bros
ESTABLISHED 1880
Complete Home Furnishers
722 South Broadway
Los Angeles, Cal.

arranging goods for the day—grocery benches piled high with delicious fruits—small boys outside sponging off the spotless windows. In the restaurants all the tables were occupied by early breakfasters, strangers to Hilga, but she had heard a month before that the city was filling with traders and visitors.

Hilga took a silver piece from her pocket and hailed a sleek coach boy whose white horses were trotting smartly toward the castle.

"Is this a public coach?" she asked. Then she stopped, for on one side was the coat of arms of the House of Id, and though the magnificent vehicle was painted a glittering black and looked like new, Hilga saw that it was the old, worn out carriage she had seen many a time when searching for eggs in the coach house.

The boy looked down and recognized her.

"Aha, Madame Hilga, so you are going back to your job today!" This isn't a public coach, but Sir Stan sends it around to pick up strangers and take them where they want to go when the city is very crowded. Let me help you in and we will be at the castle in five minutes."

Hilga shaded her eyes from the morning sun and gazed to either side as they passed. Never had there been a fairer city. All the churches had new moss green roofs and tidy grass plots bordered by geraniums. Happy faced children were beginning to troop along to the school near the castle which a few weeks before had been grey and neglected, but now was a handsome building as shiny as the leaves of the trees surrounding it.

The coach boy helped Hilga up the wide marble steps to the front door of the castle, and laughed all the way at her cries of "Goodness, gracious me! Who would have believed it!"

The emerald velvet terraces sloped smoothly to the road. The pillars of the castle had been painted a lustrous white, so that the place looked almost like a fairy palace. The branches of the birch trees were quivering gently and in all the sunny corners were flower beds or blossoming bushes. The great front door stood wide open, and helping Hilga inside, the coach boy waved his hand and left.

Hilga looked around. Surely this could not be the place. One pleasant room opened from the other and through them all the summer breeze blew, sweeping the soft net curtains lightly across the arms of chintz covered chairs or against tables and cabinets of glistening rosewood. Hilga had seen most of the furniture when it was scratched and dusty, so she could recognize that, but she would never have known the dining room. She stole on tiptoe down the corridor, beyond which was the end of a lace covered table. Behind the tapestry curtains she stopped, for two people were seated close together at one end of the board. The sun was shining on them and it was so very bright that Hilga turned her old eyes to other parts of the room.

Before a polished mirror a purple and orange parrot in a tall wicker cage flew about and chattered. The room seemed to be full of rosebuds, roses in the pattern of the rug, roses on the table, rose sprigs on the china and roses at the waist of the girl who sat in one of the two places. She was a tall, brown eyed girl and she was looking roguishly into the face of —Sir Stupe. But was it Sir Stupe? Hilga forgot to turn away—such a ruddy, happy looking fellow, as slim and stalwart as a pine tree.

"We have oatmeal and an omelet this morning, Stan," said Lady Dorance. "But dear old Hilga will be back by noon and then I promise you a real meal such as you used to have. Just to show that I am not going to boss, now we are married, you may even have it served on your ancestors dishes."

She laughed and Sir Stan bent to kiss the saucy mouth.

"Hilga is some cook," he said softly. "But she is going to have an easier time of it now—and as for dishes, I hope your rosebud china lasts forever; it holds just enough."

Hilga wiped the happy tears from her eyes and tiptoed back to the front door to knock, as an old lady should.

Seems as though in uplifting the poor and hammering at the rich a lot of us plain average people get overlooked.

THIS WEEK'S PATTERNS AND THE HOME DRESSMAKER

For this week's patterns we have purposely chosen simple designs for home wear—and home making. Last week we had a shock, and the waves from that shock are being passed on this week to Cultivator homes. This was what did it.

We visited a charming home, up-to-date, comfortable, prosperous looking except for the clothes of mother and children. Just at first we wondered a little, for we knew there was plenty of money in the family pocketbook and that both husband and wife held liberal views as to judicious spending for the family comfort.

Of course clothes are a big problem today—one of the biggest, but a second look showed the mother's and children's clothes of the cheap ready made variety that hadn't been able to withstand soap and water and sunshine and wear. There are ready mades and ready mades, some practical, substantial and really cheap, some not, and in these post-war days of various substitutions, the latter class is rather in the lead.

But to come to the point. There was a sewing machine in this house, but it wasn't used because it was out of order — and that was the whole cause of the shabby clothes. The machine hadn't been repaired or traded off for one that would run. The mother is a cheery, healthy woman who knows how to sew, likes to sew and realizes that her own and her children's clothes would be twice as good at half the cost if she made them herself, but she had simply dropped into the habit of buying the ready mades because the machine wouldn't work!

We all do it, of course, put off doing the simple easy things that would add immensely to our comfort and happiness when once done, and this was her particular put-off duty. And it was a duty, really, for we all know that while clothes do not absolutely "make the man" they come mighty near it, and when it comes to the women—well, you know.

Now each one of the patterns on this page is for simply made home clothes that any home dressmaker can make if she has health, time and a good sewing machine, and we hope, just hope, that this little hint may meet the eye of someone like our friend who has been depriving herself of the comfort of a good sewing machine that will work.—R. P. D.

USING DRIED FRUITS AND VEGETABLES

Even though they do not spoil, many dried vegetables which were delicious and attractive during the first weeks or months of storage deteriorate after long storage. Blanched vegetables deteriorate more slowly, and blanching in salted water (one and one-half solution) before drying constitutes a slight improvement. It is advisable to use the dried product first, reserving the canned until later.

Dried corn keeps in good condition for a long time, if good at the beginning. The peculiar flavor developed in dried green string beans is popular in many parts of the country. Dried soup mixtures deserve wide use, for the combination of such strong juiced vegetables as onions, carrots, cabbage, and turnips will retain considerable flavor for a long time, even though the individual vegetables which compose it may have deteriorated somewhat in flavor when compared with the freshly dried vegetable.

Preparing Dried Vegetables

Dried vegetables may be soaked from one to three hours in warm or cold water, and then cooked from ten to 30 minutes (or longer, if necessary). Or they may be put at once, without any soaking, into boiling water, and cooked slowly over the simmering flame for 20 to 40 minutes or longer if necessary.

The water added for soaking or cooking should be little more than the vegetables will take up. To soak them in a large amount of water which is thrown away, then cook them in a fresh supply of water which also is thrown away, is to take the most thorough method which could be devised for extracting and discarding most of their nutritive constituents as well as most of their flavor. Three cups of water to one cup of vegetable is as

The Cultivator Patterns

BE SURE TO SEND SIZE

3173. Boy's Suit. Cut in 4 sizes: 4, 6, 8 and 10 years. A 10 year size will require 2¾ yards of 44 inch material. Price 10 cents.

2974. A Good Work Apron. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42 and Extra Large, 44-46 inches bust measure. Size 38 will require 5½ yards of 36 inch material. Price, 10 cents.

2789. Child's Set of Short Clothes. Cut in 5 sizes: 6 mos., 1, 2, 3 and 4 years. Size 2 will required for drawers, 1 yard, for petticoat 1⅞ yards, for dress 2¼ yards, of 36 inch material. Price, 10 cents.

3158. A Pretty Lounging Robe. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. A medium size will require 5⅝ yards of 36 inch material. Price, 10 cents.

3182. Girl's Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. An 8 year size would require 1⅞ yards of material 27 inches wide for the gulmpe, and 2½ yards for the skirt. Price, 10 cents.

3157. Misses' Dress. Cut in 3 sizes, 16, 18 and 20 years. Size 18 will require 4⅜ yards of 44 inch material. The width of skirt at its lower edge, is about 1¾ yards. Price, 10 cents.

3167. Child's Dress. Cut in 4 sizes, 4, 6, 8, and 10 years. Size 8 will require 3⅝ yards of 27 inch material. Price, 10 cents.

3162-3181. A Becoming Business Costume. Waist 3162 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3181 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. The width of the skirt at lower edge is 1¾ yards. It will require 3⅛ yards of 40 inch material. The waist will require 3 yards of 36 inch material. Two separate patterns 10 cents for each pattern.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

good a general rule as can be given, but spinach and greens take half of that, being light for their volume. Long cooking demands a larger amount of water, because it boils away; but vegetables should not be cooked longer than is absolutely necessary, except in the making of puree.

Particularly when the dried vegetables are put into boiling water without soaking, it is best to salt them towards the end of the cooking process rather than at the beginning.

One cup (measured dry) of most kinds of dried vegetables will serve two persons heartily, or three persons with moderate portions.

Dried vegetables may be used in the same way as fresh ones while they are still in prime condition. When they begin to fall off in flavor they should be judiciously combined with other materials and have flavoring materials added to them. Dried sweet potatoes or carrots which have become rather flat when served with butter and salt only are more appetizing when glazed. To do this, bake them (after cooking tender by boiling) with a sauce of sugar or molasses or syrup, and fat. Dried spinach which has become a little flat will be liked if it is served with an egg and vinegar dressing or in a cream sauce flavored with onion or celery.

Dried vegetables (after being boiled) may be served in gravy with the pot roast or meat or vegetable casserole or in the sauce for the baked or boiled fish. They may be combined with each other or with other fresh vegetables in "boiled dinner" or in chowders or casserole dishes of any kind. They may be used with rice, macaroni or bread crumbs, in stuffing baked peppers or tomatoes, or meat or fish; they may be combined in a mock mincemeat.

Cooking Dried Fruits

Dried fruits are usually given a long, slow cooking in water below the boiling point. They may be soaked for a few hours, or they may be simply washed and put directly into the warm water for cooking. The important point to be observed is not to soak or cook in too much water. The dried product cannot be expected to have as much flavor as the fresh, so all pains must be taken to dilute that flavor as little as possible. Most recipes for cooking dried prunes and apricots direct that two cups of water be used to one cup of fruit, but a better flavored product will result if equal measures of water and fruit be used when the cooking is done slowly in a tightly covered vessel so that little of the steam escapes.

Dried fruits may be sweetened lightly (since they usually contain a good deal of sugar themselves) with sugar or with any sort of syrup, according to taste. They are to be used as sauces, in puddings, fruit cakes and cookies, compotes, whips, souffles, and even salads, much as fresh fruits are used.

DON'T THROW AWAY OLD WINDOW SHADES

Many house furnishing stores will tell you that Holland shades are off the market. That is not quite true. but it is a fact that linen shades are scarce; many stores have no stocks of them at all, and when obtainable they are very high in price. This causes a housewife to hesitate about throwing away old shades that have become wrinkled, faded and thin, with the idea of replacing with new curtains. Generally the trouble with the old shales is that the filler has dropped out of the linen.

Window shades that have deteriorated in this way can be made to look almost as good as new at small cost and with little trouble. Go to a paint store and buy a can of ordinary flat wall paint. Reduce it by adding 25 per cent of turpentine.

Remove the curtains from the rollers; tack them down smoothly on a bare floor or table and apply one coat of the paint. To eliminate brush marks go over it immediately with a dry stiff bristled brush.

If it is desired to have the shades harmonize with the decoration or trim of the room, any color of flat paint may be obtained with which to accomplish it. It is possible to have the outside of the shade one color and the interior side different if it is preferred to have it that way.

By the adoption of this suggestion window shades can be kept looking bright and clean, at the same time saving the expense of new ones.

THE BRIDE'S LIBRARY

There are two books for which a bride finds much use her first year in double harness. One is the Bible, which she reads to teach her patience, and the other is the cook book, from which she learns to compound a satisfactory line of eatables, for 'tis all too true that the way to the heart, especially of a young man, leads through his stomach.

The Bible covers are not likely to become wet, except by an occasional tear, but the cook book is laid down in grease, molasses, butter, milk and water. The covers soon look like the baby's rag doll. Now a more or less bedraggled rag doll is all right, but anything used around the food is supposed to be clean and sanitary.

A bookbinding material of comparatively recent use is becoming very popular for cook books. It is a pyroxylin coated cotton fabric made to resemble leather. It is waterproof; can be washed over and over again without spoiling its neat appearance.

For a book bound in some other binding it is possible to make a slip on cover of the leather substitute. A quarter yard of it will be enough.

Politeness, like an air cushion, eases the jolt.

Wild Flower Time
In the Foothills

IS THERE anything more appealing to nature lovers than a Spring-time stroll among the wild flowers?

The gentle rains of the past few weeks and the balmy sunshine is coaxing nature to smile with her flowers most benignly.

Take a little journey over our lines to the upper San Fernando Valley, to the foothills and canyons above Glendale, Altadena, Sierra Madre, Monrovia, or Duarte. If you would go farther afield, go to Puente Largo and explore the San Gabriel River canyon and revel in the joy of a long Spring-time hike.

Pacific Electric Railway

Kill All Flies! THEY SPREAD DISEASE

Placed anywhere, DAISY FLY KILLER attracts and kills all flies. Neat, clean, ornamental, convenient and cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed.

DAISY FLY KILLER at your dealer or 5 by EXPRESS, prepaid, $1.25.
HAROLD SOMERS, 150 De Kalb Ave., Brooklyn, N. Y.

AJAX ROAD KING

JUDGE tires by results—by the mileage figures they pile up. It's the safe, sure way of measuring true value.

Judge the Ajax Road King on this basis and you'll know why so many farmers choose it over every other make.

"Shoulders of Strength"

The Road King is the Ajax fabric tire with triangular anti-skid tread design. The tread is braced and reinforced by Ajax "Shoulders of Strength"—an exclusive Ajax feature. They give the extra stamina which is particularly important to the man whose car must travel both good and bad roads.

The Road King wears well. It piles up splendid mileage figures. It's the companion of Ajax Cord, Ajax Tubes and Ajax H. Q. (High Quality) Tire Accessories.

Sold by good, reliable dealers who display the Ajax sign.

AJAX RUBBER COMPANY, Inc.
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Factories; Trenton N. J. Branches in Leading Cities

A LAYNE & BOWLER PUMP
FOR EVERY NEED
Whether you desire only 180 gallons or as much as 4500 gallons per minute, leave it to Layne & Bowler to do the work. Ask for folder No. 30.
LAYNE & BOWLER CORPORATION
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There's a saving all the way

Check up, step by step, every process in the production of poultry feeds and you'll soon see why you save all around when you buy a uniform, top-grade feed like SURELAY.

To begin with, mixing feeds is our special business. We have the equipment—we have the facilities—we have the experience! We buy our materials in carload lots—there's a saving there! Our operating costs per ton of feed are far below the mixing costs of the individual feeder—so there's a saving there.

And don't overlook *this* big fact: there's as great a saving in the ingredients we *leave out* of SURELAY as there is in the ingredients we put *into* it. For example:

We don't put *carbonate of lime* in SURELAY. Why? Because you can buy almost pure carbonate of lime at the quarry at very low figures and ship it at *half* the freight rate that applies to feed. We can't sell you lime when mixed in SURELAY as cheap as you yourself can buy it—so we leave it out.

And so it is with *moisture*. Water is cheaper in the watering trough than it is when mixed with feed—and that's why SURELAY contains as little water as possible.

Remember—everything that goes *into* SURELAY is needed. Anything that is not essential stays out. In this way there's a saving all the way.

Our booklet, "Makes Hens Happy," explains just why we can do this—shows how hundreds of successful poultrymen have found SURELAY the most economical, convenient, *uniform* feed they can use. This booklet is free—cut out and mail the coupon now!

STOCK AND POULTRY FOOD DEPARTMENT

SPERRY FLOUR CO.

STOCKTON • CALIFORNIA (A54)

How You Can Save on Carbonate of Lime

By GEORGE R. MCLEOD
Agricultural Department
Sperry Flour Co.

ONE of the commodities necessary for the poultryman to use in quantities is carbonate of lime. Many poultrymen believe it is best to purchase this in the form of oyster shells on the assumption that it is more effective in this than in any other form.

Oyster shells are not available in quantities large enough on this coast to take care of the demand, and this results in extremely high prices being asked for carbonate of lime in this form. In other words, carbonate of lime can be purchased in a grit form at a price of approximately $8 per ton, while the Eastern oyster shells cannot be bought for less than $20 per ton.

The proportion of carbonate of lime in some of the limestone deposits in California runs as high as 98% pure carbonate of lime, while the average amount of carbonate of lime in the various shells used for poultry feeds do not carry anywhere near as high a percentage.

Inasmuch as a large part of the feed used for laying hens consists of mashes and green feeds, a certain percentage (and possibly all of the grits used) should be lime grits.

Our feeds do not carry either oyster shells, flour or limestone grits, as we figure that the poultryman can save considerable money by buying the pure limestone grits instead of paying the cost of mixing this commodity in our mashes.

Limestone at the quarries can be purchased at a very low price in car-load lots, and takes the freight rate of crushed rock, which is less than one-half the rate on grain feeds. If it is included with grain feeds, however, it takes the same rate as the grain feeds, and on that account costs the consumer a much higher figure if purchased in this manner than if purchased in grit form.

SURELAY

REG. U.S.PAT. OFF.

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — April 24, 1920 — No. 17

What Will the 1920 Fruit Harvest Be?

Estimates and Some Comment Direct From California Orchards

WE asked last week for crop reports. Responses have been liberal and full of information as to conditions the state over. Of course, some of the fruit regarding which we have asked has hardly finished blooming and estimates as to percentages of crop may not yet be accurate, but ideas from shrewd observers who live with their trees will give a most valuable foundation for estimates by growers who are already asking: "What of the harvest and what of the market?"

The market outlook at this moment is exceptionally fine. The demand from Europe will be heavy providing Europe can secure the funds or the credit. If she cannot, Americans are earning in most liberal measure and are spending even more liberally. As usual Southern peaches are being "caught by the frost," and we are told the inroads from peach yellows have resulted in appalling loss. California must be in a position to meet this condition.

It is almost unthinkable that our output should be as large as last year. No year ever reached the 400,500 tons of last year. There may be sufficient new orchards in bearing to bring totals up to that output, but two such large productions in succeeding years is hardly probable. However, the optimistic reports which follow are most satisfactory.

Last year's output approximately was: Dried fruits; apples 10,000 tons, apricots 14,500, figs 11,000, peaches 35,000, pears 5,000, prunes 135,000, raisins 190,000. Almonds ran up close to 7,500 tons. Cherries, largely shipped fresh, totalled 335 carloads. Including these shipments and fruit canned the total production of cherries was close up to 13,000 tons.

For some reason the department af agriculture, bureau of crop estimates, in giving productions of various states quotes most fruit outputs in bushels. The bureau accredited California with a total output of 17,600,000 bushels of peaches, 4,500,000 bushels of pears, apricots (expressed in tons, however), 165,000.

Note in Mr. Kaufman's report frost occurred during the month, severely damaging almonds in some localities. There are some apricot sections from which same report has been received. Also in some sections, "serious damage from brown rot." Some prune and pear sections report: "Thrips are prevalent." Hemet growers seem most discouraged amongst apricot people; there it is feared the crop may be little more than a third that of last year.

One serious feature which growers are considering may lower the output is the rainfall. In most fruit growing sections it has been insufficient "to go down and meet the upcoming water." Where possible, however, winter irrigation has made good this deficiency. As early and as heavy irrigation as possible should be given in practically all sections.

The reports are from the orchards, usually, though the first is from an expert of the federal department of agriculture.

E. E. Kaufman, U. S. D. A. Bureau of Crop Estimates

The only crop news I can give you for publication is contained in the following report. Now looks like conditions on most deciduous would be more or less spotted as both drouth and frost have touched up things a trifle in different localities.

Frosts occurred during the month, severely damaging early almonds in some localities. Some early apricots and cherries also suffered slight damage where bossoming was early and unprotected. Detailed reports concerning fruit crops are not made at this time, but the conditions for the various deciduous fruits seem to appear quite favorable. Counties around San Francisco report some damage to apricots from brown rot. Thrips are (Continued on Page 692.)

Overland

TRADE MARK REG.

The Way Bumps Look The Way Bumps Ride

Wonderful Riding Qualities In Coast-to-Coast Trip

ON rough highways and desert trails, in sunshine and storm, the Overland 4 Four-Door Sedan blazed the trail for the U. S. Army Pioneer Motor Transport Train from Washington to San Francisco. This plucky car was ever in the lead.

It was still another convincing demonstration of the wonderful riding ease of three-point suspension *Triplex* Springs and of this car's remarkable abilily to hold the pace on any road.

Dr. Johnson, official lecturer for the Lincoln Highway Association, rode the entire distance from coast to coast in the Overland 4 Sedan. He pays this splendid tribute to its performance:

"I found the Overland 4 Sedan so suited to my needs that I rode in it from choice all the way. It must be the new spring arrangement, for even when the roads were rough I came to the night stops without fatigue. It is a marvel of ease and comfort."

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Sedans, Coupes, Touring Cars and Roadsters

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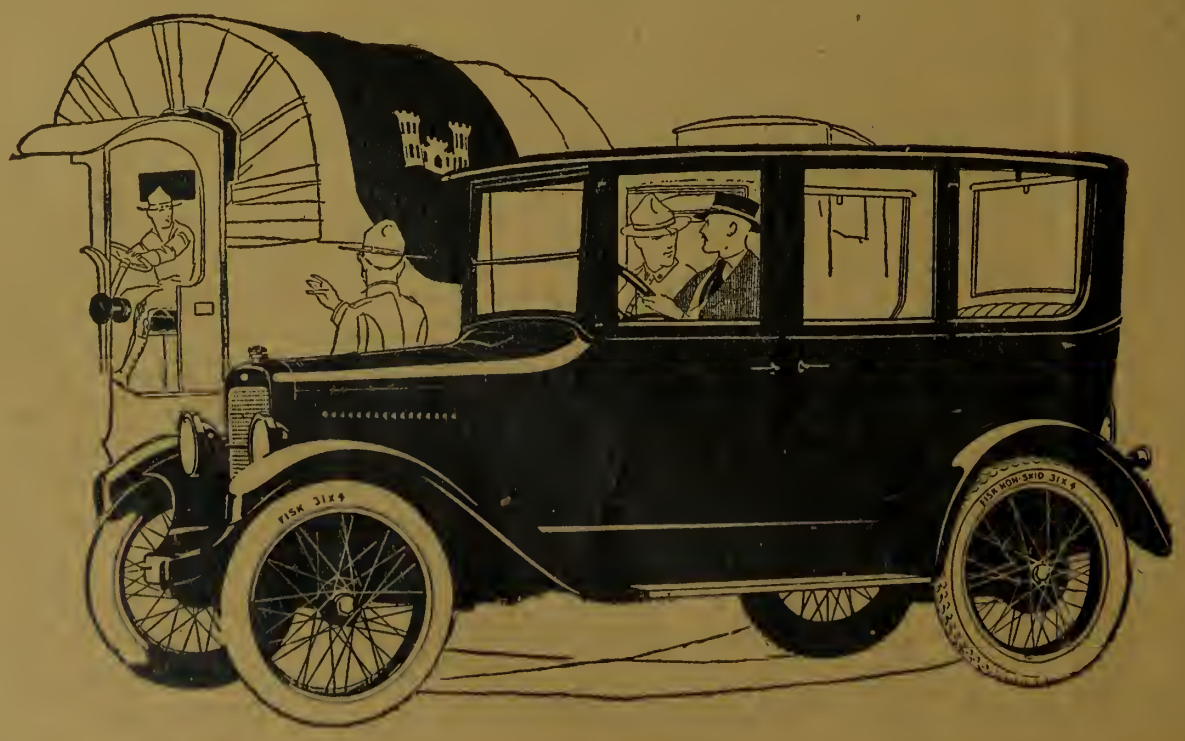

California Cultivator

Vol. LIV, No. 17 Los Angeles, April 24, 1920 One Dollar Yearly

The Nematode Menace

By Ernest Braunton

NO MORE serious trouble menaces the farmer in many sections of the state and country than nematodes, particularly that section of the family known as root knot nematodes. So serious are the invasions of these tiny worms that Horticultural Commissioner Ryan of Los Angeles County secured D. G. Milbrath, assistant pathologist, United States department of agriculture, now located at Alhambra, to deliver a lecture on the subject to the county inspectors, on April 14. Mr. Milbrath once made a survey for the government of all infested territory from the Atlantic to the Pacific and is therefore peculiarly well qualified to speak authoritatively on the subject. The main points and statements in his speech are herewith given.

What is a nematode? It is a worm belonging to the group known as round worms. To this group also belongs the trachina, the worm infesting pork and transmitted thereby to human beings. Other closely allied species are the parasitic intestinal worms common to sheep, horses and some other animals, and occasionally to mankind. The now notorious hookworm is also a nematode. The common root knot nematode is not so minute that a microscope is needed to see it, for the female, especially, is easily seen by the unassisted eye.

General Distribution

Nematodes do not exist in the colder states as yet for extremes of any kind, especially cold, are strong deterrents to introduction and increase, yet they are found in Denmark and nearly all parts of Europe. In this country the vicinity of Norfolk, Virginia, is the most northerly infested district and nematodes are very bad there. In North and South Carolina and that section generally the watermelon and okra are most affected. In Florida and Georgia they are very bad, the former state being "one giant nematode" in both shape and condition (the female is bottle-shaped). Even peanuts are badly infested in the Southern states.

From there the affected area ranges west through Louisiana, etc., to Texas, and in the latter state is serious on alfalfa, some varieties of soy beans, cow peas and crops in general. In Arizona nematodes are chiefly confined to truck crops in the Salt River Valley. In California, Oregon, Washington, Idaho, Nevada, Utah and Colorado their range is considerable. From New York west to Colorado there are none and there is no reason to expect plants from this area to be held up in transit because of nematode infestation.

In California

Just at this point, as a defensive measure, we will side-track some of the official specific statements of the speaker. He gave names of points visited and in some cases names of growers with infested fields. But the districts affected were not outlined except very generally. Suffice to say, parts of all counties are infested and any spot in the state may suffer a visitation at any time.

In Imperial County one field was found where 60 per cent of young cantaloupe plants were killed. In another section, after land had grown alfalfa for six years, the first year following, planted to cantaloupes, the loss in plants was great. In Riverside County tomatoes and truck crops in one district were heavily infested. To San Bernardino County was traced with some certainty the original alfalfa infestation, carried by flood waters through to the Pacific Ocean. Orange County is hard hit on lima beans, sugar beets and other crops. In Los Angeles County the range is wide and varied, from the potato and celery fields to carnation gardens. On the latter plants a strange condition was noted; the red carnations were little infested or aflected, while the whites and delicate colors were seriously injured.

A quart of soil from a Ventura County field was sent to Washington for examination and study. Girls were detailed to count the live nematodes found therein, eggs and dormant females not included. It was estimated from this count that at least 300,000,000 existed in one acre of soil and there were eight species found in the one quart, some of which are doubtless beneficial rather than harmful to the farmer. Tulare, Fresno, San Joaquin, Sacramento and counties to the north, in sections, have serious trouble on vegetables, peach, fig trees and a wide range of host plants.

Classes of Nematodes

Soil nematodes are divided into three classes: Useful (?), disease producing and root knot species and varieties. Stomachs examined proved that some species live on animal food and these are believed to be, in part at least, beneficial to agriculture. Then comes the disease producing group, of which there are seven species, one of which at least is common from the Atlantic to the Pacific.

One species gets into the grain of wheat and produces what looks like a smut but the black stuff is fibrous instead of powdery. The species found on the strawberry and the alfalfa is one and the same. One species infests citrous plants; another, sugar cane and bananas, and still another, cotton and potatoes. The root knot nematodes are bad worms for they have spears for piercing the tissue of plants, not unlike the tongues of snakes.

Life History

The larva penetrates and enters the root, feeding thereon, but causing little damage through food supply taken. But the rupture and damage of tissue is heavy and the subsequent swellings and growths of the infested parts may be likened to tumors in human beings. The male worm dies soon after he functions as such, but the female lives and produces 240 to 340 eggs, occasionally giving birth to young alive, as in the case of aphids. In one knot the size of his thumb the speaker counted 75 females.

Larvae, when hatched, sometimes leave the soil and go into new or uninfested roots. Therefore, soil may be infested with transient worms seeking agreeable host plants. Soil clinging to celery roots was found heavily infested. The size of the root knots is dependent upon the number of nematodes. Those on alfalfa do not seem to harm the plant, merely feeding thereon, but are a menace to other plants. It is not hard for a trained eye to distinguish nematode knots from nitrogen nodules. Nematodes as a rule are inside the root and cause swellings, while nitrogen nodules merely hang on the outside without enlarging the root. On the sugar beet the worm does not enter the plant, she merely works her head in and hangs outside, appearing like a pearly grain of sand, for which she is often mistaken.

The citrous root nematode likewise hangs on the outside, but is a light brownish color. The sugar beet female soon becomes encysted and the sac becomes brown and leather-like and full of eggs, though young may also be born alive. Distribution is largely effected by flood waters and by soils knocked from roots in handling. Wagons used for hauling potatoes, beets, etc., will distribute this soil, by leakage, all along the roadways. One of the most potent factors in distribution is the potato crop.

Control is difficult, though some varieties of soy beans and cow peas are nearly immune or resistant. Extremes of all kinds are deterrents to multiplication as in case of all animal life. Flooding land for four to six weeks has rendered it comparatively free. Summer plowing in hot sections and periodic stirring of the soil aid much (also burn up the humus). But the main reliance in control is starvation through crop rotation, the planting of crops your present species will not feed upon. Sugar beet growers should alternate with soy beans, alfalfa and cereals. Cotton growers in the South plant cow peas or velvet beans, then corn and the third year come back to cotton. In cereals beet growers should use wheat or barley and avoid oats as the latter carries nematodes. Their life history is complete in 24 to 28 days so that any means of destruction continuously followed will soon reduce numbers, but to get them all requires much persistent warfare. They generally inhabit only the top foot of soil, but have been found in light soils at three feet. Root knot nematodes constitute a serious menace to California agriculture and every possible means of control should be practiced in infested districts and every reasonable effort made to keep free districts forever free.

Bean Growers Must Cooperate

A MEMBERSHIP campaign has been conducted by the California Bean Growers Association through the various bean sections, Santa Maria, Lompoc, Solvang, Turlock, Modesto, Stockton, Courtland, Knights Landing, Socramento, Yuba City and Sutter City.

President Mendenhall and others of the officers explained the work already done by the association and the problems now being taken up. From his talks we give the following:

"You are all more or less familiar with the history of cooperative growers' organizations, their purposes and results obtained. We should bear in mind this lesson, that most of them have failed in their initial attempts, usually by being founded on principles which were not truly cooperative, or because of apathy or suspicion on the part of the growers, or by insidious propaganda of the middleman or competitive packers and so on.

Weathered Worst Difficulties

"Our association is only in its second year, and has weathered the worst of difficulties; it is not perfect as yet but is operating more and more efficiently as we get from under the enormous overproduction of 1918, and dispose of the great volume of inferior beans. You must all realize that the association has not had a real opportunity, is not old enough, to really demonstrate its effectiveness.

"The association is making a good fight to get a tariff on foreign beans and prevent the annihilation of the business. We touch on this question again and I hope you will all realize what a menace the Oriental bean is. The greatest and most important purpose of the association, however, is to economically market and distribute the bean crop. In doing this we are trying to solve a problem which today has the attention of federal and state governments and of thousands of housewives. Every candidate for office in this political year includes in his platform what he is going to do to solve this problem. I mean, how are we going to cut down the cost to the consumer and yet give a fair deal to labor and a fair deal to the producer?

"Now marketing and distribution are not generally understood. It is not so difficult to ascertain what the cost of production is and not difficult at all to know what the consumer pays. But what happens in between, is the elusive question. Usually the dealer buys from the producer as cheaply as his commercial instinct and ingenuity and the needs and lack of information on the part of the average farmer will permit. Sometimes the produce goes through a broker to the dealer. Then comes a long line of go-betweens who deal and speculate and add costs to cover duplicated overhead expenses.

(Continued on Page 697.)

Agricultural News Notes of the Pacific Coast

Northern California

Range cattle are now having finest pasture of the season.

Garlic is reported retailing in Sacramento at 85 cents a pound.

The Chico high school will give a tractor course beginning May 10.

There are 10,000 acres of peas planted in the Sacramento Valley.

The Glenn County farm bureau has concluded purchase of a saw mill and planing mill near Oriand.

Plans for the formation of a Livermore Valley water district are meeting with general approval.

Grape growers of the Livermore Valley are interested in the project to establish a dehydrating plant at Livermore.

Movement is under way calling for great increase in the number of sheep on the small ranches of the Sacramento Valley.

Grape growers of Alameda County met at Livermore April 10 to discuss affiliating with the California Grape Growers Exchange.

Sacramento Valley canners are now handling great quantities of spinach. It is estimated the output will be 25 per cent greater than last year.

At last week's meeting of the Cloverdale farm center there was general discussion of the state farm bureau federation plan for improving livestock.

The Stockmen's Protective Association will hold its annual meeting and banquet the first Saturday and Sunday in May at Livermore, Alameda County.

Recent rains were reported to have done no damage to cherry blossoms in the Santa Clara Valley as the wind immediately following the rain drove away the moisture.

California Wool Growers Association is forming a pool of wool growers which will control at least $2,000,000 worth of wool to be sold during the coming season.

Capitalists of Australia are establishing large works for the manufacture of jam at Oakland. A high grade of superlative quality of jams is to be put out by this factory.

The first public meeting in the campaign to organize a water district in the Livermore Valley was held at Livermore, April 12. Petitions had been in circulation for a week or two previous to the meeting.

The farm bureau of Placer County has included in its program of work for 1920 a dozen important subjects; among them irrigation, roads, telephones, consolidated schools, septic tanks, farm business records, wool pool.

It is proposed to raise $450,000 amongst California good roads boosters to aid in constructing a better road between Reno, Nevada, and Utah. This seems to be necessary because the road traverses a section entirely unable to bear the expense.

Several cars of grapes which were shipped last season to the Welch Grape Juice Company arrived in poor condition so it is not known whether the large Eastern grape juice manufacturers will take kindly to California grapes for unfermented juice purposes.

Central California

The recent cold rains have retarded melon crops in Stanislaus County.

The railroad strike stopped orange picking in the Lindsay district, Tulare County.

California Rice Growers Association is protesting against an advance in rates.

Stanislaus County reports sweet potato acreage materially reduced over that of last year.

California Holstein breeders are to meet in Tulare May 5 for conference and for large public sale.

Permit to operate has been granted the Dinuba Dehydrator Company. The company expects to handle mostly grapes.

The California Olive Association has decided to start an advertising campaign to restore consumers' confidence in ripe olives.

The cannery of the California Cooperative Canneries located at Modesto expects to handle 400 tons of fresh figs this year.

It is rumored that a new association of berry growers will be formed to compete with the Berry Growers Association of Central California.

Notwithstanding fig prices have made a disastrous decline buyers are manifesting considerable interest in securing promises for delivery of next season's crop.

Fresno County Beekeepers are moving their colonies into Tulare County orange groves. The bee inspector of Fresno County predicts a large flow of honey this season.

The committee of the fig growers association which has been investigating as to the disposal of the coming crop may recommend affiliation with the Cooperative Cannery.

The Oakdale, Stanislaus County, irrigation district reports its total expense for last year as amounting to $269,476. Interest on bonds is the principal feature of the cost.

The Stanislaus County Fig Growers Association has voted to affiliate with the Modesto unit of the California Cooperative Canneries. A considerable tonnage of fresh figs has already been signed up.

The hog auction of the California Farm Bureau Marketing Association announced for April 13 at Tulare was postponed because of uncertainty of securing shipping facilities. Three hundred hogs were listed for the sale.

The California Peach Growers, Inc., is distributing two and one-half millions to apply on 1919 crop. This makes a total of over $10,000,000 paid to the growers. The fruit delivered is averaging close to 14½ cents per pound.

The grape growers of the Lodi district held a meeting April 17 under the auspices of the organization committee of the California Grape Growers Exchange in line with the campaign to form a cooperative marketing association of wine and table grape growers of the state.

The case of the Raisin Gorwers Association before the trade commission under charge of being a trust is thought to be favorably affected by the recent decision of the Supreme Court in the case of the steel corporation. Attorney Sutherland is handling the case for the association.

Southern California

A light rain last week helped grass and grain crops.

Missourians are called together for state picnic at Long Beach May 8.

Twenty-one orange packing houses were closed in Riverside because of strike.

Fruit growers of Victor Valley are to convene at Victorville Saturday of this week.

Victor Valley is testing out cotton and also making large plantings of sorghums.

Riverside planters have tested tobacco and find it possible to grow two crops a year.

A new center of the Riverside farm bureau has been formed exclusively of citrus growers.

Westmoreland, Imperial County, is coming to the front as a great producer of cantaloupes.

Los Angeles County farm bureau recently held a lemon pruning demonstration at San Fernando.

Orange County's apricot output will be greatly reduced because of uprooting many of the orchards.

Native Sons of the Golden West are advancing the movement to prevent Japanese ownership of land.

Imperial Valley is planning the erection of a permanent wier across the Colorado below the Mexican line.

"The greatest crop of cantaloupes ever produced in Imperial County." It will also probably be the earliest crop on record.

Riverside and Orange County irrigators are inspecting dams on the Santa Ana River in the San Bernardino Mountains.

Serious losses have been caused citrus growers because of the railroads refusing to accept perishables during the railway men's strike.

The Automobile Club of Southern California is extending its work in posting directions along desert roadways and in marking water holes.

Imperial Valley cotton growers have been cooperating in securing pure and pest free seed, working with the state department of agriculture and the U. S. department.

Riverside County farm bureau members met at Fairmount Park and listened to the report of the farm advisers trip through the Sacramento Valley. J. E. Wherrell has been re-elected president of the Riverside County farm bureau.

The first six months of the present cow testing year in San Diego County shows some remarkably fine producing dairy cows. Three of the cows produced over 300 pounds butter and an even dozen others exceeded 250 pounds during the test period.

Imperial Valley cantaloupe growers are fearing car shortage but making every effort to have in hand at least 11,000 cars to transport this season's crop. The planting this year exceeds 20,000 acres. Shipping will probably begin within a week or ten days.

Los Angeles chamber of commerce is planning for a great industrial week, May 17-22. The city boasts of more than 60 per cent increase in industrial plants in the past year. Canneries and other food manufacture plants are no small factor in the city's activities.

The Coast and General

The end of March saw severe frosts in Southern Arizona.

The Arizona Gypsum Company is erecting a plant near Phoenix.

The Mexican Women's Home Bureau of Arizona has started an anti-housefly campaign.

Morrow County, Oregon, has decided on September 13 to 18 as dates for its county fair.

Walla Walla County, Washington, is establishing a pure bred Holstein herd on its county farm.

The Federal Reserve Bank at Dallas, Texas, reports about 15 per cent increase in cotton acreage.

Twenty farmers of Grass Valley, Oregon, have formed a farm record and bookkeeping association.

Under appropriation for forest roads California has been allotted a total of $1,900,000 from the federal fund.

Whatcom County, Washington, reports 5,600 head of cattle tested in 1919 with 1.63 per cent reactors.

The farm bureau of Island County, Washington, is planning to build a brick and tile factory at Oak Harbor.

Three Japanese companies have acquired 15,000 acres of land below the boundary between California and Mexico.

A statement sent out by the Spokane Fruit Co. to all members urges every possible conservation of moisture supply.

Thirty head of cattle brought an average of $449 at the annual Shorthorn Breeders Sale held recently at Klamath Falls, Oregon.

A grain grading and seed standardizing campaign will be held in Umatilla County this summer by the Oregon agricultural college.

State Veterinary Inspector Swingley of Washington reports examination of 61 cows at Harrington for tuberculosis, not one of which reacted.

According to recommendation of the special committee appointed by the mayor of Portland, Oregon, the retail price of milk will be reduced to 13 cents a quart.

The horticultural department of the college of agriculture assisted ranchers and development companies in Pinal County in drawing up landscape plans for tree and shrub planting.

Farm bureaus of Oregon are protesting against a statement issued by the Merchants Association of Salem in annual convention, that the high cost of living was due to farmers organizations.

Indians on the Klamath Reservation are asking for a government loan of $2,000,000 to be used in development of agriculture and stock raising, the loan to be repaid from sales of Indian timber.

The hurricane which covered much of the Middle West recently caused great damage to farm buildings and equipment. In addition truck crops of many southern sections were swept away or seriously injured by the wind.

The Okanogan County, Washington, Livestock Association held a two days session at Okanogan the first week in April, electing E. F. Banker president and P. T. Harris secretary-treasurer. Plans were also made for the holding of a livestock show at Okanogan in the fall.

Canners Meet With California Nurserymen

By M. C. Holman

WITH the object of arriving at a better understanding of the needs of canners in the matter of the proper sorts of fruit to produco, the California Nurserymen's Bud Selection Association called the representative canners of the state to meet with them at San Francisco on Friday, April 16.

In his opening remarks J. E. Bergtholdt of Newcastle expressed the desire of the association to promote the production of better trees with better fruit and the elimination of such trees as do not produce fruit that has a profitable market value. Promiscuous planting, which has been freely indulged in for many years, is one of the fatal errors of the orchardist, and it is with the object of standardizing production for the nurseryman, the canner, and particularly the grower, that the meeting was called. It is a self evident fact that what is good for the canner's needs is the fruit to raise and what the canner does not want and cannot profitably use may be profitably eliminated.

The aim of the Bud Selection Association, as expressed by L. B. Scott, the manager, is to furnish to the different nursery members buds of all the fruit varieties propagated by them. These buds will be taken from bearing trees and in all cases will be selected from trees which are high producers and typical of the desired variety. The association is operated as a non-profit organization, buds being furnished to members at cost. Buds will also be sold to any reputable orchardist who desires to purchase them for top working orchard trees. The association operates in two distinct phases as a public service—first, in furnishing the best possible type of bud wood to the nursery members, and, second, in providing a channel through which orchardists can purchase selected buds for top working.

The association has already received the hearty support of the state and federal governments and a fund has been placed at the disposal of the federal agricultural department to be used in bud selection investigation with deciduous fruits in California. This bud selection association hopes to accomplish for the other fruit interests of California just what the California Fruit Growers Exchange, through its bud supply division, has accomplished for the citrus industry. The object will be to concentrate upon the leading varieties of each fruit or such varieties as are desired by the canners and the shippers.

Heretofore the catalogues of the nurserymen have contained dozens of varieties of the different frults and, while all of them have relative values, it is bewildering to the average planter to make the proper selection and be sure that he is getting a variety that will be in demand by the packer and canner. Whilo it is true that soil and climatic condltions change the variety of fruit, and the same fruit may change in character in different localities, it will have similar characteristics and be in similar demand in all localities, unless the changes are so marked as to make an abnormal product.

In endeavoring to determine the percentage value of all varieties of fruit a list was presented to each canner with a request that he note his estimate of the demand value of the different varieties and eliminate such as did not seem to him to be worth while planting, same having no apreciable canning qualifications. These percentages, it may be explained, represent the value of the varieties to the canners. They are not to be taken as the planting percentages, but they are the percentages upon which the canners desire the fruit. It is a relatively general viewpoint of approximate purchasable value. There was, of course, a slight difference of opinion as to the merits of the various varieties, depending upon the locatlon of the cannery and its known choice, but the percentages following are a safe medium between the extreme and mean valuation and may be used as a basis of reckoning in the purchase of trees for planting:

In the list of clingstone peaches the Hauss and Johnson were eliminated as they were considered identical with the Pelora, which is a firmer peach and a much better shipper. The white varieties, McKevitt and White Heath, were eliminated as the canners do not find it profitable to can the white clings, owing to the tendency of the peach to turn brown, giving it an overripe and displeasing appearance. The round Tuscan received a 25 per cent vote, the Pelora 10 per cent, Peak's 10 per cent, Libbes 10 per cent, Phillips 40 per cent, Albright five per cent, Levy five per cent and McDevitt five per cent. While the Pelora was given only a ten per cent rating, attention was called to the fact that it is a rather new peach and the life of the tree is hardly known. It has been a heavy bearer wherever planted and promises to become one of the standard canning varieties. Peak's is almost identical with the Pelora and might be favored more strongly if it were not for the short stem which it sometimes shows. It is generally a prolific bearer and possesses many desirable canning qualities.

The Sims received a ten per cent vote. It has generally given good satisfaction and comes into bearing a week earlier than the Phillips, which ranked at 40 per cent. This peach was given the highest canning rating on account of its firmness. It does not "rag out" in the can but holds its texture and form to splendid advantage throughout the entire process of canning. The Levy or Henrietta was allowed only a five per cent rating as it does not do well in all sections. The Orange peach was eliminated entirely on account of its similarlty to the Albright, which received a five per cent rating and is considered a fair midsummer variety. The McDevitt was also given a five per cent rating. It is a fair variety and comes in later than the Albright.

In the selection of freestone peaches the Lovell received the overwhelming vote of 70 per cent and the canners expressed a desire to purchase all that were offered of this variety. Following the Lovell were the Muir, the Elberta and the Salway, which received ten per cent each. The J. H. Hale was eliminated. The Fosters and Crawfords are not purchased for canning and were eliminated. They are shipping peaches and will be retained on that account.

As to the desirability of the cling and freestone peaches for canning purposes the vote stood 85 per cent for the clings and 15 per cent for the freestones. It would appear from this statement that the freestones might profitably be eliminated when raising peaches for the canning market, but the general market may still demand a goodly portion of freestones, and the consumer, whether from the can or the basket, is always to be a determining factor in planting trees.

In apricots the Blenheim stood 70 per cent, the Royal ten to 15 per cent and the Tilton 15 to 20 per cent. It was contended by George C. Roeding that the Blenheim and the Royal were identical, while Mr. Bergtholdt declared that, although they were simllar, there was a slight distinction. The Moorpark, Routier's Peach, Hemskirk and the Large Early Montgamet were recommended to be taken out of coming catalogues.

Apricots most suited to certain sections may not be suited to other sections. Along the Coast the recommendation was that the Blenheim be planted exclusively, while in the San Joaquin Valley the Tilton was urged exclusively. In the Sacramento Valley there was a 50-50 recommendation on the Blenheim and the Tilton.

In cherries the Royal Ann received a 60 per cent vote, assorted black varieties 20 per cent, Rockford ten per cent and Governor Wood ten per cent. The shipping varieties were strongly recommended for planting as there is a decided demand for California cherries in the East, where fabulous prices are often realized, especially for the early shipments. This season $50 was paid for the first box of cherries shipped out of the northern part of the state, this going from the Vacaville district.

The Bartlett pear received the entire recommendation to the elimination of all other varieties.

There was only meager consideration given to plums and the recommendation was that only one-twentieth as many plums be planted as cling peaches. Of the three varieties the Washington received a 25 per cent vote, the Jefferson 25 per cent and the Yellow Egg 40 per cent.

Nectarines are not canned and no consideration was given them.

Sour cherries were given favorable consideration. They have some features which should recommend them to the attention of the planter. They are used by confectioners and canners and are generally heavy bearers. In Michigan large plantings have been made with marked success and it was thought that California should be made a larger producer than at present, where only a few orchards may be found. The Montmorency was recommended as the most suitable variety

The next meeting of the Bud Selection Association will be with the prune and apricot growers on Saturday, April 24, at the office of the Prune and Apricot Growers Association in San Jose.

Cattlemen in Convention

By C. B. Messenger

"BIGGEST and best convention yet held" was O. B. Fuller's characterization of the semi-annual convention of the California Cattlemen's Association held in Los Angeles last week. Zone Five cattlemen entertained royally; every member from the northern end of the state spoke highly of the hospitality and the good time which was given to the visiting members. There were members in attendance from nearly every county from Tehama to San Diego.

Fred H. Bixby called the convention to order and made his opening address or, rather, as he expressed it, simply talked a few facts. He seemed abundantly able to handle the situation from then on, but asked T. H. Ramsay of Tehama County to act as presiding officer.

President Bixby appealed to the members to learn the rules of the game and play the game absolutely on the square. For the sake of more effective work in each section of the state, it is divided into 25 districts or zones. The membership represents a half million cattle. Its work is sustained through a membership fee of three cents for each head. The two strongest appeals made during the convention were for more complete cooperation and for improving the grade of stock. Produce fewer cattle; produce better cattle. Do this by buying not only pure bred bulls, but pure bred bulls of the best strain and the highest type of individuality. "This association is not planning to run your business, and it is not planning to fix prices, but it is planning through cooperative effort to secure fairer treatment in the markets, to watch and aid where necessary in legislation, to unite with the department of the interior to secure greater service through the forest reserves, to prevent cattle stealing, and generally to keep the cattlemen from getting it in the neck. The position now held by the association in the eyes of cattlemen in the state is shown by the fact that since the first of January there has been added to the membership roll 367 new members representing 70,000 head of cattle. The president insisted that the membership is still too small and the association will not be content until 85 per cent are uniting with their fellows and making it one of the strongest associations in the state.

The association took an unqualified stand against the installation of union stockyards in Los Angeles. The matter came before the convention in report made by a committee appointed

(Continued on Page 702.)

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THE FRUIT CROP

The Cultivator hopes the service it is rendering in printing the fruit crop estimates from various parts of the state will prove of real value to fruit growers. It is but keeping up the custom of years, and while cooperation is being used to a greater extent today than ever before, and that cooperation enables gathering of best of data by qualified crop estimators, yet we know there will be many a fruit grower aided by this preliminary view of fruit crops over the state.

WHY THE SLUMP?

Liberty bonds are now selling anywhere from 85 to 96 cents according to issue. We are all astonished, and we are all asking why our bonds, "as good as gold," are going at such figures. Perhaps they are still "as good as gold" for silver has passed gold and certainly commodities passed it long ago.

Here is a hint for Cultivator readers: There is good money in buying Liberty and Victory bonds at present quotations. Perhaps there is no occasion for doing what we did during the war—borrowing money at long interest to loan at low interest, but there is opportunity, and we are not certain but there is occasion for the manifestation of a bit of patriotism in taking—or keeping—these bonds off a depreciated market. Liberty bonds are magnificent security and where one is in need of funds, better borrow than sell at today's prices.

GARDEN SASS

Back East they are remarking, "The frost is out of the ground and gardeners are limbering up." "Out West" we have limbered up and already harvested our first crop of garden freshness for our table; second planting is now being made, and excepting in sections where desert heat may come later, fine results may be had by planting at this time or even much later. In many sections every month in the year sees fresh seed put in the garden. It calls for a bit of endeavor, but it is worth the money. Make it a thrift garden and save enough for another Liberty bond.

Modesto, Cal., April 12, 1920.

Editor California Cultivator:

After reading the article "Conclusions of an Ignorant Cowman," which was published in the Cultivator of April 3, we though it so good we passed it on. C. W. Blabon, state organizer for the Farmers' Educational Cooperative Union, read the article at a big meeting of Sylvan Farmers Union No. 158, held in the Prescott Community Hall, near Modesto on April 5. It received favorable comment from the crowd present which taxed the seating capacity of the hall. It appears, even to a "country clod hopper," that Mr. A. L. Spellmeyer has assembled some very sane and sensible conclusions. We would like to have other articles from him. The Cultivator is to be commended for its liberal viewpoint and its standard of justice since it presents the farmer's condition just as it is. The farmers and livestock men, the agricultural people, must stand shoulder to shoulder, and the ballot is their greatest weapon. We have often marvelled at the unconcern of farmers and farmer's wives! Working 16 hours a day, morning and night, their head in a cow's flank, no home conveniences, no bath tub, no sink, no time to read the paper—and their idea of a vacation is a sleep on a Sunday afternoon!

But that picture is changing, thank God, and we find Mr. Farmer and Mrs Farmer joining some farm organization, getting their "thinkers" oiled and adjusted and talking about conditions and economic questions. The farmer will soon be looking out for Number One.

Respectfully,
MRS. C. E. WHITMORE,
Secy-Treas. Sylvan Local, F. E. & C. U.

The University of Arizona, Tucson, The College of Agriculture,
April 15, 1920.

Mr. C. B. Messenger, Editor,
California Cultivator:

I have just finished reading with great satisfaction your article discussing the recent convention of the League of the Southwest. Having listened to practically all of the addresses at the convention I had opportunity to know what was said and to value the opportunity of attending a very exceptional gathering of strong and forward-looking men. With this background I wish to compliment you on the excellence of your review of the meeting. I am sure that what you have written and published will impress your people more strongly than they could be impressed in almost any other way. You have given a real picture of the convention.

Very truly yours,
D. W. WORKING,
Dean and Director.

SOME ARE—SOME NOT

A San Diego subscriber asks: "Are the seven million farmers for or against Hoover for president?"

This is not a proper question for our questions and answers department, for if an answer were attempted it might take a political turn. The farmers are not worrying about political questions, for this is the busy season. We hope, however, that they are keeping in touch with political events and realizing that our nation calls for the patriotic service which can only be given through fullest information as to our political candidates.

DON'T PUBLISH NAME

No week passes but the Cultivator receives letters making inquiry or giving a word of information for Cultivator readers, the letters ending with something akin to this: "Please do not publish my name for I cannot take the time to answer the letters which come." And occasionally the writer adds that many requests for mail information come without expression of appreciation or even a postage stamp. A postage stamp is a small thing to the inquirer, but stamp after stamp becomes a large matter to the one inquired of, this in addition to expenditure of time, energy and stationery.

Where a question is to be answered in the questions and answers columns of the Cultivator all that is necessary is the postcard or simple letter request and paid contributors or the editorial staff will answer without charge. It is one of the rights of our subscribers. But don't forget the stamp if occasion arises to make mail request of contributors.

IF THE PACIFIC WERE GAS

Once upon a time it was considered a fairly safe proposition that everything that goes up must come down. That doesn't apply, however, to all the gasoline which is being pumped from the center of the earth. It's never going back again. Hence those of us who are so fortunate, or the reverse, as to own a chug wagon, are asking "What are we going to do about it?" To give an idea of the rapidity with which we are burning up our money, a statement issued by the Farmers and Merchants National Bank of Los Angeles says:

"It is stated that the people of Los Angeles County are spending approximately five million dollars a month for gasoline for their motor cars. That means 60 million dollars per annum. At 20 cents a gallon, that amount of money represents 300 million gallons of gasoline used in Los Angeles County alone in one year. The entire state on that basis would probably use a billion gallons per year. The balance of the United States is prodigal in proportion with the machines in use. New machines, trucks and tractors are being put out by the hundreds of thousands, all of which tend to increase rather than diminish the consumption of gasoline. Where the enormous amount of this product now demanded is to be obtained for any long period of time is a most serious problem. To obtain it crude oil production must be largely increased. At present the production of crude is diminishing.

If the Pacific ocean were gasoline instead of salt water the consumption thereof in California alone would annually make quite a dent in it."

The worst of it is the most of us are not seriously affected by such presentation of facts.

GROW WOOD

Back in freeze-up country they estimate that it requires about ten full cords of wood to keep a small sized family reasonably comfortable through the winter. California families don't require that much; too many of them think we don't require any stove wood for heating purposes. A cheery fire in the fireplace adds much both to the real and imaginary comfort. But cord wood as furnished in the markets adds fearfully to the high cost of living. Where neighbors can agree on property line planting a few trees make a woodlot which may not only prove valuable as a windbreak but as a source of fuel.

Grow more trees.

GREAT CAPITAL

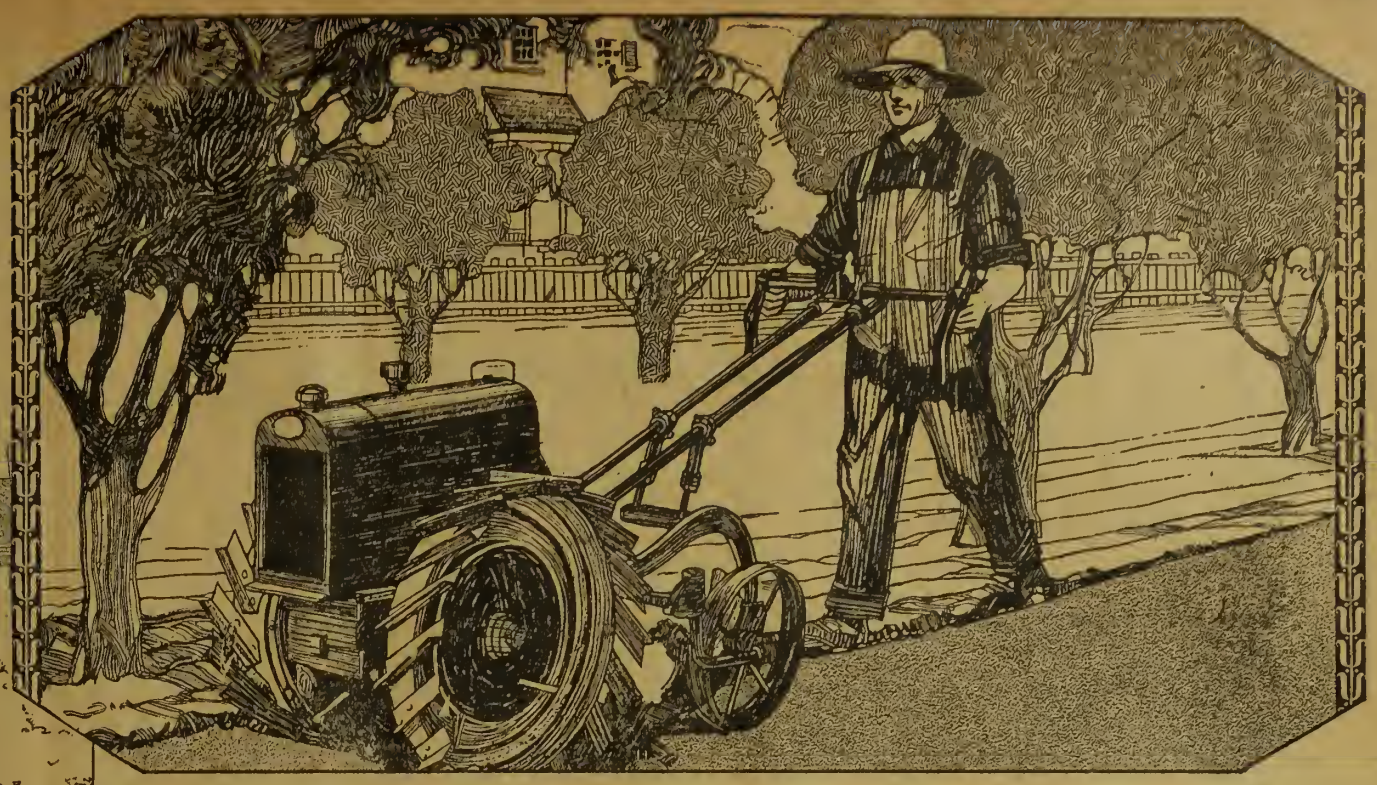
In 1910 the value of all farm property in the United States was approximately 41 billions. Estimates place valuation on the same in 1915 at 51 billions. Since 1900 the increase in farm values has been greater than all the value of all farming properties prior to that date. Presumably the rate of increase of these valuations will be greater during the coming decade. At least, this is the estimate of many shrewd observers and for the reason that European conditions are such that great demand will be made upon American food producers. The United States is the only nation from which Europe expects such assistance to come. Moreover, our own prosperity and the maintenance of the industrial and financial strength to which our country attained during the war are inextricably bound up with the revival of prosperity in Europe. We moved long since past the point where we could even consider the possibility of economic self sufficiency.

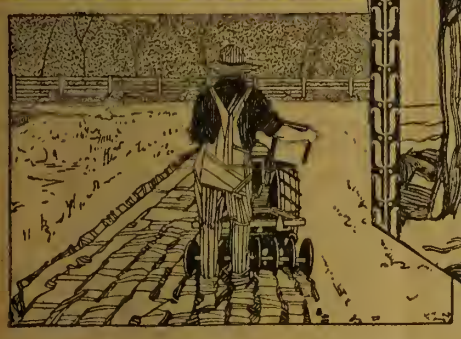
SMOTHERED

Producers have overcome a vast number of obstacles in the way of cooperative advancement and have evolved, especially in California, notable examples of real and successful cooperation, and this has been in spite of opposition—where there should have been aid and comfort—from federal officials in Washington. Bean growers who would cooperate, raisin growers, peach producers and others have been called to Washington to prove to the satisfaction of this, that or the other official that their organization is not a trust.

Those who have believed that the country's truest and best advancement could be secured through the exercise of the cooperative spirit have endeavored to encourage it by introducing to congress the Capper-Hersman bill legalizing cooperative marketing. But the interests are busy. We have letters from representatives of the National Grange, the National Board of Farm Organizations and the American Farm Bureau Federation stating that this bill, beneficial to producers, is being smothered in committees. It will probably be of value if farmers will write the representative of their district and appeal for protection of the best interests of the country by the passage of this bill.

"Beating the Game" is an interesting little booklet full of valuable information you will be very much interested in. We have a copy ready to mail to you if you just fill out the coupon and mail today.



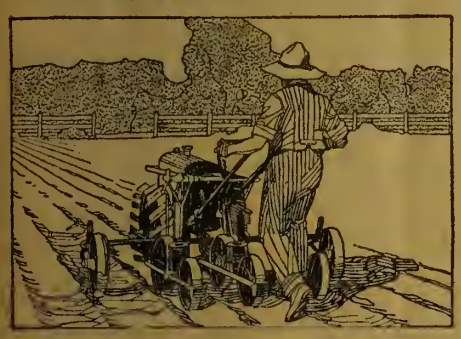


Discing can be done faster and at less expense with the Utilitor

You Simply Can't Farm Under Present Conditions to the Best Advantage Without a Utilitor

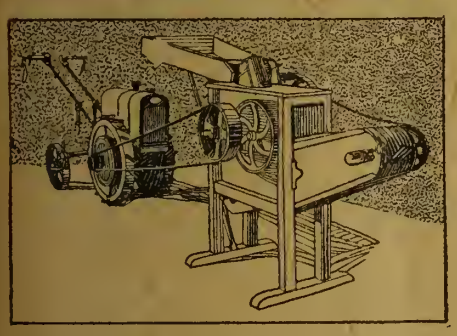
Farmers are making REAL MONEY by using their brains and letting the Utilitor do the work. This whole UTILITOR proposition is purely a matter of DOLLARS and SENSE. To show a profit on your farm you must make more money and SPEND LESS.

By working TWENTY-FOUR HOURS a day, if need be, at a cost to you of approximately FIVE CENTS AN HOUR for "gas" and oil, the Utilitor cuts farm wages in half, saves horse feed, and shaves your table expenses by ridding you of a lot of HUNGRY "HANDS". It does all that one good strong horse can do, PLUS all that one good gasoline engine can do. It is made by the Midwest Engine Company — one of the strongest and fairest factories in America— a factory that absolutely guarantees the Utilitor to DO its work properly. This guarantee is IRON CLAD and means exactly what it says.

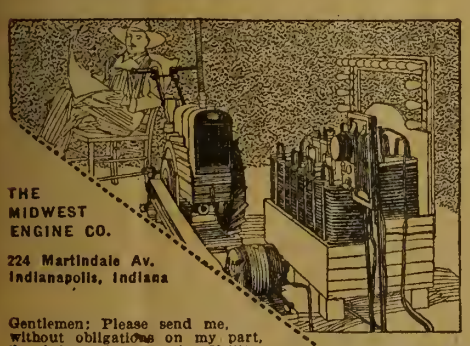


A Utilitor and three-row gang seeder will drill or hill 35 different kinds of seeds

The Utilitor has no equal for one-row nursery truck garden or berry cultivation



One of many belt uses: Operating corn sheller



THE MIDWEST ENGINE CO.
224 Martindale Av.
Indianapolis, Indiana

Gentlemen: Please send me, without obligations on my part, the information on the Utilitor as checked below:

☐ Booklet "Beating the Game" ☐ Who is my nearest dealer?

(If your will give us the information requested below we will be better able to show you how the Utilitor fits your particular problem.)

This farm lighting unit, Utilite, is made especially for the Utilitor

I own.....acres. I have under cultivation.....acres

I am raising..... Nature of soil .....

Level?..... Rolling?..... Hilly?.....

Name .....

City ..... State .....

The Safest and Most Practical Orchard and Fruit Worker Yet Devised

The Utilitor is especially well adapted for work in orchards. We offer a disc, spike tooth harrow, spring tooth harrow and a set of cultivating tools, any of which are suitable for orchard cultivation. With our hitches a wide range of adjustments for these various tools is possible. The Utilitor is only 36 inches high, permitting cultivation beneath low hanging branches much closer to trunks of trees than is possible when horses are used. There is no danger of the Utilitor nipping fruit and branches. It is so easily controlled that the operator need have no fear of injuring trunks of trees, surface roots or branches as is the case with horse cultivation.

Cuts Expenses to the Bone and Does Better Work for The Truck Gardener

A number of implements which we recommend for use with the Utilitor are especially adapted to the truck gardener's use. The three row gang seeder permits the drilling or hilling of 35 different kinds of seeds in rows varying in width from 9 to 36 inches. Our one row cultivator and disc are adapted for cultivation both astride and between rows, for the Utilitor has a vertical clearance of 8 inches and a horizontal clearance of 10 inches between the bull wheels. Equipped with cultivating rims the Utilitor is 18 inches wide, so it may easily pass between the rows of larger crops. Our three row cultivator is designed to cultivate the crops planted with the three row gang seeder. With our set of cultivating tools a number of combinations can be arranged for various kinds of cultivating, both deep and shallow, astride or between rows of different widths.

The Utilitor Will Thoroughly Motorize Your Farm

The Utilitor is a portable gas engine for driving belt machinery requiring not over 3 horse power. Remember this machine will move from job to job under its own power. It is the untiring friend of man and woman. It gladly helps lift the burden of work around the house or barnyard. Some of the belt uses of the Utilitor are, operating corn sheller, cream separator, washing machine (churn, and charging batteries for an electric lighting set. It can also be used, in conjunction with a cart, to feed stock or haul one horse loads around the place.

No self-propelled farm equipment designed in recent years offers a wider range of usefulness in the field or on the belt than a Utilitor.

DEALERS

The Utilitor is the most active merchandise on the market today because farmers NEED it 365 days out of the year. Our selling plan is so complete and thoroughly financed that we are positive our plan will interest you. Territory is being rapidly allotted.

WRITE FOR OUR SELLING PLAN TODAY

MIDWEST UTILITOR

DEPENDABLE POWER

Midwest Engine Company, Indianapolis, U.S.A.

Dependable Power

FRUIT CROP REPORT

(Continued from Cover Page.)

prevalent in some prune sections, but nothing serious is threatened at the present time. On the whole, the fruit season is from one to two weeks early, and with seasonable weather conditions the outlook can be considered good.

Geo. P. Weldon, Chaffey Union High School, Ontario, San Bernardino County

As you know, I am employed by the Chaffey Union District and practically all my work is within this district, therefore, I am not competent to judge as to the condition of crops outside of this district and in the county. Of the crops that you name, we are growing commercially, only apricots, apples, peaches and pears. The bloom of apples is very uneven and it is too soon to accurately predict what the crop will be, however, I would place the condition at present at 100 per cent. There has been some local damage to apricots from frost, although most of the orchards in the district escaped. Old trees are inclined to be light and I would not place the condition higher than 50 per cent of both young and old trees. At the present time peaches promise a very heavy crop; 100 per cent condition or over. There is some thrips damage. Pears are grown only in a very limited way within the district. The condition so far is good. Trees are just blooming.

D. D. Sharp, Horticultural Commissioner, Riverside County

Almonds: Injured by late frost; amount of damage not yet determined.
Apples: One hundred per cent.
Apricots: Injured by late frost; amount of damage not yet determined.
Cherries: 100 per cent.
Peaches: 100 per cent.
Pears: 100 per cent.
Prunes: 100 per cent.

A. L. Shively, Santa Paula, Ventura County

Almonds: small acreage, prospect good.
Apples: practically none grown.
Apricots: bloom very uneven, 40 per cent estimate.
Cherries, peaches, pears, prunes: none grown commercially.

J. C. Metzgar, Secretary Santa Ana Chamber of Commerce, Santa Ana, Orange County

Almonds: none grown here.
Apples: where cared for look promising.
Apricots: uneven, spotted probably 80 per cent crop.
Cherries: none grown here.
Peaches: very few grown.
Pears: very few grown.
Prunes: none.

Paso Robles Press, Paso Robles, San Luis Obispo County

Almonds: 75 per cent (slight damage in lower places by frost).
Apples: coming into blossom.
Apricots: 80 per cent.
Cherries, peaches, pears, prunes: now in blossom. Indications are for heavy crops. We are glad to be able to give above information. Call again in about a month for further news on fruit.

Geo. C. Nevins, Hemet, Riverside County

Almonds: not grown commercially.
Apples: not grown commercially.
Apricots: 30 per cent, 40 per cent of 1919 crop.
Cherries: none.
Peaches: normal crop.
Pears: none.
Prunes: none.

Thos P. Redmayne, Horticultural Commissioner, Marin County

Fruit crop conditions in Marin County are practically the same as last year at this period though the rainfall is much less, being 20 inches compared with 37 last year. Annual crops: hay, grain, truck crops and pasturage are fully 100 per cent for this date.
Almonds: 100 per cent of full crop (not grown commercially.)
Apples: 100 per cent of full crop.
Apricots: 40 per cent of full crop.
Cherries, 110 per cent of full crop (few grown commercially.)
Peaches: 90 per cent of full crop.
Pears: 100 per cent of full crop.
Prunes: 100 per cent of full crop.

Wm. Gould, Horticultural Commissioner, Yolo County

Almonds: 35 per cent.
Apples: 100 per cent.
Apricots: 75 per cent.
Cherries, 100 per cent.
Peaches: 100 per cent.
Pears: 100 per cent.
Prunes: 80 per cent.

F. W. Waite, Horticultural Commismissioner, Tulare County

Almonds: Not commercially grown.
Apples: Not commercially grown.
Apricots: 100 per cent crop.
Cherries: Not commercially grown.
Peaches: Not commercially grown.
Pears: 100 per cent.
Prunes: Not commercially grown.

H. J. Baade, Farm Adviser Napa County

Apples: 100 per cent.
Apricots: 75 per cent.
Cherries, 100 per cent.
Peaches: 100 per cent.
Pears: 100 per cent.
Prunes: 100 per cent.
The crop outlook is exceptionally good.

W. D. Butler, Horticultural Commissioner, Napa County

Almonds: 100 per cent.
Apples: 90 per cent; lighter bloom.
Apricots, 10 per cent; brown rot.
Cherries: 100 per cent.
Peaches: 100 per cent.
Pears: 75 per cent; thrips.
Prunes, 75 per cent; drouth and thrips.

Redlands Facts, Redlands, San Bernardino County

Almonds: frost took most of them.
Apples: O. K., apparently good crop.
Apricots: very scant crop.
Cherries: good.
Peaches: crop short.
Pears: none here to speak of.
Prunes: in Banning section reported in good quantity.

Chas. F. Collins, Horticultural Commissioner, Tulare County

Almonds: not of commercial importance.
Apples: splendid showing at this date (April 14).
Apricots: very good, probably 90 per cent.
Cherries: not grown here.
Peaches: fine outlook, except in orchards which suffered for water last season.
Pears: not grown in commercial quantities.
Prunes: same as peaches.

A. Hancock, Bakersfield, Kern County

Having sold my orchard I have not been keeping as close tab on conditions as usual, but will say from my observation and experience I can conceive of no reason why there should not be practically 100 per cent crop on most or all of these fruits. Spring weather conditions have been excellent, the only thing that might have an effect was last year being dry; some orchards had not sufficient water last fall.

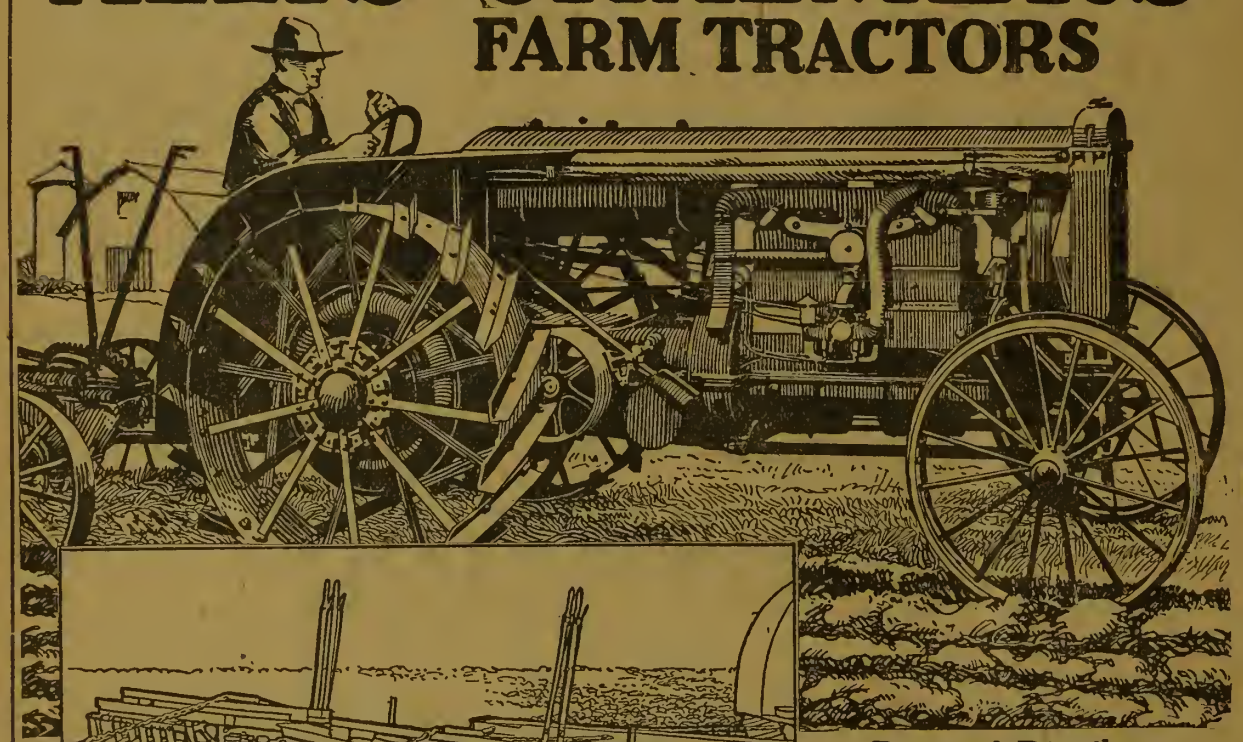
California Fruit Distributors, Sacramento, Wilmer Sieg, Manager

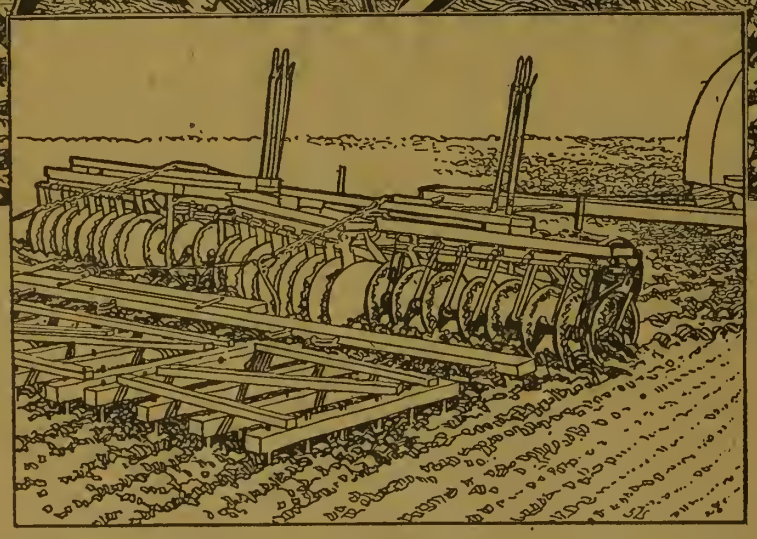
We have not as yet collected our crop reports but the situation as concerns the tree fruits that are grown in the several territories surrounding this distrtict and using Sacramento as a gateway, is practically on a 100 per cent basis. Moisture has been sufficient and conditions are extremely healthy. We had anticipated a season possibly ten days ahead of last year but the recent cool weather is delaying maturity. This will have the effect of making the fruit of good size and perhaps our fruit will commence about the same as last year when the first carload of cherries left about May 5 and the first carload of assorted deciduous fruits was shipped June 5. We have never seen any better prospects and look forward to excellent crop conditions throughout.

We know nothing whatever of apples because there are none in this section and the only prunes we can quote you on are those that are shipped in the green state.

As regards almonds we have not investigated the situation, although

ALLIS-CHALMERS
FARM TRACTORS





After plowing—then what?

After the Allis-Chalmers 18-30 has done your plowing—pulling four 14-inch bottoms—use it for discing, harrowing, breaking up the soil. The weight is evenly balanced and the 18-30 will not pack down the soil. And this same tractor will pull a 10-foot road grader or a 28-inch separator with power to spare.

Owners are already reporting kerosene consumption of two gallons to the acre, plowing sixteen acres to the working day of 10 hours. Other work is done at equally low costs.

Write for full details—we will be glad to send you carefully compiled information that will be of real help in selecting the tractor you should buy.

Backed by 65 Years' Experience

For 65 years the Allis-Chalmers Manufacturing Co. has been known as one of the largest companies in the world making high grade machinery. This is your guarantee of satisfaction.

NATIONALLY DISTRIBUTED—Allis-Chalmers Farm Tractors are nationally distributed by a chain of distributors, branch houses and dealers that cover the country.

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Triangle Motors Co., Bloomington, Illinois
Triangle Motors Co., Indianapolis, Indiana
Murphy Machinery & Equipment Co., St. Louis, Missouri
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Smith Motor Co., Santa Ana, California
Northwest Tractor Co., Everett, Washington
H. W. Moore & Co., Denver, Colorado
Hawkeye Tractor & Implement Co., Des Moines, Iowa
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Allis-Chalmers Manufacturing Co., Tractor Division MILWAUKEE WISCONSIN

For 65 years known as one of the largest manufacturers of high grade machinery in the world

Steels

Make the Maxwell Thrifty

SEVERAL million dollars have been expended to provide more elegance, more refinement, more comfort to the current Maxwells.

It is in ever so many ways a superior appearing car; superior, too, in action.

But not a single pound of weight has been added to burden the work of its great engine!

Therefore, despite the many processes of improvement, it doesn't cost a penny more to run a Maxwell than it did a year ago.

The underlying principle of every Maxwell is to give economic transportation.

This means light weight. But it means strong steels, as well.

It is no easy trick to provide both lightness and strength in metal.

Such a rare combination means high cost steels.

And you would find, if you compared a Maxwell with *any* car, that it equaled that car pound for pound in fine metals.

How such steels affect your pocketbook is obvious.

1. They are light in weight and hence give more mileage on a gallon of gasoline.

2. As they are fine steels they give *long* and *uninterrupted* wear.

Which are but two of many reasons for that definite tendency of world-wide friendship towards Maxwell.

In six years nearly 400,000 have found their answer to the motor car question in a Maxwell.

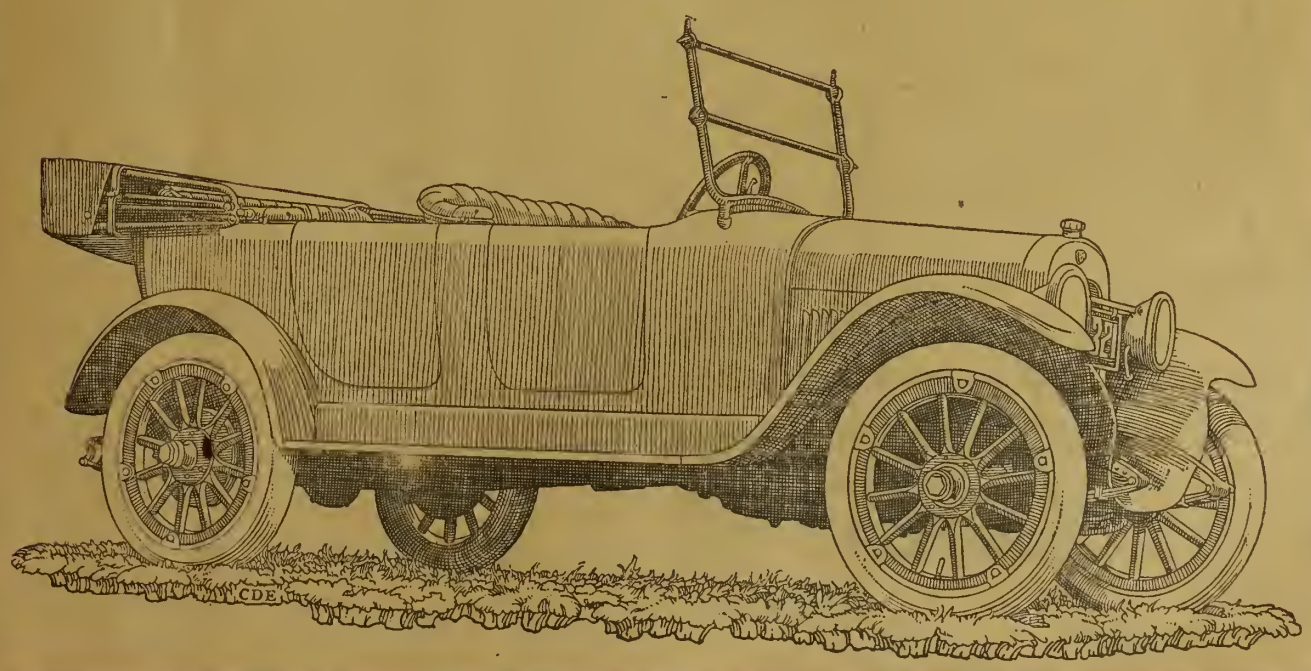
This year 100,000 Maxwells are being produced.

This will supply but 60% of the demand.

MAXWELL MOTOR COMPANY, INC.
DETROIT, MICHIGAN

Maxwell

More miles per gallon
More miles on tires



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FREE—Astounding Facts on "Fruit-Fog" Spraying!

Send the coupon. Read why Fruit-Fog—the fog-like, super-spray—is the ONLY spray of vapory enough fineness to work into the microscopic niches in bark, buds and foliage, where no coarse spray can reach. Convince yourself that only by *killing* these millions of *hidden* pests are big yields possible. Then you'll understand why Fruit-Fogged Orchards produce *amazing crops*—make *fortunes* for their owners each year.

HAYES FRUIT-FOG SPRAYERS

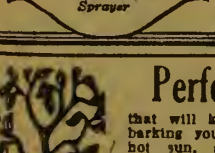
Fruit-Fog is produced by Hayes 300 lb. high pressure and the famous Hayes nozzle. The spray envelopes everything like a mist, and has wonderful *adhering* power. No drops form—no solution wasted—no buds or leaves knocked off—as with coarse, heavy, low pressure sprays. Fruit-Fog Sprayers are skillfully made to give enduring service and greatest efficiency under high pressure. Service stations in all parts of the U. S. assure new parts within 24 hours in case of accident. Famous Fairbanks-Morse "Z" Engine means reliable engine service.

Hayes Fruit-Fog Gun

World's fastest spraying apparatus. Simple twist gives long spray for tall trees, or wide spray for closeup work. Does better work and saves solution. Book gives full details.

Hayes Hand Barrel Spray Pump

Hayes Platform Duplex Hand Sprayer



Hayes High Pressure Triplex Power Sprayer

Valuable Spraying Guide Also Sent FREE

Send coupon telling us how many fruit trees you have and average age. We'll tell you the style Hayes Sprayer best suited to your needs, and its price. We'll also send our Big FREE Book and our Valuable Spraying Guide. Send coupon today.

Hayes Pump & Planter Company
Dept. D Galva, Ill.

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Please send, FREE and without obligation, your Big New Sprayer Book and Valuable Spraying Guide.

Name.....
P. O.....
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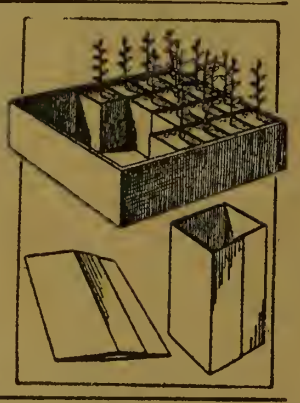
Perforated Tree Protector

that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus, Olive Cuttings. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.



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Carload Lots—Special Prices in Large Quantities

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We Solicit Your Inquiries—Write—Wire or Telephone at Our Expense

E. F. Sanguinetti Yuma, Arizona

ORNAMENTALS

Trees, Plants, Shrubs direct from the nursery to you. Choice stock. Big assortment. WRITE FOR CATALOG, which illustrates and describes best varieties for California conditions.

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we hear that the crop has been seriously interfered with and this is practically the only crop we hear of as being affected.

Sanitary Fruit Company, Inc., Red Bluff, Tehama County

Almonds: Killed by frost, probably 10 per cent of crop. Some new acreage just coming into bearing.
Apples: Too early to estimate. Acreage about same as last year.
Apricots: Killed by frost, practically entire crop gone. Acreage small.
Cherries: Killed by frost, practically all gone. Acreage small.
Peaches: Muirs fairly good. Elbertas light. Probably a half crop of peaches. About same acreage as last year.
Pears: Promise full crop. Acreage about same as last year.
Prunes: Promise good but not bumper crop. Considerable new acreage coming into bearing this year.

Geo. W. Harney, Horticultural Commissioner, Yuba County

Almonds: 100 per cent, except Ne Plus and Nonpareil which are 40 to 50.
Apples: 100 per cent so far as can be determined at present.
Apricots: 100, but shothole fungus quite prevalent.
Cherries: 100. Cold April rains may lower percentage.
Peaches: 100. Cold April rains may lower percentage.
Pears: 100 so far as can be determined at present.
Prunes: 100.
Thompson Seedless vines promise exceedingly well.
Wine grape vines promise exceedingly well.

Claud D. Tribble, Elk Grove, Sacramento County

Almonds: 30 per cent.
Apples: 75 per cent.
Apricots: 50 per cent.
Cherries: 90 per cent.
Peaches, 100 per cent.
Pears: 100 per cent.
Plums: 100 per cent some varieties; others entire failure.
Prunes: 90 per cent. Too early to make accurate estimate.

A. L. Rutherford, Horticultural Commissioner, Stanislaus County

Almonds: 90 per cent.
Apples: 100 per cent.
Apricots: 50 per cent.
Cherries: 100 per cent.
Peaches: 90 per cent.
Pears: 100 per cent.
Prunes: 90 per cent.

Mrs. Clara K. Graham, Ramona, San Diego County

Apples: Promising.
Apricots: Fruit mostly killed by late frost.
Peaches: Good.
Pears: Promising.

F. C. Brosius, Horticultural Commissioner, Sacramento County

It is a little too early for definite information.
Almonds: 60 per cent.
Apples: 100 per cent.
Apricots: 60 per cent.
Cherries: 100 per cent.
Peaches: 100 per cent.
Pears: 110 per cent.
Prunes: 80 per cent.

Kent S. Knowlton, Horticultural Commissioner, Kern County

Almonds: 100 per cent.
Apples: 100 per cent.
Apricots: 100 per cent.
Peaches: 100 per cent.
Pears: 100 per cent.
Prunes: 100 per cent.

Wm. B. Jackson, Ontario, San Bernardino County

Apricots will be a good crop this year. Trees are full at this time. We had a freeze the 27th of March that froze some of the first cots that set, but there will be plenty left.
Muir peaches will not be more than one-fourth crop. Other varieties seem to be well loaded with bloom. The ground has been well soaked from the rains we have had and with proper cultivation trees and vines will put on a good growth this year.

Geo. Marchbank, Horticultural Commissioner, Madera County

Almonds: 90 per cent.
Apples: too early.
Apricots: 65 per cent.
Peaches: 100 per cent.
Prunes: 90 per cent.

J. P. Dargitz, Soulsbyville, Tuolumne County

Almonds: Not grown here.
Apples: Promise so far about two-thirds of a crop.
Apricots: All frost killed.
Cherries: Promising. Just beginning to bloom.
Peaches: 95 per cent frost killed. Bloomed six weeks too early.
Pears: Very promising.
Prunes: Practically none grown.
Plums: All frost killed.
Very warm and dry during January. No frost during the month of March, much rain and snow. March 26 one foot of snow and mercury registered 17 degrees with peaches and plums in full bloom.

E. T. Reynolds & Son, Chico, Butte County

Almonds: 55 per cent.
Apples: 100 per cent.
Apricots: 50 per cent—practically none grown here.
Cherries: 100 per cent.
Peaches: 60 per cent.
Pears: 100 per cent.
Prunes: 80 per cent.

M. Sharpe, Vacaville, Solano County

Almonds: 60 per cent.
Apricots: 100 per cent.
Cherries: 100 per cent.
Peaches: 100 per cent.
Pears: 40 per cent.
Prunes: 100 per cent.
Pears badly damaged by thrips. Also some late plums. Most plums a normal crop.

J. F. Benton, Horticultural Commissioner, Humboldt County

Apples: Conditions good. Heavy bloom.
Cherries: Fine bloom. Prospects good.
Peaches: Light frost damage.
Pears: Good blooom. Fine prospects.

Niles Cannery, Alameda County

Almonds: Heavy.
Apricots: Immediate vicinity, good.
Cherries: Good.

John A. Winkelman, Horticultural Commissioner, El Dorado County

It is a little early for a complete estimate.
Our peach crop is completely gone in some districts, especially the lower part of the Coloma district was hit hard. Plums and pears are looking well, but I cannot tell as yet what effect the last storms have had. Some Winter Nelis orchards got the worst of it and a few Bartletts are commencing to show weather effects.
I will send you complete figures in about ten days.

Arthur E. Beers, Horticultural Commissioner, Merced County

Almonds: Good set in spite of frost and wind injury—85 per cent.
Apples: No commercial orchards.
Apricots: Poor bloom and injury by frost and wind—70 per cent.
Peaches: Good set. Curl leaf severe.
Prunes: Very small commercial production.

Leonard H. Day, Horticultural Commissioner, San Benito County

Apples: 100 per cent.
Apricots: 80 per cent.
Cherries: 100 per cent.
Peaches: 100 per cent.
Pears: 90 per cent.
Prunes: 100 per cent.

California Prune and Apricot Growers, Inc., San Jose, H. C. Dunlap, Sec.

At the present time impossible to estimate prune crop for the state. In most districts growers have been a little in fear of very short crop, owing to drouth conditions; also infestation of thrips in many districts. At present reports come in that prunes are in process of heavy setting. Would not confirm this for the present. In a few weeks time will have far better ability to estimate.
For the most part apricot reports throughout the state materially short of last season's crop. Summing up as a whole, would say state may produce in the neighborhood of 70 per cent of last season's crop. Considerable frost damage in the interior in Southern California. Coast districts of Southern California, crops light where early setting prevailed last year. Through the San Joaquin Valley for the most part similar reports—crops light on numerous orchards where

heavy setting prevailed in the past season. Districts about the Bay report more or less damage from brown rot, twig blight or other manifestation of certain fungus disease. In spite of this we are inclined to estimate crops somewhere near the average set for the state.

Santa Ana Register, Santa Ana

Apricots: Estimated crop is 50 to 60 per cent of last year. Crop last year good. Orchards are spotted, some fruit coming on early and some late. Early fruit to be of good size. A little early to report on size of late fruit. Early fruit probably be ripening about July 1, earlier than usual. There are about 800 acres of apricots in county. Some orchards taken out in last year to give place to Valencia oranges. Most of apricots here will be dried.

W. A. Shepard, Auburn, Placer County

"We are looking forward to one of the best fruit seasons the industry has ever known," said E. S. Culver, manager of the Auburn Fruit Exchange. "Cherries are looking fine and will be a full crop. Japanese plums were hurt some by a hail storm, unusual in this locality. This especially applies to Wicksons and Santa Rosas. European varieties of plums, peaches and pears promise to make a tremendous yield in this section."

L. V. Haupt, Horticultural Commissioner, Kings County

Apricots: 50 per cent normal.
Peaches: 85 per cent normal.
Prunes: 75 per cent normal.

California Peach Growers, Fresno, J. F. Donleavey

It is rather early and on account of our not receiving reports from all over the state we are unable to state definitely in regard to the prospects of the peach crop this season, but from the reports that we have on hand we are led to believe that it will be about an average crop.

The Farmer and the High Cost

By G. H. Hecke

INCREASED production at this time and for some time to come is absolutely essential to the promotion of such harmonious procedure as that which has been obtained in the past. This may be accomplished under existing conditions only by the application of closest study to his individual needs on the part of the farmer and fruit grower of the state.

Looking back over the history of this state and of the United States, we find that the farmer and fruit grower have worked the hardest, worked the longest hours and we find also that as a class they have received less than those engaged in less arduous occupations.

As the years passed and the germ of cooperative associations and marketing organizations became a reality, profiting by inadvertent errors of earlier days, the position of the agriculturist in California at least became more assured; it offered to the farmer a more definite goal, something worth striving for, and promising something more than the mere living which was the reward of his fathers before his time.

No one today who is well informed would seek to lay the high cost problems at the door of the farmer, for he of all has received the veriest mite in the distribution of industrial dividends.

The farmer is asked to pay $75 for a suit of clothes, whereas the five pounds of cotton in the suit netted him $3, or at the rate of 60 cents a pound. The hide for which he received $5 makes 12 pairs of shoes to be sold for from $8 to $18 a pair. He gets $10 for a barrel of flour, but the baker gets $55.

Does not the farmer also feel the press of the increased cost of all those necessary adjuncts to his business of producing? What of the increased cost of labor, of fertilizer, of seeds, of farming tools, building material?

No well informed person would have the hardihood to challenge the farmer on the high cost issue, unless it be for the purpose of advertising the farmer's right to a better regulated scheme of dividing the earnings wrought by his hands from the soil and which through all the ages he has never enjoyed!

When we come down to solid facts concerning this modern goblin, "The High Cost," we find it touches the larger mass of our people in terms of necessary food and clothing. As we look at these problems with a calm, collected mind and critical eye, it must be apparent to everyone that these questions cannot be remedied or answered by legislative action of federal or state governments nor can they be solved by individual or party platforms. It is even illogical, unreasonable and unjust that any combination having no part in the production of an agricultural product should have the power to fix the price by which that product of the soil should be sold. The price should be set by the producer alone and regulated by the law of supply and demand.

We in California thus have the framework upon which our state's well-being and our readjustment problems may be safely erected, and with our cooperative associations working in harmonious accord only success should crown our efforts.

If I were asked for a rule and guide for the farmer to apply to his every day activities, I would give it in the single word "economy."

Not only the economical features involved in buying, planting and marketing should be considered, but also true economy along all lines, and a successful farmer today must produce as far as is possible all of those things which enter into his operations, since it is through his enforced dependence upon outside agencies that he suffers the greatest degree of preventable loss.

WILD BEETS

These are the sort that give the grower wild beats of the heart. Near Oxnard we found Rudolph Pfeiler plowing a huge field with a 60 horse power tractor. It was drawing five 14 inch mold board plows, a total of 70 inches turned over, and a weighted, toothed harrow trailed behind. With this he plowed and harrowed about an acre an hour. When asked what he intended planting he replied: "Nothing." The ground will lie idle this summer, not alone to rest the soil, however. Last year he was given some poor beet seed which largely produced "wild" beets that flowered and seeded instead of making marketable beets. So he was plowing them under to get rid of them, for every beet was growing vigorously. No other crop will be planted until January, 1921, when beets will again be sown.

A SUBSTITUTE FOR WOOD?

A plump fortune awaits the person who can devise a practical and inexpensive substance to replace wood in the construction of fruit containers. At the present time citrus associations are paying top prices for box wood and have been forced to buy large standing forests in preparation for the next year or two.

Oranges and lemons require rigid protection or they will be found worthless upon arriving at market. It is thought that development along this line will take the form of experiments with thick paper and cardboard compositions, chemically treated to insure stiffness. Perhaps a process will be devised for utilizing old rags and newspapers in the manufacture of a substitute.

At first glance the task of creating a successful substitute seems fraught with insurmountable barriers. Yet, barely ten years ago the tractor was not taken seriously as a rival of the horse.—J. De C.

BEST TRACKLAYER TRACTORS

THE ability of the "Sixty" to adapt itself to all classes of work is one of the reasons for the remarkable success of this tractor—plowing and harrowing—side hill harvesting—heavy work of the rice fields—hauling—road building—the heavy duty of the logging industry, etc.—are all handled with ease as well as all classes of belt work.

The reasons for this superior performance of the BEST TRACKLAYER SIXTY is quality of material used and proven design.

The "Sixty" costs a little more than the ordinary tractor, but the quality is well worth the additional cost—assurance that you are buying the best that is built.

There is a Best dealer in your vicinity who will gladly show you the many exclusive features of this BEST TRACKLAYER TRACTOR.

Write for your dealer's name.

C·L·BEST GAS TRACTION CO·
San Leandro, California

"Best's" have been developing the Pacific Coast since '86

AVOCADO GROWERS MEET

The fifth annual meeting of the California Avocado Association will be held in Los Angeles, May 7-8. The place will be the Y. M. C. A. auditorium, 715 South Olive Street.

A separate room will be provided for an exhibition of fruit, and it is hoped to make this an attractive feature. On Friday afternoon there will be a business meeting for members only. Friday evening at 6:30 there will be an informal dinner at the City Club, Investment Building. The following professional and business men will tell, in five minutes each, why they are interested in the avocado industry: Major J. B. Coulston, Dr. A. S. Lobingler, Dr. D. W. Bartlett, Dr. H. S. Miles, G. H. Woodruff, J. T. Fitzgerald. The formal program will be as follows:

Saturday, 2 P. M.—Report of Committee on Varieties, Chas. D. Adams; Surgery of the Avocado, Dr. W. W. Hitchcock; Guatemalan and Mexican Avocados in Florida, John B. Beach; Insect Pests of the Avocado in Florida; and Insecticides Which May be Used Without Injury to the Tree and Fruit, G. F. Moznette.

Saturday, 10 A. M.—Address, Pres. Wm. H. Sallmon; Selection of Budwood—The Importance of Having a Department for Such Work, C. S. Milliken; Maturity Work on Avocados, E. M. Chace; Propagation of Nursery Stock—The Successes and Failures of the Nurserymen, Robt. J. Mather; Marketing Avocados, A. F. Yaggy.

L. B. Scott, manager of the California Nurserymen's Bud Selection Association and a well known authority on all that pertains to avocados, will deliver an address at one of the sessions.

PRUNING DEMONSTRATION AT DAVIS

The new system of pruning of the university farm, whereby the trees will come into bearing two years earlier, keep in a more healthy state and produce more and better fruit than under the old system, will be demonstrated by men who have made the new system successful.

Demonstrations of spray guns and power outfits will also be made. There will be three leading power spray outfits at the farm for demonstration, as well as the various types of spray materials. It is planned to have an example of different diseases and a sample also of their control method.

A display is planned of the various kinds of grafts, the different tools used in budding, grafting, pruning and other agricultural operations.

Orchard men throughout the state were invited today by the horticultural division to visit these demonstrations while visiting the university farm on Picnic Day.

STANDARDIZATION OF BERRIES

Horticultural Commissioner Ryan of Los Angeles County is sending out the following letter to dealers and shippers handling berries:

"Of chief importance is the regulation forbidding the preparation, sale or offering for sale of a deceptive pack, i. e., any package of fruit or vegetables which has in the outer layer or exposed surface, fruit or vegetables which are so superior in quality or condition to those in the interior of the package or the unexposed portion as to materially misrepresent the entire contents.

"Berries sold or offered for sale in packages shall be mature but not overripe, well colored for variety and locality, virtually uniform in quality, virtually free from insect and fungous pests, rots, bruises, frost injury, sunburn and other serious defects. Packed berries in addition shall be virtually uniform in size. The regular compact arrangement of all or part of the fruit in any container or subcontainer constitutes a pack.

"All crates or containers of berries except subcontainers (baskets) when packed and offered for sale shall bear upon them in plain sight and in plain letters on the outside, name of farm where grown and postoffice address, or name and postoffice address of person, firm, etc., who first packed or authorized packing of same, or business name of packer and postoffice address; also variety of fruit and minimum net weight. Regular inspections will be made at the large markets and in the field, as well as in retail stands. Violations of any of the provisions of the fresh fruit standardization laws constitute a misdemeanor.

APPLE APHIDS THREATEN

Inspector Tate of the federal office of standardization, stationed at Watsonville, states in a recent report that from the few orchards inspected in different parts of the Pajaro Valley it seems likely there will be a very severe infestation of green and rosy apple aphis this season. Unfortunately weather conditions have made it impossible to spray with nicotine, and as the trees are coming out in leaf very rapidly, it is to be feared that the aphis will not be thoroughly controlled. Trees in many sections of the valley show indications of very light bloom this year.

CALIFORNIA STANDARDIZATION

J. A. Campbell, assistant director of the horticultural division, New Zealand department of agriculture, who recently visited California and the coast to study fruit producing and marketing conditions, has returned to New Zealand, and in an account published in the Journal of Agriculture makes the following statement:

"All concerned in the American fruit industry are agreed that the business could not possibly have reached its present extensive and prosperous position had it not been for the stabilizing effect of the standard packing laws. There are at least four grades of apples taken from a tree—first, second, and third grade, and culls. Without standard grading a buyer could not tell, short of personal inspection of each case, which of these or what percentage of each he was buying; consequently trade in a large way would be considerably hampered, or the buyer, to protect himself, would offer much less than the possible worth of the fruit. With standard grading, however, a buyer can safely buy on grade and variety without having seen the fruit at all."

A NEW DEPARTURE IN APPLE INSPECTION

On March 18-19 a committee appointed by G. H. Hecke, director of agriculture, met in Watsonville for the purpose of discussing ways and means of making the apple inspection of the state more effective. The committee consisted of representative apple growers, packers, shippers from San Diego to Sonoma, and officials in charge of enforcing the standard apple act of 1917.

Several phases relative to apple inspection of more than general interest developed at this meeting. Car lot inspection to supplant the present system of packing house inspection met with unanimous approval of the committee. For the past few years inspection of the fruit as it was being packed has been in vogue. Beginning with the ensuing season, if present plans mature, the inspectors will select a representative sample (at least one box to each hundred) and carefully inspect each apple in each box selected, noting results as to defects and conformity with grade designations. A certificate will be issued on each lot, setting forth results of examination and no apple stamps which bear the legend "Inspected" will be used except on such lots as have actually been examined.

The committee went on record urging the adoption of a certificate that would actually be indicative of the condition of the pack and lot, rather than a mere statement of whether or not the lot in question conformed with the standards prescribed by law, a statement which is largely a matter of opinion and frequently as has been the case in the past reversed by the inspector at the point of destination.

Mr. Hecke's statement that the department of agriculture is considering a cooperative arrangement between the office of standardization and the federal bureau of markets was greeted with enthusiasm. The presence of F. W. Reed, representing the United States bureau of markets, assisted greatly in convincing the assembly of how far these negotiations have already proceeded. Such an arrangement would prove of incalculable benefit to the fruit growers of California, providing federal inspectors at terminals in the East would accept the California inspector's certificate as prima facie evidence of statements contained therein with reference to the consignment on which the certificate was issued. It is toward this ultimate object that Mr. Hecke is bending his efforts at the present time. The bureau of markets has for years contemplated the establishment of point of origin inspection, and if Mr. Hecke's plans materialize California will be the first state in the Union (which is quite usual when progressive moves of one kind or another are contemplated) to establish point of origin inspection that will be accepted and approved by the federal bureau of markets which for years has conducted the best terminal inspection conceivable.

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Tires

Federal Black "Traffik" Tread

TO the car owner, who takes the tire question seriously, the common sense of Federal Tires appeals with telling force.

The Double-Cable-Base, exclusive with Federal Tires, entirely eliminates unnecessary rim-wear—tube-pinching—rim-chafing—rim-cutting—blow-outs above the rim.

Put Federal Tires on *your* car and get the excess mileage that all Federal tire users enjoy.

THE FEDERAL RUBBER COMPANY, *of Illinois, Factories, Cudahy, Wis.*

Manufacturers of Federal Automobile Tires, Tubes and Sundries, Motorcycle, Bicycle and Carriage Tires, Rubber Heels, Horse Shoe Pads, Rubber Matting and Mechanical Rubber Goods

BEAN GROWERS MUST COOPERATE

(Continued from Page 687.)

high interest rates and as much profit as they can take on each shift during a period of from a month to a year until the consumer is ready to buy.

"At the two extremes we find these elemental conditions. The farmer must have all or part of his money as soon as he harvests his crop; the consumer will not buy a year's supply. Very often the middlemen, with their expert knowledge of supply and demand, get control of the crop and by nice artifices of publicity, and because of the needs of the consumers, work up the price to a figure absolutely hurtful to the bean industry and the farmer is then blamed for the high cost of living.

"Now how can we counteract this unfair condition? First and foremost by financing the crop half or all the way, so the farmer can get his money, or as much as he needs, early in the season, and until the consumer is ready to buy. In other words, the fundamental purpose of the association is to get, keep and maintain wise control of the crop and sell it as directly as possible to the consumer when he is ready for it. Your common sense should tell you this great purpose can not be carried out if you dump your crop each year and compete with each other in selling it.

Plan of Financing

"One of the most important and beneficial results of our efforts to date is to actually accomplish part of this purpose by financing the 1919 crop for nine months, at a cost not to exceed six per cent, and up to half its value, and the California Bean Growers' credit and commercial paper is today becoming known throughout the cheap money market of the East.

"I am hopeful enough to believe if all growers only realized how powerful would be their collective credit; if they did not waver in their allegiance to the association; if all could grasp the tremendous value of the goodwill we have built up to date under the most trying difficulties, we could next year get possibly 60 per cent to 80 per cent of the value of your crop in the beginning of the season, and at an even lower rate of interest. But some of you have weakened at the most critical turning point in our history. Some of you would foresake and abandon the association just as we are beginning to get real results. By so doing you are making it impossible to carry out this great purpose.

"I repeat that retaining wise control of the crop ought to be our motto. You as an individual can not do it. The association can. You all know that great corporations consolidate to economize in overhead expenses, and in order to cut out many duplications of expenses, but most particularly in order to be financially able to employ the very best experts. Now the association, by dividing the expense against a million sacks of beans or more, can for a few cents a bag employ the very best sales manager and the most expert service to supervise cleaning, warehousing and shipping, which constitute businesses by themselves, but which are only mere departments in this association. The association is actually handling over $6,000,000 of beans. With this collective financial strength we can advertise on a large scale, can put up package goods, carry on a great publicity campaign in defense of the industry, or win offensive battles for the association. We have our Journal, growing in strength monthly, ready for this purpose.

"Let me bring home to you the financial power which can be exercised on behalf of the bean industry by stating approximately that, when we spend $10,000 it only costs you a cent a bag, and that I believe that if we spent $100,000 in advertising some particular brand of beans we could so increase the consumption demand that we would at least get one-half cent a pound more for our beans, and the cost would be only one-tenth of a cent a pound, which means spending a dollar more to get five dollars additional return. But none of these things can be done if we do not believe strongly and unshakably in the purposes which we are trying to carry out. We can not proceed wisely to control the crop or carry out any continuous policy if you are not wholeheartedly back of the directors and officers.

Strong Association Reduces Expense

"With a strong association it is easy to cut down the internal expense of warehousing, cleaning, selling and shipping; we can cut out the duplicated sales machinery and waste of dealer distribution. We can employ experts to keep us statistically posted on the supply and demand throughout the world. We can prevent ruinous competition, get the large volume orders, and supply the continuous business of the small trade. But, to do this, to build up a selling plant, to accumulate this exact market knowledge, to perfect our sales machinery, to get the goodwill and confidence of the trade, to train up the personnel, for this big institution take time, ability, patience, courage, tenacity of purpose and money.

"I hope when we tell you all about what has actually been done, you will see that even our small overhead expense of less than 35 cents per sack, which also covers storage, taxes and insurance, through 22 months of difficulties, unavoidable hampering conditions and many disappointments, represents, not only operating expenses, but largely a wise investment in something of real tangible value, something of lasting, permanent benefit to the bean industry of the state, a machinery which will give you your money early and give you a maximum return year in and year out. It will remove violent speculative fluctuations and take the hazard out of your farming life—stabilize the business.

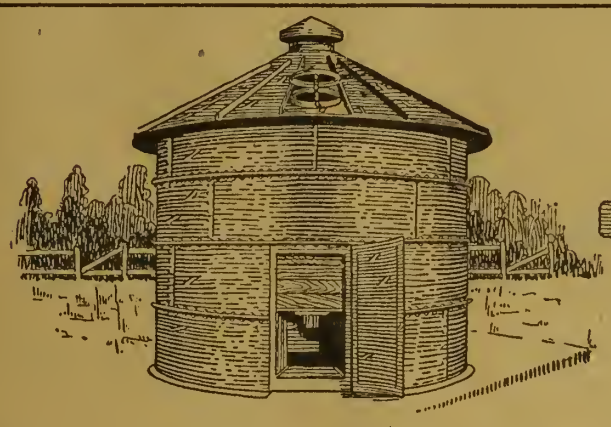
"Let me urge upon you that only by wisely controlling and financing crops and proving the cost of production and demanding a fair profit and cutting out the unnecessary chain of handling, duplicated sales machinery and wrong distribution and only by educating the consumer as to the real causes of the high cost of living will the farmer get what he ought to have and how can he do that except through an association or by the group method? If this is to be done, the bean grower must first learn that he must sacrifice the independence he temporarily feels when he sells his own crop and pockets the money early in the season.

Individuals Alone Cannot Obtain Legislation

"Again, will you as an individual grower go to Washington and fight for a bean tariff? No. Did the association? Yes. We need more farmers in politics and in congress and fewer lawyers and representatives of other special interests. We need an asociation to act in sympathy and concord with other agricultural bodies in the great movement that you must know is now on in this country—to put the farmer and his interests to the front.

"Will you go to the railroad commission and see if we can get a 'stop-in-transit' rate to New York so we can clean beans in Michigan and not pay two freights? Will you individually see if domestic beans have as good a transcontinental rate as Oriental beans crossing in bond? Will you go to Washington and do this? No! Should the association do it? If so, support it. This is the age of organization, labor, dealers, manufacturers, etc.—single-handed endeavor cannot avail against organized conflicting interests. You must speak and act collectively or your efforts will be futile.

"You all recognize that only with an association with large quantities of produce under one control can a uniform standard be established. Standardization has been the making of the citrus, apple and other industries. It encourages the grower to use better seed, use more care in threshing, stimulate the use of improved cleaning methods, gives bankers confidence, and elliminates cumbersome and unsatisfactory selling by sample. It is the modern way. Will the individual do it? No. Only an association will raise the standard of the bean industtry to a higher plane and put it on a par with the horticultural and other producer industries.



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Does a clear saving of $15 a day mean anything to you?

Bulk handling will save you at least that much in wages alone. It does away with these three high-priced men. It saves you the cost of sacks. It eliminates waste.

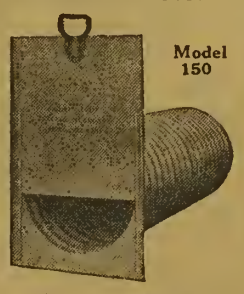
Calco Metal Grain Bins are used by all progressive farmers. These bins make possible a larger return on your investment.

Mail the attached coupon at once and receive the Calco Grain Bin Booklet. It contains figures and tells of actual installations which prove that bulk handling saves money.

Model 100

Calco Automatic Drainage Gate

Automatically drains submerged lands.



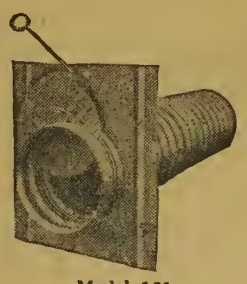
Model 150

Armco Lateral Headgate

An inlet headgate designed for use under slight water pressure. Light, and easy to operate.

Lyman Irrigation Meter

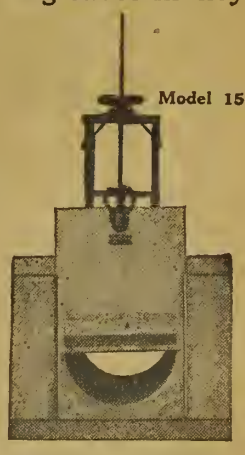
Gives an accurate record at all times of the water used for irrigation. Can be easily and quickly installed on weir by any one. Write for descriptive pamphlet.



Model 161

Armo Irrigation Gate

An easily installed and easily operated irrigation gate. No swelling or warping.



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An inlet headgate intended for use under varying heads of water up to six feet. Slide operates rapidly and easily.

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POMONA MFG. CO.

POMONA, CAL.

Cotton growers of the Yuma Valley of Arizona have formed an association to affiliate with the state and national association.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Smilo and Napier

Can Napier grass be grown without irrigation? If not, how often would irrigation be necessary in light soil of a sandy loam nature? Is Smilo grass a perennial, and does it require much irrigation, if any, when it is grown near the coast? Are either of these grasses suitable for hog feed? If not, what perennial could be planted, other than alfalfa, that would make good forage for hogs? — Subscriber, Del Mar.

Napier grass will grow without irrigation, but those who get heaviest returns cut it once a month during summer and irrigate after each cutting. Smilo grass is a perennial bunch grass with a running root which stoles. It is much more resistant to drouth than Napier and will grow on dry rocky hillsides; a good forage grass. Both grasses are good for hog feed but Napier will yield the larger crop.

Native Nitrogen Nodules

A subscriber at Ripon, San Joaquin County, sends in samples of an annual native lupine, Lupinus micranthus, and asks if it would be a good cover crop.

It would, and also gathers nitrogen from the air.

Another, living at Klink, Tulare County, sends two annuals, a little vetch like plant, Lotus humistratus; also Lupinus densiflorus.

Names only are asked for but both are legumes and nitrogen gatherers and beneficial to soils.

Summer Potatoes

At what time should the summer crop of potatoes be planted? What are the best varieties and how should they be disinfected, if necessary? Is there a more profitable late crop?—Newcomer, Hemet.

We believe the questions are fully answered on Page 201 in the Cultivator of February 27. The potato is a profitable late crop; the seed should be dipped before cutting. A complete treatise on potatoes may be found in the Cultivator of November 15. One difficulty confronting the planter of the summer crop is the securing of ripened seed. This matter of seed curing is touched upon in the November number referred to.

Planting Cauliflower

Please tell me how to start cauliflower plants and what time of the year to plant them for early crop. Have tried it several times but the sun kills the little plants as soon as they come up.—Subscriber, El Cajon.

Cauliflower seeds are sown nearly every month in the year, but from February to July little sowing is done by commercial growers. The August sowing brings the main shipping crop, which is the early crop, usually harvested in January. Seeds should be sown in a well pulverized soil about one-half inch deep and the soil firmed or pressed down with a board after sowing. Transplant when six weeks old. If sun burns the young plants, start them under a cheese cloth cover and gradually harden them to the sun during the last week or ten days before transplanting.

Rabbit Paralyzed

Have been feeding pet rabbit grass and weeds. For last few days has had no control of her hind legs, though her appetite continues good. — Subscriber, Wasco.

Have pondered over this for some time trying to find some reason for condition of rabbit. It has paralysis and there is not much cure for this. A teaspoon of brandy in half a glass of milk will give relief if given soon and if patient is strong enough may overcome it. Best to kill it if bad case.—W. D. W.

Sparrows

Is there any way of ridding one's place of sparrows? We have a small place near town. We planted a lovely garden and the sparrows took it clean excepting for the onions and potatoes. (The beets, carrots, peas, radishes and even our alfalfa patch they cleaned). We have a flock of chickens and I notice the sparrows seem to like the grain I throw out. As the chickens are fenced in and the garden is also I thought I might poison some grain and that way get rid of them. Which grain and what kind of poison would you advise? Any information or suggestion you could offer would surely be appreciated. We are very anxious to have a garden and some alfalfa and green feed for our chickens, but these awful sparrows clean things up before they can get started.—Subscriber.

See page 388 of the Cultivator of March 6, 1920. The trap there illustrated and the poison and other methods of control recommended may aid you. The trap method is really the most satisfactory.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Accident Compensation

About eight months ago while employed as a railroad engineer in interstate traffic, I fell from my engine and met with a serious accident from which I have not yet recovered. I have received nothing as compensation and I wish to know what remedy I may have.—Subscriber, Porterville.

There is a federal law relating to the liability of common carriers of the railroad to their employes, which is exclusive in the case of employes actually engaged in interstate traffic, of all state remedies. This law provides that the railroad shall be liable for damages to the employe suffering injury while employed or, in case of his death, to his family. It further provides that any contributory negligence on part of employe shall not bar a recovery, but shall merely diminish the damages. The action to recover must be commenced within two years from the day the cause of action occurred. Such actions have been commenced in the state courts and have also been taken in the federal courts.

Making Concrete Forms

Has a farmer the right to make his own concrete forms for making concrete pipe lines on his own place? May he use hired help in this work?—Subscriber, Hughson.

It would seem that the only obstacle in the way of making such forms would be the fact that there is some patent issued and it would hardly seem that any patent could cover such a common matter. In order to determine whether there was any patent issued you would have to ascertain from the government patent office. As a matter of fact, it is very common practice for individuals to make their own concrete forms of all kinds, and there is no known reason why

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Developments in aeronautics have found us ready with a grade of Zerolene for each type of engine.

Thousands of gallons of Zerolene Liberty Aero Oil gave service to the U. S. and Allied Governments during the war.

There are grades of Zerolene for the Correct Lubrication of your automobile, truck and tractor. Ask your dealer or our representative.

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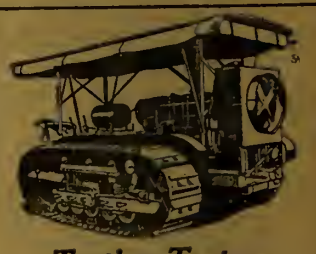

Testing Testers

Gauges, micrometers, standards of all kinds are constantly testing, to the exactive Holt standards of accuracy, every part employed in "Caterpillar" Tractors.

But lest they prove false to their trust, every one of these instruments of precision is regularly tested by a master standard.

This master regards accuracy as a matter of 100,000 parts to the inch. A fraction of a hair's breadth error will not pass. Booklet 443 on "Accuracy" tells why.

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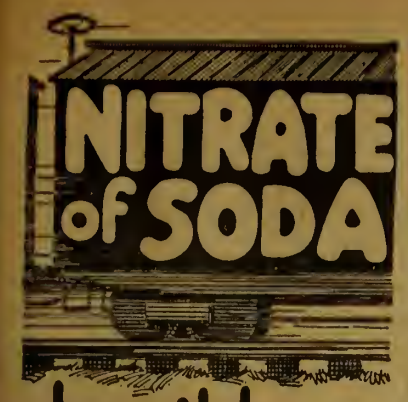
Orange County's big lemon output calls for so many to aid in harvesting that farmerettes are volunteering.



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Investigate for your own good. One Black Scale will produce 2000 to 3000 more, quickly spreading to healthy trees. Left alone it retards the growth of the tree and injures the fruit, sometimes lowering the grade considerably.

You can thoroughly clean your trees and eliminate Black and Citricola Scale, Red Spider and Fungus, if you will apply

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The sooner you put TIZIT on, the more work it will do. The genuine TIZIT is labeled TIZIT—Trade Mark Registered.

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hired help could not be employed in making them as it is done every day.

Stepdaughter's Name

Daughter by former marriage has since second marriage taken stepfather's name. May she legally continue to use this name and sign legal papers in such name, or is it necessary that she take some legal action to change the name, and if so, what is the nature of this action?—Subscriber, Hughson.

It has been held by the courts that the name given to a person at baptism is presumed to continue, but if after his baptism he adopts and uses another name by which he is subsequently well known in the community prior to and at the time of any contractual or other relations, it is sufficient if he is described by that name. The code, while not prohibiting the change of name by custom and use, provides a method whereby such change of name can be affected by judicial decree. In order to obtain such decree a petition is filed in the superior court of the county where the person resides, signed by such person, or in case of a minor by one of the parents or guardian, relative or friend. In this petition birthplace, residence, present name, proposed name and reason for change of name and also the next relatives and their place of residence must be stated. Upon the filing of the petition, the court makes an order directing all persons interested to appear not less than one or more than two months from the date of the order to show cause why such change of name should not be granted. A copy of this order must be printed in a newspaper within the county for four weeks, and thereupon at the date of the hearing the court hears the matter and makes its decree. This procedure apparently is not obligatory but is merely another method.

NATIONAL EGG LAYING CONTEST

By T. W. Noland

Missouri Poultry Experiment Station, Mountain Grove:

The 300 contest hens laid 6,404 eggs during March, or an average of 21.4 eggs per bird.

Pen 54, Rhode Island Whites, Missouri, won the cup by laying 129 eggs during the month.

Ten Leading Pens for March

R. I. Whites, Missouri, 129 eggs; S. C. Reds, Missouri, 126; Barred Rocks, Missouri, 125; Anconas, Missouri, 121; S. C. White Leghorns, Illinois, 121; Barred Rocks, New York, 121; Barred Rocks, Canada, 121; S. C. Reds, Missouri, 121; Black Langshans, Missouri, 121; White Wyandottes, Missouri, 120.

Ten Leading Pens to Date

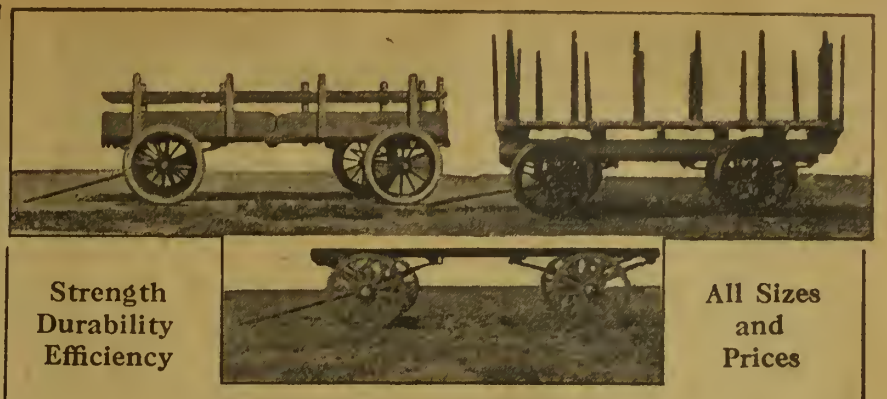
Barred Rocks, New York, 547 eggs; S. C. Reds, Alabama, 546; S. C. Reds, Missouri, 531; White Wyandottes, Missouri, 520; Buff Orpingtons, Missouri, 512; Columbian Rocks, Missouri, 507; S. C. White Leghorns, England, 494; Barred Rocks, Canada, 477; Buff Orpingtons, Missouri, 471; White Wyandottes, Arkansas, 468.

Five Leading Individuals to Date

Barred Rock, New York, 133 eggs; S. C. Red, Missouri, 131; S. C. Red, Alabama, 129; S. C. Red, Alabama 127; S. C. White Leghorns, England, 125.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST AT SANTA CRUZ

For the week ending April 10 the contest flock as a whole laid 68 per cent. This week saw a new non-stop record completed for the contest when hen No. 198, belonging to Bellows Brothers of Lakeside, failed to lay after laying for 30 days straight. Hen No. 16 finished the week with seven eggs, bringing her count up to 129 eggs for the 147 days that the contest has run. Two pens of Santa Cruz hens won for the week, each with a count of 55 eggs. Following are the high pens for the week: Rose, 55 eggs; Amsbaugh, 55; Bellows Bros., 54; Wood, 53; Enterprise, 52; Walls, 52; Binney, 52; Gibson, 50; Gibson, 50; Wilson, 50; Stalling, 50. All the hens single comb White Leghorns.



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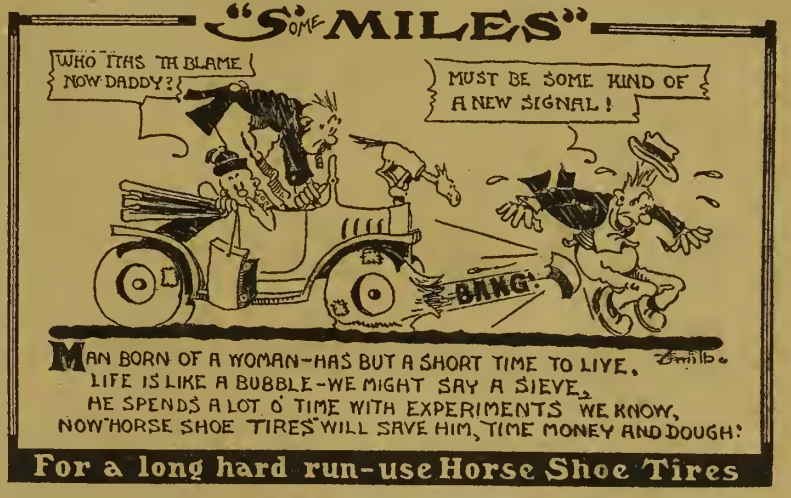
"SOME MILES"
WHO THAS TH BLAME NOW DADDY?
MUST BE SOME KIND OF A NEW SIGNAL!
BANG!
MAN BORN OF A WOMAN—HAS BUT A SHORT TIME TO LIVE.
LIFE IS LIKE A BUBBLE—WE MIGHT SAY A SIEVE.
HE SPENDS A LOT O' TIME WITH EXPERIMENTS WE KNOW,
NOW HORSE SHOE TIRES WILL SAVE HIM, TIME MONEY AND DOUGH!

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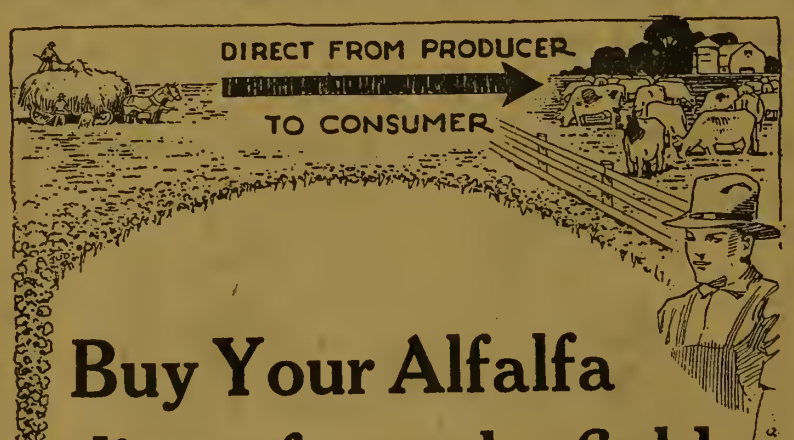

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Better service is assured by the advertiser if when writing you mention the California Cultivator.

Alcohol for Fuel

By John Eastwood

IT is now about ten years since the automobile and motor truck came into general use. Since then their efficiency and the number put into use has outstripped all expectations. Added to this is the development and increasing use of the tractor for farm work and the gas engine on both sea and land.

The consequencc is that while we have been developing the oil industry with marked efficiency and enterprise the consumption has, in a general way, increased faster than the supply, with the result that the price has been constantly advancing until now it is more than double what it was then.

The mere advance in price is not the only bad feature. Where so many and such diverse interests are so absolutely dependent upon one, as is the case with the oil wells today, there is always great danger of the formation of some kind of a combine or trust. In this instance the danger is doubly great because, I believe, the domestic demand greatly exceeds the domestic supply.

This matter was brought very forcibly home to many of our large tractor farmers a short time ago when one of the leading oil companies announced that it would no longer handle distillate. The matter has not, however, assumed an acute stage because other companies have not taken the same step. However, it caused a great deal of discussion as to what fuel to use next, and as many favored kerosene, the following extract from a letter from one of the largest tractor manufacturers in the country may not be out of place:

"I believe we have gone farther than any other manufacturer of a comparatively large tractor, in the matter of the use of kerosene in our motors. We have succeeded in developing our full horse power on this fuel, and from outside appearances only would say that it is satisfactory. The exhaust is clean, and pre-ignition has been eliminated. This, however, is not all that is to be desired.

"The one big trouble with kerosene as a tractor fuel is the fact that a certain amount of this fuel condenses in the cylinders and subsequently finds its way into the crank case. When this occurs, trouble is bound to follow, for when the oil in the crank case is once diluted, lubrication will be seriously affected and the bearings and cylinder walls cannot possibly stand up. They will, of course, stand up for a while, but I would venture to say that any four-cylinder, four-cycle motor now using kerosene for fuel will have serious motor trouble before long."

At that time, the secretary of the Oxnard center of the farm bureau, who has long cherished the idea that the making of industrial alcohol should become a part of the agricultural and horticultural development of the country, took the matter up with Prof. L. A. Moorhouse of the office of farm management and urged that the department of agriculture further such legislation as would allow this industry to be developed in a popular and unhampered way. From this department the matter was referred to Dr. C. O. Townsend, pathologist in charge of sugar plant investigation, with the following result:

"I am glad to have Mr. Eastwood's letter and your statement in regard to his interest in industrial alcohol. I have felt for some time that some effort should be made to manufacture on a commercial scale industrial alcohol especially for farm use. I believe there are many uses to which industrial alcohol could be put that would be helpful and economical. I think sugar beets and sorghum would be a good source from which this material could be made. I shall make further inquiry and if it seems to be worth while, I should be glad to take the matter up with the bureau of chemistry."

There is no reason in the world why this industry does not rightfully belong to the farming community. By what right are they compelled to buy their fuel from some other industries when they cannot only raise it themselves but do so largely as a by-product of or as a booster of other crops?

During the past few years the producing public has had so many occasions to lose what little faith it ever had in the professional politicians that the time seems ripe for the farmers, manufacturers and business men to take an interest in public affairs. They should enter the arena as an active, mobile minority that will choose its men and measures and with the avowed purpose of kicking out as many of the "old gang" as possible.

If the farmers want to manufacture their own power and fuel they can do so. But they won't get it by sitting back and waiting for some "servant of the people" to hand it down to them.

FAVORS NATIONAL HIGHWAYS

Farm sentiment is very strongly in favor of the construction and maintenance of a national system of highways by and under the direction of the federal government, if replies received to a referendum by the American Farm Bureau Federation can be taken as a criterion. The federation is one of the largest farm organizations in the United States, with local federated organizations in 28 states.

Answers to the highway question are still coming in to the office of J. R. Howard, president of the federation, but those received thus far are almost unanimously in favor of a broadened national road policy. Several of the writers express the belief that only through actual governmental participation can a network of highways be built. Many letters express the feeling that once the states and counties are relieved of the burden of aiding in constructioon and maintenance of the main lines which have an interstate importance, the construction of farm to market roads will proceed much more rapidly.

The statement of Senator Charles E. Townsend, chairman of the senate committee on postoffices and post roads, that no further road appropriations should be voted at this session of congress because of the unsettled condition of the treasury and because of the fact that large funds are already available for continued construction, is concurred in by several of the farm bureau officials who hold that further increases should not be undertaken.

MELILOTUS FOR FEED

The article written by Commissioner Waite of Imperial County and in the Cultivator of March 20, has occasioned inquiry as to best method of growing, that is, when was it planted, was it broadcasted or drilled, etc. These queries were referred to Mr. Waite, and he writes:

"The sweet clover was sown broadcast the first of March, 1919, was sown alone on the Huffaker place and in the Bain field wheat was sown with it, furnishing fine early pasture. The general plan of planting sweet clover is the same as for alfalfa. Drilling in moist ground is by far the best method, sowing some wheat or oat with the clover, eight to 12 pounds to about 20 pounds of wheat or oats, depending on the character of the soil and time of planting, using more seed if planted late in the season. If sown by broadcasting, it is advisable to harrow lightly, irrigate and follow with irrigation again in three or four days, in order to keep the soil moist until the seed germinates and comes up before the surface gets dry. Sweet clover is harder seed than alfalfa, therefore keep the soil moist. This is the best method for Imperial Valley."

STRYCHNINE FOR RODENT CONTROL ADVANCES

W. C. Jacobsen, superintendent of rodent control, state department of agriculture, has just received information that the price of powdered alkaloidal strychnine furnished by dealers on the coast in quantities of 300 ounces or more will be $2.05 per ounce in five-ounce tins and $2.10 per ounce in ounce bottles.

This is a considerable increase over the contract price of $1.60 per ounce

which is held by the rodent control division for quantities of 500 ounces or more, provided payment can be assured within thirty days. The state department of agriculture will be unable to carry the counties, as was the case in years past, owing to shortage of funds in the department, and the manufacturers, in setting the remarkably low price for strychnine which we are able to obtain through the courtesy of the U. S. biological survey, have stipulated that payment must be made within 30 days. Any information having direct bearing on the individual counties will be gladly received by the superintendent of rodent control and it may be that arrangements can be perfected for the obtaining of this material.

The last quotation on saccharin was $3.15 per pound, while the price for the coast is $4.25.

Owing to the number of orders that have been received by the manufacturers to date, it will be impossible to make delivery for two or three weeks, and maybe a little longer. It is unfortunate that the rodent control division has not been able to acquire an advance supply in order to ship directly to the commissioners. It might be added that the contract is only for a definite amount of strychnine and the price holds good only until May 31, 1920.

TREE PLANTING ON STATE HIGHWAYS

That uniformity in tree plantings along the state highway may exist and in order that the best trees may be selected for each locality, an agreement to investigate each request for a tree planting permit has been arranged between the California state board of forestry and the highway commission. The cooperation became necessary as the result of a number of requests for permission to plant. Women's clubs and chambers of commerce have taken a lead in tree planting in order to beautify approaches to towns and cities.

The first permit to be issued following the agreement was issued to the Woman's Club of Lodi. The state board of forestry determined Oriental planes to be the best trees for the stretch of highway to be planted and gave instructions for their planting. The permit requires that trees are to be planted immediately on their arrival from the nursery in holes three feet in diameter and two and one-half feet deep. Each tree will be supported by a redwood or cedar stake two inches by two inches by 10 feet, common grade, set two feet in the ground. Each tree must be tied to the stake with manila twine three and six feet from the ground.

The trees are to be planted alternately on both sides of the highway and will be 100 feet apart except where it is necessary to modify the distance to avoid placing a tree near a pole. No trees will be planted closer than ten feet to a pole. The exact location for tree planting will be given by the highway commission and after the trees are planted they will be cared for by the commission. As a result of the agreement between the two state departments, California's highways should in a few years be lined with beautiful trees, planted uniformly, and not in a hit and miss manner. Organizations wishing to plant trees along the state highway can secure information as to how to proceed by addressing California State Board of Forestry or Highway Commission, Sacramento.

AGRICULTURE'S PLACE IN GENERAL EDUCATION

The agriculture of the common school should be educational agriculture rather than agricultural education of a pointed sort. The justification for the inclusion of agriculture in the schools is its emerging as an organized body of knowledge of science representing important fundamental human interests. . . . Regarding method, though the art of agriculture constitutes the permanent educational material furnished by the subject, agriculture is an applied science and the concrete method must be used to illustrate and establish principles and laws. This is expressed in concrete studies of soils in the schoolrooms, in the school garden, on the farm, in railway and road cuttings, and in home gardens, and in the adjustment of treatment to suit the peculiarities of different soils. . . . In other words, the science of agriculture should be taught through real agriculture and horticulture. This view of the subject does away with the deadly memorizing study and also does away with narrow vocational teaching. . . . Agriculture is not yet second nature with teachers, but it must be incorporated in the experience of teachers just as other subjects are, and must find a place in the public schools and high schools, in the normal school, and in summer schools.—Jas. McCaig,

PREVENTABLE FARM FIRES

The annual losses to agriculture through fires will run into millions of dollars. Excluding those of incendiary origin, these fires are in the main preventable.

In view of localized water shortage and the generally dry conditions which will prevail in the absence of further rains, due consideration should be given this fire menace. With livestock, farm implements and hay at the prevailing prices, no farmer can afford a fire!

Establish timely preventive measures on your farm and if fire does break out be prepared to handle it!

EFFICIENT AMERICAN FARMERS

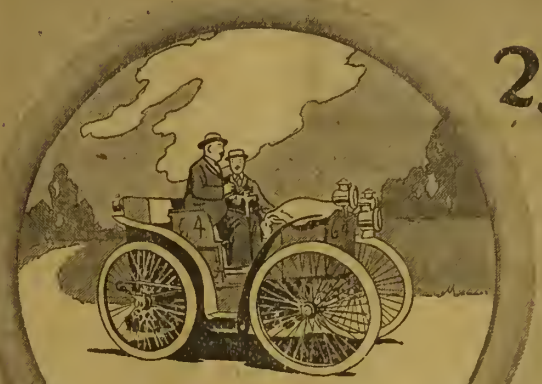
The average American farmer produces nearly three times as much food as any other farmer in the world. We often read that farm land abroad produces three or four times as much per acre as in the United States, and the American farmer is often criticized for this state of affairs. It is true that an acre produces much more abroad, but that is because there are so many more men to work on it. Some 35 per cent of the population of the United States work on farms, and they not only feed themselves and the 65 per cent who live in cities, but most of the world besides.—Boys' Life.

FLORIDA ORANGES

A revised estimate of the 1919-20 citrus crop of Florida was made as of April 1 and indicates the total number of boxes of oranges would be about 6,700,000, and of grapefruit a total of 4,300,000 boxes. Six per cent or 402,000 boxes of oranges and 10 per cent or 430,000 boxes of grapefruit remained on the trees. The total production of the 1918-19 crop was 5,700,000 boxes of oranges and 3,200,000 boxes of grapefruit.

MICHELIN

25 Years Ago—



The world's first pneumatic auto tire —Michelin, 1895

and Today

Michelin Cords and Disc Wheels—the latest developments in tire and wheel equipment

Michelin introduced the first pneumatic automobile tire in 1895. In the meantime Michelin genius has contributed many other improvements which culminate today in the new Michelin Universal Cord.

Michelin Tire Company, Milltown, New Jersey

Other factories: Clermont-Ferrand, France; London, England; Turin, Italy.

Dealers in all parts of the world

Fortuna Poland China Herd

"The Californian" 358955

A half brother to the two most noted boars of the Poland China breed, the world's champion "The Pilot" and the $40,000 "The Yankee." Individually he is the same type. Best of all he is siring the same type of pigs that made his brothers valuable beyond measure.

Hugh C. Shinn, Tulare, Cal.

We Are Offering for Quick Sale Two Tried Sires

California Jumbo Buster and Blue Valley King

These two boars have sired a class of Poland Chinas that have made it possible for us to secure an ever increasing patronage. Write us at once. We feel sure you will be interested.

A. Buckland & Son, R.F.D., Fresno, Cal.

THE SEQUOIAN

One of the Largest Yearlings in the State, Heads My Herd

He is a young boar of great promise and bids fair to develop into a remarkable sire of big type Polands. Young stock of both sexes for sale at very reasonable prices.

Z. M. Dickey **Dinuba, Cal.**

Trewhitt's Big Type Poland Chinas

have long been noted for their size and feeding qualities and have been bought by the leading breeders of the state for the improvement of their herds. Select your next purchase from a herd where you have the assurance of something better.

W. D. Trewhitt **Hanford, Cal.**

King's Big Bone Leader

is siring the big stretchy type of Poland Chinas sought by the discriminating breeder. He is assisted by Giant Bob 2nd, a son of the late grand champion and a pig of great promise.
Write for information. Stock for sale at all times.

Les McCracken **Ripon, Cal.**

For easy feeding, early maturing Poland Chinas,

Secure the Get of Model Big Fellow

He was Reserve Grand Champion at the last state fair and was next in line to Giant Bob, later sold for the highest price ever paid on the coast. I solicit your correspondence.

J. F. McSwain **Merced, Cal.**

McCune's Quality Herd

of BIG TYPE POLAND CHINAS

attained their prominence by a careful study of blood lines and individuality necessary to real constructive breeding. We produce the type you need in your herd. A few choice individuals for sale at all times.

H. D. McCUNE, **Lemoore, Calif.**

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

CATTLEMEN IN CONVENTION

(Continued from Page 689.)

by the Los Angeles chamber of commerce and presented by W. I. Morrison of the California Alfalfa Growers Association and of the Southern California Poultry Producers Association. Mr. Morrison stated that it was not a question of stockyards or no stockyards, for there certainly would be yards installed in Los Angeles, but it was a question as to whether the stockmen themselves wished to be the power behind or permit the yards to be under control of others. President Bixby took the floor and while he admitted it was probable there would be stockyards installed he did not think the cattlemen were in a position to indorse any such move. His position was supported by Messrs. Jastro and Fuller.

Formal resolutions introduced and passed are as follows:

Be it resolved that the California Cattlemen's Association do unalterably oppose the establishment of union stockyards in the city of Los Angeles or at any other point in the state of California.

Whereas it is recognized by the cattlemen of California that the overgrazing of the ranges is one of the principal causes of the unsatisfactory condition of the beef market of the state, thereby causing half-fat beef coming in competition with the better quality of beef; and this fact causes a great economic waste, therefore be it resolved that the California Cattlemen's Association request the farm bureau of California to use its best influences to overcome this condition, to the ultimate benefit of all concerned.

The resolutions committee consisted of H. A. Jastro, T. H. Ramsay, Howard Jack, A. S. Goode and Harry Jones.

Inspection

As to federal, state, city and other inspections and by reason of said diverse inspections no uniform results are obtained, now therefore be it resolved that the legislative committee of this association take such necessary steps as will be required to bring about the inspection by the state of California of all those engaged in the business of slaughtering and killing of livestock for public consumption in the state of California.

Burning Off Brush

As to burning off brush and its advantage to stockmen, be it resolved that the United States forest service be requested to permit, under proper supervision, the burning off of brush to the end that a greater growth of forage plants may be secured.

L. A. Livestock Show

We hereby endorse the Los Angeles and every other livestock show held within this state and pledge ourselves to do all in our power to further their success.

Humane Association

Thanks of the association were tendered the State Humane Association and congratulations extended for services rendered.

State Dept. of Agriculture Endorsed

We believe such a department will be for the best interests of all of such industries and we heartily approve and commend George H. Hecke, director of agriculture; Dr. J. P. Iverson, chief of animal industry, and Supt. Jos. D. Newsom of cattle protection for their earnest and able efforts in behalf of the cattle industry of California, and we bespeak for these officials the cooperation of all cattlemen of the state.

U. S. D. A.

Whereas the agricultural department serves both the farmers and stockmen of the United States, representing an investment of 80 billions of dollars, with an annual income of 25 billions of dollars, which is half the total taxed valuation of France; and whereas the appropriation now received by the agricultural department is only 35 millions, from which amount, after the forest and other departments receive their portion, the comparatively small sum of 12 millions remains for the farmers and stock raisers; and whereas, taking into consideration the enormous investments and the vital importance to the United States of the farm products, this is a disproportionately small amount and should under no circumstances be reduced; and whereas the agricultural department has saved to the hog raisers alone over 40 millions in one year and has developed the rice industry in California on lands which formerly were worth only from $5 to $10 per acre and are now producing this year 21 millions worth of rice; and whereas through that department cull lemons were worked over into acid, making 1,500,000 pounds of citric acid, 500,000 pounds of citric lime, 50,000 pounds of lime oil; and cull oranges are now being made into jellies and jams to the extent of 600,000 pounds per year; and whereas that department has increased the production of corn 25 per cent, also oats, potatoes and hay, and has increased the production of cotton three and one-half per cent per acre; and whereas in Arizona and New Mexico there is now being produced 20 millions worth of cotton, which is but a small per cent of the good that this department is accomplishing; therefore, be it resolved that the California Cattlemen's Association urge upon congress that there be no decrease in the appropriation for the department of agriculture.

Thanks

Thanks to Zone Five, Chamber of Commerce, people of Los Angeles, speakers, press, officers and others.

Banquet

Roast beef. Toasts eloquent.

AN IMPORTANT SERIES OF HOLSTEIN SALES

It is not too much to say that no state has made as marked progress in the breeding of pure bred Holsteins, in the same length of time as has been registered by breeders in this state. For the past few years the increasing demand for a better class of dairy cattle has been the incentive for the building up of many herds that stand among the top collections of the breed. California Holstein breeders have demonstrated time and time again that all conditions necessary for the production of the very highest class livestock are present here to a high degree. In the development of the Holstein industry in this state the breeders of the black and whites have pointed the way that breeders of other classes of livestock might well afford to follow.

First of all, they have taken hold of the business in a most businesslike way. They have had courage to build their herds on the right sort of foundations and to proceed in the development of their cattle along modern lines.

Aside from the fact that the breeders have been most progressive, they have organized an efficient association for the promotion of the breed and have developed a spirit of good will among themselves that has meant much for the industry. In analyzing some of the reasons for the marked popularity of the breed, the impression cannot be missed that one of the most potent factors has been the development of the public sale method of disposing of their surplus cattle. Indeed, the Holstein interests were the first in this state to utilize the auction method of selling and the successes registered indicate that that method of selling is highly satisfactory to both buyer and seller.

The above thoughts were suggested by reason of the number of high class sales that are scheduled for the near future. During the coming weeks there will be more registered Holsteins sold at public auction than ever have been offered in the same length of time in this state. That fact must not be construed as indicating any sort of liquidation on the part of breeders—it is simply an indication of the growth of the business. There is today a wider, stronger and healthier demand for pure bred Holsteins in this state than ever, and it is a foregone conclusion that all the offering will be quickly absorbed at satisfactory prices.

All the coming sales will be managed by the California Breeders Sales and Pedigree Company of Sacramento, and we were particularly impressed with a statement made in reference to one of the sales, which, by the way, can be applied to all, by C. L. Hughes, manager of the selling organization. Mr. Hughes said:

Blackleg

MAY BE PREVENTED BY USING PARKE, DAVIS & CO.'S SCIENTIFICALLY PREPARED

Blackleg Vaccines

BLACKLEG VACCINE (BLACKLEGOIDS)
THE OLD RELIABLE BLACKLEG VACCINE IN PILL FORM

BLACKLEG AGGRESSIN
(GERM-FREE BLACKLEG VACCINE)
A NATURAL AGGRESSIN

BLACKLEG FILTRATE
(GERM-FREE BLACKLEG VACCINE)
AN AGGRESSIN MADE FROM CULTURES.

Write for free instructive booklet on Blackleg Prevention.

ANIMAL INDUSTRY DEPARTMENT OF
Parke, Davis & Co.
DETROIT, MICH.

The Leading Live Stock Auctioneers

Col. Ben A. Rhoades
Harold B. Rhoades

Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References The leading breeders in the state Write or wire for dates and terms

Rhoades & Rhoades
1501-3-5 South Main St.
Los Angeles, Calif.

DON'T CUT OUT A Shoe Boil, Capped Hock or Bursitis FOR ABSORBINE TRADE MARK REG. U.S. PAT. OFF

will reduce them and leave no blemishes. Stops lameness promptly. Does not blister or remove the hair, and horse can be worked. $2.50 a bottle delivered. Book 6 R free.

ABSORBINE, JR., for mankind, the antiseptic liniment for Boils, Bruises, Sores, Swellings, Varicose Veins. Allays Pain and Inflammation. Price $1.25 a bottle at druggists or delivered. Will tell you more if you write.

W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

INSIST ON D.C. Semi-Solid Buttermilk

and know that your stock is getting absolutely pure buttermilk product. It's for Baby Chicks, Laying Hens, Hogs. If the tender organs of the young chicks are not given the proper care, healthy stock cannot be expected.

There is a dealer in your town.

Dill-Crosett, Inc.
San Francisco, Cal.

CATTLE FOR SALE
95% Whitefaces
400
Heavy Boned Hereford Steers
Mountain Raised—Healthy
100 Cows and Calves
100 Heifers and Cows

Inspect Cattle at Howard Ranch
12 miles Southwest of Chowchilla, Madera County, Cal., or write

A. L. SPELLMEYER
956 Elden Ave. Los Angeles

The Get of Vaughn's Jones

are of such uniform excellence as to class him with the most prepotent sires in the state.

All his pigs measure up to the same high standard of excellence sought by careful breeders of Poland China hogs. Come and see for yourself.

A. J. Van Cleef Riverdale, Cal.

When writing advertisers, mention the Cultivator.

"No man would sensibly invest his capital and labor in a business that is not fundamentally sound, and the fact that thousands of good business farmers have investigated Holstein-Friesian cattle thoroughly and have then successfully invested in them is in itself a strong testimonial as to the strength and permanency of the business of breeding pure bred registered Holstein-Friesians.

"The great black and white breed has proved itself adaptable to every place on the face of the earth to which representatives of the breed have gone, covering diversities of climate and environment that embrace practically all conditions.

"And the Holstein cow has proven herself a profitable producer whether her product is sold in the form of whole milk, butter or cheese, and under practically all market conditions has a wide lead over cows of any other breed.

"It costs no more to properly raise a pure bred heifer than it does to properly raise a grade heifer, and there is a very great difference in their market value at breeding age, while there is a constantly growing market for every pure bred Holstein bull that is qualified for service.

"Leaving out of the question entirely the tremendous increase in demand for dairy products that is already at hand, and which will inevitably bring about the establisment of thousands of new dairy herds; leaving aside entirely the rapidly growing foreign demand for breeding Holsteins from California herds, we have right here within the borders of this state a market that is almost without limit.

"Approximately one cow out of every 125 dairy cows in the state is a pure bred registered Holstein, and there is no sound reason why at least every other cow in the state should not eventually be a pure bred.

"The practically unlimited market for registered Holstein breeding animals is the basis for sound investment in the business, and in supplying this demand and sharing in the consequent profits every breeder will be rewarded according to the excellence of the cattle which he produces, whether his herd be large or small in numbers."

April 27 and 28, 100 head will be sold at Clearwater by members of the Southern California Holstein Breeders Association. On May 5 the notable Higdon sale will be held at Tulare and will be followed the next day by a consignment sale of 65 head from the leading herds in the Tulare district. On May 8 the Van Blaricon herd will be dispersed at El Monte and on May 12 the Leeman and Kilgore herd will be sold at Ripon.

Ben A. Rhoades of Los Angeles will be on the block in each of the sales and will be assisted at Tulare by Col. George Bell.

All the cattle will be sold on a uniform plan, and all are guaranteed to be breeders.

The time has passed when California dairymen can expect to receive profitable returns on indifferently bred cattle. Better bulls, better cows, better feeding and management and better distribution of dairy products are the basis of successful dairying.

THE DAIRY INDUSTRY FALLING BEHIND

A survey of the dairy situation by many of the states shows that the cow population in this country is not keeping pace with the human population. Such a situation if not averted will sooner or later lead to serious conditions. Milk and its products constitute one-sixth of the human food of the United States. With the output of the dairy industry gradually becoming less per capita, it is quite evident that this situation demands serious attention.

Eminent medical authorities state there is not a sufficient amount of dairy products consumed. They contend that the public should consume $4.40 worth of these commodities out of each $10 spent on food.

Representatives of various breeders' associations in California met last week at the headquarters of the California Cattlemen's Association in San Francisco and decided on a plan for financing a stock show at San Francisco. The breeders asked business men of San Francisco to furnish half the funds necessary.

California Wonder

Kings County Jack Ranch

Breeders and dealers in American Jacks and Jennets

Jacks and Jennets for sale at all times. Come and see them.

JOHN BURRELL
R.F.D.B. Box 74
Hanford, Kings County, Cal.

Have all Breeds of Registered

Draft Stallions and Mammoth Jacks

Shorthorn and Hereford Bulls

Registered and Unregistered.

All Animals Sold Under Guarantee.

Merritt-Bowers Co., TULARE, CALIF.

Lendorris Liberty Bond, Skyrocket and Lendorris Liberator,

are our three herd boars.

They are a combination of the most popular blood lines and their individual excellence assures the purchaser of Poland Chinas the great size and quality desired by all. Our sow herd is in keeping with our three good boars.

A few choice individuals for sale at all times. We solicit your correspondence.

W. L. Haag and Son Hanford, Cal.

A Proven Poland China Sire For Sale

I am offering for sale Long Big Bone Jr. He was junior champion at the state fair in 1918. His get were among the heavy winners in 1919, and my 1920 show prospects are mostly sired by him. He is in his prime and sold for no fault. Price reasonable. Write at once.

W. A. Young Lodi, Cal.

P. S.—I can also spare a few choice individuals of various ages. Investigate.

Aviator A strictly big type boar that is siring a class of young Polands of the really big type. We expect to show this good boar and some of his get at the state fair this year. Satisfaction assured on any purchase you make of us.

CROSS BROS MERCED, CAL.

FORRESTVIEW BOB

A Son of the Noted Caldwells's Big Bob

is the boar that is siring the class of Poland Chinas that have made it possible for me to have so many satisfied customers. They are my specialty. I strive to please.

J. H. Cook Paradise, Cal.

I AM STILL OFFERING

exceptional POLAND CHINA values in breeding stock for quick sale. I can fill most any order you want from choice pigs to mature animals. Prices reasonable. I can please you. Write and see.

Eugene Miner Lodi, Cal.

Sunny Side Farm

where efficiency is our watchword and the production of extra heavy milking Holsteins and big type Poland Chinas is our specialty. A few choice animals of either breed or sex for sale at all times at reasonable figures. Write for information.

R. F. Guerin Visalia, Cal.

Johnson's Defender Jr.

is some boar. As an individual he ranks as one of the best in the state. His get are the type that experienced breeders demand. Let me fill your order for anything in the Duroc line. You will be pleased with your purchase.

H. C. WITHEROW Live Oak, Sutter Co., Cal.

At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

SAMSON

Heavy Duty Horse Power *for* Draw Bar and Belt.

Horsepower—*plenty of it*—stripped of all unnecessary dead weight! Horsepower for draw bar and belt! At the right price—for both first cost and upkeep! That's what every farmer wants. That is what the designers, engineers and producers had in mind when they developed the SAMSON MODEL M TRACTOR.

You want a tractor that will take the place and perform the duty of a barn full of horses, without costing you a fortune or a big part of your crop to buy and maintain. That is exactly the kind of tractor you get in the SAMSON MODEL M.

It's the last word in modern, down-to-the-minute tractor construction. It is not like the average "I" beam and channel steel frame tractor that weighs so much that it takes a large amount of its power for self-propulsion. It is a close-coupled power unit all by itself from radiator to rear wheels.

Every working part is enclosed and protected against dust, mud or rain. It has no lost motion, for it is built and lubricated throughout like a $3000.00 automobile, insuring great efficiency, ease of operation, maximum length of life and service. The price—the unheard of figure of $840.00—is due to correct designing, engineering and quantity production.

The even distribution of weight, compact unit design, and low center of gravity, give the SAMSON great stability, making it hug the ground and preventing all danger of rearing up and tipping over.

The SAMSON MODEL M is the one tractor you should look at before you buy a tractor of any make or kind. It's not too heavy, it's not too light. It is accessible, easy to operate, dependable and sure.

Booklet Sent FREE!

Ask your dealer for a demonstration of the SAMSON MODEL M or write today for FREE booklet which gives you a comparison in figures showing the cost of maintaining the SAMSON MODEL M compared with horses. You will be surprised at these figures. Horseflesh is an expensive luxury—to say nothing of the chores three times a day, every day in the year, and the drudgery they cause you.

Every farmer should have a copy of this instructive book. Sent FREE!

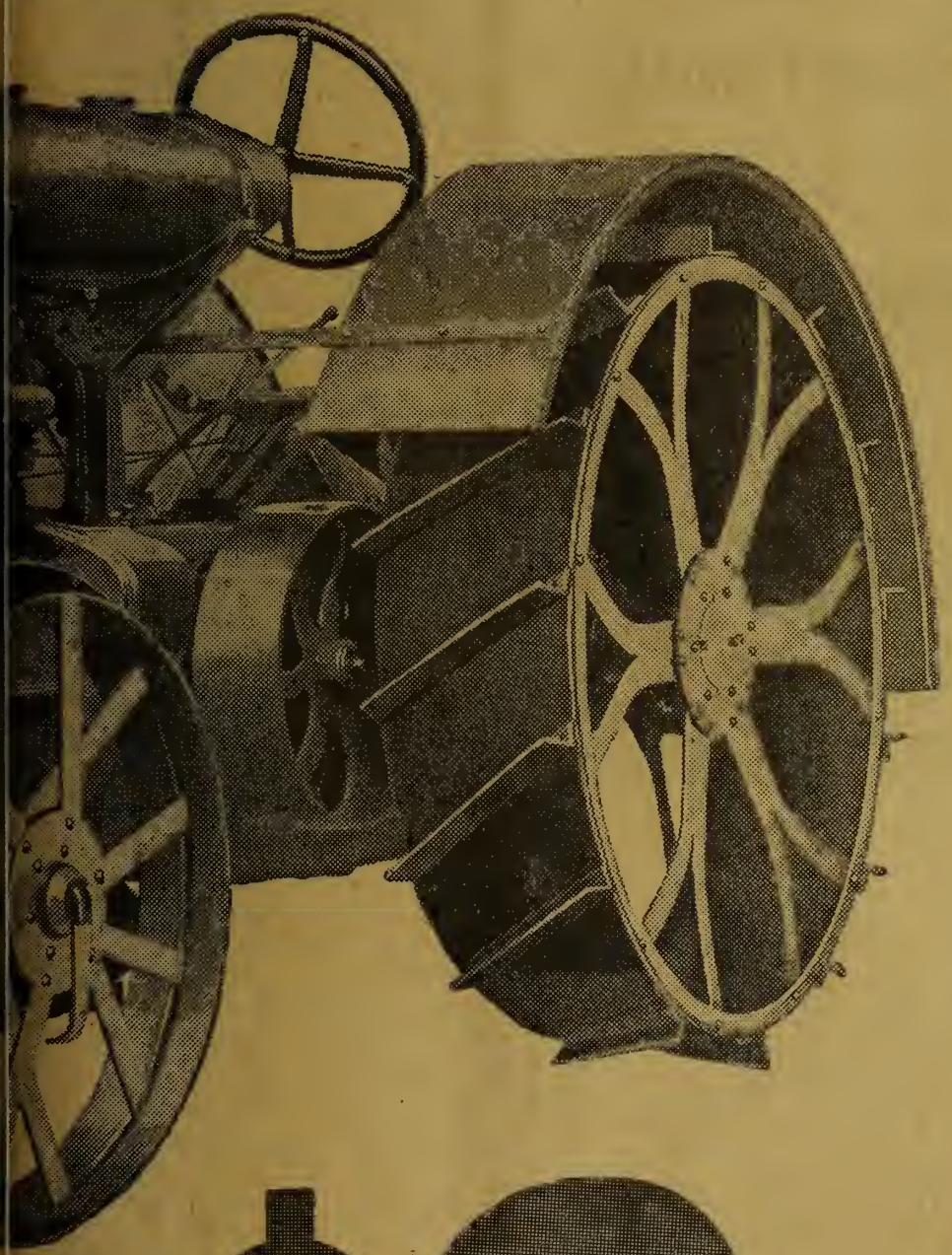
SAMSON TRACTOR COMPANY, 122 Samson Avenue, **JANESVILLE, WISCONSIN**

Division of General Motors Corporation

Manufacturers of Samson Trucks, Samson Passenger Cars, Samson Tractors and Samson Farm Implements

Here, Mr. Farmer, is the tractor that does not take a fortune to buy or the profits from your farm to maintain

Write for FREE Booklet



What the Samson Does:

Draw Bar

—will pull a two or three-bottom plow.
—will pull a tandem disc harrow.
—will pull two 20-foot spike-tooth harrows.
—will pull two 4-horse grain drills.
—will pull two 7-foot binders.
—will pull large road grader or do any other heavy-duty, draw-bar job.

Belt Power

—will handle any heavy-duty belt power job.
—will run a 22 to 24-inch grain separator.
—will run a 4 to 6-hole corn sheller.
—will run a heavy buzz saw.
—will run a heavy-duty grinder or ensilage cutter up to 14 inches.
—will run a centrifugal water pump for irrigation purposes.
—will handle stone crusher or large concrete mixer.
—will handle large hay balers and in fact will do any belt power job requiring steady, reliable power within the range of the machine, from morning till night.

Complete with Platform and Fenders, Governor, Power take-off, Brackets for Canopy Top and Regular Cleats.
Price f.o.b. Janesville, Wis., $340.
Price, f. o. b., Stockton, California, for Pacific Coast Delivery, $940.
Prices subject to change without notice.

$940

More Roughage in the Dairy Ration

The feeding value of corn silage, corn fodder and corn stover in the dairy ration is not sufficiently appreciated, especially in those regions where legumes do not thrive, says a specialist of the dairy division, United States department of agriculture. A recent study of records from cow testing associations points to the conclusion that the growing of more corn roughage and less non-leguminous hay would increase the profitableness of the ration.

In all sections where legumes thrive it is, of course, advisable to grow them, as their value is well recognized for feeding dairy cattle. In fact, from a study of cow testing association reports it would seem that even grain does not fully take the place of good legume roughage. It is in those sections where legumes do not thrive, however, that dairymen may well consider the growing of more corn roughage and less non-legume hay.

Cattle Thrive on Corn Alone

Few plants apparently contain all the substances required to nourish properly the animal body, but in the light of present knowledge the corn plant seems to be one of these. It is possible to balance a ration from corn products only that will enable the animals to thrive and reproduce with apparently no ill effects. This is not the case with any other crops. Corn, then, has unusual feeding properties.

Experimental work at the South Carolina and Pennsylvania stations has shown that it is practical under some conditions to feed dairy cows on a ration of corn silage and grain without hay. Such a ration has been used successfully in feeding beef steers. Reports from one cow testing association in a non-leguminous hay region having an unusually high income over cost of feed and large production per cow is in a district where the dairymen have practically discontinued the feeding of hay but instead feed silage and corn fodder. In this association the grain ration is also composed largely of corn by-products.

More Corn Roughage, Less Non-Legume Hay

No matter what other conclusions may be drawn from the evidence available showing the value of corn fodder and corn silage as dairy feeds, it seems certain that the corn plant provides an excellent roughage.

Hay is often damaged very much by becoming overripe. Storms damage it seriously. The feeding value of corn is not damaged by its becoming mature, and if it is properly shocked storms do little damage to it.

There are undoubtedly many dairymen who can well consider the wisdom of reducing the amount of non-leguminous hay produced, of increasing their pasture, and of growing more leguminous feed, corn fodder and silage to feed their dairy cows.

For the fourth time in its history the Roosevelt reservoir is overflowing.

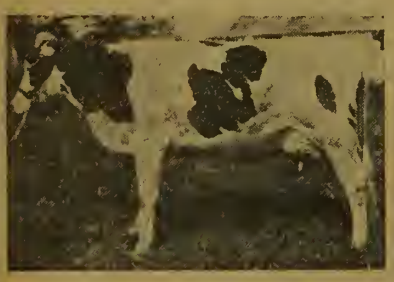
Do You Appreciate This Wonderful Opportunity?

Although never large in numbers, the herd of registered Holsteins owned by W. J. Higdon, Tulare, Calif, has for several years ranked among the very top herds of the breed in the world, a statement that is fully substantiated by the official production records of the Holstein-Friesian Association of America. Not only that but the herd has also stood right up among the leaders in the best show rings of California, and has a record of regular breeding and general good health that is not excelled by any herd in the state.

Now that this outstanding herd is to be dispersed at public sale, have you considered fully the opportunity that you have to secure foundation animals of the very first rank in this sale?

Think for instance of the 20 young daughters of Prince Riverside Walker that will be sold, the oldest milking with first calf, and with an official record above 22 lbs. butter in seven days as a junior two year old. Do you realize that these 20 beautiful heifers are granddaughters of that great producing and breeding cow Aaggie Acme of Riverside, who made 1,054 lbs. butter in one year at 12 years of age, she the dam of Aaggie Acme of Riverside 2nd, whose record of 1,331.78 lbs. butter in one year is the world's official record, she in turn the dam of the sensational heifer Miss Aaggie Acme Burke, who has just made 1,034.44 lbs. butter in one year as a junior two year old with first calf, and 24,338.8 lbs. milk which is a world's record. What a tremendous opportunity these heifers present for a breeder to go on with the blood of world's champions!

King Korndyke Pontiac 20th



THINK AGAIN of the sensational list of six cows and heifers in this sale with official records from 30 to over 36 pounds butter in seven days, bred in the purple, beautiful individuals, and in calf to one of the wonder bulls of today, KING KORNDYKE PONTIAC 20TH!

And Now About King Korndyke Pontiac 20th

KING KORNDYKE PONTIAC 20TH ranks today not only as one of the top bulls of the West, but also as among the very top bulls of the breed. His widespread popularity is due entirely to the unexcelled character of his breeding coupled with his own splendid individuality and proven worth as a sire. No bull that has ever been in service in the West has sired a more promising lot of calves, and his first two daughters to freshen prove abundantly the promise of his inheritance. His value as a sire is limited only by the opportunity that his new owner will give him, and it is an undisputed fact that bulls of his rating are so rare that a search of the entire American continent would uncover very few of his equals, and it is equally true that bulls of lesser quality have been changing hands readily at sums well up in five figures during the past year.

THREE SONS OF KING KORNDYKE PONTIAC 20TH, all out of 30 pound dams will be sold, each one a real herd bull, also a son of Prince Riverside Walker, out of a 32 lb. 3 year old that made over 755 lbs. butter and over 20,000 lbs. milk in one year as a junior two year old. And don't forget that good son of King Korndyke Pontiac out of a daughter of King of the Pontiacs that made 714 lbs. butter in one year as a senior two year old. This will be an offering of REAL HERD BULLS.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

Tulare Sale Pavilion, Tulare, Cal.

Wednesday, May 5, 1920

Everything in Mr. Higdon's herd will be sold except the young daughters of King Korndyke Pontiac 20th, which are being kept as foundation for a future herd. The offering totals.

55 Registered Holstein Cows, Heifers and Bulls

Catalog free on request to management

California Breeders Sales and Pedigree Co.

J. M. Henderson, Pres. C. L. Hughes, Sales Manager,
Sacramento, California.
Auctioneers—Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare.

NOTE:—Three of the twenty daughters of Prince Riverside Walker in sale are shown at left.

BUYS SELECT EASTERN SHORTHORNS

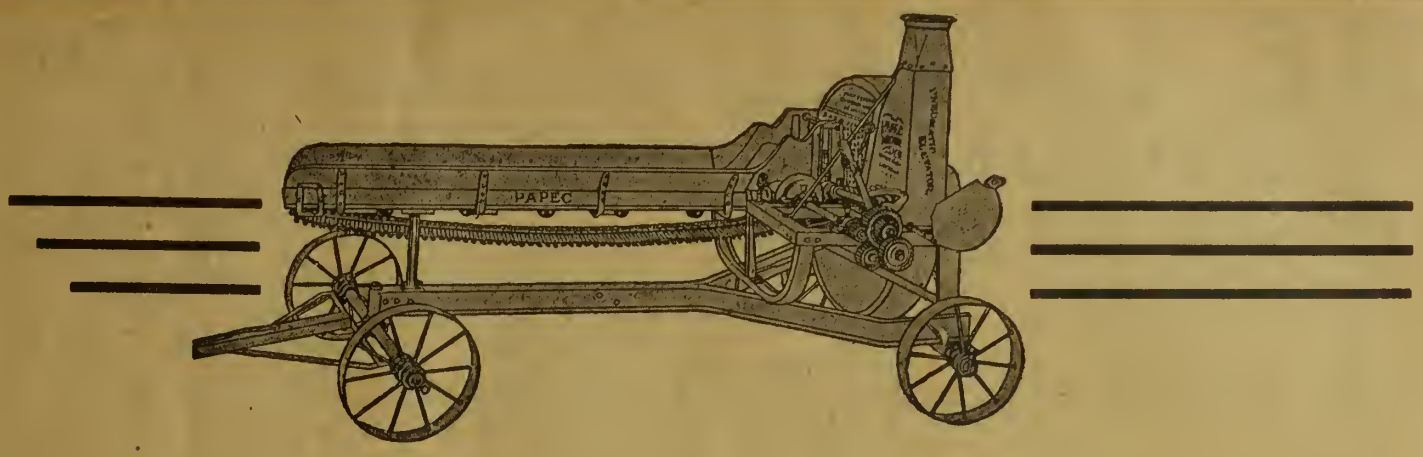
One of the most select shipments of Shorthorn females to enter this state has recently been received at the Ormondale Ranch, Redwood City. The lot includes five head that were selected by Frank W. Harding, secretary of the American Shorthorn Breeders Association. Three head were secured in the R. N. Marshall sale and include Snowball, a white daughter of Bessie's Count and out of Lady Narcissus. She has a roan heifer calf at foot sired by the popular imported bull, Gartly Lansdowne, and is rebred to the same bull. Gartly Lansdowne is generally rated as one of the best bulls in America. He was sired by Proud Wanderer, a bull that was sold for export to the Argentine for $5,000. His dam, Mary Ann of Lancaster 46th, is likewise the dam of Gartly Landseer and the granddam of Gartly Lancer, champion at the 1919 English Royal. Ramsden Queen, by Roan Winner and out of Ramsden Lady, also carries the service of Gartly Lansdowne as does Roan May by Golden King and out of Red May. Two two year old heifers were selected in the Rowland sale. They are Queen Generosity by a roan heifer by Royal Duke, and Orange Lassie by Orangeman. Both are bred, we believe, to Leslie's Royal, a son of Village Star, and regarded as one of the top young bulls of the East. The addition of such choice females to the herd that has but recently secured the imported bull, Boquhan Guinea Stamp, will mean much to the Shorthorn interests of this state. Ormondale Ranch is owned by J. M. MacDonough and is managed by James McDonnell. At one time the ranch was the home of the famous thoroughbred stallion, Ormonde, but of late years attention has been directed toward producing Shorthorns, and it was on this ranch that Little Sweetheart, grand champion at the last International, was born.

BUNTING MAKES IMPORTANT HEREFORD BUY

The Mission Hereform Farm, owned by John A. Bunting, Mission San Jose, has lately received a strong addition to the herd through the purchase of 21 head of females from the Packard herd in Arizona. Among the cows purchased are seven daughters of Beau Tempter, a son of Beau Brummel 10th. Beau Brummel 10th, a son of Beau Brummel, was largely responsible for the success of the Hazlett herd in Kansas. The Beau Tempter cows have great scale, are especially deep fleshed and have attractive fronts. There are three daughters of Perfecto, a son of Publisher; one, and very attractive, is by Don Perfect; one by Sir Simoon 10th; two by Rupert Donald; one by Palomas Erling, a son of Lord Erling; one by Woodford 2d; one by Royal March On, one by Patrician 22d, a grandson of Paragon 12th; one by Gay Lad 31st and one by Odessa Lad 10th. Nearly all the cows had calves at foot that were sired by either Bourbon Columbus or Beau Fairfax.

The above purchase increases the Bunting breeding herd to around 40 head and with the good cattle with which the herd was founded only a few short years ago places the Mission herd in a commanding position in Western Hereford affairs. It is Mr. Bunting's intention to gradually build his herd to around 75 head of breeding cows. A much larger number could be handled as the splendid pastures afford abundant feed but it is planned to handle fewer cattle in order to give them the care it takes to produce really good stock. At present arrangements are being made to send out a show herd to the fall fairs.

Burr Farm reports: We have a letter from R. F. Guerin of Visalia stating that S. V. K. P. Fidessa of Sunnyside has just made in seven days a record of 20.75 pounds of butter as a senior two year old. S. V. K. P. Aaggie of Sunnyside has made in seven days 20.1 pounds of butter and is still gaining. This makes Sir Veeman Korndyke Pontiac, five daughters of over 20 pounds in seven days as two year olds. He has three other daughters on test running over 16 pounds as junior two year olds.



Jack London Owned a PAPEC

The story of Jack London's life is more fascinating than any tale that ever came from his pen. Newsboy, sailor, adventurer in his younger days, he acquired a training that made him one of the foremost American novelists—the ability to judge quickly and accurately.

On his ranch in the Valley of the Moon he owned a Papec Ensilage Cutter. Out of a multitude of ensilage cutters he selected a Papec because, trained to see true value whether it be of man or machine, he was quick to observe the many advantages of the Papec over all other makes of machine.

The solid, semi-steel frame of the Papec that insures durability; the fact that it operates economically on as low as 4 h.p.; the six fans on the cutting wheel which removes all tendency of the cut ensilage to clog in the pipe.

Simplex Silos Are "Scientifically Correct"

These and many other advantages of the Papec made it Jack London's choice. We do not, however, ask you to accept his judgment. See the Papec for yourself. Compare it carefully with any other ensilage cutter you may have in mind. Note that every Papec feature is designed not merely to talk about but to make the cutting of ensilage cheaper and easier for the user.

We really want you to make this comparison. Find out all you can about ensilage cutters, including the Papec, before you buy. If you act upon this suggestion we do not have to urge you to buy a Papec. Your good judgment will do that. We are sure of this because of the great number of Papecs in actual use in California.

SANTA FE LUMBER COMPANY,
16 California St., Dept. A, San Francisco, California

Please send me folder describing Simplex Silos; also information about Papec Ensilage Cutters.

Name .....

Address .....

Santa Fe Lumber Co.

San Francisco

DE LAVAL

THE EVERLASTING CREAM SEPARATOR

There are thousands of voluntary letters in the De Laval Company's files, similar to this letter from Mr. Watkinson, of Iowa, bearing out the statements made in connection with the long service of De Laval Cream separators.

In fact, by averaging up the years of use, it has been found that the average life of a De Laval is more than 15 years; and that during that time they have required little attention or repairs, and have produced the highest possible quantity and quality of cream with the least time and effort.

"My De Laval Separator has been in use about seventeen years and is doing just as good work today as when I bought it. I think it is good for ten years longer. With butter-fat at present prices no one can afford to use a cheap machine.

"When looking around to see what kind of a separator to buy I found that all the creameries in our vicinity were using the De Laval. The thought struck me, what is good enough for the creameryman is good enough for me, and my experience proves I made no mistake."

Ed. Watkinson

That is why there are more De Lavals in use than all other makes combined. Sooner or later you will buy a De Laval.

The nearest De Laval agent will be glad to demonstrate a De Laval. If you do not know his name, write to nearest De Laval office

De Laval Dairy Supply Co.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

61 Beale Street, San Francisco, Cal.

50,000 Branches and Local Agencies the World Over

TESTIMONIALS

"Cows increased in one week 3 per cent in milk."
A. L. McCULLOCH, Alpaugh, Cal.

"I never saw hogs do so well or grow so fast as on this molasses ration."
C. H. HARTWIG, Yuba City, Cal.

"It has enabled me to keep my stock in better condition at less expense."
J. M. HENDERSON, JR., Sacramento, Cal.

"Have one calf that refuses to drink new milk—prefers skimmilk with molasses. What do you know about that?"
R. HECKLEY, Santa Rosa, Cal.

"It has been a great advantage in getting the stock to clean up the roughage."
H. H. AMES, Chowchilla, Cal.

"One cow will turn down the choicest handfuls of alfalfa hay unless it has been 'Molassed'."
REDWOOD AYRSHIRE FARM, La Honda, Cal.

MOLASSES

cheaper than hay, but has same feeding value as corn or barley.

W. H. YOUNG COMPANY

58 Sutter Street San Francisco, Cal.

Livestock Auctioneers — Hammond and Bradley

Effective team work is the big feature in the popular public ranch and livestock sales being conducted under our management.

We get the high dollar for our employers first, last and all the time.

Spirited block and ring work are the one best bet for the man who puts his property into a public sale ring.

Write or wire for dates, terms, etc.

Office 1053-55 South Main St., Los Angeles Phone 63545

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

When Writing Advertisers, Mention the Cultivator.

NO SOLUTION

When fat cattle are selling for less per hundred weight than they cost as feeders the old question is sure to be asked, How can we get feeders at prices which will make cattle feeding a safe business? We have no answer to this question. The feeder cattle were bought on the open market and the price was made by competition of feeders with each other and with slaughterers. Philosophers who have no cattle on feed may suggest that such shocks as the business is now suffering are very useful in making feeders more cautious another year, which may be true but is poor consolation to the man who has nothing but a manure pile to show for his corn crop. We have seen several plans to make cattle feeding a safe business every year but have never found one that would work. As long as most feeders must buy their cattle in the fall and sell them before the crops require attention their competition with each other on both ends of the deal will make the business risky. The only way is to feed cattle every year and average the profits and losses, feeding whatever class or kind seems likely to allow a margin. Those who have followed this system have done best, though part of the time they haven't been able to take much pride in the quality of their cattle. Anybody got a better solution of a hard problem?—National Stockman and Farmer.

CALIFORNIA CATTLEMEN'S NOTES

Cattle feeders in California have suffered considerable loss during the last winter. The sudden drop of the market in March, which is usually the highest month of the year, wiped out the profits and left feeders with a deficit to show for their investment, and a winter of worry.

Fred H. Bixby, president of the California Cattlemen's Association, submits figures on an 80 day feeding of 60 head of steers. Mr. Bixby lost $22.63 per head, or a total net loss of $1,355.90. The steers were fed on Mr. Bixby's ranch. The figures speak for themselves.

Bought 60 steers, weighing 54,660 pounds, at 10 cents, $5,446; an average of 908 pounds each; an average cost of $90.80 each.

Feed. 56,700 pounds cut hay at $35 a ton, $992.25; 489 sacks of beet pulp at $45 a ton, $1,100.25; 472 sacks cottonseed meal at $68.87, $1,625.33. Total cost of feed, $3,717.83.

Average cost per head for feed, $61.96.

Sold 60 steers, weighing 69,995 pounds, less 3 per cent shrink, leaving net 67,895 pounds at 11½ cents. Total $7,807.93.

An average of 1,131 pounds each net, or average of $130.13 each; average gain of 223 pounds each; average gain of $39.33 each net.

Cost per head for feed, $61.96; gain per head, $39.33; net loss per head, $22.63.

Net loss on 60 steers, $1,355.90.

The ration for these steers was as follows: Hay (cut), 11.8 pounds per day; beet pulp (dry), 10.2; cottonseed meal, 9.8.

Total cost of feed, 77 cents per day; labor cost, 3 cents. This feed cost is reduced slightly by the value of the fertilizer secured.

GRANDDAD'S COW

The American Milking Shorthorn Breeders Association is issuing a booklet with title, "Granddad's Big Red Durham Cow, a Tale of the Milking Shorthorn." Like the city which couldn't be seen because there were so many houses in it, this is a booklet which cannot be read because there are so many pictures in it. It is almost exclusively made up of illustrations of great producers of both milk and beef. Secretary Roy A. Cook writes that the association now has 825 members in the United States and Canada who are breeders of milking Shorthorns. We believe the book will be mailed to anyone writing for it to Roy A. Cook, Secretary Milking Shorthorn Breeders Association, Independence, Iowa.

For the Prevention of ANTHRAX

Of all livestock diseases, anthrax is one of the most fatal.

For the preventive and curative treatment of anthrax we offer

ANTHRAXOIDS

(Spore Vaccine)

For immunizing cattle, horses, sheep and mules.

Anthraxoids are Anthrax Spore Vaccine in pill form. Each Anthraxoid is a dose ready to be injected under the skin of the animal.

Antianthrax Serum

A serum to be used when animals show symptoms of anthrax.

Anthraxoids-Antianthrax Serum

(Simultaneous Treatment)

Double vaccination with serum and vaccine. Used when anthrax is established or suspected to be in a herd.

Write for free booklet on the Prevention of Anthrax.

CONSULT YOUR VETERINARIAN

ANIMAL INDUSTRY DEPARTMENT OF

Parke, Davis & Co.

DETROIT, MICH.

Bunting's Mission Herefords Are Profitable

They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.

JOHN A. BUNTING
Mission San Jose Calif.

Veramont Hereford Bulls

VERAMONT HEREFORDS scored $975 top and $537.50 average for 8 head at our Davis Sale. Prince Patrician, the top, and three others sired by Patrician 5th.

This splendid grandson of Paragon 12th and Lord Erling is proving a wonderful breeder. Watch his get at future sales and shows. A few more bulls for sale. Address:

H. M. BARNGROVER
Santa Clara Cal.

DIAMOND G HEREFORDS

A few choice young bulls, Big, heavy boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.

H. H. Gable Esparto, Cal.

Beef Cattle Specialist

For 30 years I have been devoting my entire time to pure bred beef cattle. I know where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited. R. M. DUNLAP, Hotel Land.
Sacramento, Cal.

Westrobac

Los Angeles, Calif. 618 So. Spring St.

San Francisco, Calif. 440-442 Sansome St.

Better service is assured by the advertiser when writing you mention the California Cultivator.

FINEST MILK IN THE WORLD

Dr. J. P. Bushong of the department of health of the city of Los Angeles has issued statement as to samples of milk which have been collected from milk dealers in Los Angeles. These samples were taken from the wagon while making the regular rounds, hence gave indication of the character of the milk being delivered. Dr. Bushong says:

"The samples collected during the week were averaged with all other samples obtained during the last four months, and each dairy's milk given a rating on a milk score card adapted by the dairy division of the United States bureau of animal industry.

"This score card allows 100 points for perfect, of which 35 points are for bacterial count, 15 for flavor and odor, 10 points for absence of sediment, 15 for butter fat, 15 points for solids not fat, 5 points for acidity, and 5 points for bottle and cap.

"The dairies are averaged in five classes; certified, guaranteed, pasteurized, raw, goat milk."

The milk from only two dairies is reported on in the certified milk class. This is raw milk produced under the supervision of the medical milk commission. The bacterial limit is 10,000 per c. c. These dairies are Arden with a score of 96.6 and Adohr Stock Farms with 95.8.

In the guaranteed class there were also two dairies. This is raw milk guaranteed by the producer with a written permit from the health commission of the city, the bacteria not to exceed 25,000 per c. c. These two dairies are Elliott Brant Ranch, 95.9 and Los Angeles Creamery, 93.5.

The grade A raw milk was represented by a vastly greater number of dairies, in fact there are an even 50 running above 79.2. Thirty-seven of these dairies produced above 90 per cent milk. These dairies in order of percentage are:

Walter Williams, Liberty Dairy, A. Kravchyk, Archey Dairy, Brandt Dairy, Reynolds dairy, Mt. Washington Dairy, Triangle Dairy, Glen Oak Dairy, Brentwood Dairy, Rose Dairy, H. Davis, Jersey Dairy, Owl Dairy, Miller Dairy, Little Lake Creamery, W. D. McCarger, Fair View Dairy, Lorena Heights. Angelo Dairy, Sawtelle Jersey, Wm. Cobleigh, Hunter Dairy, Shubin Dairy, Arlington Heights, Nielson's Dairy, Hollywood Farms, F. Feito, Meadow Gold Dairy, Southwestern Dairy, Silver Lake Dairy, Four Mile House, Hollywood Dairy, Culver City, Moneta Jersey Dairy, Mizera Dairy, Hobart Ranch Dairy.

Grade A pasteurized milk was largely from creameries with commercial delivery routes, but the markings, all but one, 90 or above, and the highest, 96.2, show that Los Angeles is getting the purest milk of any large city in the world.

Goat milk is classified in Dr. Bushong's report and scored under the same requirements as to bacteria as grade A raw milk.

Report is made from three of the goat dairies. Scottwood Dairy, 95.1; Goat'airy, 94.8, La Corona, 91.7.

MANGE AND LICE IN HOGS

At this time of the year various forms of animal parasites are likely to attack livestock. Lice and mange parasites are generally more active at the end of the winter season when the vitality of the animal is low.

Mange or lice in hogs should not be permitted to go unchecked. Either of these diseases may be overcome by the persistent use of dips. The mange parasite should be dealt with by use of lime and sulphur or arsenical dips, which are familiar to all stockmen. Three or four dippings, six or seven days apart are generally necessary to eradicate mange. Lice can be overcome by dipping with crude oil or some of the coal tar dips. The latter are especially good, due to the fact that coal tar dips are also disinfectants and destroy bacterial life as well.

Some good hog men dip their hogs in the spring of the year to insure getting rid of any skin parasites. The creosote seems to have a beneficial effect upon the skin, giving the hair a glossy and healthy appearance. It is also good policy, when purchasing a few new hogs to add to the drove, to dip them in a coal tar dip, thus eliminating the possibility of carrying infection.

DON'TS FOR GOATMEN

Don't fail to provide shelter to protect them from cold wind, snow and rain.

Don't fail to give them plenty of salt at least twice a week; better yet every day and in such quantities as they will clean up every night. The every day salting will induce them to come to shelter every night, thus protecting them from "varmints" and dogs.

Don't put salt where they can trample it. They will not eat anything unclean.

Don't mix them with cattle, horses or mules. Larger stock is liable to hurt them, especially in small quarters.

Don't let several hundred make a run through a narrow door or gate, to shelter, salt or feed; better have a man with a dog stand near the gate and keep them back.

Don't allow pregnant nannies to browse on green pine needles; it may cause them to abort.

Don't feed grain in large quantities until they have been on short rations for several days. Begin with small quantities, increasing gradually.

Don't fail to dip them for lice at least twice a year.

Don't run over 1,000 head in one flock.

Don't start with inferior stock.

Don't forget that they are brush killers.

Don't overlook the fact that they will soon make old, worn out land fertile.—Angora Journal.

GROW THEM AT HOME

The United States imported every year from 1913 to 1917 nearly $1,000,000 worth of goat skins. This half billion of dollars sent out of the country, almost half of it going to India, should be kept in the United States. But this does not begin to tell the story because government valuations are based on value in countries from which they were exported.

"What Are We Food Producers Going To Do About It?"

A Problem for the Dairyman

IN an article recently published in "The Milk Magazine", Professor Washburn of the University of Minnesota, after discussing the food value of skimmed milk and the large amount of this good human food that fails to reach humanity directly, says:

> *"What are we food producers going to do about it? Continue to waste or invent some better way of using the skimmed milk? Some of it is being well-used on farm-tables, though not by any means as much as should be; some amounts may be used as artificial buttermilk and as cottage cheese, but after all this is done, there still will remain great amounts of the most delicate and useful food with but a poor outlet."*

What This Means To You

THIS pertinent question, asked by a Dairy Expert, through the medium of a Dairy publication, shows that thinking dairymen are beginning to recognize the serious situation—that over one-third of their total output of human food substance is not being utilized as such, and therefore is failing to that extent in benefiting humanity and profiting the dairyman.

Professor Washburn in his article calls skimmed milk "liquid lean meat" because of its likeness to meat in its food value. He then shows that when skimmed milk is fed to stock, only 15 to 20 percent of its food value is returned to humanity in the meat of the animal.

In other words, the dairyman who feeds skimmed milk to stock spends 100% of human food to get back 15 to 20 percent of human food.

Is this good business?

To state it in terms of money—should you spend $100 to get back $15 or $20?

There is but one answer to this question. That is, skimmed milk should be used directly as human food, and a market value established for it as such, if the dairyman is to realize the greatest profit and humanity the greatest benefit from this valuable food.

Skimmed Milk as Human Food

TO do that, a market for skimmed milk as a direct human food must be created. But skimmed milk in its natural state is not a palatable food because of its lack of fat content.

To make it desirable for human use, then, a fat must be restored to it. Obviously butter fat cannot be used. Why not then use a wholesome vegetable fat?

"But that would not restore it to the equal of whole milk in food value", you say. No it would not—but it is not desired to create an article that will compete in the market with whole milk as a direct food.

That brings us, then, to the question of use.

Skimmed milk, with a vegetable fat added, is particularly useful for culinary purposes in the home.

And there you have it. Skimmed milk with a small amount of vegetable fat added would *serve as an auxiliary to the family milk supply for cooking and baking,* and establish a new market for skimmed milk as a human food.

The new food product Hebe, which is composed of evaporated skimmed milk and cocoanut fat, scientifically combined, does just that.

Hebe Points the Way

TO make 100 pounds of Hebe it takes 210 pounds of skimmed milk and 7.8 pounds of cocoanut fat. Thus a small amount of vegetable fat serves as the agent for making a large amount of skimmed milk more desirable and therefore more readily salable as a human food product for cooking purposes.

Hebe thus points the way to utilize as human food the skimmed milk that is now being less profitably used, and it does this without interfering with the established markets for dairy products.

Hebe, then, is an ally to the dairy industry—opening a new and more profitable market to the dairyman for his by-product, skimmed milk—and co-operating in the effort for the increased use of dairy products in the home.

Indirectly, every dairyman profits by that which benefits the industry as a whole. As Hebe volume increases, there naturally will follow the extension of direct benefits.

You will be interested in reading our booklet, "The Missing Third." Ask us to send you a copy. There is no charge for this. Address 2473 Consumers Building, Chicago. The Hebe Company, Chicago and Seattle.

First Sale

of

Milking Shorthorns

on the Pacific Coast

at

Thomas Harrison's

Santa Rosa Stock Farm

Santa Rosa, California

Sonoma County

Wednesday, May 5, 1920

All registered in American Shorthorn Herd Book. All tuberculin tested.

15 Tried and True Matrons

8 Promising Young Bulls

12 Choicely Bred Heifer Calves

15 Two Year Old Heifers

bred to

Foothills Corporal Count Tickford Foothills Pioneer

Count Tickford is a son of Kelmscott Viscount. Foothills Corporal, the Pacific International Champion, is included in the offering of bulls. He alone would be worth the trip. There will be daughters of the grand champion sires, Foothills Pioneer and Foothills Corporal.

50 HEAD 50

This is the first opportunity for the breeders on the Pacific Coast to secure Miking Shorthorns at public auction. The Harrison Herd has been before the public many years and the enviable record made in the show ring as well as the official records made in milk production stamps this offering as one of unusual merit and should be eagerly sought by those anxious to secure breeding stock suitable for the upbuilding of their herds. J. P. Bennett, representing the Cultivator.

50 HEAD 50

ALL TRUE DUAL PURPOSE TYPES. Many Prize Winners at the California State Fair and Pacific International.

JUDGE FINLEY McMARTIN, who saw the show herd at Portland, accorded them the highest praise.

THE CATALOG

is full of interesting and valuable information to those who want to know more about real dual purpose Shorthorns. Write for catalog, mentioning the California Cultivator, to

Thomas Harrison

Santa Rosa, Cal.

Santa Rosa Stock Farm is easily reached on the Southern Pacific from San Francisco and Sacramento

If you can not attend the sale send bids to Auctioneers Harry C. Cranke and Snook & Leachman in care of Thomas Harrison.

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

May 5, W. J. Higdon, Tulare.
May 6, R. C. Sturgeon and others, Tulare.
May 12, Leeman & Kilgore, Dispersal, Ripon.
June 17, C. W. Anderson, Burbank. Dispersal.

Milking Shorthorns

May 5, Thos. Harrison, Santa Rosa.

Duroc-Jerseys

July 21, Elmer Lamb, Ceres.

A big combination sale of Durocs and Hampshires is an event being planned for early summer by the Conejo Ranch.

Up in Glenn County the sheep men have worked out a successful plan for ridding the county of coyotes. Members of the Glenn County Sheep Breeders Association are assessed ten cents per head. The fund thus collected is used to provide an extra bounty on the coyotes killed. The county pays $5 per coyote and the association pays $10. During the past year between 25 and 30 coyotes were killed.

Harvey M. Berglund, Dixon, has had nine Duroc sows farrow a total of 98 pigs, an average that he considers highly satisfactory. Berglund has recently sold to H. H. North, Dixon, the aged Duroc boar, Orion Model. It will be remembered that this boar was used by Elmer Lamb of Ceres and later by the Burr Farm, Orland. Mr. North also selected a mature sow. W. T. S. Hadley of Upper Mattole purchased a boar and a sow pig from the Berglund herd.

The sale of Polled Herefords, scheduled to be held at Fresno, May 5, has been postponed until some time in June. The reason for the postponement was the threatened railroad tie-up making it uncertain that the shipment could be sent from the East.

In a letter just received from W. F. Sandercock, owner of the Natomario herd of Berkshires, Sacramento, he says: "You will be interested in knowing that I have just received a very fine young boar from N. H. Gentry of Sedalia, Missouri. The name of this boar is "Baron Duke 226th" and he is of the same breeding as the national grand champion, Baron Duke 201st, formerly at the head of my herd. Baron Duke 201st pigs are so good I wanted to continue the blood lines, therefore I gave Mr. Gentry an order to select a boar for me that would be a proper successor to Baron Duke 201st. I told Mr. Gentry that I was willing to take a boar that he might select, and I did not put any limit on the price. This boar has the same characteristics as the old boar, heavy loin, wonderful hams, big bone, and George Murphy says that he has lots of feeding quality."

Recent reports from the cornbelt disclose the fact that Williams Brothers, Villisca, Iowa, recently sold their main herd boar The Yankee for $40,000, the highest price ever paid for a big type boar. The Yankee is the sire of Yankee Jr., owned by John Bernstein, Hanford, and like his illustrious sire is stamping his individuality upon his offspring.

M. Bassett and Son, Hanford, have two choice litters from sows bought in the cornbelt during the past winter. One is by Apex, the Halford boar, and the other by The Rainbow. The last named litter are of rather late farrow, but are so typey they court comparison.

W. L. Haag and Son, Hanford, have great faith in the future of their young herd boars, Skyrocket and Lendorris Liberator. Both are making a great growth and will be used to assist Lendorris Liberty Bond and will help maintain the high standing of the herd.

J. P. Walker, Visalia, is very proud of the litter by Ace of Pathfinders and out of Orion's Crimson Lady, the fall yearling gilt he purchased from the Diamond Bar Ranch for $1,500. The pigs have unusual size and stretch and are of the strictly modern type.

A. J. Elliott, Tulare, has one of the largest September boars in the state in Hercules Jr. by Hercules and out of a Mc's Big Orange sow. He is a

In This Column Every Week

HEALTH
FAMILY — A Square Deal in Holsteins — QUALITY
PRODUCTION

OUR FIRST Semi-Annual Private Sale

Not an auction but an opportunity to make selections in a careful leisurely manner from list soon to be prepared by

Toyon Farm Association

Mills Bldg. San Francisco

These offerings are the result of five years of collection and breeding with type and health always in mind.

Small Foundation Herds

Bulls and heifers bred to our phenomenal yearly record bulls.

FREE FROM TUBERCULOSIS

Animals purchased from us will have every advantage from the future development of their families in our herd.

Remember a Federal Certificate of Health With Every Animal We Sell

If this means anything to you write us!

WRITE US NOW!

Get On Our Mailing List

If the bull is half the herd, the cow is the other half. We have both to offer you.

HEALTH
FAMILY — A Square Deal in Holsteins — QUALITY
PRODUCTION

half brother to The Giant, one of the best sow sires ever used in the corn-belt. This promising young boar and three litter sisters are Mr. Elliott's lineup for a young herd at the state fair.

Owing to poor health, Elmer Lamb of Ceres has found it necessary to disperse his herd of Duroc-Jersey swine. Wednesday, July 21, is the date selected. At that time he will sell about 75 head, of which 40 will be bred sows and gilts, including Mary Jane Pathfinder, junior champion at Sacramento in 1918, and many other excellent show prospects of various ages.

Stanislaus County is to have a boys' pig feeding contest this season. Through the help of Col. Cy Clark and others this has been made possible. The club at present is to be handled in a small way, only ten boys will be allowed to enter. At the close of the contest the five boys making the best record will be given free trips to Sacramento and Davis.

In announcing the death of Dolly Copeland 42389 at the age of 20 years lacking a few days, the American Aberdeen-Angus Breeders' Association calls attention to the records of the breed in general for longevity and prolificacy. Dolly Copeland, dam of Glenfoil Thick Set 2d, four times an International champion bull, a champion cow and at least one champion steer, died as the result of an accident on the farm of Mike Donohoe, in Iowa, in December when she slipped on the ice and broke her hip. She is the dam of at least 18 calves, possibly 19, never having missed a year without turning in a calf and a good one at that, to pay for her board. The records of the association show 10 calves recorded, but many of the bulls were castrated and shown as steers, especially in the hard times.

Shorthorn cows average 1,146 pounds of milk and 46 pounds of butterfat, an average test of four per cent for the month of February, for the 22 cows making 1,000 pounds of milk or 40 pounds of butterfat, as reported to the Milking Shorthorn secretary, Roy A. Cook. Milking Shorthorn breeders make a profitable yield of milk and a profitable production of beef from their cattle, maintaining a utility type that, while not equaling the special purpose dairy cattle in milk yield, nor the beef alone cattle in beef form, affords a type much in favor with the general farmer.

The number of breeding sows in California on April 1 was estimated by the department of agriculture to be 90 per cent, as compared with April 1, 1919. In the United States the number was 90.1 per cent, as compared with April 1, 1919. Doubtless this decrease can be attributed to a decrease in price of fat hogs and an increase in cost of feed and farm help, thus making the price received by the grower less than the cost of production.

Linn County, Oregon, will hold its county fair at Albany the week of October 4.

A NEW 40 POUND COW

Sadie Gerben Hengerveld De Kol, a purebred, registered Holstein-Friesian cow owned by R. M. Harriman of Wisconsin, has added her name to the honor roll of milk and butterfat producers of remarkable achievement.

This superb cow, according to the preliminary report sent out from the office of the superintendent of Advanced Registry for The Holstein-Friesian Association of America, has been reported to have given under official A. R. O. test in seven days 782 pounds of milk of an average butter fat test of 4.09 per cent. This expressed in terms of butter would equal 40.04 pounds. She was continued on test and reports show her to have produced 3,247.5 pounds of milk, which if converted into butter would make 157.54 pounds.

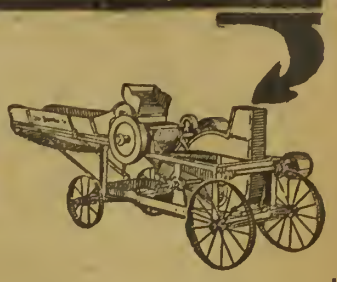
At the time of freshening, January 23, Sadie Gerben Hengerveld De Kol was eight years, two months and 22 days old. This official test began February 5 and was supervised by five different supervisors in addition to Mr. Harris, the superintendent of official testing for the Holstein Association in Wisconsin, who was present part of the time.

Sadie is a large, strong animal, weighing 1,750 pounds, and the only four generation cow in the world, each of which four generations have milked 103 pounds or more of milk in one day, and averaged 106.8 pounds of milk in one day, and 744.3 pounds of milk and 32.43 pounds of butter in seven days.

Sadie Gerben Hengerveld De Kol

Here Is The Alfalfa Cutter You Have Been Looking For

ACME



Silo Filler, Hay Chopper Alfalfa Meal Machine

Try feeding chopped hay this year. Bulk feeding is wasteful. From 10% to 30% (and more in some cases) can be saved by running your hay through an Acme Feed Cutter and blowing it into the barn—an average saving of $6 on every ton you feed.

Chopped hay will feed more cows, takes less barn space than bulk hay, is easier to handle and will all be used as feed—none wasted. The Acme meal attachment produces a finely chopped alfalfa meal that will take the place of the bran ration.

Experienced users prefer the cylinder type for its greater efficiency. Our CUTTER CATALOG tells why the Acme is the BEST of the cylinder types. Send for a copy and sample of Acme-made alfalfa meal.

De Laval Dairy Supply Co.
San Francisco

Registered Hereford Bulls
We have a few choice bulls from one to three years old for sale.
Our Breeding Herd was purchased from the most noted breeders of the Middle West, and are of Anxiety Breeding.
E. A. Noyes & Son, Sutter, Cal.

ALAMO HERD
(Founded by the Late Gov. Sparks)
Registered Herefords
Herd and range bulls reasonable. Largest Hereford herd in California.
W. D. Duke, Gazelle, Siskiyou, Co., Cal.

Hereford Farms
Geo. Watterson, Owner
Bishop, Inyo County, Cal.
Anxiety, Repeater, and Bonnie Brae breeding. Bred and raised on mountain range.

When Writing Advertisers, Mention the Cultivator.

Southern California Breeders Spring Sale
100 REGISTERED HOLSTEINS
Rhoades and Rhoades Sale Pavilion, Clearwater, Cal. Tuesday and Wednesday, April 27-28

Contributors to Sale:
W. D. MILLARD, Arcadia. (Complete Dispersal).
P. H. KRICK, Anaheim.
AGEE BROS., Rivera.
BURR FARM, Los Angeles.
BOST & JOHNSTONE, Compton.
CHAS. S. HARRINGTON, Corona.
W. T. McALLISTER, Los Angeles.
STALDER BROS., Riverside.

The highest class lot of registered Holsteins ever offered in a consignment sale in Southern California has been the aim of the contributors to this sale.
A feature of the offering is the large number of granddaughters of four of the greatest cows of the breed, Pontiac Clothilde De Kol 2nd, Aralia De Kol, Riverside Sadie De Kol Burke, and Tilly Alcartra, each of which has made from 1,085 lbs. to over 1,300 lbs. butter in one year, each of which has made from 30 to 40 lbs. butter in seven days, each of which has broken one to several world's records. You lay your foundation solidly when you buy this blood.

W. D. Millard Disperses His Herd

The entire high class herd owned by W. D. Millard will be dispersed in this sale, including his royally bred young herd sire KING PAUL KORNDYKE VALE, who is by King Korndyke Sadie Vale, the only son of a 40 lb. cow to sire a 40 lb. daughter. His dam is a 31 lb. daughter of Sir Sadie Cornucopia, one of whose sons sired the only 40 lb. cow that has been reported for more than a year. This bull is worth a fortune to the owner of a high class herd who will give him an opportunity.

Other Consignments Are High Class

Every consigning breeder is putting up good cattle in this sale, in each case some of the very best in the respective herds, and buyers of foundation stock will find in the offering an especially well bred selection, with a wealth of yearly and high short time record breeding, with a spiendid lot of high class females in calf to outstanding bulls.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; NO ANIMAL TUBERCULIN TESTED.

Auctioneers:
COL. BEN A. RHOADES,
HAROLD B. RHOADES,
Los Angeles.

Management
California Breeders Sales and Pedigree Company
J. M. Henderson, Pres. C. L. Hughes, Sales Mgr.
Sacramento, California

Facts in BLACK & WHITE

Long-lived Purebred Holstein Cows

Leave out of consideration the greater direct cash return and Holsteins are still the best investment you can make. Great strength and constitutional vigor make the typical Holstein long-lived, free from disease and sure to produce many healthy calves. A thirteen-year-old Holstein owned by the Kansas Agricultural College finished a year's record of 15,773 pounds of milk and 513 pounds of butterfat. This record indicates the dollars and cents value of Holstein vitallty.

Send for free Illustrated Booklets. They contain valuable information for every Dairyman.

THE HOLSTEIN - FRIESIAN ASSOCIATION
120 Hudson Street
Brattleboro, Vermont.

Quality Holsteins

Our herd is headed by a grandson of the world's greatest dairy cow, Tilly Alcartra,

Sir Aaggie Korndyke Alcartra

whose dam and sire's dam average:
Butter, one year..... 1096.58
Milk, one year.....27316.80
Females and bulls from A. R. O. dams for sale
All animals guaranteed

Leeman & Kilgore, Ripon, Calif.

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Feed the Young Things

By R. P. Royce

DURING the present season there will be a larger number of pure bred calves and pigs born on the ranches of this state than in any former year, and in a measure, the success or failure encountered in developing the new crops of young things will largely determine the destiny of many men as breeders.

Without doubt many purchases have been made by beginners who imagine that the production of livestock is pretty much a rule of thumb proposition. It is not.

Generally speaking the greatest single source of failure with initial purchases of registered livestock lies in the inability of the owner to properly develop his own productions or to satisfactorily complete the development of stock purchased young.

Development is largely a matter of feeding and care. It is therefore essential that the beginner thoroughly govern himself in a knowledge of the fundamental requirements for the care of young livestock—and the principal object is growth. Without satisfactory growth one can not hope to compete with those who do grow out their young things.

The inheritance back of our animals, the selected and fixed qualities representing the accumulated work of generations of breeders, furnish the groundwork on which to build. It is for that reason pure bred livestock of all kinds is urged as being more efficient than stock of indifferent breeding. Since the dawn of improved livestock a constant effort has been made to select out and propagate those individuals that seemed to possess in the highest degree qualities that come nearest to meeting the demand of the time, whether meat production, milk production, wool production or work. That the work has been well done is evidenced by the superior examples of our established breeds, but the mistake should not be made of assuming that present day perfection has been accomplished without regard to proper feeding. As a matter of fact it is axiomatic in livestock affairs that every great breeder has been a great feeder. That fact has been true in the past, it is true today and will hold true in the future, and until one realizes the importance of feeding he will do well to stay out of the livestock business.

Time and time again the writer has heard men express disgust with the idea that pure bred livestock is more efficient than the scrub—and they point to their own failures as proof. The evidence they submit is usually an indictment of their own ability rather than their livestock. Nine times out of ten they failed because they had proceeded on the assumption that if it was true that pure bred livestock was more efficient than the scrub, then it should justify the claim by proving that it could develop on less feed than the scrub—when heaven knows the scrub was getting little enough.

Advises Ranchers to Stay in Hog Business

IN a recent letter to the editor, A. D. McCarty, president of the California Swine Breeders' Association, offers some mighty sound reasons why the ranchers of this state should stay in the hog business. Mr. McCarty says:

Practically every man growing livestock has not only had his ear to the ground during the past few months, but he has been trying to read the stars as well to determine what the future has in store for him.

The farmer raising hogs has had to possess a good deal of nerve to stay with the game in the face of high prices for feed and uncertain hog market. It has been my experience that the man who starts in the business when the prices are high and gets out of it when the conditions are not the most favorable is the man that has the most company but not the man who profits most.

I have felt pretty firmly convinced during the past few months, when I hear of everybody cutting down their herds, of farmers selling off their hogs because of high price of feed, that the farmer, and breeder as well, who stays in the game will surely profit in the end. I think it is a well known fact that the farm bureau sales over the state show a rapidly decreasing number of hogs. In localities where they were able to secure four or five cars of hogs for these sales they now have difficulty in securing one or two.

I had a talk with the representative of one of the eastern meat packers today. After he dwelt upon the grief of the packer at some length, explaining that their export market had been cut off; that some cargos on reaching the shores of England were refused and turned back on account of the low exchange rate; that their cellars were stocked with cured pork to supply all their requirements until August 1, he said: "But as a hog raiser, this does not need to worry you, as the price of live hogs on the Chicago market seems to be getting stronger all the time." When I asked him how he explained, if their cellars were full and they did not need pork, why they were paying a higher price for hogs, he replied that their stock on hand consisted of the cured cuts, hams and bacon, principally the latter; that they were finding it difficult now to get enough hogs to supply the cuts for the every day market in this country; and if I have followed the situation carefully that is the only point that the farmer and hog raiser needs to take into consideration. The live pork is not in the country to supply the demand this time next year when we could expect mighty good prices for pork on the hoof.

I have before me a report issued by A. M. Nelson, development agent, Imperial County, El Centro, just issued. It is headed "Increase in Livestock, Crop Acreage, and Property Values in Imperial County." An analysis of this report is most interesting.

The alfalfa acreage has increased from 32,703 in 1910 to 96,040 in 1919. Barley acreage from 43,573 in 1910 to 75,292 in 1919. Milo acreage from 4,327 in 1910 to 67,816 in 1919. Now take these figures in comparison with the following: Number of cattle, increase from 14,063 in 1910 to 72,563 in 1919; sheep, from 14,825 in 1910 to 107,886 in 1919; number of hogs decreased from 34,292 in 1910 to 29,127 in 1919.

The figures also show that in 1918 there were 34,194 hogs in Imperial County as against 34,292 in 1910. The following year 1919 shows a decrease of 5,067. From this report it will be seen that notwithstanding the great increase in the acreage of alfalfa, barley and milo, there has been a remarkable decrease in the number of hogs in the county.

I think close statistics of the other counties of the state would show exactly the same tendency. I feel certain that this reflects the tendency all over the country. My prediction is that within one year the country will be hog hungry, and the man that takes care of the old sow and her litter will receive his reward.

Real Foundation Holsteins

65---Registered Cows, Heifers and Bulls---65

Sale Pavilion, Tulare, Cal., May 6, 1920

This is an offering of dependable, highly bred registered Holsteins of excellent type, many with high records, and sold under the most liberal health guarantees.

THE REFERENCE SIRES ARE A FEATURE

In selecting a foundation female, in addition to her own individual merit it is important to consider the quality of the bull to which she is bred, and the females in this offering are bred to four bulls that would command attention anywhere that the best cattle are sought.

SEGIS PONTIAC ABBEKERK, herd sire for R. C. Sturgeon, is a son of Segis Pontiac De Kol Burke, son of the former world's record cow Riverside Sadie De Kol Burke, and sire of Miss Aaggie Acme Burke, the new world's record yearly milk producer in the junior two year old class. Three of his daughters hold the highest yearly butter records in California as two year olds. The dam is Changeling Tidy Abbekerk Gem, who twice made over 34 lbs. butter in seven days; she's a daughter of the century sire Changeling Butter Boy, out of a 31 lb. daughter of Tidy Abbekerk Prince.

SIR AAGGIE DE KOL ACME 2ND, herd sire for Alex Whaley, is by Sir Aaggie De Kol Acme, son of the world's official yearly butter record cow Aaggie Acme of Riverside 2nd, who is also the dam of the new world's record junior two year old milk producer, Miss Aaggie Acme Burke. The dam is Aralia De Kol 3d, 1,100 lbs. butter in one year, she a daughter of Aralia De Kol, 1,142 lbs. butter in one year. Five of the seven nearest dams of this bull average 1,154 lbs. butter in one year, highest in world for a bull of service age.

KING SADIE VALE IDYL SEGIS, herd sire for R. F. Guerin, is by one of the best sons of King Korndyke Sadie Vale, the only son of a 40 lb. cow to produce a 40 lb. daughter. The dam is K P Idly Segis, 35.61 lbs, butter in seven days as a junior four year old, she by the great King of the Pontiacs out of a daughter of Sir Gelsche Walker Segis.

SIR PIEBE DE KOL SEGIS PONTIAC, herd sire for The Victory Herd, is by the famous bull King Segis Pontiac Count, owned by Senator Hackney in Minnesota. The daughters of King Segis Pontiac Count have broken more than 100 world's records in both long and short time production tests, and his blood is sought wherever good Holsteins are found. The dam of SIR PIEBE DE KOL SEGIS PONTIAC is Piebe De Kol of Shady Nook, with over 25 lbs. butter in seven days and 717.46 lbs. butter from 17,635.2 lbs. milk in one year. She is out of a granddaughter of Homestead Jr. De Kol, and the third dam is also the dam of Dora Thorn Sir Josephine, a bull whose daughters have records up to over 30 lbs. butter in seven days.

RARELY DO YOU FIND IN ONE SALE SO MANY CHOICE FEMALES BRED TO BULLS OF SO GREAT MERIT AS THESE, AND THE OFFSPRING SHOULD MAKE THE VERY BEST OF BREEDING STOCK.

Contributors to Sale:

R. C. STURGEON, Tulare.
R. F. GUERIN, Visalia.
ALEX WHALEY, Tulare.
LES McCRACKEN, Ripon.
THE VICTORY HERD, H. E. Spires, Caruthers.

The sale features the entire milking herd owned by R. C. Sturgeon, who disposes of them only because of the recent sale of his ranch. Just consider the great worth of such animals as these:

MELBA HENGERVELD, 30 lb. daughter of Arcady Pontiac Wayne Hengerveld, bred to Sir Aaggie De Kol Acme 2d.

A 28 POUND DAUGHTER of Arcady Pontiac Wayne Hengerveld, to be fresh before sale.

A 25 POUND DAUGHTER of Arcady Pontiac Wayne Hengerveld, that has a 24 lb. 2 year old daughter. Bred to King Sadie Vale Idyl Segis.

A 24 POUND 3 YEAR OLD granddaughter of Segis Pontiac De Kol Burke, whose two year old daughters hold two state records and one world's record for yearly production. Bred to Segis Pontiac Abbekerk.

A 23 POUND DAUGHTER of Arcady Pontiac Wayne Hengerveld, bred to Segis Poniac Abbekerk.

SEVERAL 18 and 19 POUND COWS AND HEIFERS, bred to high record bulls.

A DAUGHTER OF KING SEGIS ALCARTRA PRILLY, the three times Grand Champion bull, out of a royally bred daughter of the $50,000 bull King Segis Pontiac Alcartra.

A DAUGHTER OF KING KORNDYKE SADIE VALE 27th, out of a 29 lb. dam. Bred to King Sadie Vale Idyl Segis.

A DAUGHTER OF KING KORNDYKE SADIE VALE 27th out of a daughter of Count Segis, bred to King Sadie Idyl Segis.

A DAUGHTER OF KING KORNDYKE SADIE VALE 27th out of a 22 lb. 3 year old daughter of Changeling Butter Boy, second dam a 30 lb. daughter of Tidy Abbekerk Prince that made 985 lbs. butter from over 26,000 lbs. milk in one year.

TWO DAUGHTERS OF SIR AAGGIE DE KOL ACME 2nd, five of whose seven nearest dams average 1154 lbs. butter in one year.

SEVERAL DAUGHTERS OF SEGIS PONTIAC DE KOL LUIT, 32 lb. son of Segis Pontiac De Kol Burke.

SEVERAL DAUGHTERS OF ARALIA DE KOL PONTIAC SALAMBO, whose three nearest dams average 1032.17 lbs. butter and 24,158.2 lbs. milk in one year.

TWO DAUGHTERS OF CREAMCUP FIDESSA CORNUCOPIA LAD, whose dam made 897.09 lbs. butter from 22,751.7 lbs. milk in one year.

TEN OPEN HEIFERS, by 35, 32 and 31 pound sires, and other sires of lesser record dams but of rich breeding.

A GRANDDAUGHTER OF SEGIS PONTIAC DE KOL BURKE, bred to Sir Piebe De Kol Segis Pontiac.

THREE WELL BRED YOUNG FEMALES, all in calf to Sir Piebe De Kol Segis Pontiac.

Only Three Young Bulls In This Sale

This is essentially an offering of high class females, but there are also three well bred young bulls that should find favor with quality buyers. Two of these are sons of Sir Aaggie De Kol Acme 2nd, Alex Whaley's great young herd sire, and the other is a son of King Sadie Vale Idyl Segis, the royally bred bull heading R. F. Guerin's Sunnyside Herd.

THE CATTLE IN THIS OFFERING ARE CHOICE THROUGHOUT. EVERY ONE POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ONE OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

Catalog Free on Request. Management

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres., C. L. Hughes, Sales Manager,
Sacramento, California

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare

THE PLATFORM OF HORSE SENSE

It is not the purpose of the Horse Association of America to oppose any form of motor power, says Wayne Dinsmore, secretary of the association, who adds that to do so would be both humorous and tragic. The gasoline engine has contributed vitally to every field to which it has been introduced—it will continue to figure in the progress of economic development in every phase of commerce for which it is reasonably and economically feasible.

But in its prominence, the value of horse power is being seriously overlooked, much to the expense of both producer and consumer. The pendulum has swung far beyond the limit of economic service and productivity. As soon as the dust dies down and the costs are reckoned there will be found a happy in-between ground for motor and horse power which will retain the development of the horse and all allied accessory industries for their own peculiar and essential values.

Of equal and intimate familiarity is the high cost of meat producing animals and grains. When these prices soared it was the logical, expected response that farmers and stock breeders should turn their energies to the supplying of the demand for foodstuffs, receiving top notch prices for every grade and quantity which could be produced.

The demand for foodstuffs is as great as ever. As much, if not more, energy must continue to flow in that direction. If a plan can be evolved to decrease the costs of meat and grain raising and of the cost of meat and grain to the consumer, it will take farsighted cooperation and untiring energy to put it through. If the incidental costs attached to the marketing and delivery of not only foodstuffs but of all manufactured commodities can be reduced, so that the reduction can be reflected in the price to the consumer, it will repay every producing and manufacturing interest to separately study its own condition, to find out the real balance of affairs and take advantage of the outcome.

The purpose of the Horse Association of America is to aid in this analysis as it pertains to delivery and transportation problems and to meet the resulting demand for horses and mules. For wherever the test has been made, it has been recognized that for economy in the short haul the horse makes good.

Relying on the authenticity of the impartial survey made by the associated saddlery interests, and accepted by the department of agriculture, which shows conclusively that the market for the horse and mule is on an absolutely sound foundation both as to economy and service for many years to come, the horsemen, the saddlery manufacturers, the hay, grain and feed men, the horseshoe manufacturers and master horseshoers, and the wagon and carriage men, are not only committed to policies of permanency but of enlargement and aggressive production. They are uniting in a request for common sense publicity to go to the users and breeders of horses, that they may rise to the varied demands of the market, and to go to the separate units of the interests mentioned, that they may get in on the cooperative movement and in turn receive their share of the benefit.

Competition and scarcity of man power have pushed the pendulum to the limit of its swing; its return to a sane equilibrium, with a maximum use of everything in its place, has already started. That is why the horse and mule interests are regaining proportionate prominence; that is why the Horse Association of America is receiving immediate and enthusiastic support.

The Climax of Holstein Breeding

Tilly Alcartra, world famous Holstein cow owned by A. W. Morris and Sons, Woodland, and her illustrious young son sired by Carnation King Sylvia, the $106,000 son of May Echo Sylvia. The youngster unites the blood of the two most popular cows of the breed and because of that fact the interest of the entire Holstein fraternity is centered upon his entry in the forthcoming National sale to be held in St. Paul, June 3, 4 and 5. It is expected that this California calf will establish a new record price.—Photo by McCurry.

Two carloads of high grade dairy cattle have been shipped into the Snowflake district of Arizona from the Salt River Valley. There is said to be considerable interest in dry farming in the vicinity of Snowflake and quite a few settlers will begin farming operations this year. This section is within easy shipping distance to the new Cooley lumber camp which is one of the largest and most modern lumber mills in the United States.

DISPERSAL SALE

28 Registered Holsteins

Because he must go East, and will not entrust the care of his choice herd to strango hands, Mr. L. B. Van Blaricon has instructed us to disperse it at public auction on his farm one mile north of

El Monte, California

Saturday, May 8, 1920

This is one of the choicest herds in Southern California. The owner has milked his own cows for the past six years, and tho herd has been tuberculin tested regularly without a reactor for the past three years. The breeding of the herd is most substantial and the sale includes:

A GRANDDAUGHTER OF RAG APPLE KORNDYKE 8TH out of a 21 lb. four year old that made 512.12 lbs. butter in 305 days, second dam the 36 lb. cow Alba Sadie Cornucopia Creetia who made at a previous freshening 866.28 lbs. butter in 338 days.

A 26 POUND 4 YEAR OLD granddaughter of King Segis De Kol Korndyke.

A 25 POUND DAUGHTER of Arcady Cornucopia Johanna Lad.

A DAUGHTER OF JOHANNA McKINLEY SEGIS, 40 lb. son of King Segis.

A 21 POUND 4 YEAR OLD daughter of Woodcroft De Kol Sarcastic Lad.

A DAUGHTER OF A 28 POUND COW, that has three A. R. O. daughters.

SEVERAL 16 TO 19 POUND 2 YEAR OLDS, by good sires and out of highly bred dams.

TEN DAUGHTERS OF KING LYDA PONTIAC, who is by a son of King of the Pontiacs and out of a three-quarter sister to the first 41 pound cow Valdessa Scott 2nd.

If you want to buy clean, high producing, well bred females, in good condition, this sale is well worth a long trip.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL TUBERCULIN TESTED BY A DEPUTY STATE VETERINARIAN.

Catalog Free on Request to Management

California Breeders Sales and Pedigree Co.

J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, Calif.

Auctioneer—Col. Ben A. Rhoades, Los Angeles

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75 **Registered** DISSOLUTION OF PARTNERSHIP SALE **Holsteins** 75

To dissolve an existing partnership the high class herd of registered Holsteins owned by LEEMAN & KILGORE will be dispersed at public auction on their farm near

Ripon, Cal., Wednesday, May 12, 1920

This herd has been established only a comparatively short time, but has from the beginning been recognized as one of the most attractive in the state, owing to the unusual judgment used in selecting the foundation animals, all of which represent some of the most popular blood lines and high record backing to be found in the West. The following list of females gives something of an index to the quality of the offering:

MISS GELSCHE WALKER KORNDYKE, 32.76 lbs. butter from 708.9 lbs. milk in seven days. As a junior 2 year old she made 687.31 lbs. butter from 15,246 lbs. milk in 348 days. She is by Prince Gelsche Walker out of a 29 lb. daughter of Korndyke Queen De Kol's Prince.

FAYNE SPRING FARM PONTIAC DE KOL, a 26.30 lb. 4 year old daughter of Spring Farm King Pontiac 6th. A beautiful young cow that is a most promising candidate for a very large record.

A 25 POUND DAUGHTER OF SEGIS PONTIAC DE KOL BURKE, out of a 24 lb. three year old daughter of King Mead of Riverside.

A 27 POUND DAUGHTER OF A 28 POUND COW, bred to a grandson of Tilly Alcartra.

A 25 POUND DAUGHTER of De Kol Hengerveld Burke.

A DAUGHTER OF KING MORCO ALCARTRA, out of a dam that made over 1,000 lbs. butter in one year and over 33 lbs. in seven days.

A 24 POUND granddaughter of Sarcastic Legislator.

A 24 POUND THREE YEAR OLD daughter of Karel Vale Cornucopia.

A 22 POUND daughter of Woodcrest Aaggie Jewel Son.

A 22 POUND daughter of Dutchland Hengerveld Sir Gladi.

A 16 POUND 2 YEAR OLD, out of a dam that made 850.33 lbs. butter from 18,712.1 lbs. milk in one year as a senior 3 year old.

A YEARLING DAUGHTER OF KING MEAD OF RIVERSIDE out of a dam that made 634.48 lbs. butter from 14,951.1 lbs. milk in one year as a junior 2 year old, second dam with 828.62 lbs. butter from 19,543.2 lbs. milk in one year.

A YEARLING DAUGHTER OF SEGIS PONTIAC DE KOL BURKE out of a dam that made 801.08 lbs. butter from 16,569.3 lbs. milk in one year.

MANY OTHER HIGH RECORD COWS AND HEIFERS out of good dams and in calf to high record bulls.

An Extraordinary Offering of Bulls

The bulls in this sale are of remarkable breeding, and include a number of real herd headers. Both herd bulls will be sold and they are high class.

The senior sire SIR AAGGIE KORNDYKE ALCARTRA is by Prince Alcartra Korndyke, son of Tilly Alcartra, and out of a dam that made 860.91 lbs. butter from 21,208.5 lbs. milk in one year. The dam is on yearly test again and promises to materially increase her present record.

The junior sire KING GELSCHE WALKER KORNDYKE is by King Morco Alcartra, son of Tilly Alcartra, and out of the great young cow Miss Gelsche Walker Korndyke, 32.67 lbs. butter from 708 lbs. milk in seven days. She also made 687.31 lbs. butter from 15,246 lbs. milk in one year as a junior two year old.

THE YOUNGER BULLS are exceedingly well bred. Write for a complete list of the offering.

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Napier Grass—Strong roots, 25 one dollar; hundred $2.50; thousand $20.00. W. Rubell, 221 N. Catalina Ave., Redondo Beach.

Sweet Potato Plants—Yellow Jersey, $3.50 per 1,000, 75c per 100, f. o. b. E. W. Van Gorder, R. 5, Box 91, Santa Ana, California.

For Sale—About 140 lbs. desert raised alfalfa seed. H. P. Ware, Goffs, San Bernardino Co., California.

Stock Beet Seed—Any variety. Write for prices. Aurora Seed Mill, grower, Stockton, California.

California Wonder Corn for seed at practical prices. James McKee, Riverside, California.

HOGS

Chester Whites for Sale—18 months boar, registered. From Reserve Grand Champion sow State Fair 1918, also 3 young boars and 2 sows 6 months old, sired by above. All young stock can be registered. E. N. Johnson, Fairoaks, Calif.

GOVERNMENT LAND

Millions Acres Free Land in U. S.—Full description and all the information as to how to find them contained in "The Homeseeker," a 100-page book. Send for particulars, or $2 for book direct, The Homeseeker, Dept. M, Los Angeles, California.

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USED RANCH MATERIAL
WE SELL FOR LESS, SEE US.
WHY PAY MORE?
SURFACE IRRIGATING PIPE
3-in., 16½c; 7-in., 43½c; 8-in., 48½c; 300 ft. 6-in. riveted underground pipe, 30c.
SPECIAL BARGAINS
Fine Mower, $58; 4-gang Stockton plow, $28; potato planter, $65; 4-row beet planter, $25; 2-row bean cultivator, $35; 3 four-gang disc plows, $85 to $140. Ask new price on above material then you'll appreciate these prices. WHY PAY MORE?
WINDMILLS
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USED REDWOOD TANKS, ALL SIZES
NEW, USED GALV. TANKS, ALL SIZES
New 1000 gal., $43.75 2000 gal., $59.75
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For Sale—Sandusky Tractor and P. & O. 3 Disc Plow. Used for one season. Have quit farming and will sell these implements at right discount. Inquire, Alberhill Coal and Clay Company, 604 Pacific Electric Bldg., Los Angeles.

Avery Tractor—Ten H. P., too large for my place. First $250.00 takes it. Forkner Cultivator, also orchard wagon for sale cheap. Chas. Collier, between Monte Vista & Central Ave., on East Holt, Ontario, Cal. Phone 8593 Pomona.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—One 3 inch Bean centrifugal pump, with 30 feet of suction line, elbow and head check valve. Almost new. Cheap. Chas. L. Beltz, Rt. 2, Box 799-A, Santa Cruz, California.

For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

For Sale—Rumley Ideal Threshing Machine 28x44, also Ann Arbor Power Baler. Inquire 1220 W. 49th St. Phone 26227. Los Angeles.

Agency Discontinued—New floor sample S.25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros. Co., Carpinteria, California.

LIVE STOCK

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Next sale all breeds, second week in August at ranch. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

Blue Hogs—Shipments desired the coming summer should be booked at once. Now shipping spring orders. These hogs are actually blue in color. They are the largest, growthiest and most prolific breeders on earth. Write for information. Mention this paper. The Blue Hog Breeding Co., Wilmington, Massachusetts.

Grape Wild Farm—Berkshires, Guernseys. Big Type Berkshire Boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Angora Goats—175 head, all but five or six does from 1 to 5 yrs. old, about 50 kids and more coming; $5.00 per head, with kids thrown in. J. P. Berry, Merced, California.

Carruthers Farms—Live Oak, California. Shorthorn cattle and Berkshire swine of quality and select breeding.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J Prendergast, Redlands.

SALESMEN WANTED

Men With Spare Time—Ranchers especially, can find excellent renumerative proposition, salary guarantee, working for an old reliable California company Turn your spare time into cash. Write J H. Yetter, 115 North Broadway, Los Angeles

Salesmen Wanted — Agents in country spare time. Interesting; big profits. Hansen, 542 Kendall Ave., Los Angeles.

PLANT TREES

"Jock, when ye hae naething else to do, ye may be aye sticking in a tree; it will be growing, Jock, when ye're sleeping."

Captain Millard C. Lawson, who has just returned from France, where he served for several months in the Motor Transportation Corps of the A. E. F., spoke very earnestly in a recent interview of the need for American farmers profiting by the methods of the French and Belgian farmers in maintaining their supply of wood and lumber. He stated that in those countries a heavy growth of trees is maintained even in the more thickly populated farming regions. Notwithstanding the fact that the population has been dense in those countries for several centuries many more trees are found than in most sections of the United States which have been but sparsely inhabited for comparatively few years, although they were originally very heavily wooded.

Captain Lawson states that the sooner the American farmer profits by the experience of these European farmers the better it will be for our nation as a whole. He made a strong contrast between the French methods of planting trees in every available spot and that of the United States where our trees are constantly being cut down but comparatively few planted, even on ground which is useless for other purposes than the growing of trees. Consequently the price of wood is constantly increasing and the supply rapidly diminishing.

In France practically every farm, no matter how small, furnishes its entire supply of firewood. The American farmer when in need of a supply of wood, if he is fortunate enough to own a farm on which a few trees are growing, proceeds to cut down a tree. Very seldom does he plant a tree to replace the one cut down. The French or Belgian farmer, on the other hand, rarely cuts down a tree, but obtains his wood from the branches alone. Each year he goes over his trees and carefully cuts off a number of limbs. The selection is made with a great deal of care, so as to leave enough limbs and such as are likely to produce the largest and most desirable growth. Every particle of wood, even down to the smallest twigs, is saved and used for fuel. The limbs that are allowed to remain on the stump naturally grow rapidly since they receive all the food gathered by the large root system which the tree has developed during its life. This sort of pruning causes a large irregularly shaped top or knot from which the new limbs sprout forth.

This practice has been followed for years and it is a common sight, as may be judged from many of the pictures taken in France during the war, to see these old tree stumps which have been permitted to grow for years and years but from which each year there have been removed the limbs which were needed for firewood or other purposes.

Perhaps the United States has not reached a point where it is necessary to practice this intensive growth of wood, although there is little doubt but that the plan would be an excellent and profitable one for many American farmers today.

We have at least reached a point where a tree should be planted for each one cut down, and it would be a still better rule to plant several for each one removed. Unless a plan of this kind is generally adopted and carefully followed it will be only a matter of a few years until many sections will be extremely short of wood for fuel, fence posts and other purposes which French and Belgian farms supply in abundance.

When you stop and think it over doesn't the French method of growing a large amount of wood on a few trees seem the most sensible way? And isn't it foolish to kill off a large root system which a tree has been building up for years, and which will keep growing wood at a very rapid rate if properly managed? Young trees cannot duplicate this root system for years, but will at first draw a large part of their sustenance from the upper soil, whereas the older trees draw a larger percentage of their plant food from deep underground where field crops never reach. Of course, care should be exercised in planting trees to select such as will be of greatest value and cause least interference with nearby crops.—Tractor Farming.

ALL ALIKE

Lady Astor, the American M. P., told in London the other day a story about an anti-suffragist.

"Anti-suffragists are all alike," she said. "Once I was canvassing for signatures to a petition about Lord Milner, the viceroy to India at that time. When I called on Mr. Boggs, the grocer, he read the petition carefully and then said:

"'Who is this here Milner, ma'am?'

"'Our Indian viceroy,' said I.

"'Wot's a viceroy?' said Mr. Boggs.

"'A pro-consul, you know.' And I explained Lord Milner's position in detail.

"Mr. Boggs, satisfied, dipped his pen in the ink; then he looked up anxiously.

"'You're not lettin' the women sign this, are you?' he said.

"'Oh, no, indeed,' said I.

"'That's right,' said Mr. Boggs, as he slowly traced his signature. 'That's right, ma'am. Women don't know nothin' about these things.'"

Turkey Troubles

By Jean A. Koethen

WHY is it that 50 per cent of all the turkeys hatched fail to grow up? Why is it that turkey raising can hardly be classed as a permanent occupation in California? A grows a fine flock of turkeys this year, and tells you he has turkey raising down fine, can raise practically every turkey hatched. Two years later you go out to see what new discoveries he has made, and there isn't a turkey on the place. What is the matter with turkeys, anyway?

To be perfectly frank and honest, I don't know, and I don't believe anybody else does. We say the young turkey is delicate, and that is true enough, but why? We say it is not fully domesticated, and its wild nature makes it the victim of our well-meant attention, and tbat is also true. We explain that a great many foolish people, thinking the turkey a domestic creature like a chicken, have employed the same method, or lack of method, that is generally employed in mating fowls, and that general inbreeding is responsible for the decline and fall of the turkey industry. There are those wbo believe that an infusion of wild blood from time to time is necessary to keep up the vitality of the domesticated turkey, and I shall have more to say about this later, but if it is true, it simply emphasizes the points already made, that the turkey is not fully domesticated, and that there has been too much inbreeding. We can of course, if other excuses fail us, fall back on that current phrase "lack of vitality," but that doesn't take us very far. Even the Rhode Island station, which once thought it knew what was responsible for the untimely deaths of so many little turkeys, admits that it has found no ration it can guarantee, and says, "If you bave been successful with one ration, stick to that and do not experiment."

It is generally conceded that three enemies menace tbe life of every turkey that comes into the world! They are lice, dampness and overfeeding, but tbe greatest of these is overfeeding.

Lice

Now I am going to be perfectly honest and admit that I never saw a louse on a young turkey. Whether this is because I have been careful to keep the hen tbat cared for them free from vermin, or because I did not know what to look for, I cannot say. We are told that a great many turkeys are killed by lice. We are also told tbat if they are on the hen when she hatches, they will attack the poults, and we are also told that the turkey louse is not the yellow louse that lives on tbe body of the domestic hen, but a larger, grey louse, and that it is to be found under the wings of the poult. I do not know how to reconcile these two statements, nor do I understand how a turkey louse could find its way to the body of the young birds if there were no adult turkeys about. However, this is a mere quibble. The facts are, that lice are a real menace to the life of the young turkey, and danger from them should be eliminated by dusting both tbe hen that hatcbes them and the young turkeys themselves. Any good strong louse powder may be used on the hen, but buhach powder is recommended for the poults. Dust them over tbe head and under the wings every week, and you will not need to worry about lice.

Keep Them Dry

There is a general impression that many of the turkeys that die every spring are victims of the fog and damp chilly winds which so frequently prevail in May. Last spring, which was unusually cbilly, seems to have been peculiarly fatal to turkeys, if one may judge of the reports, and such seasons are of too frequent occurrence. It may be the coast climate of California is too damp for turkeys. Certainly they do better in the interior valleys.

When fog and drizzly rains occur, as they so frequently do in the turkey season, the only thing to do is to protect the poults with the utmost care. Keep tbem in a coop where they can be confined while the grass is wet in the morning, and keep the coop in the lee of a high fence or building. Some experts believe the turkey should always be brooded on tbe ground, but others prefer to keep a board floor under their feet. In deciding which metbod to follow we must be guided by the character of the ground. A perfectly dry, sandy soil will not chill any little bird's feet, but adobe is neither so warm nor so dry. The coop should be so tight that it can be kept perfectly dry, and sufficiently large to give the birds comfortable room when they cannot be out.

The first few days poults should be kept in the coop. After about the fourth day, if the weather is good, they may be let out in the middle of the day, but the hen should be kept in the coop, and tbe turkeys shut in after three o'clock or as soon as there is the least chill in the air. The poult displays less intelligence than a chick in running to warm up as soon as it begins to feel chilly, and must be watched more carefully. Better shut the poults in too early in the afternoon than risk chilling by leaving them to come in when tbey are cold.

Keep Them Clean

If the poults are brooded in a coop with a board floor, the droppings, after tbe first week should be removed daily, and every two or three days the floor sbould be wasbed. This is necessary not only to keep mites away from the coop, but also because poults are more easily injured by filth than even chickens. If they are brooded on the ground, the coop should be moved to clean ground at least once a week.

It seems hardly necessary to mention the importance of keeping young turkeys on clean soil. There was a time when the Rhode Island station declared that poults should never be kept on soil on whicb chickens had run within a year. At that time they believed the blackhead germ came from soil which had been polluted by chickens, but this theory has been discarded. Cleanliness is of vital importance, however, for both chicks and poults, but especially for poults, and they should never be allowed to run in the yard with chickens, or anywbere but on fresh green range.

Keep Them Hungry

Some experts believe that the disease which has so long been known as blackhead is really appendicitis. However this may be, we know that it manifests itself first in diarrhoea and a noticeable languor and lack of appetite, that in birds of a week or so old death follows very close upon the first appearance of disease, that in older birds the progress of tbe disease is less rapid, and that the second month is the most critical time. We also know that if a little bird that has died in this way is opened, we shall probably find the liver studded with yellowish white spots. This has led to the application of the general term "liver trouble" to this mysterious disease.

It is now believed that the germ which causes "blackhead" or "appendicitis," "or liver trouble," or whatever you name it, is always present in the intestines of the little turkey, but that it is developed by overfeeding, which quickly brings on indigestion and consequent inflammation of the digestive tract. Whether we understand the nature of the germ or not, there is abundant proof that feeding too much and especially feeding corn is often responsible for its development, and that the greatest care is required to keep from overfeeding. Wbether we adopt the Rhode Island station's method of time feeding, or some method of our own, like hand feeding, it is essential that the little poults be fed neither too often nor too much. Just how much they can stand is an open question, but they must be kept hungry.

Onions and onion tops have long been considered a specific for the prevention of blackhead, and many successful feeders never omit onion in some form from the ration. Others, like the Rhode Island station, believe that any other green is as good as onion.

Another specific is cottage cheese or clabbered milk. It is said that poults can be fed on cottage cheese exclusively and make good growth. The lactic acid of the sour milk is believed to prevent the development of the bacteria just as it does the coccidial bacteria in chickens, and sour milk in some form or other should be before the birds daily. To be sure, some die in spite of it, and otbers live without ever seeing milk, but it is safe and a good feed.

R. I. WHITES TO THE FORE

President Bemis of the Rbode Island White Club of America writes:

Rhode Island Whites have been making records in the egg laying contests of the country since 1914. In 1918 a 291 egg hen was produced in the All-Northwest egg laying contest, at Pullman, Washington. Last year in this same contest they made the best breed average, and at the National egg laying contest at Mountain Grove, Missouri they broke all previous egg records. The two leading pens were Rhode Island Whites, one pen of five birds laying 1217 eggs, or an average of 243.4 eggs. The second pen averaged 233 eggs. The leading pen in the contest, also a Rhode Island White, laid 306 eggs for the year.

Rhode Island Whites in tbe show room are attracting more and more attention each season. This popular belief is backed by one of the strongest specialty clubs in the country.

The 1920 Year Book of the Rbode Island White Club of America has just been issued and may be obtained of the secretary, H. E. Caldwell of Canutillo, Texas. Tbe price is 25 cents. Anyone desiring any information regarding this book should write to the secretary.

Poultry Queries

Conducted by J. A. Koethen

Looks Like Poisoning

My two weeks old chicks are dying, several a day. They act sleepy, draw their heads back and kick, then sleep again and after a few hours die. I feed them white Gyp corn, cracked wheat, chopped green alfalfa and sour milk. Can you give me any advice?—Subscriber, Lemoore.

That drawing back of the neck always indicates poisoning. Is it possible the cbicks bave gotten hold of rat or gopber poison? I have seen chicks die in a similar manner from eating bran that had been spilled in the coop and left to mold. I have read that a few drops of turpentine is sometimes effective but the surest cure is to find what the chicks have eaten that they should not have and see that they do not get it again. Your ration is not good. Baby chicks should have finer grain than Gyp corn, though if they have been started on chick feed they sbould be able to eat it by the time they are two weeks old. Most poultrymen use quite a fine commercial chick feed at first, or else grind one to suit their own ideas. In addition to the whole grain they should have a mash. If you can give them all the sour milk they will eat tbe mash need not contain beef scrap. A mixture of equal parts bran and cornmeal will do very well with the sour milk. You can feed it dry or moisten with the milk. Bran is a very important part of a chick's diet.

Can't Break the Shell

My bens lay eggs with such hard shells that good, healthy looking cbicks pip them but fail to get out. Is this because I am feeding too much oyster shell? Several of my neighbors have lost quite a number that way and I have several out of one hatching.—Subscriber, Bisbop.

You cannot feed too much oyster shell, because the hens will not eat more than they need. If I could tell you with certainty just why chicks grow till pipping time and then fail to get out of tbe shell I should be doing a great public service. In many cases it is because the eggs have been kept too long before incubation began.

Rid your flock of lice —
Make every hen a layer

Lousy poultry *can't* pay. Lice sap the blood and take energy that otherwise would make growth and eggs.

Dr. LeGear's Lice Killer

Sifted directly into the feathers of poultry and added to their dust baths quickly exterminates parasites. It is Dr. LeGear's Prescription, tested in his own poultry yards.

Dr. LeGear's Lice Killer sprinkled on vines or plants when dew is on is also a most effective exterminator of worms and bugs.

NEW BOOK "Care and Treatment of Stock and Poultry." 128 pages. A most comprehensive treatise. Written by Dr. LeGear. Send 10c to us today—we will mail it postpaid.

Dr. LeGear's Poultry Prescription keeps hens healthy insures more eggs and better profits.

Dr. LeGear's Chick Diarrhoea Tablets keeps chicks healthy, regulates bowels and system.

Dr. LeGear's Stock Powders increase milk yield, keeps all live stock sleek and healthy.

Get a package from your dealer to-day. Satisfaction or money back.

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LACTEIN
CONDENSED
Buttermilk

Is a condensed buttermilk with all impurities removed; will not sour; easy to feed; a scientific compound that is the most profitable food and tonic for chicks and poultry.

FEED NOW
Feed Lactein Now—for profit—and for healthy, producing fowls. It supplies the food and tonic that chicks need

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Our free book Chickens from shell to Market gives full particulars
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From our large, vigorous, Hoganized, bred-to-lay Rox, Reds, Anconas, 18c. each. Leghorns, 20c. We guarantee Safe Delivery. Free Book on care baby chix.
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White Leghorn Chicks

guaranteed strong and vigorous from our proven layers. Four extra with each 100: 40 extra with each 1,000. $16.00 per hundred, reduction by the 1,000. Write us for April chicks. (Reference California National Bank).
Address, JAMES D. YATES, Poultry Judge
R. No. 1, Modesto, Cal.

In others it is because the germ is too weak. Lack of moisture is supposed to have something to do with it when eggs are hatched in incubators, but when they are hatched under hens this is not likely unless the weather is very dry. Keeping the eggs too long and hatching from weak or immature stock are, I believe, the two most common causes.

Dropsy

One of my hens seemed greatly swollen between the keel and pelvic bones. Yesterday we made a tiny hole through the skin and almost a cup of watery fluid dripped out. She eats well and has been laying right along. Please tell me what to do.—Subscriber, Bellevue, Washington.

You did the only thing that could be done. The hen has dropsy, which is incurable, though you may relieve it by letting out the accumulation of fluid and by feeding a light ration with plenty of greens. Better kill her as soon as she stops laying.

Favus

An old Barred Rock hen, the mother of my flock, last year developed a peculiar skin disease. Her body was covered with a kind of rotten scab, and the odor was extremely disagreeable. I killed her and thought that would be the last of it. Now I see three of her daughters are affected. Can you tell me what the disease is and how to treat it?—Subscriber, Modesto.

This is favus, a rather rare disease, and apparently inherited, but easily cured. The only case I ever saw was a pullet I hatched from eggs bought from a breeder miles away. I cured her by rubbing a half and half mixture of lard and sulphur on all the scabby places twice a day for two or three weeks, but did not keep her long enough to find out whether her daughters would inherit a tendency to the disease. All the affected birds should be isolated and kept in a warm, sheltered place while they are being treated because the grease makes them quite susceptible to cold. Do not be discouraged if improvement is slow, but use the mixture liberally twice a day. Feed well, especially green feed. If any of the chicks hatched from these pullets develop the disease it might be well to get rid of them all and begin over. In any case see that the birds that have had it are marked so they will never be used again as breeders.

TIMBER HELPS POOR LAND

Timber is essentially a poor land crop. Steep slopes, poor soil, rocky land, unused corners, gullied and wooded tracts, all these afford opportunities for growing timber profitably. A careful survey of the average farm will reveal a surprising number of spots of this sort which can be utilized to advantage. If they do not already have trees, planting them with the proper varieties will materially increase the value of the land.

Certain kinds of trees, like the locust and the acacias, build up poor soil through the nitrogen gathering bacteria in the root nodules. The soil building power of trees on slopes is a fact which the farmer should not overlook. Steep lands, which have been cleared of timber at much expense, after being cultivated for a few years often become gullied, and the rich lands adjoining are covered with deep deposits of sand. The surest and cheapest method of protecting such slopes is to maintain forests on them.

Small gullies can be stopped up by closely packed brush and tree tops, anchored by stakes if necessary. Large open gullies are checked successfully only by planting over the entire gully basin, supplemented by low brush dams across the larger units of the gully.

GET MORE EGGS

"Lady Victory"
1918 Champion laid 304 eggs in 365 days. Highest official record of any living hen. She laid 25 eggs in Jan., 27 in Feb., 29 in March.

Milkoline will help make your hens lay more eggs.

Feeding Milkoline will make you more money —reduce mortality of your flock— keep flock healthy and less liable to disease.

Increase Poultry Profits
Any poultry raiser can easily double his profits by doubling his egg production. Feeding **Milkoline** with other feed greatly assists assimilation, keeps digestive organs vigorous and is a wonderful appetizer, tonic and bowel regulator. **Milkoline** contains nutritive elements vital to egg production and not found in grain rations.

13,000 More Eggs
Jas. E. Keyes, Petaluma, Calif., says: "After feeding **Milkoline** for eighteen months to 2,500 hens, I find that worms cannot exist in poultry where **Milkoline** is used. I reduced mortality with laying hens 10 per cent. I increased the egg production of my flock **thirteen thousand eggs** in one year. Feeding **Milkoline** to laying hens keeps them in splendid health thereby preventing disease and derangements of all kinds."

Milkoline
has a base of modified buttermilk with essential fats and acids added. **Milkoline** comes in condensed form. Will not mould, rot or sour. Keeps indefinitely in any climate. **Milkoline** is simply "**Good Buttermilk Made Better for Feeding.**" Flies don't bother it.

Lowers Feeding Cost
Many feeders say **Milkoline** lowers feeding cost one-third, because their hens assimilate all feed they eat. Our liberal **Guaranteed 30 Day Trial Offer** enables you to try **Milkoline** at our risk—to prove that it will make you mighty good money.

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Milkoline is not featured as a cure for anything or a preventative, but due to the acidity in the buttermilk it is a germ destroyer and helps keep poultry healthy, which is the best preventative against disease. **Milkoline** is invaluable as a life saver for baby chicks.

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5 Gal. Keg	$7.50
10 Gal. Keg	12.50
15 Gal. Keg	16.50
32 Gal. Barrel	32.00
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Prices on smaller packages given in booklet. Buy in barrel lots—it saves you money.

Only 2c a Gallon
For feeding mix one part of **Milkoline** to 50 parts of water (small feeding 5 tablespoons to gallon of water). Feed either with water or mash feed. **Milkoline** keeps their appetite keen and its action is highly essential to normal egg production. When fed as directed **Milkoline costs only 2c a gallon or less.** Trauhaft & Newman, Lankershim, Calif., say: "We would not go back feeding straight buttermilk at any price."

Guaranteed Trial Offer
we will ship you 1 Gallon for $2.25, **express prepaid.** Take 30 days — feed half to your poultry. If not entirely satisfied simply return unused portion and we will refund every cent you paid us. No charge for portion you have used. **Milkoline** is legally guaranteed to be satisfactory. You are always the judge. We suggest ordering larger quantity — you get the benefit of lower price — you risk nothing — you must be satisfied or we refund every cent you paid us. **Make this test now.** The sooner you begin using **Milkoline** the quicker you will be making money.

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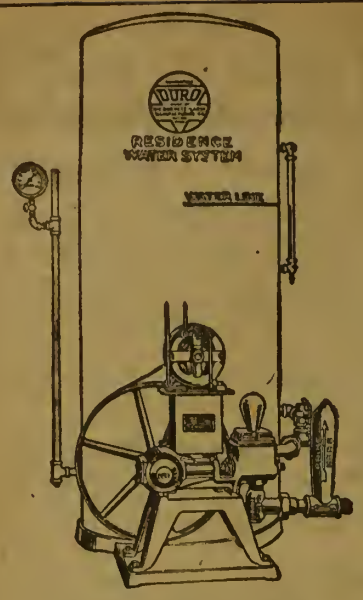

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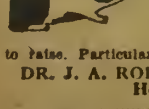

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Los Angeles Markets

Los Angeles, April 21, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 55 cents.

Dairy Exchange prices last week on extras:

Dairy Exchange prices last week on extras:

April '20 ...	14 56	15 ..	16 55	17 55	19 55	20 55

CHEESE

Brokers' prices:
California, lb., 28, price to retail merchants, 28@30.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 39 dozen; case count Produce Exchange closing price 38 dozen; pullets, Produce Exchange closing price 36 dozen; pewee pullets, 29.

Dairy Exchange prices last week on extras:

April '20 ...	14 39	15 ..	16 39	17 39	19 39	20 39

POULTRY

Price to producers: Hens, lt., 35; heavy, 37; colored over 4 lbs., 39; broilers, 28-34; fryers, 40; roasters, 38; old roosters, 14; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 18.

LIVE STOCK

Los Angeles, April 20 — Weighed and delivered off cars without food or water: Hogs (hard-grain), 125 to 175 lbs., 16.50, 175 to 225 lbs., 17.00.

Cattle (on foot, gross weight)—Steers, good, 12.00@12.50; medium, 11.50@12.00; cows, good, 10.00@10.50; medium, 9.50@10.00; bulls and stags, 7.50; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, April 20, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Market steady, movement slow. Old stock: Stockton: Burbanks, fancy and special brands, 7.60@8.25; choice, 7.00@7.50. Idahos: Russets, fancy, 8.25@8.50. New stock: Local Early and White Rose, 11½@12 per lb., No. 1's, 3.50@4.25 lug; No. 2's, 2.25@2.50 lug.

Onions: Demand and movement moderate, market weaker. Homegrown and Stockton: White Globes, per cwt., mostly 6.50@7.50. Yellows and Browns, 6.00@7.00 per cwt., lugs, 2.25@2.50; few 3.00; per lb., 6½@8. Imperial Valley Bermudas, 3.50@4.00 crate; 2.50 lug. Crystal Wax, lugs, 2.00@2.25. Garlic, lb., 40@50.

VEGETABLES

These are the actual prices obtained April 20, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., best, 50@1.00.

Asparagus: Supplies liberal. Delta section: Best, 7@11; local, 17@18 lb.

Beets: Doz., 40@55; lb., 4@5; sk., 2.50@2.75.

Cabbage: Market unsettled, movement moderate, very little good stock. Per lb., best, 2@3½, some low as 1¾; per crate, best, 2.50@3.25; others, 1.75@2.00. Red cabbage: 4@5 per lb.

Carrots: Doz., 40@50; lb., 1½@2; sk., best, 1.75@2.25.

Cauliflower: Supplies very light. Local stock; per dozen, best, 1.60@1.75; others low as 1.25; field crates, scarce, 2.75@3.00; pony crates, 1.75@2.00.

Celery: Market steady for good stock. Local and northern per dozen bunches, best, 2.00@2.75; crates, 5.50@6.50; fancy shipping stock, 8.00@10.00; poor stock low as 2.00 crate.

Cucumbers: Illinois: Hothouse, wide range in price, 3.00@4.00 per dozen, according to size.

Peppers: Floridas: Bells, 40@45 per lb., Chilis, 40@45.

Lettuce: Supplies heavy. Crates, best, mostly 50@75; few $1.00; others low as 35.

Parsley: Doz., 15@30.

Parsnips: Lugs, 1.25@1.50; sacks, 3.25@3.75; per dozen, 45@55.

Peas: Local and Imperial Valley: Market firm; lb., 6@9.

Rhubarb: Strawberry, bx., 1.75@1.90; few high as 2.50; Crimson Winter, 90@1.25.

Spinach: Doz., 20@30; lb., 2.

Squash: Imp. Valley, summer, cr., 1.50@1.60.

Tomatoes: Imp. cr., 3.50@4.00.

Turnips: Per dozen, 50@60; per sack, 2.75@3.75.

FRUITS

These are the actual prices obtained April 20, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: White Pearmains, 2.00@2.75; 4@6 per lb.; Yellow Newtown Pippins, 4-tier, 2.00@2.75; 4@6 per lb.; Romes, 2.50@3.50.

Bananas, 7½@8; Red, 9.

Strawberries: Local, per crate, 3.75@4.50; per tray, 1.85@4.50.

Grapefruit: California and Arizona: per box, 4.00@4.50; other, 3.50@3.75. Local, 2.00@3.00 per box.

Lemons: San Fernando Valley stock: fancy packed, 4.00@4.50; loose, 3.00@3.75; juice, 2.50. Local stock: packed, 2.50@3.00; loose, 2.00@2.25; 2@3 per lb.

Oranges: Market slightly weaker. California Navels, packed, 4.50@5.50; best brands, 6.00@6.50; others low as 3.00@3.25. Local stock: packed, 3.50@4.75; large sizes low as 2.00. Tangerines. California stock, mostly 6@9 per lb.; some best high as 14; 2.75 lug.

HONEY

Demand and movement slow, market dull, prices slightly lower. Carloads f. o. b. usual terms: per lb. White orange blossom, 18; White Sage, supplies practically exhausted, 19c; extra light amber sage, supplies very light, 16; light amber alfalfa, supplies light, 14c. Beeswax, demand and movement moderate, l. c. l. lots 40@42c.

BEANS

California Lima Bean Growers' Association fixed prices October 13, but market falling. Limas, 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

WALNUTS

Net prices have been named by California Walnut Growers' Association.
No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	27.00@30.00
Barley	25.00@28.00
Alfalfa	26.00@30.00
Barley Straw	16.00@18.00

Alfalfa Growers of California, f. o. b. Los Angeles: Choice alfalfa, 38.00@39.00 per ton; choice dairy alfalfa, 30.00@38.00; No. 1 dairy alfalfa, 33.00@36.00; No. 1 alfalfa, 34.00@36.00; standard alfalfa, 33.00@34.00; standard alfalfa, 30.00@33.00.

GRAIN AND FEEDS

Price bid local grain exchange, April 20:
Barley, 3.06@3.11.
Corn, yellow, sk., 3.38@3.43.
Kafir, Eastern, 2.91.
Milo: 3.21@3.25; Eastern, 2.82@2.91.

San Francisco Markets

San Francisco, April 20, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	59
Prime Firsts	Nominal

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. L. A.	27
Ore. Trips	30
Cal. Flats	24@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	42½
Firsts	39
Extras, pullets	39
Undersized	33½

POULTRY

Wholesale prices are:

Leghorn, 40@42; large, 43@44; roosters, young, 43@45; old, 23@25; broilers, 43@50; fryers, 52@58; turkeys live, 42@43; dressed, 48@50.

Ducks, Indian Runner. 30@32: Pekin, 33@35. Squabs, 55@60; pigeons, doz., 2.35@2.50.

Belgian hares, live, 22@25; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle — Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 11@12; do 1,200 to 1,400 lbs., 10@10½; do, second quality, 8@9; thin, 6@7.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4@5.

Calves—Light weight, 12@12½; medium, 9½@10; heavy, 7@9.

Hogs—Weighing 100 to 150 lbs., 16¼; 150 to 225 lbs., 16¾; 225 to 300 lbs., 16¼; 300 to 400 lbs., 15¼.

Lambs: Milk, 15@16; Yearlings, 13@13½.

Moran & Co. quote prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle—Good steers, 1000 to 1100 lbs., 12@12½; top steers, 1100 to 1200 bs., 11½@12; good heifers, 1000 lbs. and over, 9@9½; No. 2 cows, 1000 lbs. and over, 8@8½; canner cows, 5@6; good bulls, 6@6½.

Calves—Light, 13@14.

Hogs—Top packer, hard and well finished; 100 to 150 lbs., 16; 150 to 225 lbs., 16¾; 225 to 300 lbs., 16; over 300 lbs., 15½; under 100 lbs., 14½.

Sheep: Ewes, 9@9½. Wethers, 11@12. Yearlings, 13@13½. Milk Lambs, 14@15.

POTATOES

Wholesale selling price:

Rivers, fancy, lb., 7@8; Idaho Gems, lb., 7¼@8; sweets, 6@7 per lb.; new, lb., 10@12.

ONIONS

Wholesale selling price:

Onions: Fancy brown, 6.25@6.50; choice, 4.50@4.75; white, 5.00@5.25. Garlic, China, 40@45; Green onions, River, 50@75, Bay, 1.00@1.25 bx.

VEGETABLES

Wholesale selling price:
Artichokes, 1.00@5.00.
Asparagus: lb., 6@11.
Beans: So., 13; Hothouse, 20@22 lb.
Brussels Sprouts: lb., 8@9½.
Carrots: sk., 1.00@1.50.
Cauliflower, doz., 1.25@1.45.
Cabbage: lb., 2¼@2½.
Celery: doz. bunches, 35@45; cr., 2.50@3.50.
Cucumbers: Eng. doz., 2.50@2.75; hothouse, bx., 3.50@3.75.
Eggplant: lb., 15@25.
Lettuce: L. A., 50@1.50 cr.; Imp., 2.00@3.00
Peppers: Fla., 30@40.
Peas: lb., Bay, 5@7; So., 6@10.
Radish, 7@9 doz. bunches.
Rhubarb: bx., 1.85@2.00.
Tomatoes: Southern, 2.00@3.00.
Spinach: cr., 1.00@1.50.

DECIDUOUS FRUITS

Apples: Newtown Pippins, old stock, 2.50@2.75; Oregon, 2.50@2.75; Spitzenberg, 2.00@3.00; Winesaps, fancy, 3.75@4.00.
Bananas: lb., 7@9.
Loquats: lb., 10@15.
Pineapples: Doz., 3.50@6.00
Strawberries: Imp. cr., 4.50@5.00.

CITRUS

Box: Lemons, fancy, 4.50@5.00; choice, 3.00@3.75; standards, 2.50@3.00; lemonettes, fancy, 3.00@3.50; others, 2.00@2.50. grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 3.00@6.25; limes, 1.00@1.50 crate; tangerines, 1.50@3.25 per crate.

DRIED FRUITS

Prunes:
Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:
Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:
Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.
For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2 c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:
Choice (In 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (In 50s), 23@23½.

Figs:
White: Cooking (In 50s), 15@16; choice (in 50s), 17@18; extra choice (In 50s), 19@20; fancy (In 50s), 21@22; extra fancy (In 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (In 50s), 19; choice (In 50s), 23; extra choice (In 50s), 24; fancy (in 50s), 26; extra fancy (In 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:
Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

WALNUTS

Net prices have been named by California Walnut Growers' Association.
No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

Raisins:
California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅜; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12½; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾; Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, $2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

RICE

The domestic market is weak. Fancy and choice California Japan is offered at 10.75 and 10.50, prompt or May shipment.

BEANS

Jobbing price per cwt.: Small white, 6.15@6.30; large white, 6.20@6.35; cranberry, 6.50@7.00; red Mexican, 7.25@8.80; pink, 6.25@6.40; California Bayo, 9.50@9.75; blackeye, 7.10@7.25; red kidney, 13.00@13.25; lima, 11.00@11.25; Garvanza, 9.00@9.50; Kotenashis (in bond), old crop, 5.25; new crop, 5.75.

Dried Peas—California, 5.25@5.50 per cental for green, recleaned.

HOPS

1919 crop, 85@95 per lb.; older growth, 60@70 per lb.; prices to growers for 1920

HONEY

Demand and movement slow. Cash to producers: Light amber alfalfa, 14@16½; white orange blossom, 16c. Beeswax, 38@40 per lb.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

Hard White—	Per Bus.	Per Cen.
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.50
No. 3	2.00	3.48⅓

The above are minimum prices.

For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.05@3.15.

Corn: California yellow 3.10@3.15 per cental; Egyptian white 3.50@3.65; milo maize 3.00@3.10.

Barley No. 1 Feed, 3.00@3.10.

HAY

Under date of April. 17, Scott-Magner Receipts past week nominal. 219 tons arrived last Friday, but none of this has been run out of the railroad yards as yet owing to the switchmen's strike and nothing has arrived since. Stocks in this city are fast becoming depleted and as there is practically no hay available for water shipment, all having been used during the period when cars were so scarce, it is a serious question. Most of the hay dealers are practically shut down for want of stock. It is impossible to quote the market prices this week as there has been no market. We therefore are quoting our former prices as they stood before interruption of traffic. Movements from country districts of hay are in the same condition as shipments to San Francisco, the railroad companies refusing to accept any freight except in a very few instances where perishable freight is being handled. The rains during the week have had a most beneficial effect on growing crops and have changed future conditions very materially.

& Miller says:

We quote today wholesale prices in carload lots as appear from dealer's transfers upon the hay market in San Francisco, for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat or Wheat and Oat hay	35.00@38.00
No. 2 Wheat or Wheat and Oat hay	33.00@35.00
Choice Tame Oat hay	37.00@40.00
Other Tame Oat hay	33.00@37.00
Wild Oat hay	Nominal
Barley hay	Nominal
Alfalfa hay	32.00@37.00
Stock hay	29.00@32.00
Oregon Cheat and Oat mixed	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, April 21, 1920.

The strike has held back shipments and long prices have prevailed for all fruit under way at beginning of strike. At this writing it is hoped general shipments will begin within a few days. This can not be heavy, however, for there is a serious shortage of cars. Immense number of refrigerator cars has been thrown into the Imperial Valley to handle the cantaloupe crop. Railroads are speeding up the return of empties. There is practically no f. o. b. business. Florida's total output of oranges is about 6,700,000 boxes; of grapefruit, 4,300,000. Florida's 1920-21 crop now promises to be immense.

California lemons are being hit hard by the railway tie up while foreigns are coming in in large quantities but they are commanding only nominal prices.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 14,404 cars; lemons, 2,786; total, 17,190. To same date last season: Oranges, 16,656; lemons, 3,874; total, 20,530. From Central California this season: Oranges, 4,052; lemons, 281; total, 4,333. To same date last season: Oranges, 2.349; lemons, 251; total, 2,600. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

April 14

New York: 2 or., 1 lem. Nav. 5.50-7.50, Tang. halves 3.15-4.20, lem. 4.10-4.85.

Boston: 8 or., 2 lem. Nav. 4.55-6.70, lem. 2.90-3.95, Bloods halves 2.90.

April 16

New York: 2 or. Nav. 6.50-7.25.

Boston: 6 or. Nav. 5.55-6.65, Val. 5.00-5.90.

St Louis: 9 or., 1 lem. Nav. 3.90-6.00, Bloods, 4.55-5.15, lem. 3.05-3.45.

April 19

New York: 3 or. Nav. 5.85-8.30, Mikes halves 3 30-3.75.

Philadelphia: 6 or., 1 lem. Nav. 3.95-5.85, Seeds 3.85-4.50, Mikes 4.10-5.10, Bloods 5.55, Sweets 3.25-5.25, lem. 3.10-4.00.

Cleveland: 3 or. Nav. 6.95-7.95, Seeds 6.45-7.35, Bloods 3.25-5.90.

Cincinnati: 1 or. Swcets 4.95-5.65.

St Louis: 4 or, 2 lem. Nav. 5.30-6.10, Sweets 6.00-6.15, Seeds 3.50, Val 5.65-5.90, lem. 3.10-3.95.

April 20

New York: 15 or., 1 lem. Nav. 4.10-8.70, Bloods halves 3.20, Tange. halves 3.45-3.90, lem, 2.75-3.40.

Boston: 10 or. Nav. 6.05-7.35, Seeds, 4.85-5.45.

MARKET NOTES

Owing to the continued stagnation of shipping there is no market as yet for any produce though the railroads are accepting some perishabies, subject to shipper's risk.

On the Los Angeles market summer squash has gone up in price 50 per cent during the week for none is grown locally and supply is scarce. All other vegetables, also fruits, are sluggish as the stalls are overstocked with local supply. The only new arrivals are light shipments of Hawaiian pineapples.

E. W. Stillwell reports cabbage crop seriously damaged in Los Angeles and Orange Counties. Excessive seeding, yellowing in fields, and maturing of soft lightweight heads are the principal effects observed. Low prices have further curtailed shipments. Orange County crop is believed cut to a total of 250 to 300 cars, the general movement starting in about ten days. The best stock in Los Angeles is coming from San Fernando Valley. All supplies are showing variable quality and much of it is ordinary. Growers were receiving $25 to $30 per ton prior to the strike.

Imperial Valley celery is developing normally although some damage is reported by recent heavy winds in burning foliage, especially on lighter soils. The first car is expected about May 15.

Recent cold weather and rapid spread of a serious infestation of thrips have injured the Coachella Valley onion crop considerably and local authorities estimate not over 1,300, possibly 1,500, cars will be shipped as compared with a previous estimate of 1,800 cars. Heavy shipments about May 1. Shipments now being made mainly to western markets owing to poor carrying quality.

Asparagus shipping season in the Walnut Grove-Antioch district practically over. Volume slightly heavier than last season.

PROBLEM OF MILK

Due to its deceiving cloak of white, milk contains more sediment per pint than most dairymen believe could possibly exist in ten gallons.

The first question the average dairyman asks when he is shown a sediment disk is "What kind of strainer can I use to remove the dirt from my milk?"

A cotton filter cloth is best; the wire strainer commonly used leaves four times as much sediment as does the cotton cloth. Cheese cloth occupies a middle position according to the number of thicknesses used.

Clean milk isn't a question of how to get the dirt out of the milk, but what can be done to prevent the dirt getting into the milk in the first place. The strainer has yet to be invented that will remove bacteria from milk, and every particle of sediment contains thousands of bacteria.

The following factors are important in producing cleaner milk: Wipe the cow's udder and flanks with a damp cloth before milking. This will prevent a large quantity of dust and dirt from falling into the milk pail. Clipping the long hairs on the flanks, udder and belly will make cleaning much easier and faster.

Have clean, dry corrals. When cows have to lie in a manure pile or wade in muck half way up to their bellies one can't expect to produce clean milk.

The small topped milk pail is another very important factor. Some farmers object to it because of the difficulty of getting the milk on the inside rather than the outside of the pail. A little practice, however, soon overcomes this difficulty.

The milk in an open top pail carries almost twice as much sediment as the milk in a small topped pail.

It is hardly necessary to mention dry hand milking as "wet hand" milking is filthy.

There are other important factors to be considered, as sterile utensils and prompt cooling.

Keep dirt out. Use only clean, sterile strainer cloths and cool immediately and thoroughly.

First class equipment makes the production of cleaner milk much easier. Still, clean milk can be produced even under very unfavorable barn conditions. This depends largely on the man in charge. An expensive up to date barn and equipment does not necessarily mean clean milk, for a careful man might produce much cleaner milk in one far less handy. It only takes a few cans of sour milk to show that a little extra time applied to cuffing off the cows is saving money as well as producing a better, healthier product.—Bulletin 1019, U. S. D. A.

Ormondale Ranch
Shorthorns
Redwood City, Cal.

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There is no question but that a great opportunity lies in the production of pure bred beef cattle. Already the range men are tunring from grade bulls to pure breds. Hundreds of bulls are shipped into this state every year. They should and will be produced here. To the man who has a small farm or the range operator who plans to raise his own bulls, the breeding of Shorthorns offers a profitable and pleasant business, free from many of the annoyances encountered in other lines.

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Treatment of American Foul Brood

THIS method of treating foul brood is given by J. W. George, formerly bee inspector of Imperial County, in the Western Honey Bee.

* * *

By J. W. George

1. Take plenty of time to get your colony in actual condition to treat.

2. Unless shaking a whole apiary, never shake more than three or four colonies at any one time.

3. Preparation: During the middle of the day, while warm and the bees are flying freely and honey is coming in, remove all frames containing honey, empty combs, and combs with brood, except one comb containing brood and honey, placing same in the center of hive, placing lid on so no bee can either get in or out except through entrance, which should be contracted to one or two inches, with a strip of queen excluder zinc placed across entrance, so it will be impossible for queen to get out and thereby prevent absconding. Loosen bottom board so hive can be removed from same without jarring, and leave it undisturbed until the following evening, just before dark, after the bees in the apiary have quit flying.

4. When preparing colony to shake, all frames should be handled rapidly and placed in an empty hive body and kept covered with cloth, so no other bees can get at them; all dry combs should be melted before shaking any colonies, and all frames containing either honey or brood should be burned, and never melted, only when absolutely dry.

5. All weak colonies should be united with others until they are sufficiently strong to shake and build up afterward.

6. When your colony is ready to be treated, the following day after you have prepared them, if your hive is in a row with other hives in the apiary, with an entrance of very much the same appearance, close up absolutely the entrance of every hive on both sides of the hive being treated, for three or four hives each way. Now, without creating any commotion, gently set your colony which is to be treated to one side; place a clean bottom board and a clean hive where the one to be treated had been setting, containing not less than three nor more than five frames, with full sheets of foundation, placed against one side of the hive, the number of frames depending on the strength of the colony. Additional frames can be added as they may be required. New hive must have entrance contracted fully as much as was the old one, with queen excluder zinc attached. Now this is the critical moment. Gently but quickly lift the old hive from bottom board and set it upon the new hive. Remove the lid from the old hive, lift the one comb with all bees thereon and shake the bees which are on same into the bottom of new hive. Remove old hive quickly and place a clean and tight fitting lid on new hive, jarring the bees from sides of old hive immediately in front of new hive. A few minutes after shaking the colony, with flaming torch burn every bee that is trying to gain entrance to the hives that were stopped up, on either side of the one that had been treated. After being sure that all bees have been burned that were trying to enter the closed hives, the hives may be opened.

7. If there is no honey coming in, it will be necessary to feed colonies that have been treated. Do not feed honey from any source. Make a syrup of equal parts of granulated sugar and water. Feed not earlier than 24 hours after shaking. Following the instructions in paragraph 6, use as little smoke as you can possibly get on with.

The first thing to be borne in mind is that American foul brood is very contagious. The manner of transmitting the disease is through the honey that is fed the larvae or young bees.

The next thing is to be very careful in the handling of anything that would scatter the contagion. A great deal of the scattering of foul brood is brought about by the beekeeper who carelessly handles bees, combs and other parts of the hives.

Busy Month for Beekeepers

Here is some good advice from Farm Adviser H. J. Baade of Napa County as to care of bees:

The honey is coming in and there is no longer danger of the bees "balling" out their queen, which is the real danger if you open up the hive too early, and also with the risk of killing the young brood.

Good colonies are now ready for the first super, those colonies not so strong in numbers will be ready a little later. Don't make the mistake of putting on the super too early, because the heat of the bees will rise into the empty super and then if a cold night comes some of the brood may be chilled, with the result that the colony may be set back several weeks.

When to Put on Supers

There is no particular date on which to put on the supers. The time to do it is when the bees are ready for them, just before they begin to feel short of room. On a warm day when honey is coming in, pry up the cover about a quarter of an inch, blowing a few puffs of smoke across the top of the frame, then remove the cover and look in. If the bees cover all the frame, or all but one, they are ready for the super.

Foul brood is more likely to show up during March and April than at any other time in the year; they are also more easily cured now than later.

Watch the Disease

If you have good Italian stock, you are not likely to be troubled with European foul brood, but if your bees are black, they are very liable to contract the disease, if there is any in your neighborhood. Therefore be on the lookout, that is, if you are able to recognize the disease; if not, call in some one who is and have a careful examination made. This may save you much disappointment later in the year.

Don't trust too much to outside appearance. A colony may appear strong and trusty, and yet have foul brood developing rapidly.

Have you made preparations for swarms? Have you your supers ready? Have you three supers with sections and foundations all fixed, for all colonies that came through the winter? You will probably need them, and bear in mind the bees won't wait. They want what they want, when they want it.

A BEE NOTE

Be sure all your colonies have plenty of stores from now until honey flow comes. More are lost now than during all of the past winter months. Order your bee supplies early so as to have them ready for season when it arrives. A delay of ten days in the honey season may mean the loss of the crop.

Examine all hives; some bees may have died during the winter months, in which case bee moths soon attack the combs. Put combs in strong colonies for protection as they are worth $3 for a set of ten combs. Another plan is to stack and treat with carbon bisulphide, two tablespoonfuls to a super.

Seed dealers in the Salt River Valley of Arizona report that the sale of seeds this year is less than common. And this is taken to be an indication that there will be a shortage of vegetables grown in this section this season. The acreage of cantaloupes will be very nearly as great as last year. The acreage in potatoes has fallen off considerably. The acreage in cotton will be about 150,000, an increase of approximately 60,000 acres. It is reported that the alfalfa acreage has not been decreased as much as was feared. The increased acreage of cotton will be largely at the expense of the grain crop and other crops than alfalfa. Cotton seed sufficient to plant 20,000 acres has been shipped from the Salt River Valley to the Imperial Valley.

Household Department

WAITIN' AT THE STATION

Waitin' at the station. Ain't it awful? Yes.
Train crew off a strikin', service in a mess.
Station filled with people, piles of luggage, too;
Wan-faced, tired women, men a feelin' blue.
Patient information clerks standin' in their places.
Tryin' to rub the question marks out of people's faces—
Worried people achin', anxious to depart,
Oh, you, Mister Striker, please do have a heart.
Waitin' at the station. Ain't it jolly? Sure.
Human bein's findin' out how much they can endure.
Children rompin' round the place like they was to home,
Poet sittin' on her foot an' scribblin' a "pome;"
Hungry kids a crammin' down cookies, fruit an' candy,
An wipin' fingers on yer skirt—only towel handy;
Tired kids a'sleepin', on the benches sprawled,
Waitin' at the station fer the train that isn't called.
Waitin' at the station—optimistic—Gee!
Thousands miles an miles away from where they want to be:
Hear the babies laughin', see the mothers smile,
Hear the daddies jokin,' "We'll git there after while."
See that helpless invalid in her old wheel chair—
An' would you believe it, she's the jolliest creature there!
See the ladies tattin' an' writin' letters home,
An' now the poet's finished an' is sealin' up her "pome."
And if she don't git out o'here another she will start—
An' send it to the editor. Oh, striker! have a heart!

—Isabelle Graham.

A HEART OF GOLD

NCE upon a time a young wood chopper lived with his mother and younger brothers at the edge of a great forest. He was only a lad, but upon his shoulders rested the cares of the large family, for his widowed mother had been sick a long time. Every day he went into the forest to cut fagots, which he sold in order to buy food. As the weeks went by, the lad, worn out with work and worry, became more and more down hearted. Finally, as he waded in the mud and mire under the dense trees, he cried out in despair:

"Life is not worth the living in all this mud and gloom. There is nothing beautiful in the whole world."

To his surprise a voice answered him. A tiny voice it was, but as clear as a bell: "Do not be discouraged," it said, "there are many beautiful things in the world. Look at me. Am I not beautiful?"

The lad looked all around and above him before he caught sight of a dainty little fairy perched on the sleeve of his blouse. She was no larger than a butterfly, but lovely with the loveliness of a brilliant diamond. Her golden hair was as soft and as silky as a cob veb, her eyes shone like tiny stars; and all about her floated a thin drapery that resembled a purple mist. The lad stared at her in wonder.

"Indeed, you are beautiful, but I had not seen you," he said.

"You were not looking for beauty," the fairy replied, "or you would have seen that pure white water lily growing there in the pool. It came from the mud and slime, yet it managed to keep pure and spotless."

The tiny fairy flew to the flower and held back one of the long petals. "See," she said, "inside is a heart of gold."

Long after the fairy had gone the lad stood by the pool thinking. "A heart of gold, a heart of gold," he said to himself over and over again. "A heart of gold would be a true heart, a brave heart that would not grow discouraged." Then he resolved that he, too, would have a heart of gold. He set to work with a will, and when he had finished he broke the stem of the lily and carried it home to his mother. He put it in a rude vase and placed it at the foot of her bed. Soon the feverish eyes of the sick woman found it, and resting there she seemed to find peace and comfort in its purity. The flush gradually left her cheek, and in a short time she was sleeping quietly. The lad felt that she would soon be better. He quietly straightened up the house the best he could, and made himself clean before taking his wood to the village.

The next day when the lad went into the forest, he saw the fairy again. "I am going to have a heart of gold," he told her.

"Yes," she said, "and that is good, but you must have a singing heart as well. See that little goldfinch with the broken wing? He would rather be in the tree tops where there is sunshine, but since that is impossible he sings away just the same." The fairy pointed to a bright yellow and black bird which stood on a log whistling bravely, even if one little wing did touch the ground.

"I will take it home with me and mend its wing," the lad said. And he placed it on top of his pile of wood.

All the way home the bird whistled merrily and the lad, following every trill, learned to whistle almost as well. The younger brothers stopped their quarreling and ran to meet him.

"Where did you learn to whistle like that?" they asked.

"The bird with the singing heart taught me," answered the lad.

"Will you teach us to whistle?" the brothers then asked.

"Certainly I will, if you will help me cut wood tomorrow."

The brothers eagerly said they would, and watched while the lad bound the bird's broken wing. When this was finished and the bird had been given water and crumbs, it was placed on the window ledge where the sick mother could see it and hear its song.

The next day the five younger brothers went to the forest with the lad, and they all whistled as they worked. By night they had all the wood to sell that they could possibly get to the village. And with the extra money they bought several hens to lay fresh eggs for the mother to eat. In a short time she was able to sit up.

"It is my brave lad and my whistling boys that is making me well," she said.

The boys all worked together every day after that, and prosperity began to smile on the little cottage by the forest. The lad told his brothers about the fairy, but none of them ever saw her again. The bird flew away when its wing was strong and the lily withered when the mother was able to be up, but the lesson of the golden and singing heart was never forgotten.—M. J. T. in Successful Farming.

HOUSE BRIGHTENING HINTS FROM CHICAGO SUBSCRIBER

Do you ever consider how much of decorative value you have put away with your best dishes? If life is too prosaic and strenuous to use them every day we could at least enjoy seeing them. For that matter, let us try in each room in the house to see what good results may be attained by a pleasing arrangement of the household articles pertaining to the use of that room.

Some dining rooms have been wonderfully rejuvenated by taking out every one of the accumulated pictures, calendars, magazines and work baskets and substituting on the cleared-off shelf a row of bowls or pitchers or grandmother's blue platter, flanked by a couple of brass or copper pieces.

The writer once unearthed an old whale oil lamp in a widower's carriage shed and persuaded him to reinstate it, fitted with an electric bulb, on his living room table and keep his implement catalogues there instead of in the kitchen, and before the year was out he married the art teacher in the public schools.

Custom so dulls our eyes to the appearance of our own possessions that we fail to notice the beauty of the beautiful or the ugliness of the ugly, and for that reason it is well not to be too conservative when the keen minds of the growing daughters of the house begin to criticise and the girls beg for a change. I know a clever woman who had a closet under the stairs where she put furniture convicts under arrest. It was known in the family as Botany Bay. That is a conundrum and you may ask the history scholars for the answer.

There are possibilities in the overflowing work basket, too. Do not try to hide it behind the sofa. Publicity will do it as much good as it did the peace treaty. A sorted-out work basket where one can assuredly find needles, pins, tape, thread, scissors

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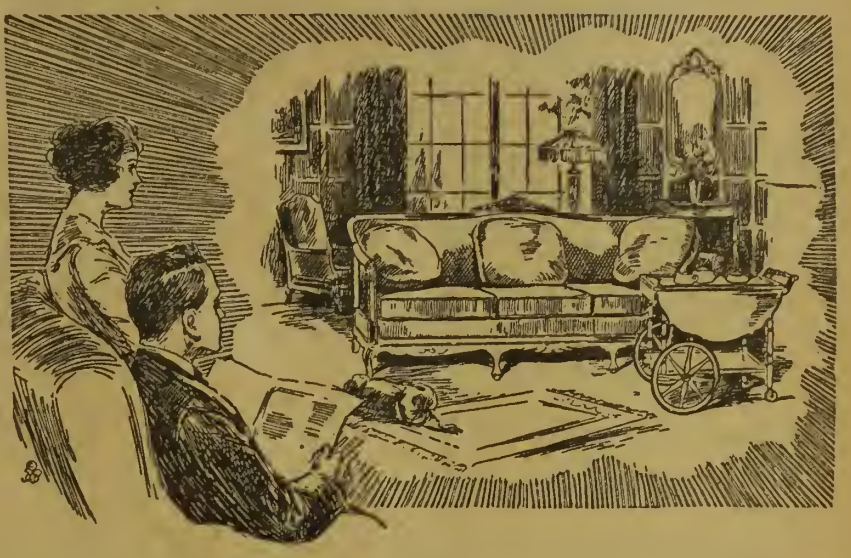

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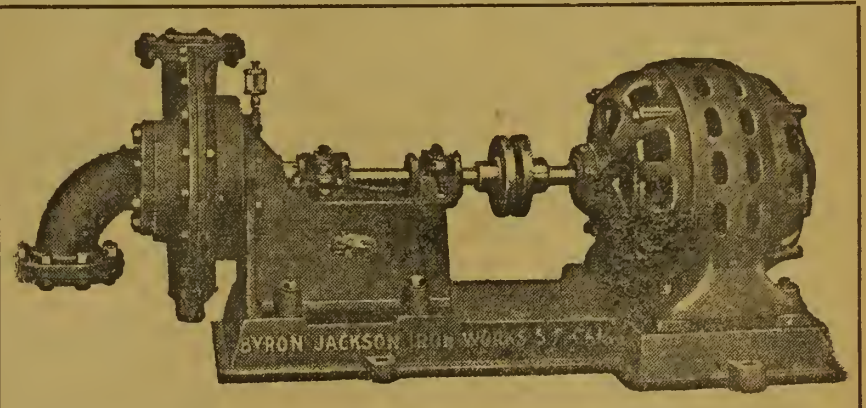

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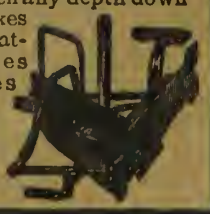

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and plain buttons and nothing else gives more of a look of repose to the living room than an elaborate sofa pillow that cost hours of effort.

But where to put the overflow. Well, here is something one girl made for her mother, which has stood the test of time. A wooden cheese crate from the grocer's was mounted on four legs and painted flat black. The inside was lined with gay cretonne like the window curtains and hanging outside of the box at each of four sides was a bag of the cretonne, each drawn up with a different colored ribbon. The bags were to sort the unfinished work and could be quickly identified and carried away when leisure moments came for hand sewing.

FOR THE CHILDREN

By Martha

Help the little ones to develop into strong men and women by providing each its own small bed.

Scientific men say that honey is a much more healthful sweet for children than sugar. It needs no digestion as sugar does and even acts as a digestive aid.

When a child has bow legs, rub the outside of the legs from the ankle up toward the knee with hot salt water each night and morning for at least ten minutes. This strengthens the weak muscles of the leg.

When a child has croupy cough, take a piece of alum, powder it and put in one tablespoon of sweet milk and have the child swallow it. This will cause it to vomit at once and then the trouble is over.

For thrush, throat and mouth affections in children, paint the affected parts night and morning with borated glycerine, and use this for small cuts, burns, bruises and all irritations of the skin. This lotion is made with five parts by weight of boric powder to ten parts of glycerine, and this must be warmed and stirred until the powder is dissolved. This makes one of the best washes for sore or inflamed eyes.

An excellent and cheap toilet powder for children is made with three parts cornstarch to one part boric powder with a few drops of perfume added but when a child is very chafed and sore the powder is used alone.

One really owes it to a child to give him a fair start in good table manners, and when once learned and followed for a time, correct deportment at table, as elsewhere, becomes a habit, one which may save its possessor considerable mortification at various periods through life.

INEXPENSIVE AND SATISFYING

Hungarian Goulash

A little left-over cooked meat may be the basis of this delicious. well flavored goulash: Two cups cooked meat, three carrots, three potatoes, one can tomatoes (one pint), one teaspoon chopped green chile, one onion, one small bay leaf, one and one-half teaspoons salt, one-fourth teaspoon pepper, two tablespoons fat, five tablespoons flour.

Cut carrots and potatoes in thin slices, cook in boiling salted water till tender and drain. Cook tomatoes, chile, sliced onion and bay leaf five minutes and remove bay leaf. Melt fat, add flour, salt, pepper, tomatoes and one cup water and bring to boiling point. Add vegetables and meat cut in pieces and serve when thoroughly heated.

Stuffed Beef Heart

One beef heart, two cups soft crumbs, one tablespoon fat, one teaspoon salt, one small onion, one-fourth teaspoon pepper, one-fourth teaspoon sage, one cup ripe olives.

Remove arteries, veins and fat from the heart. Mix crumbs, melted fat, finely chopped onion, sage, and stoned and chopped olives. Moisten with enough hot water to hold together. Stuff heart and sew up the opening in such a way that stuffing can not cook out. Sprinkle with flour and brown in little hot fat in frying pan. Put into kettle, cover with boiling water and boil 15 minutes. Then cover and cook below boiling point till tender. Serve with a gravy made by thickening stock. This is delicious cold as well as hot. Cut in thin slices and serve with tomato catsup. It is an excellent substitute for the more expensive cuts of beef.

Spinach Loaf

One-half tablespoon fat, one tablespoon flour, one-half teaspoon salt, one-half cup milk, one-half cup grated cheese, one can spinach, one cup crumbs, one tablespoon lemon juice, one egg.

Drain and chop the spinach. Melt the fat, add the flour, salt and milk and stir till it boils. Add the cheese, spinach, crumbs, lemon and beaten egg. Pour into a greased baking dish and bake 30 minutes. Serve with tomato sauce.

Chile Beans

One can baked beans, one small onion, one tablespoon brown sugar, one tablespoon chopped green chile pepper, one can tomato sauce.

Chop the onion very fine and mix with beans, chile pepper and tomato sauce. Pour into a greased baking dish and sprinkle the brown sugar over the top. Bake 30 minutes.

THE STORY OF "TRAMP"

He was just a stray dog when he came one night to the house of some kind people who took him in. Later they had to move away but they got him a home with his present owners. He had been called "Tramp," which is not a very good name for a dog who has a home. He is of no particular breed, a little bulldog, a little of everything else, in fact, he is just plain dog, but everyone who loves dogs knows that it isn't the breed, but the dog that counts.

From the very first he liked to be close by the baby and would sit for hours beside the cradle where she slept, and when she was taken out for a ride, Tramp walked sedately beside the little carriage.

One morning both master and mistress went away to do some errands, leaving the baby asleep in its bed, the two older children playing near by, and, of course, Tramp on guard as usual. Suddenly the two older children, both under seven, saw flames at the head of the stairs, and in another moment the whole upper floor was on fire. They screamed and ran out of the house and the neighbors, hearing their cries, came running into the yard. They reached there just in time to see Tramp dragging the baby by its clothing. He came out the back door, then he crossed the yard and dropped the child into a snowbank. Brave little dog, his first thought had not been for himself, but for the baby, and seeing the danger which threatened, he had lost no time in bringing her to safety. Since that day Tramp has been considered one of the family, and the best in the house is none too good for him.—Our Dumb Animals.

A LESSON IN ADDITION

A. P. Sandles, a well known agricultural leader, submits a lesson in addition that merits the most careful consideration of every boy as follows:

"Twenty plus fifty is more than fifty plus twenty. This rule is true when life's work is added up.

"Today, a boy is twenty. A man is fifty.

"Today, we give to both a scientific knowledge of agriculture, and the secret of growing more crops per acre.

"Three score years and ten, they live and labor.

"At the end of life the boy's product, from soil and toil, will exceed and excel that of the man who waited until fifty to begin to farm the best he could.

"After the lesson was learned, the boy had fifty years to labor. The man had only twenty.

"He who plows and plants adds wealth to the nation. Twenty plus fifty is more than fifty plus twenty."

HOT DISH MATS

Mats are useful in preventing the marring of dining table tops by hot plates and dishes. A material for mats that has found considerable favor among housewives recently is a pyroxylin coated fabric made to resemble leather and largely used in place of leather for upholstering furniture, automobiles, etc. It is to be had coated on both sides, or with napped back. What makes it especially adapted as a mat material is the fact that it is waterproof. No liquid, hot or cold, can penetrate it. If it becomes soiled, it can be washed without changing its appearance, with ordinary soap and water.

The Cultivator Patterns

BE SURE TO SEND SIZE

2855. Girl's Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. Size 10 requires 3⅞ yards of 27 inch material, with 1 yard for bolero. Price, 10 cents.

3215. Ladies' Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 6⅞ yards of 40 inch material, or 4 yards for the underwaist and skirt, with 2⅞ yards of contrasting material for overblouse and tunic. The width of the skirt at its lower edge is 1¾ yards. Price, 10 cents.

3193. Boy's Suit. Cut in 4 sizes: 3, 4, 5 and 6 years. A 4 year size will require 2½ yards of 44 inch material. Price, 10 cents.

3190. An Attractive Apron. Cut in 4 sizes. Small 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. A Medium size will require 5¾ yards of 36 inch material. Price, 10 cents.

3217. A Good School Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. A 10 year size will require 4¾ yards of 36 inch material. Price, 10 cents.

2869. Misses' Dress. Cut in 3 sizes: 16, 18 and 20 years. Size 18 will require 5¼ yards of 36 inch material, if skirt is made with tucks, and 4¾ yards if made without tucks. Width at lower edge is about 1 2-3 yards. Price, 10 cents.

3195. A Dainty Frock. Cut in 4 sizes: 4, 6, 8 and 10 years. A 6 year size will require 3¼ yards of 36 inch material. Price, 10 cents.

3204. Ladies' House Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 8⅜ yards of 24 inch material. The width of the dress at the foot, with plaits extended, is 2¼ yards. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS
10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

INDIRECT LIGHTING

Have the walls and ceilings of your rooms of a light color and use lighting units that conceal the source of light. See that no reflection from polished desk tops and calendered papered enters the eyes. The eyes are very sensitive to the entrance of light from below, as anyone having had experience with sunlight reflected from snow well knows. Semi-indirect units are good for parlors and sitting rooms, but for offices the total indirect units with light colored walls and ceilings are far better.

PRESERVE THE MARKET BASKET

A good willow market basket could be bought a few years ago for a dollar. We all know what a nice one costs now. It pays to keep the old basket in good condition as long as possible.

It will help to do this by applying a coat of stain finish, obtainable at any paint store. This makes it weather proof.

SCALLOPED SALMON AND PEAS

One can salmon, one cup white sauce, salt and pepper, a few leaves of mint, one pint peas, one onion.

Drain liquid from the salmon and pick free of all skin and bones. Cook the peas until tender, add the sauce, colored with a little spinach juice, and the crushed mint leaves. Place a layer of the salmon in tbe bottom of a glass baking dish, over this layer place the peas, and on top of that the remainder of the salmon. Season tbe peas well with salt and pepper and the chopped onion before placing them in a baking dish. Cover with a few buttered bread crumbs and bake in the oven for about 30 minutes.

RICE PUFF

Half cup rice, one-fourth pound cheese, one egg, one-half teaspoon salt, pepper if desired.

Boil the rice and while hot stir through it about half the cheese cut into thin slices. Season and add the beaten egg. Turn into buttered bake dish and slice remainder of cheese over the top. Set in hot oven about 15 minutes.

A ONE EGG CAKE

One-third cup shortening, one cup milk, four teaspoons baking powder, one and three-fourths cup flour, one cup sugar, one-quarter teaspoon salt, one egg.

First cream the shortening, then add the sugar and beaten egg, also part of milk and part of flour. Beat thoroughly, then add the remainder of the milk and flour. Beat thoroughly again.

SWISS STEAK

The toughest piece of steak may be made tender and palatable by pounding salt, pepper and flour into it, browning thoroughly in hot fat, adding water, covering closely, and allowing it to steam for about an hour, or until tender. This is known as Swiss steak.

DIFFERENCE IN DOGS

Sam was reading the paper, when suddenly he snorted, and addressed Mrs. Sam:

"What tomfoolery, Maria! It says here that some idiot has actually paid a thousand guineas for a dog!"

"Well, my dear, those well bred dogs are worth a lot of money, you know," answered his wife.

"Yes, of course, I know that. But a thousand guineas! Why, it's a good deal more than I'm worth myself."

"Ah, yes, Sam, but then some dogs are worth more than others, you see."

ONE WAY OF IDENTIFICATION

"We got twins over at our house," said Johnny, boastfully, "and they're alike as two peas.

"How do you tell 'em apart?" asked the neighbor.

"Oh, I put my finger in John's mouth, and if he bites I know it's Jim."

WASN'T HER FAULT

Doris was rather backward in her studies, and one day when her father was inquiring into her standing at school the little girl admitted that she was the lowest in her class.

"Why, Doris, I am ashamed of you!" exclaimed the mother; "why don't you study harder and try to get away from the foot of your class?"

"It ain't my fault," replied Doris, in tones of injured innocence, "the little girl who has always been at the foot has left school."

A CULINARY DEMAND

"Sure, mim," said the new cook, suddenly appearing in the doorway, "could I be afther borryin' th' boss's safety razor for a little whoile?"

"Safety razor?" echoed Mrs. Noo. "What for, Norah?"

"Sure, mim, I want to shave that rabbit before I sthew him.——Harper's Weekly.

SILENCE FOR REVENUE

"Of course, you have some convictions in matters of public concern."

"Mebbe," replied Farmer Corntossel.

"Well, why don't you come out and express them?"

"I dasn't. We've got boarders from all political parties."

YES AND NO

City Lady (down on the farm)—"Oh, what cute little cowlets."

Farmer—"Pardon me, Madam, those are bullets."—Quoted.

To mend buttonholes in neckbands of shirts, stitch pieces of tape flat along each edge of the buttonhole (and also on outer edge of tape) and bring together firmly at its ends.

Before doing spattery, dirty work at sink or table, put a thick piece of paper on the floor to stand on and later be burned. Saves the floor or its covering and does away with much sweeping and mopping.

Two Ameerican negro soldiers were discussing musical instruments. "Yar," said one, "I'se gwine ter git me a eucaliptis." "A what?" queried the other. "A eucaplitic—dat's a musical instrument, fool." "Go on, nigger! You can't kid me—dat's one of de books ob de Bible."

A Georgian from up in the mountains came to town on his annual trip with a load of corn, sweet potatoes and other produce to exchange for groceries. As he neared the city he saw a sign: "Speed Limit 15 miles an Hour." Prodding his oxen frantically with a stick he muttered: "By golly! I don't believe we can make it."

If you cannot be outdoors as much as you would like, at least let in all the sweetness of outdoors that you can—its fresh air, bird songs and flowers. Some of its sunshine will have to be excluded on account of the heat, but stale air is not cooling or restful.

Use black mosquito netting as a foundation for darning large holes such as boys wear in their stockings at the knees. This makes a firm, quickly done darn.

An easy way to remove a water stain from a table cover you do not wish to wash is to bold the stain over steam, shaking till moist, not wet. Take from the steam, shaking till dry.

A tablet in memory of the horses, dogs and other animals whose lives were sacrificed in the great war is soon to be erected in the state house of Massachusetts.

The loose parts of a gas range frequently become so greasy and dirty that they can scarcely be cleaned. Place these parts on the coals in the wood stove when the fire is low and it will quickly burn them quite clean without injury.

A teaspoonful of ammonia in a cupful of water will clean gold or silver jewelry. A few drops on the under side of a diamond will clean it immediately, making it very brilliant, at the same time doing the stone no harm.

Try this good and easily made toast. Dip stale bread quickly into cold, sweet milk, or brush a little cream on either side, then crisp and brown in the oven. It will need no butter.

Many very fine residences are not "homes."

THE refreshment tray can always thank Ghirardelli's Ground Chocolate for its magic aid. Creamy hot chocolate to drink; cakes with possibly a chocolate filling and frosting; waxy squares of chocolate fudge—not to mention countless other "goodies"—appear in a twinkling when the hostess summons the ever-ready can of Ghirardelli's.

Never sold in bulk—but in cans only.
In ½ lb., 1 lb. and 3 lb. sealed cans—
at the store where you do your trading.

Say "Gear-ar-delly"

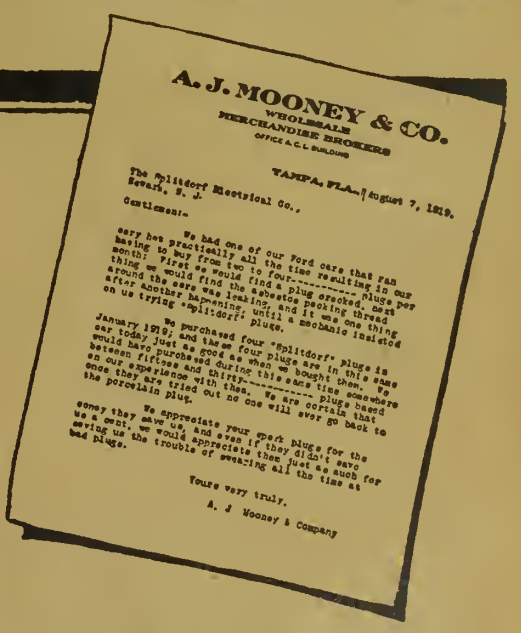
D. GHIRARDELLI CO.

Since 1852 San Francisco

(F2)

GHIRARDELLI'S Ground Chocolate

"For the money they save us"



A. J. MOONEY & CO.
WHOLESALE MERCHANDISE BROKERS
OFFICE A.C.L. BUILDING

TAMPA, FLA., August 7, 1919.

The Splitdorf Electrical Co.,
Newark, N. J.

Gentlemen:-

We had one of our Ford cars that ran heavy but practically all the time resulting in our having to buy from two to three sets of plugs per month. First we would find a plug cracked, next thing we knew was a leaking, and it was one thing after another happening until we came to the conclusion that we would find the asbestos peeling somewhere around the core was the trouble, so bought them. We tried another make with them, but they were no better on us trying Splitdorf plugs.

We purchased four "Splitdorf" plugs in January 1919; and these four plugs are in this same car today, just as good as when we bought them. We would have purchased during this same time somewhere between fifteen and thirty---------- plugs based on our experience with them. We are certain that once they are tried out no one will ever go back to the porcelain plug.

We appreciate your spark plugs for the money they save us, and wish if they didn't save us a cent, we would appreciate them just so much for saving us the trouble of servicing all the time at bad plugs.

Yours very truly,
A. J. Mooney & Company

The plug with the Green Jacket

THOUSANDS of engine owners have eliminated the item of spark plug cost from their up-keep by the use of Splitdorf Spark Plugs. The main reason is that "The Plug with the Green Jacket" is insulated with East India Ruby Mica that never chips, cracks, or breaks. Each one is absolutely guaranteed against breakage.

There is a type best suited for every engine. Write for booklet designating the type for *your* car, tractor, or truck engine.

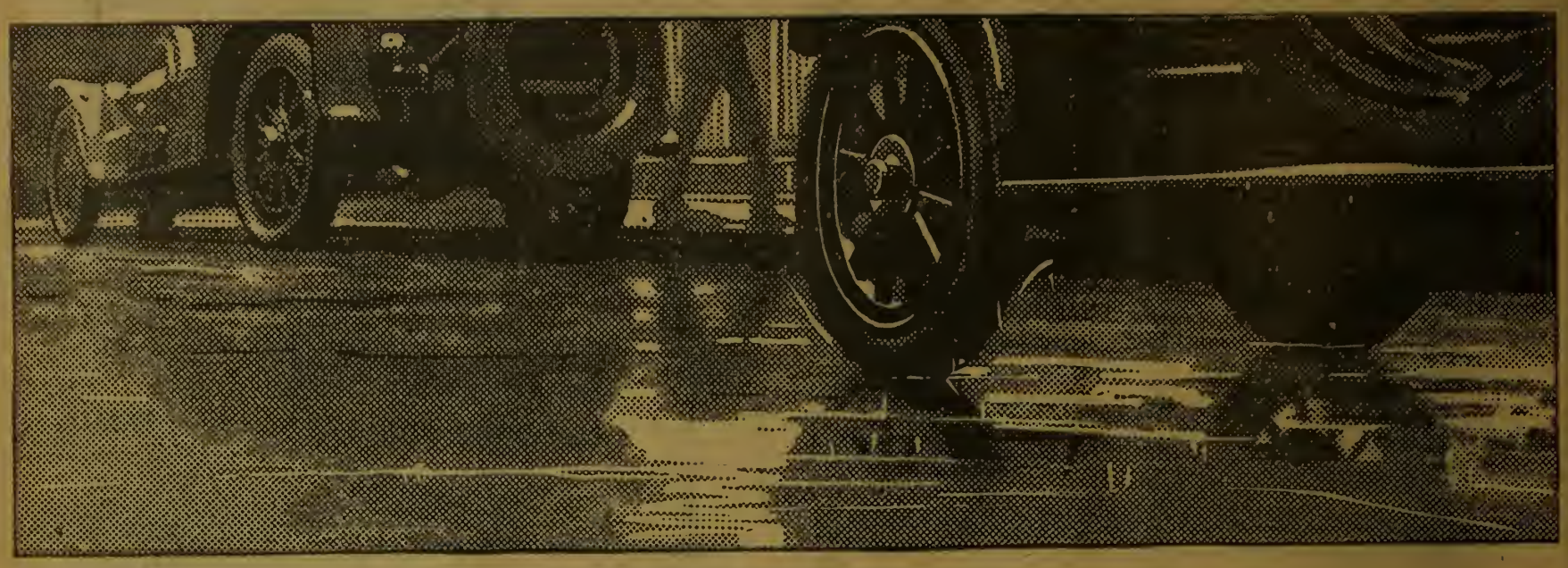
SPLITDORF ELECTRICAL COMPANY
98 Warren Street, Newark, N. J.

TRADE SPLITDORF MARK

Established 1858

When Writing Advertisers, Mention the Cultivator.

Better Tires *not* More Tires



Every time a tire is left standing in a puddle of water, the tiniest hole is likely to let enough water through to loosen the fabric, separating it from the tread and allowing sand and gravel to work in.

Go over your tires carefully every now and then and seal every cut or hole.

EVERY motorist remembers how it was with his first car. If he heard the slightest unfamiliar noise—a piston slap or a buzzing gear or a creak in the body—it was a serious matter. His friends were always ready with some helpful advice.

But the only time his tires ever made a noise was when he had a blowout.

Then everybody laughed.

The owner generally put on a new tire, paid his losses cheerfully and tried again.

* * *

For years the irresponsible tire dealer traded on the good nature of American motorists.

His idea of business was to sell a man two tires to replace an old one and to console him with the thought that after all motoring is a "great game."

Even today *not one motorist in five* is getting what he is entitled to in tires.

* * *

More and more the motorists of this country are learning that the remedy for high tire costs lies in *better tires*—not more tires.

And that getting better tires means first of all going to the legitimate dealer—the man who sells the known article and who does not attempt to substitute the unnamed or the unknown for the sake of more profits.

Since the beginning the United States Rubber Company has been looking forward to the time when motorists everywhere would come to *quality* in tires.

Building more tires every year, but never more than it could build in conformity with the highest standard of quality.

* * *

The responsible tire dealer never refers to his business as a game. It is a *business proposition* with him—and he knows the only way to make good in business is to make sure of the confidence of the motoring public.

United States Tires

United States Rubber Company

Fifty-three Factories

The oldest and largest Rubber Organization in the World

Two hundred and thirty-five Branches

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — May 1, 1920 — No. 18

Rich Pastures for California Range Cattle

A Survey of Cattle Ranges is Made by Mr. Spellmeyer and While There Are Some Disappointments, There are "Fine Feed and Fine Indications" in Many Sections

THE end of the range cattle industry in California has been deemed by some to be almost here. California's orchard interests have grown amazingly in importance and the cattle and sheep industry, so far as it depended upon range conditions, has to an extent decreased, but during the past half dozen years more general study has been made of the possibilities. The forestry service has given it encouragement; the Cattlemen's Association has been organized and today has a most enthusiastic membership, and saving the wastes of California hillsides and forest reserves is becoming a real patriotic service.

This is a season in which there has been a severe testing of the cattlemen who have depended upon the ranges. The spring rains, have, however, saved the day for many a cattleman. Many, however, are still asking: "But have they?" The most helpful answer is given by Mr. Spellmeyer. He has been making investigations from the extreme southern end of the state to the north central portion, and we trust cattlemen will find helfpul suggestions in this report of his survey. It is short and crisp but straight to the point and gives the information desired.

By A. L. Spellmeyer

San Diego County

Good, plentiful rains. Could use more cattle.

San Jacinto and Hemet

Fine feed, good crops. Better range feed than for 20 years some old timers say. Can use more cattle.

Victorville, Lancaster and Desert

Good desert feed, best for years, cattle doing fine, tendency to overstock, but present feed for three times the cattle they have now.

Los Angeles County

Much natural feed for small lots of stock. All better than normal. A garden spot and everything doing fine, crops and range feed.

Tehachapi District

Slow feed and rather cold, but fine rains and apparently sure late feed for several thousand more cattle within 60 days and good chance for September beef.

Bakersfield District

Feed is fair but disappointing except in certain favored locations. No demand for cattle to amount to anything, yet.

Porterville-Visalia District

Fine feed and fine indications. Need more cattle, especially foothill men who go to high Sierras. No stock movement owing to uncertain market for beef due to manipulation, rather than supply or demand.

Madera-Merced District

Feed started but neither normal in quantity nor quality. No overflow for several years in some of districts which are heavy feed producers. Very few cattle and very little demand comparatively. Future of this district depends upon more rain in quantity, as the showers are not adequate. Grain is suffering throughout the San Joaquin already and under-normal crop predicted with certain loss already.

Santa Barbara and Coast District

Extra good year, plentiful feed. Will have beef. Fairly stocked but lighter than usual in numbers.

W.I.R.E.D.

STORAGE BATTERY

Willard Th[illegible] Insulation

Insulation - the most important thing inside your Battery

Insulation is the material between the positive and negative plates, which keeps them from short circuits and thus safeguards the satisfactory performance of your battery.

Insulation, if it's *Willard Threaded Rubber Insulation,* keeps right on doing this important job to the very end of the battery's life—*but* if it is ordinary wood insulation it usually wears out before the plates do and has to be pulled out and thrown away and *you* have to foot the bill.

It is absolutely a fact that nobody had ever devised a really bomb-proof, good-for-life automobile battery insulation that would last as long as the plates, till Willard invented Threaded Rubber and put it between the plates of the Still Better Willard Battery.

Therefore seeing it's the one most important thing inside your battery, drop in and see me next time you're in town and let's talk this question of *insulation* over in more detail.

Willard Service

REMEMBER!

Batteries may be starved to death.
Batteries may die of thirst.
Batteries may be injured by overheating.
Batteries may freeze to death in winter.
Any battery will ultimately wear out.

Willard Service can help you avoid all but the last.

California Cultivator

Vol. LIV, No. 18 | Los Angeles, May 1, 1920 | One Dollar Yearly

Tree Inspection Records

By C. C. Miller

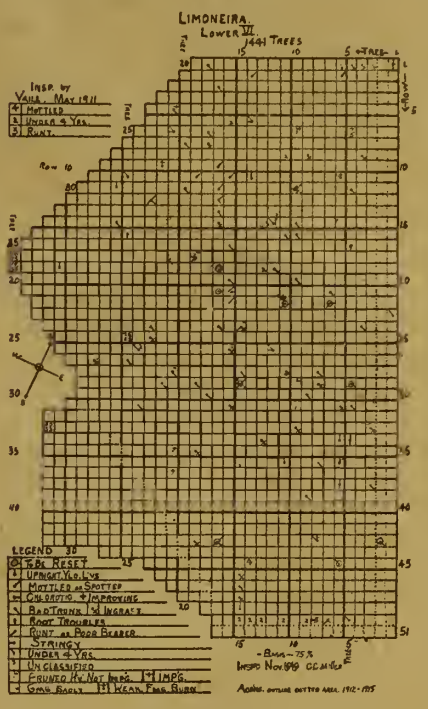
WHEN returning to a tree for the purpose of reporting its condition it is often very difficult to recall or form an exact mental picture of what the tree looked like the year before. Some previous notation will aid the inspector and will enable him to make comparisons and arrive at some definite conclusions. Written out notes or card systems are more complete, but after a time become cumbersome and are not easy of access. Photography may be employed to supplement any form of tree notes and is very useful in compartive work where exactness is required in checking up the results of specific treatments. The chart here reproduced for the readers of the California Cultivator illustrates a simple method of analyzing tree conditions while in the field. The outline of the section is drawn over a sheet of cross ruled paper 8½ by 14 inches and is suitable for filing away in loose leaf folders. If so desired, cross ruled outlines may be made upon transparent cloth parchment and blue prints made of the section or orchard.

Each hollow square as drawn represents the ground area occupied by a tree, and a dot in the center the location of a tree trunk where some notation is desired. Lines radiating out from the central dot in eight directions, together with other simple marks, register different ailments and are explained in the legend. Heavier lines are drawn every five trees each way to aid the eye in locating tree squares. Rows commence at the top of the chart and count down—tree numbers from right to left, always away from the most conveniently located corner. To locate a tree in its proper square on the chart it is necessary to follow the line of its row number from right to left to where it intersects with the line of its tree number running from top to bottom. For convenience all trees should have two numbers painted upon their trunks, one above the other; row number above and tree number below. All trees will show by their numbers that they are so many rows down from the point of beginning and a certain number of trees in from the point of beginning. The chart may be carried folded up as a road map in an inside pocket and ready for reference or a new notation at any time. Soon many trees will assume a distinct individuality; sick trees will receive more special attention and drones will be uprooted.

We are often asked if it really pays to keep watch on individual trees and make records. In answer we can state with certainty that it not only shortens the rounds of an inspector but enables him to check up his work and save many a tree that might otherwise be lost sight of. From the very beginning of his active management of the Limoneira properties. J. D. Culbertson has encouraged and assisted men at the heads of the several departments in making out permanent records of work done in the orchards, such as cultivation methods, insect control and the records of individual trees which could not be brought up to a fair standard of production and trees infected with disease. It was often very hard to get the newcomer to appreciate the value of comparative data put down for future reference. Mr. Culbertson has maintained that memory could not always be depended upon in such vital matters as orchard practices carried on over a term of years and that in order to trace an effect to a cause, the history of cultural methods, whether it be applied to a tree, a row, or a block of orchard, must be accurately known if we were to profit by past mistakes.

R. S. Vaile made an inspection of the section illustrated, in 1911. Tree 12-10 is still mottled; has a crooked trunk and continues to be a runt. Tree 45-14 has entirely recovered and is now a fine tree. Tree 50-8 has a fair set of fruit but is stringy in growth. Tree 18-19 is stringy and is still a runt in spite of the fact that it has been specially cared for and heavily pruned. Tree 22-11 is now badly chlorotic and a runt and it is believed that further observation will not do us or the tree any good, so it is recommended reset. Three 29-15, classed as a runt by Mr. Vaile, is now spotted, has a bad trunk and noticeably still a runt, so will be reset.

Trees that are normal and average above a given percentage of the actual condition of the section receive no notation in their respective squares.



The block of orchard may be noticeably below average either in the condition of the trees or in the amount of fruit on the trees at the time of inspection, and this fact should be noted on the margin of the chart and taken into consideration when judging the trees individually.

Runts may be located and poor bearers eliminated in deciduous orchards if a few years of records are made at fruiting time and carefully set down for comparison. Lemon trees will show up most of their weaknesses in the fall of the year.

Before a tree to tree inspection is made, the section or orchard as a whole should be sized up and a comparison made with past years as regards the general condition of the trees and the probable fruit yield. Then after a comparative average with other years is arrived at, the best trees or group of trees are looked over carefully and taken to represent 100 per cent condition for the time being. It may be that the orchard is below its average seasonal condition and if so this fact should be written out. Then going farther into the section, groups of trees are noticed which are out of condition, and if so desired, a light pencil circle is drawn around the outer bounds of the group and on the side of the chart a notation made as to the probable cause. The object of the first preliminary survey must be to get at the fair average condition of the trees at the time when tree to tree inspection is made. Comparative data is most necessary, for it may be that some cultivation practice is at fault, or a weakness has been accentuated by fumigation, by spray or by faulty pruning methods, and it is necessary to keep such factors in mind when passing on the condition of trees individually.

Characters may be adopted which are suited best to the individual's needs. Quick comparisons may be made by laying charts of diferent dates side by side. Water colors applied with a very fine brush are very good distinguishing marks when transfering data to permanent records. It is hard to get the habit; almost like keeping up a diary, but once well under way, making tree records will become as interesting and as important as keeping the pedigree of animals. It will furnish a source of much information and will pay well for the extra time spent upon it.

Water Conservation

By E. L. Koethen

A PARTY of about 35 had a demonstration of practical water conservation at the cone of the Santa Ana River intake on May 15 when they inspected the work that has been done there in spreading water over the cone.

The party consisted of directors of all the water companies in Riverside and Orange Counties who are interested in this source of water. President Francis Cuttle of the Water Conservation Association headed the party.

There are four points from which the water is diverted from the main channel. At the present time about 6,000 inches of water are being sunk into the gravel by spreading in small streams and creating ponds over a large portion of the surface. The association controls about 3,300 acres where water could be spread. By extending their work 160 inches of water could be sunk per acre. But if only ten inches per acre were sunk, it would amount to 3,000 inches, and if but a small portion of this were eventually utilized as irrigating water it would represent a large amount of wealth for the Santa Ana Valley at the prevailing price of $1,000 per inch.

The immediate occasion for this inspection was to view the working of a new type of dam that has just been installed, and which is doing the work with satisfactory results. It is the Pratt type, consisting of an iron frame with posts holding wire netting of one-fourth inch caliper with six inch mesh. There are two tiers of these, one being 6½ feet above the surface of the bed and three feet below, with an apron running 16 feet up stream from the dam and resting on the bottom. The top of the dam is faced with a wooden sill and is on a dead level. The secondary dam is about six feet below the upper one and is 5½ feet high. The one wing is anchored to a concrete intake while the other is constructed up stream a sufficient distance to insure permanence, perhaps one-half the width of the dam up stream.

When the flood came this was an empty frame and in a few hours the grass, sticks and other debris had accumulated sufficiently to make a close dam, and sand and gravel completed the surface of a new stream bed six and a half feet above the original bed. At the height of the flood it was covered by a stream about four feet deep and approximately 110,000 inches of water were flowing over it, and yet it held perfectly. This was constructed at a cost of $1,375. The association has thus far expended an annual amount of about $2,500. This year it amounted to $3,500, and the wonder is how they have been able to do so much for so small a sum. Mr. Cuttle made an appeal for larger appropriations, and it was the unanimous opinion of those present that from $15,000 to $20,000 should be made available for this work in order to install new dams.

When one considers the real import of this work, one is amazed at the result. We have just gone through several years of deficient rainfall. In the past these periods have been followed by the lowering of artesian wells in the San Bernardino basin to points many feet below the flowing level. As a matter of fact, the west portion of this basin, which receives its water from Lytle Creek, is now below normal level and water in normal flowing wells is eight feet below the surface, while those wells located in the east section under the Santa Ana

(Continued on Page 732.)

Agricultural News Notes of the Pacific Coast

Northern California

Sheep shearers are receiving 21 cents per head.

It is estimated that California will ship 10,000 cars of peaches this season.

Grape growers of Livermore Valley are organizing grape growers association.

Livermore, Alameda County, is discussing the formation of water district.

The agricultural clubs of Eldorado County will hold May Day festival at Placerville.

There is considerable interest in sweet potato planting in Placer County this year.

The usual thousands of California producers picnicked at the University Farm, Davis, last Saturday.

Owing to the switchmen's strike many stockmen employed large trucks to deliver sheep and cattle.

Most Sacramento Valley fruit producing sections report fruits at least ten days in advance of last season.

Florin, Sacramento County, will ship at least 15,000 crates of strawberries. The season is at least two weeks early.

Henry Ahart of Lincoln is wool director for Placer County in the state farm bureau wool pool now being formed.

The park commission of Chico, Butte County, has set aside five acres in Bidwell Park for an automobile camping ground.

The annual meeting and picinc of the Mt. Pleasant, Placer County, farm bureau will be held on May 8 at the community hall.

Eldorado County farm bureau is doing most effective service for members through the work of the auction sale committee.

Local meetings of the Tehama County farm bureau will be held at Corning, April 21; Liberal, 22; Los Molinos, 26; Proberta, 28.

Members of the farm center at Livermore, Alameda County, recently took a two day trip and enjoyed institutes and picnic.

Expert sheep shearers at Dixon, Solano County, have earned as high as $31.50 per day this year. The most expert of the bunch has a record of 150 sheep per day.

The chamber of commerce of Grass Valley, Nevada County, is working on a plan for the formation of an irrigation district to cover lands in Nevada, Yuba and Sutter Counties.

The University of California has taken over 2,000 acres in southwestern El Dorado County and in addition has leased 1,300 acres of mountain range to be used as an experimental cattle ranch.

San Francisco commission men refused to purchase or handle peas delivered by the Alameda County Pea Growers Association. They insisted the price named by the pea growers was too high.

President Tucker of the California Almond Growers Association has just made an extensive tour of the northern counties and states that damage to the almond crop from drouth and heavy frost is more severe than he had expected from reports that reached the office.

Central California

Fresno has been compelled to truck in its sugar from Stockton.

Dinuba, Tulare County, is making a special squirrel campaign.

Dr. Boncquet has been appointed plant pathologist of Tulare County.

Farm bureau center at Poplar, Tulare County, is discussing matter of hog sales.

Lindsay hauled ice by truck from Fresno to save picked oranges during switchmen's strike.

The Farmers Union recently held quarterly convention in Turlock. State president presided.

Aromas, San Benito County, is discussing the matter of buying auto tires cooperatively.

Kadota figs are to have right of way in packing house to be erected at Reedley, Fresno County.

Tulare County is preparing for a great showing of livestock at the county fair to be held this fall.

The Merced irrigation district has taken steps to secure 120,000 acre feet of water from Burns Creek.

Aromas, San Benito County, is planning for a cooperattive cannery under management of the farm bureau.

The Stanislaus County Farmers Union is planning for a great picnic to be held sometime this month.

Fig growers are hoping to be able to market the coming season's output through the California Peach Growers.

Sealer of Weights and Measures Johnson has ruled that a sack of onions shall contain not less than 100 pounds.

Inyo County is becoming a honey producing center. The representative in the Honey Producers Exchange is A. Trickey.

The South San Joaquin irrigation district is preparing for survey for reservoir on Black Creek, a few miles above Oakdale.

The welfare commission announces that it will give out on May 1 schedule for women's wage in canneries the coming season.

Pajaro Valley reports shortage of apple trees for next season's delivery. Even Eastern farm papers are referring to the "dollar tree."

At the recent annual meeting of the California Honey Producers Cooperative Exchange, Willis Lynch of Stockton, was elected president.

Sales Manager Thomas for the California Peach Growers is investigating marketing conditions in the East and receiving orders for the coming season's output.

The California Peach Growers Inc., is mailing checks for 4½ cents per pound last season's delivery. This brings the average for season up to 14½ cents per pound.

One of the oldest grape vines in Fresno County, taken from the old Eisen orchard near Fresno, is to be carried on a float in the historical pageant section of the Raisin Day parade.

Some cotton growers of the San Joaquin Valley are planting Durango instead of Pima cotton. It had been hoped by cotton planters that the San Joaquin might be kept for exclusive Pima planting in order to keep seed pure.

Southern California

Orange County reports apricot crop half that of last year.

San Diego County will observe May 8 as Inland Highway Day.

May Day was picnic day for Orange County farm bureau folks.

Elsinore and the Perris Valley are planning 4,000 acre cotton plantation.

Farm bureau people of Riverside County picnicked at Moreno last Saturday.

Yucaipa, San Bernardino County, is becoming a large poultry producing section.

"The greatest honey production in five years" is the report of Riverside beekeepers.

The San Joaquin Ranch in Orange County will harvest an 80,000 sack crop of barley.

Cucamonga, San Bernardino County, is planning for a dehydrating plant for wine grapes.

The farm bureau recently held spraying demonstration at Yucaipa, San Bernardino County.

Palo Verde Valley, Riverside County, anticipates its cotton planting will be completed by May 1.

"Greatest flow of honey in five years" is the report of many honey producers in Southern California.

Notwithstanding low prices for lemons, many shipments are being made, especially to Middle West sections.

Cattlemen of California held an important meeting, with greatest attendance ever, at Los Angeles last week.

Prof. Quayle of the experiment station is making an extended campaign and investigation in codling moth control.

The farm bureau center at Chino, San Bernardino County, recently held institute on the Fontana Poultry Ranch.

A consignment sale of Holsteins was held Tuesday and Wednesday of this week at Clearwater, Los Angeles County.

The cannery at Elsinore is being enlarged and equipped with up to date machinery in preparation for the coming canning season.

"Never such wild flowers as may be seen now on the desert" is the report which comes from everyone who has been out to gather bouquets.

Ventura County beet growers are anticipating that from present sugar prices they ought to receive this year at least $20 per ton for beets.

Secretary Van Pelt of the Southern California Fair at Riverside reports building of new stock sheds and stables and preparations for the greatest fair yet.

Orange County farm bureau hopes to ally every farm center with the movement for county fair in a way to make it the greatest agricultural fair yet held in that county.

Large accessions were made to the Cattlemen's Association at the recent meeting held in Los Angeles. Ventura County was one of the banner counties in rolling up membership.

A large corporation is planning impounding and developing waters in San Gabriel and San Dimas Canyons in the Sierra Madre, which will cost four millions of dollars and provide waters for 30,000 acres.

The Coast and General

There have been heavy late snowfalls in the northern counties of Arizona.

Wheat growers of Washington plan large cooperative selling agency with headquarters at Spokane.

A potato grower of Yakima, Washington, has refused offer of $150 per ton for two tons of potatoes.

Jersey breeders of Coos County, Oregon, are organizing to prevent dumping in that section of inferior bred Jerseys.

Warmer weather in the lower valleys of Arizona has brought renewed activity in planting and replanting cotton.

Dairymen of Canyonville, Oregon, have associated themselves for the purpose of cooperative buying of pure bred stock.

Oregon farmers are proposing annual spring clean-up day, their energies to be devoted principally to the back yards.

The cotton acreage of the Salt River Valley of Arizona is estimated at 150,000 and between 30,000 and 40,000 in other parts of the state.

One dollar and ten cents a pound was recently received for several bales of Arizona long staple cotton. The highest previous price was $1.02.

The lettuce crop in the Salt River Valley of Arizona this season has totaled about 250 carloads. About one-half of this was from the Glendale district.

Columbia County Fair at St. Helens, Oregon, is planning to set aside questionable concessions and make special features of clean, wholesome sports as a drawing card.

Forty-five dairymen of the Coos Bay district, Oregon, have formed a cow testing association. This is the fourth association organized since January 1 in Coos County.

The Spokane fruit growers have already received 200,000 apple box shook for the next season's output. Prices are exceptionally high and it is feared that a sufficient supply will not be available.

Jersey breeders of Oregon are making plans for their second annual Jersey Jubilee to be held May 4, 5 and 6 and possibly 7. The celebration takes the form of automobile tours to various Jersey herds of the state.

W. R. Elliott, for the past several years manager of the Salt River irrigation project, has placed his resignation in the hands of the board of governors. A successor has not yet been chosen and Mr. Elliott will probably serve until a man qualified for the place can be found.

Ed W. Stevens, secretary of the Arizona livestock sanitary board, states that "Arizona cattlemen stand to lose a cool million dollars this year from the ravages of blackleg unless prompt action is taken to prevent the recurrence of the malady which broke out on the ranges last year."

Plans are under way for organization of a farm loan association in the Eastern part of Maricopa County. There is a considerable area of land in this section which is not under the Salt River project and the owners of which are therefore entitled to the benefits of the farm loan account.

Lima Beans in Ventura County

By Ernest Braunton

WHEN beans are spoken of in Ventura County it is safe to assume Limas are meant for they have proven far more profitable than any other bean. In parts too remote from the Coast for Limas, also in very light soils, Whites, Blackeyes and other sorts are somewhat grown and though some of these will grow in the best Lima sections, few are planted.

The name Lima is used because the first of the beans reached us from Lima, Peru, more than a half century ago. In 1918 Ventura County grew about 65,000 acres in fields alone and from 6,000 to 8,000 acres in young orchards, a total of more than 70,000 acres. Last year there was a considerable decrease in acreage and one of the largest, oldest and most successful growers told the writer that the 1920 acreage would be at least 25 per cent less than that of 1919. When asked as to the cause for this decerase he replied: "Well, the chief trouble was the importation of foreign beans by the government. Several others expressed themselves likewise.

Preparation of Soil

The planting season varies with the weather, but this year the first planting the writer could unearth was done on April 12. It is seldom commenced earlier and may continue for one month, not longer. Soil preparation also varies much with the seasons, for all is dependent upon rainfall. The farther from the coast the fields lie, the earlier is both planting and harvesting finished. The Camarillo section of Ventura County has but one rival in earliness, and that is the Irvine section in Orange County.

When the harvest days are over the land is plowed as soon as convenient and left in a rough state until about January. Then soil stirring for moisture conservation begins and closely follows after every rain. This frequent and constant working produces such a deep, finely pulverized soil that any crop capable of growth in this soil and climate could not fail to respond to the uttermost. The heavier the soil the greater the cost of cultivation, ranging from five to ten dollars an acre. The first plowing is the most expensive operation, for the soil is stirred as deeply as it is practicable to go.

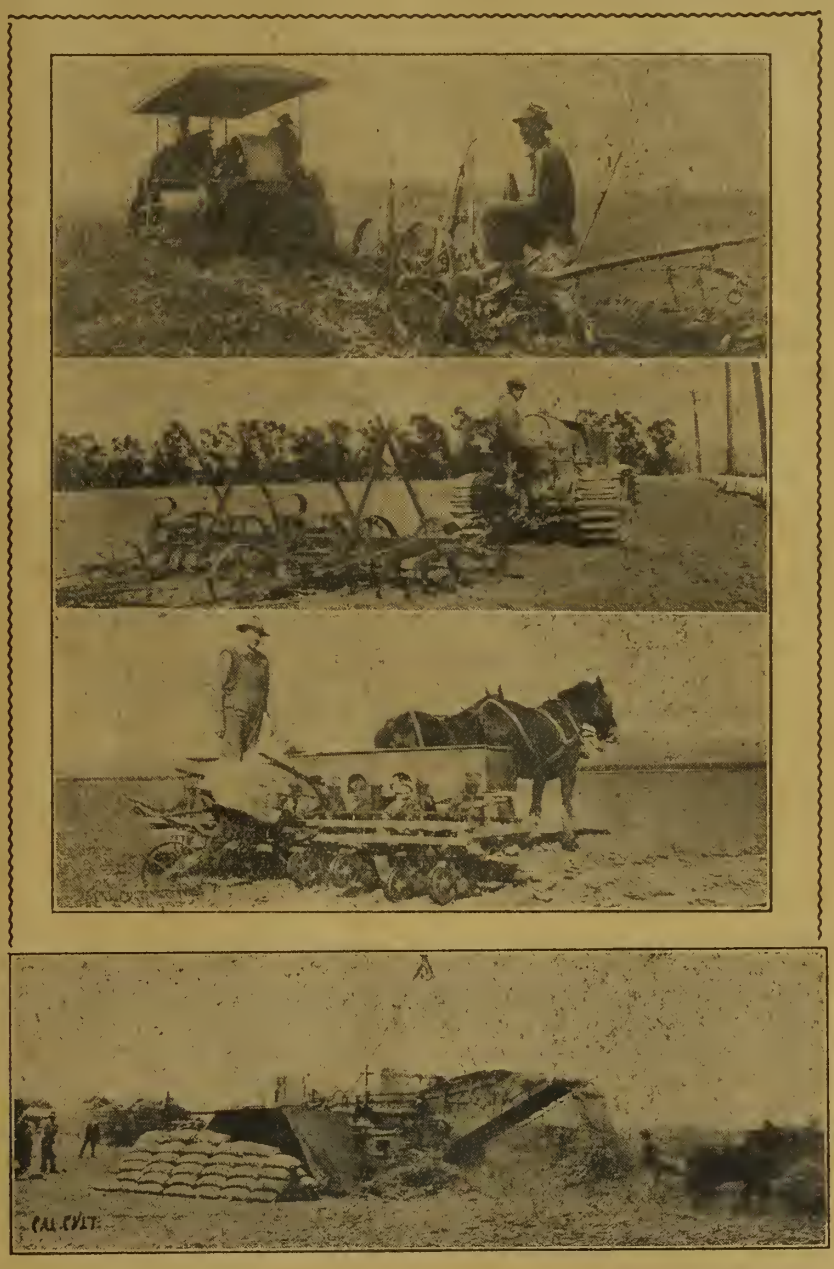
Planting and Cost

Beans are planted 30 to 36 inches apart, according to soil and practice. To furrow for irrigation in light soil, where it rolls back easily, a width of 30 inches will do. In heavier soils where it is thrown back 36 inches is a safer distance. The plants in the row generally run about six or eight inches apart. Thinning is sometimes done but is not general. Cultivation varies with soils, for weeds are not so many nor vigorous on the lighter soils. The amount of seed varies only with space between rows, ranging from 60 to 70 pounds an acre.

The total cost of caring for an acre from the first plowing to harvest is heavy. Time was when an acre cost could be covered with a 20 dollar bill, but under present conditions and costs it may run to $50. This cost is variable, dependent, so far as field practice is concerned, upon the number of harrowings or cultivations previous to planting and the number of cultivations necessary after planting. Wages and practice vary somewhat, but an average cost per acre may run about as follows, exclusive of irrigation, which is not always given: Plowing, $6; five harrowings at $1.25, $6.25; 65 pounds seed at 12c, $7.80; planting, $2.25; thinning (?), $6; five cultivations at $1.25, $6.25; hoeing in rows, $7.50; total, $42.05.

Cost of Harvesting

About four months after planting the harvest commences and the grower is again confronted with a considerable expense. The price of everything has fairly soared in the past two or three years. Bean sacks once were



bought for eight or ten cents each, but when they reached 22 cents the grower was staggered. The total cost of cutting, threshing, delivery, etc., did not run over ten dollars an acre three years ago. Now it would doubtless run about $20.

The cost of harvesting is cut down in many sections by groups of growers who own a thresher and other machinery in common. But professional threshers with big machines handle most of the crop. Small machines are also used, pulled through field by tractors. The variance in handling brings a corresponding elasticity of cost. The harvest usually begins with the cutter, a frame with knives, which cuts two rows at once and throws them into one winrow. They have then to be turned over by hand forks and are in condition to thresh in a week or ten days. Small threshers are fed by hand forks throughout, but large machines have a net device handled by ropes and pulleys that reduces the cost of unloading.

Yields, By-products, Pests

Ventura County seems to be so naturally adapted to Lima bean culture that the unsatisfactory returns of late are doubly regretted, for this section must continue to grow our Lima beans so long as Lima beans are produced in California. While the crop has run as low as five sacks per acre and on poor soils never more, the maximum production has been close to 4,000 pounds. Up to last year, an abnormally poor year, the average yield in recognized Lima bean centers was about 1,750 pounds to the acre.

Bean straw was once thought of little value, was sometimes burned or again plowed into the land for fertilizer, one of its best possible uses even now, at times of high fertilizer prices. But as stock food of all sorts and kinds advanced in price it was found that bean straw had a value for feeding livestock. In the past few years the price has ranged from $5 to $20 a ton.

Thrips, aphids and wire worms are the animal pests most serious, and morning glory, or bindweed, the worst weed. Thrips have never been serious and aphid damage varies with the weather. In some years, 1917 for example, the weather was unfavorable to them and they did little damage. In the previous year, 1916, the loss in some fields was considerable. The damage from wire worms is not general, but in some sections the pest is most serious and hard to control, especially so in the damper soils. The morning glory pest is not on the increase and is being fairly well controlled.

GETTING THE FARMER STARTED

By Frank D. Tomson

It seems to require a long time to induce many farmers to regard the production of pure bred livestock as a practical business. The tendency on the part of many of them still is to look upon it as a "fancy stock" business merely. Through lack of familiarity with the results obtained in the matter of increased production and increased profits, they fail to understand the important part which pure bred livestock can, and does, play in mixed husbandry, regardless of location.

In beef production, it is pure blood that makes greater weight and better quality, which, at the market, brings an increased price. It seems to be a prevailing impression, even among breeders, that it is not practical to raise pure bred streers for the market, but experience has shown, times without number, that there is more profit in pure bred steers than in grade steers and, very often, very much more profit in pure bred steers than in pure bred bulls. The breeder who holds to the opinion that all of his bull calves should be disposed of for breeding purposes has a mistaken notion. There is a great deal of satisfaction in putting out and finishing a lot of well bred calves as steers. They are handled with a minimum of inconvenience and respond readily to feed and when they go to market they find a ready sale at advanced prices.

The farmer who attempts to grade up his cattle from a common foundation has a long road to travel. Though every successive cross of pure bred sires shows a forward stride, even so it is a long road. From the time the first pure bred sire is used until his daughters are of producing age is three years, or a trifle more, and these are only half bloods. Another cross is introduced and three years more are required before the three-quarter bred heifers are of producing age and ten years have passed by the time the heifers of the third cross are producing.

In most cases it would be desirable to put in from two to one-half dozen pure bred females of whatever class the farmer feels that he can afford, then retain the female increase, disposing of the bulls, either for breeding purposes or as steers, whichever seemed to be the appropriate thing to do, and gradually sell off the grades as the pure breds increased in numbers. This would result in a pure bred herd obtained for the cost of keep and the interest on the original investment.

What every man who occupies a farm and grows livestock must recognize is this, that we have long since passed the time when inferior livestock may be grown with a profit and that life is too short to attempt to grade up from a common foundation to the level that satisfactorily meets the conditions.

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and LIVESTOCK and DAIRY JOURNAL

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

MR. THOMAS SELLS INTEREST

After many years of service as business manager of the California Cultivator, Frank H. Thomas retires to take a much needed rest and attend to other business matters. Mr. Thomas first became associated with the Cultivator family in 1906. He soon acquired an interest in the business, and became advertising manager and treasurer of the company. In 1914 he became busines manager and since then has had entire direction of the Cultivator Publishing Company. In 1910 the Rural Californian, established in 1877, was purchased and for a time published as a separate paper. Its publication was later discontinued and its subscription list added to that of the Cultivator. In 1916 the Livestock and Dairy Journal, prior to that time published in Sacramento, was acquired and with it the good-will of the livestock industry. In fact, it was due to Mr. Thomas' foresight that the Cultivator has given every encouragement to the livestock industry. While he realized that California's greatness has been made through its wonderful fruits and that the fruit industry was due to a continued growth in prosperity, yet to secure best advancement for the state more and better livestock was necessary. California is a state of specialists and of specialized crops and to a large extent this condition will always continue, but for the state at large greater diversity insures a continuous prosperity.

Mr. Thomas' interests in the publishing company have been sold to R. M. Teague who has been associated with Mr. Thomas since 1914. Frank J. Ironmonger, formerly advertising and assistant manager, will be business manager, and he will continue Mr. Thomas' policies. This he will be able to do because of more than a half dozen years of close connection with Mr. Thomas in the Cultivator management.

Almost the entire life of Mr. Teague has been spent with California producers. In fact, he has been one of California's largest producers of citrus fruit, and is the world's largest producer of citrus nursery trees. Mr. Teague's practical knowledge of California's conditions and of the requirements of the producers will be used to the utmost in making the Cultivator a practical, helpful farm paper.

SPIRIT OF 1918

County Horticultural Commissioner Waite of Imperial recently made inspecion of packages of "plants" at an Imperial County post office and found the "plants" to consist of two botties of whiskey. The dispatch does not announce as to whether the package pased inspection or not.

SAVE WASTE PAPER

The paper shortage is daily becoming more acute. Unfortunately, there seems to be no promise of relief. It may perhaps be wise for all of us to save the old magazines and waste paper rather than burn them in the trash pile. We have no immediate market to offer, but certainly the day is coming when war time practice of buying these papers will be renewed.

TEAMWORK

California farm bureaus are doing some magnificent teamwork. Often the membership of a county farm bureau represents most diverse producing interests, so much so that cooperation in the way of one association handling all products is impossible, but through teamwork or temporary cooperation fairly satisfactory results are secured.

Just at present in walnut growing sections people of various neighborhoods gather, observe the operation of dusting machines and often cooperate in purchasing dusting outfits. Thus far there has been no work done for the walnut worm, but the aphis is already appearing and dusting machines are busy in nearly every section. The construction of silos, especially their filling, the ownership of bean threshers, of combined harvesters, and other equipment offer to farm bureau members rich opportunity for successful teamwork.

OVERALLS

The overall movement seems to have died a-borning. This is entirely proper. However, it is possible that some of us have learned some lessons in economizing in our clothing. The foolishness of sending society folks to clothing stores to buy overalls in which to attend a poverty dance was so apparent that such a movement could not go far.

As the president of the University of Southern California has remarked: "We may well use good judgment in renewing and pressing into service our old suits. With the wool in a $100 suit of clothes costing from $5 to $8, there is too wide a margin for the jobber, the wholesaler, the tailor and the retailer."

Overalls are admirable in their place, and many of us have worn them with entire satisfaction; but when they are not in their proper place they add neither to efficiency nor economy.

TRUE TO NAME

If there is anything that makes an orchardist right down mad and puts him in a genuine cursing mood it is to plant an orchard, or to plant what was intended to be an orchard, and find that he has trees entirely different from those which he was supposed to purchase. Such a transaction is practically impossible where one deals with conscientious nurserymen, but the keen demand for trees which has prevailed during the past few years has encouraged a number of irresponsibles to become "nurserymen" and foist upon the public almost any kind of a tree which bears close enough resembiance to the particular kind ordered. County horticultural commisioners have been taking a hand in this matter and arrests have been made. Two of these arrests resulted in a $200 fine for each. The charge was simply selling stock untrue to name. We hope horticultural commissioners will continue this fight, for protection is due to the orchardist and to the conscientious nurseryman.

LIKE A SAVINGS BANK

Small sums of money not needed at once, and put in the savings bank, draw interest, and if frequently repeated accumulate and grow into sizeable sums. When opportunity comes they give power to their owner. Waters wasting into the Pacific are like money spent in dribbles, but, stored for use when needed, give power and increase wealth.

Mr. Koethen's account of the water conservation on the upper Santa Ana River has intense interest because of its showing of the saving of these flood waters. These waters are diverted from the main channel, spread over coarse gravelled lands in which they sink to the lower levels supplying wells and springs many miles away, and from which they are taken in irrigation canals to the orchards of San Bernardino, Riverside and Orange Counties.

A similar opportunity is offered at the mouth of San Antonio Canyon. These waters are spead over the gravel lands supplying wells and springs above Pomona, Ontario and Chino. True, there are not many such opportunities in California, but there are some. There should be greater conservation.

HOUSING LABOR

California agriculture is confronted by a serious problem in securing farm labor. More tractors and other farm power, crops which do not require so much labor, and other suggestions have heen made without the complete solution of the problem. At best these suggestions have given only temporary relief. Another is made by Mr. Culbertson in his article in the Cultivator of April 17, on page 649.

It has nothing to do with lessening the requirements for farm labor but recommends making farm life more attractive in order to secure more service more willingly given, in other words, for those having need for labor to forget the old blanket days when the labor practically cared for itself and to secure more permanent service through increasing the number of farm homes. Mr. Culbertson would stop the cry, "Me for the city!" and in its place substitute, "A real home for me in the country." Fortunately, there have been just such provisions made on a few of California's ranches. There will be more.

BUD SELECTION OF PRUNES AND APRICOTS

DEFINITE steps, which it is expected will lead to the growing of larger and better quality prunes and apricots in California and add millions to the value of the annual crops of these fruits, were taken at a meeting held Saturday afternoon in the offices of the California Prune and Apricot Growers, Inc., in San Jose, attended by the leading nurserymen and two score or more representative prune and apricot growers of the state.

As a result of Saturday's meeting the nurserymen who supply the growers with young trees for planting will conduct a series of experiments to develop a prune tree and an apricot tree which will consistently bear larger sized fruit of a quality at least equal to that grown at present. The growers have never been able to produce enough large sized fruit to supply the demand and the natural result has been that prunes and apricots above the average size have always commanded a high premium.

The nurserymen in their efforts to produce a tree yielding a larger sized fruit will take cuttings from trees in various parts of the state which have a record over a long term of years of producing large sized prunes and apricots. Many growers have in their orchards singie trees with such a record and by grafting buds from these trees the nurserymen hope to eventually produce a much higher type of tree than now planted.

Upon the advice of the growers the nurserymen will confine their experiments almost entirely to the ordinary French prune, which now yields about 90 per cent of the California crop. Future plantings, it is expected, will be about 85 per cent French prunes and 5 per cent each Imperial, Sugar and Robe de Sargent.

Cooperating with the nurserymen, the California Prune and Apricot Growers, Inc., which with a membership of 10,000 fruit growers markets about 75 per cent of the California prune and apricot crop, at Saturday's meeting offered to furnish the nurserymen with information from their records showing which orchards in the state had trees consistently producing over a term of years prunes and apricots larger than the average.

In producing a better variety of apricots for drying the growers suggested to the nurserymen that plantings in the San Joaquin Valley be Tilton and Blenheim varieties and in the coast valleys Royal and Blenheims, with small plantings of Moorparks for growers who desire to produce this variety.

UNIVERSITY FARM PICNIC

By R. P. Royce

LAST Saturday thousands of California ranchers and their wives and children, and other thousands of folks from the towns and cities of Northern and Central California, accepted the invitation of the students of the college of agriculture and the university farm school and journeyed to the university farm, Davis, for the twelfth annual picnic. In keeping with a custom, for which little or no reason seems to exist, but which apparently has been settled upon as proper, the weather man dealt a fine windy day—fine for the weather man, perhaps, but rather disagreeable for the visitors. However, no one seemed to mind much. They just held onto their hats with one hand and smiled and shook hands with everyone else and said it was the best picnic ever held. And it was. At least it seemed to be planned on a more extensive scale than former occasions and the boys apparently had put in a lot more studied effort, with the result that the whole had a more finished look.

Events started promptly at 8 o'clock with the livestock judging contest This year's contest was different from other years. Heretofore the contests were staged with little or no special preparation. But the boys decided several months ago that the contest afforded an opportunity to get more training in judging work than was possible under the present conditions, and they set about to hold a contest that would give them the training

(Continued on Page 742.)

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"It is of distinct advantage for us to use Goodyear Cord Tires instead of solid tires on our trucks hauling from orchards, because these big pneumatics track nicely through loose soil or plowed ground and do not really pack it. Solid-tired trucks are assessed $10 a ton here—pneumatic-tired trucks are assessed only $5 a ton because they save roads."—A. M. Edwards, of Edwards & Patillo, Fruit Growers and Truckmen, Fullerton, California

THE gripping and agile qualities of Goodyear Cord Tires on trucks have won for them many significant rural endorsements like the one presented above.

Whether an orchard lies in soft soil, or fencing is to be done in a grassy field, or a mud-bottomed hollow separates the back acres, the big Goodyear Cord Tires go through quickly.

So today farmers frequently point to the tracks of these tires in miry hog lots, soggy meadows and acres strewn with fertilizer, where they have made short cuts and saved time many times.

In all parts of the country, the observer can note crop loads, cushioned on the husky Goodyear Cord Tires, being hauled through sand and bogs, across furrowed earth and up slippery hillsides with impressive ease.

This intense serviceability of the pneumatic truck tire, founded on the supple toughness of Goodyear Cord construction, has been built out of that ceaseless endeavor to improve, which protects our good name.

Now a large amount of information, supplied by farmers and describing the advantages of pneumatic truck tires, can be obtained by writing to The Goodyear Tire & Rubber Company, Akron, Ohio.

GOODYEAR CORD TIRES

Cold Pack Method Not to Blame

Decayed products, not the cold pack method of canning, are responsible for the recent deaths of five people in Detroit who ate ripe olives, say scientists of the United States department of agriculture. They also say that if people would throw away or refuse to eat food that smells spoiled they would be insured against poisoning by the Bacillus botulinus, the bug that has come into the limelight recently through its nefarious behavior. This organism when present in canned food is the cause of active decay.

It is poor economy to eat food which has begun to spoil or rot. The person who does runs the risk of death. In every case observed of botulinus poisoning, the people who served the food knew that it had an unpleasant stench, a smell of decay or putrefaction, and it should never have been put on the table.

Ripe olives, which the Detroit health commissioner claims caused the death of the five in Detroit, are not canned by the cold pack method. No heat is used and the brine is not strong enough to prevent toxin formation.

Successful canning, so far as the danger from poisoning by the Bacillus botulinus is involved, depends not so much on the method selected as on the rejection of infected material at the start. Dirty, wilted and partly rotted food carries multitudes more of organisms into the canning process than fresh, sound, clean fruit and vegetables. Dirty tables, dirty jars and lids, sewage polluted water and flies are sources of contamination which should be eliminated.

Such food as has spoiled should be destroyed. Do not salvage it. If you do, you do it at a risk. It is not fit for human food and should not be fixed up into salads, mincemeat, catsup or pie stock.

Typical spoiled cans are readily identified. Doubtful cases, however, occur occasionally. A consumer unfamiliar with a particular product is frequently puzzled by its odor, as it comes from the can in an apparently sound condition. Cooking appears to be the practical method of eliminating the danger. Heat destroys the toxin, and if the jar, top and contents are heated until the contents to the very center of the jar are at a boiling point there will be no trouble.

Suspected foodstuff should not even be tasted, for death has occurred after tasting two teaspoons of spoiled product which contained the Bacillus botulinus. Feeding suspected food to domestic animals without safeguards is undesirable for some of them are very susceptible to the toxin.

No person should take the responsibility of serving other people any food product which has commenced to decompose. Let your nose be your guide and discard food with a putrid odor, warn the expert food chemists of the department of agriculture.

LIMONEIRA CAROBS

I have noted with interest your article in the last Cultivator on the carob. It will undoubtedly interest you to know that the Limoneira Company has now a plot of somo two acres of carobs two years old planted on a steep, rocky, dry hill, and many of them are five feet high. The seedlings which we planted were potted and very small and we have had a deal of trouble in keeping them wet. The experiment has been largely in my care and I have tried to learn all I could about the carob tree, but the information has been quite limited. I have written to several nurseries to try to get a hundred or more young seedlings, but so far have found none. However, we have come to the conclusion that it is best to hold the trees until they are the size of young citrus trees for planting, before putting them out, because it is so difficult to keep the top layer of soil damp around very small trees. I have just addressed a letter to the U. S. experimental gardens at Chico, and it may be that we can get a few trees from there this year. We have plenty of dry hill land back of our lemon groves for these trees if they prove a success.—C. C. Miller of the Limoneira Company.

THE OLIVE OUTLOOK

Exaggerated reports of death from botulinus poisoning in olives has created a serious situation in the olive industry in Tulare County, which is one of the largest olive producing sections in the world. Although olives in tin cans are subjected to such a heat in the retorts that all germs are killed, the heat being 235 degrees, while chemists declare a much lower temperature will kill all germ growth, the sale of the fruit has dropped to almost nothing, and where normally the packing houses have sold their output, this season a large percentage of the crop is still in the hands of the packers.

WATER CONSERVATION

(Continued from Page 727.)

River supply are at a normal flowing level.

As percolating water flows very slowly this process not only acts as an underground reservoir but also as an equalizer of dry and wet years.

The Orange County delegates were not unwilling to acknowledge that all the water that can be saved from flood flows, and thus kept in the valley up stream, is eventually available for the Orange County wells in future years.

All this expense has been met by voluntary cooperation, and it is only to be regretted that San Bernardino County has contributed but little towards the meeting of this expense. The system has the double advantage of saving flood losses by absorbing a portion of the flood water and storing for future use.

GUARANTEED COTTON SEED REACHES IMPERIAL

Through cooperative effort the state department of agriculture and the U. S. department of agriculture have succeeded in placing in Imperial County a supply of pure "Lone Star" short staple cotton seed sufficient to plant 110 acres. Three tracts of land, two of 40 acres each and one of 30, have been secured, and the seed has been delivered to the farmers for planting. The farmers agree to sell to the U. S. department of agriculture two-thirds of the seed crop for the prevailing oil mill price plus cost of extra handling. This seed will be distributed to the growers next season and will further supply the demand for pure seed. The growers also agree that seed sold by them from their one-third of the crop shall be sold at a fair price, such price to be passed on by the U. S. department of agriculture and the state department of agriculture.

The placing of the pure seed under such conditions will relieve the present serious shortage of pure short staple cotton seed, and by thus eliminating the desire to import seed of unknown strain from boll weevil and pink bollworm infested areas, will give added protection to the California cotton industry.

ONE REASON FOR THE SCARCITY

By W. V. Shear, State Department of Agriculture

The writer has just spent a week in the mountain districts of California discussing potato problems with the farmers in these sections. There are large areas well adapted for the production of potatoes throughout the state in which very few potatoes are grown for the reason that it is impossible to get them to market as they are harvested.

California has a wonderful highway system, because of the ease with which city people and tourists can travel over it. It also has another system of roads surpassing description owing to their impassability, especially during wet weather. To get to these farming districts, our party had to travel over roads where it required one person to drive the auto, and three others to push it through the mud holes and over the rocks. It was frequently necessary to pile brush and anything else that might be available into the holes before they were passable.

With good roads through these agricultural districts it would be possible for the potato growers to haul their potatoes to the nearest railroad stations and thus find a profitable outlet for them.

Riverside board of supervisors is contemplating passage of an ordinance providing for quarantine on bees from other sections of the country.

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They are made in every size and over-size to fit every make and model of any kind of gasoline engine. Your dealer has proper sizes and over-sizes or can get them promptly from his jobber's complete stock.

Write for this Booklet →

"To Have and to Hold Power," which clearly explains piston rings and their connection with motor power and economy. Address Dept. AB

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To Control Excess Oil
A special ring for motors that pump oil. Use in top grooves of each piston. In the lower grooves use McQuay-Norris Leak-Proof Piston Rings for complete compression—power.

9

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The work is always in plain sight—no looking backward. Tractor and implement form one unit—can back and turn short.

These indispensable features are particularly profitable at harvest time, when one man instead of two can cut the ripe grain at the rate of 40 acres in 10 hours.

The necessity for saving time and labor is the greatest consideration before the farmer today.

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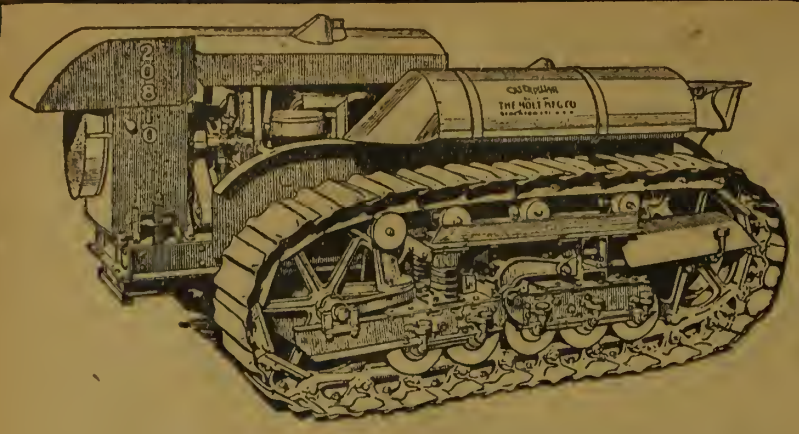

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Here's the VERY tractor you've wanted for orchard work—a tractor that's big in power, strength and capacity for work, yet with the small tractor's ability to get between, under and around the trees. In the "Caterpillar" 45 Orchard Tractor you are offered a high-powered, short-turning, easy-handling tractor, of Holt superior design and construction.

COMPACT—Here is a tractor of minimum bulk with no lessening of practical serviceability. Note the torpedo-type shields—there are no sharp edges or corners to damage the trees or hinder the work.

POWERFUL—A big tractor in a small size is "Caterpillar" 45 Tractor. With its liberal power it can pull a sub-soiler. It can handle the orchard cultivation quickly, saving the moisture that is lost by evaporation when slower methods are used. It can do at one trip work that requires repeated travel of less powerful tractors—travel that bruises limbs and fruit.

DURABLE — Sound construction and surplus strength—found in this tractor—mean much in eliminating delays and providing continuous, consistent, trouble-free service, day after day, season after season.

FLEXIBLE—Short turning and quick response make the Orchard-type "45" an easy handling machine, even in closely planted orchards.

ECONOMICAL — Big capacity for work, coupled with low operating and upkeep costs make this tractor the best-paying investment.

Avoid the handicap of insufficient power. Avoid the expense of inferior quality. Make this Holt tractor—a proved success in orchard work—your choice.

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SETTING OUT THE ORCHARD

The Victoria Journal of Agriculture, Austraiia, gives the foiiowing method of setting out orchards in that state.

In starting to peg out the orchard, different systems may be adopted. A method commonly used is to first obtain a straight base line by means of sighting poies about 6 feet long, with white paper wrapped round them to insure easy vision, and by using a rod of desired length to measure distance for pegs. A fairly satisfactory result may be obtained in this way by those experienced in the work, but a better plan is to use a measuring wire instead of the rod, as this insures rapidity and accuracy not possible in the other way.

The measuring wire should be made of No. 10 gauge galvanized wire of sufficient length to measure the longest row. An iron ring three inches in diameter is fixed to each end of the wire. One ring is placed on a bar or stake driven into the ground, and the wire strenched tautly to its full length, and the ring at the other end fixed in the same way. The measurements along the wire should be accurately made, allowing for an overlap of four or five feet at each end of wire between ring and first mark on the wire.

Commencing then at a point, say four or five feet from the ring, a piece of copper wire is wound round the measuring wire and soldered into position. This plan is continued every 20 feet, or whatever distance between the trees has been decided upon. The use of copper wire for markings is preferable to paint, as the latter is liable to rub off, and copper markings will be as readily visible as paint when pegging is being done. Pegs or stakes are then driven at each copper wire and the measuring wire swinging at right angle for the second side of field and also pegged. This gives the two necessary base lines, or all four sides may be pegged. To get precise right angle use the builders 3-4-5 rule. For field work we may multiply these figures by 20, making 60-80-100. Measure down one side 60 feet, down the other 80 feet, and when it is precisely 100 feet across the corner, the right angle is perfect.

CROP REPORTS

Bureau of Crop Estimates, U. S. Department of Agriculture

California fruits and nuts were severely injured by rains and frost during March. Brown rot, it is reported, will destroy from 30 to 40 per cent of the anticipated apricot crop, and prunes have been slightly damaged by the thrips. The almond crop will probably not exceed 45 to 50 per cent of that of a year ago. Shipments of California oranges during the first three months of 1920 aggregated 9,855 carloads, as compared with 11,413 carloads during the same period in 1919; and of lemons, 2,133 carloads, as compared with 2,086 in the first quarter of 1919.

Prospects for other crops in the state are much better than at this time last month. Planting of beans is proceeding under favorable conditions, although acreage will be materially reduced as compared with 1919. In the Imperial Valley, including that part located in Mexico, 225,000 acres have been planted to cotton, as compared with 145,000 acres in 1919, and practically all of the anticipated Pima or long staple crop is under contract.

A. A. Brock, Horticultural Commissioner, Ventura County

Apricots, 40 per cent.

Fred G. Stokes, Horticultural Commissioner, Lake County

Bartlett pear orchards are in excellent condition as regards pruning, cleanliness and cultivation, and present indications are for a good crop, although in spots orchards are lightly touched up by the frost of April 21 and 22. No pear selling has yet been done as last year growers who sold before the pears set, received some $30 a ton less than those who sold in May and June.

A Lake County Pear Growers Association was organized on Aprii 16, and it will tend to make priccs this year more uniform and selling iate. About 60,000 Bartlett pear trces were planted in Lake County this season and are doing weli.

About 1,700 French prune trees, pianted this season, aiso coming along weil. Prune crop wiii be iight as there was a heavy crop last year and frost has done some damage, but too early to state how much.

Almonds will aiso be shy from the same cause, except on the higher lands.

Cherries, apricots and peaches are used iocally and of no importance commerciaily.

Appies all right at present and majority not yet in biossom.

Sulphur

It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards 6 times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of Sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100% pure, in double sacks, for Dry Dusting and making Paste Sulphurs.

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food and prevent smut in grain, drill into the soil 110 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR, 100% pure. This has increased various crops up to 500%. Send for Circulars No. 6 and 7.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 degree BE., etc., Fungicides and Insecticides.

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Are you sure there is no Black or Citricola Scale in your grove, sapping the very life out of the trees that are setting what will be a burdensome crop?

Investigate for your own good. One Black Scale will produce 2000 to 3000 more, quickly spreading to healthy trees. Left alone it retards the growth of the tree and injures the fruit, sometimes lowering the grade considerably.

You can thoroughly clean your trees and eliminate Black and Citricola Scale, Red Spider and Fungus, if you will apply

TIZIT SPRAY

There is a grove near you where TIZIT has done all we claim for it. Send for the name and address of the nearest TIZIT SPRAY user so you can see the results.

The sooner you put TIZIT on, the more work it will do. The genuine TIZIT is labeled TIZIT—Trade Mark Registered.

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When you have decided that you need a motor truck you are faced with the question:

What truck shall I buy?

After the matter of capacity has been considered—a matter which will depend on your work—your choice should be based on just one big point—one which means more to you than anything else.

From your point of view, the truck that can be depended on to stand up and keep on running is the one that will, by all odds, serve you best.

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And that reputation is established; it is becoming more notable every day.

In GMC Trucks there is real, honest quality —*built in at the GMC factory.* And you can't get more out of a truck than the manufacturer puts into it, no matter how hard you may try.

Ask for a copy of our free book (C) "Motor Trucks on the Farm"

GENERAL MOTORS TRUCK COMPANY

PONTIAC, MICHIGAN

Branches, San Francisco and Los Angeles (638)

Santa Paula Chronicle, Santa Paula, Ventura County, Edith Bristol

Regarding the aspect of the local apricots for the coming season, I have interviewed W. L. Ramsey of Santa Paula, who is considered among the best authorities in apricot matters, who says:

"The apricot crop of this locality will be about 50 per cent of the normal crop, in my opinion; some buyers and growers say 35 per cent, and in some parts of the county, noticeably those portions which have been short of rainfall for two consecutive seasons, there may be no more than 35 per cent of a normal crop; hut taking Ventura County as a wbole I should say that 50 per cent of normal is a fair estimate.

"Some orchards have a heavy setting of fruit of superior quality, bringing up the average for those parts of the county in which the fruit shows poor in quality and scarce in quantity."

I have not had time to question authorities in regard to the other crops you mention. Suggest that Ojai is a better locality than this for information concerning apples, cherries and almonds, as we have more citrus trees and nuts in this immediate section.

Lester C. Reed, Simi, Ventura County

The apricots in the Simi Valley are so spotted it is hard for anyone to make more than a guess as to what the harvest will be. Apricots bave been blossoming for the past six weeks with some still coming. Some of the earliest were killed by frost. The rain got some of the later bloom and we cannot as yet say what this late hlossom will do. It is the most peculiar season I have seen in my 14 years experience. I am sure the crop won't be over 50 per cent of normal, and may be quite a lot less.

California Prune and Apricot Growers' Inc., San Jose, H. G. Coykendall, General Manager

On prunes we feel it is entirely too early to make any accurate predictions as to crop conditions. We find that there is a good deal of thrips damage in different spots throughout the state, just to what extent we are not prepared at the present time to say.

On apricots we find that some districts have been very materially hurt by the rain during blossom time and that others are showing the damage from frost. We think tbe Santa Clara Valley district has suffered considerably as a result of the rain during the time the trees were in bloom and we know that in different districts frost has taken considerable of the crops. However, we feel that a conservative estimate would be about 75 per cent of last year's crop. Should you be interested a little bit later on in hearing wbat reports we have from our field men, we would be more than glad at all times to give them to you. However, as stated above, it will probably be a couple of weeks before we can make any accurate prediction as to the prune crop.

C. G. Marchus, San Pasqual, San Diego County

Apricots are almost a failure in this section. Some trees contain one-fourth crop of half grown cots and at this writing contain some blossoms. Some trees have large cots but hardly any leaves as yet. In 25 years have never seen the conditions which obtain this year. The Cultivator is giving good service in getting these reports.

E. M. Thompson, Fruit Crop Specialist, U. S. Bureau of Crop Estimates

California, the leading peach producing state of the Union, promises a bumper crop again this year. Last year California produced over 16,000,000 bushels of peaches and over 50 per cent of the United States commercial production. Nearly 90 per cent of California's crop, bowever, is normally canned or dried.

Ernest W. Curtis, Tehama County Agent, Red Bluff

Frost injury to fruit crops in Tehama County has been very serious. In tbe district around Red Bluff and Los Molinos the almond and apricot crops are practically wiped out. Corning district was not quite so badly injured but will not have much over 25 per cent of either of these fruits Elberta peacbes were badly damaged and the crop will run between ten and 25 per cent. Muir peaches got off a little easier, but the crop will he far below normal, probably 60 to 75 per cent.

O. E. Bremner, Horticultural Commissioner, Sonoma County

Almonds: About 50 per cent (hetter than last year).

Apples: Too early. Gravensteins look normal, 100 per cent.

Apricots: No crop. 25 per cent.

Cherries: Blooming heavy. Too early to say.

Peaches: Fair bloom, not so good as last year.

Prunes: Fine bloom but late; have not set.

Plenty of moisture, so that we may have normal crop of major products. Little early to say.

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KEROSENE
now takes the place of distillate and the "Z" Engine owner can use it just as efficiently. The "Z" is designed for kerosene and operates on gasoline as well. Over a quarter of a million farmers have proven "Z" superiority.
This rare combination of scientific design and construction—efficient operation—right price—successfully answers every farm engine need.
The "Z" is serviced by 200 Bosch Service Stations all over the country, in addition to the efficient Fairbanks-Morse dealer service.
Go to your dealer—see the "Z"—find out why it should be a part of your farm equipment.
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PRICES
1½ H.P., $75.00
3 H. P., $125.00
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POISONING SPARROWS

The office of pest control, California department of agriculture, says:

Sparrows and linnets are easily poisoned. From all information available on the suhject we gather that cracked wheat is probably the best hait. This material can be obtained at any store handling poultry foods and is preferable to whole wheat, being cheaper and also smaller, therefore more readily eaten by small birds.

Accustom the birds to feed regularly at some open place in the orchard by distrihuting the bait (cracked wheat) freely for several days until it is noticed that a large number of the birds congregate there at feeding time.

Take one-eighth of an ounce of strychnine sulphate, dissolve by boiling in one pint of water, and add two teaspoons of gloss starch or wheat flour, stirring until the mixture tbickens. Pour the mixture over one quart of the wheat and mix thoroughly. Distribute the poisoned grain in the same manner and at the same point where the birds were baited and are used to feeding. As it takes from six to eight grains to kill a hird, the number in the flock will determine the amount that should he mixed and distributed. Care should be taken to keep poisoned grain, etc., out of reach of children, irresponsible persons, livestock and poultry.

FRESNO COUNTY WILL FIGHT WATER HYACINTH

An infestation of water hyacintb in the Centerville bottoms was recently explored by Fred P. Roullard, horticultural commissioner of Fresno County, and Ethelbert Johnson of the state department of agriculture, at the instance of Director G. H. Hecke. The report of the investigation shows the plant to lie in at least one of the sloughs in this vicinity. It extends down the slough for about a mile. This slough leads directly into the Kings River, and while the channel is much divided and the flow sluggish, in a season of flood it is extremely probable that the plant will be carried into the main channel of the river.

SHIPMENT OF NITRATE

During January, 1920, the production of nitrate of soda in Chile was a little more than 200,000 tons, but the exports were over 450,000 tons, the heaviest month's export ever known in the nitrate trade, and more would have gone out but the rail facilities are very poor, having only narrow gauge tracks with small cars. The association which handles nearly the entire output reports that European orders for 1920 delivery, largely from Great Britain, total over a million tons. The latest consular reports are that the available supply will last for several months, but the increased demand is causing the opening of works long closed and new fields will douhtless be developed.

DANISH POTATOES

The United States consul at Copenbagen reports on February 14 that about 90,000 tons of Danish potatoes are available for export. We quote: "A shipment of 10,000 tons is heing sent to Great Britain, but it would seem that most of the supply would eventually go to America if the favorable rate of exchange continues."

The Real Meaning of *"Best in the Long Run"*

"BEST IN THE LONG RUN" is a slogan that is almost as old as the history of tires. It grew out of the performance of Goodrich Tires on bicycles, and it grew into the *dependability* of Goodrich rubber products of all kinds.

It is not just a catch phrase. It is a plain statement of fact. It is really a mirroring of the confidence placed in Goodrich products by their users.

In five words it crystallizes the ideals, the policies, the principles of Goodrich.

It means "the long run" of good faith and good will—the steady building up of a confidence in the minds of the users, *which is the greatest asset a manufacturer can have.*

That is how Goodrich translates this slogan into terms of longest average wear, utmost dependability and known quality in all kinds of rubber products.

THE B. F. GOODRICH RUBBER COMPANY, AKRON, OHIO

Goodrich Tires

"Best in the Long Run"

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Water Right

I own land crossed by a ravine down which flows water from an irrigated orchard above and also a large volume of waste water from power house The power house water may be thrown some other way next season, although part of it may remain. If some of this water remains there, can the water company charge me for what I use although I can show that there was enough of the orchard waste water for my use running in the ravine prior to the erection of the power house? Can I use this water for operating a water wheel or for any other purposes? Should I file a claim for this water right? My neighbor above is also pumping and claims that he has a right to deprive me of my water because he pumped a year before I did. The ravine is not on his property, although a few yards distant. Can I prevent him from pumping when no more of the power house company's water is left in?—Subscriber, Newcastle.

The courts have held in two late well considered decisions that where water escapes or leaks from or where the producers abandon it, as in this case, and it flows promiscuously over the lands or finds its way to some other stream than the one from which it is diverted, anyone may appropriate such water, but by such appropriation he takes the water only, that is to say, the original owner of the ditch or artificial water course is at liberty at any time to change or alter it without invading any vested right of the appropriator, even though the effect of such change must deprive him of the water which he has appropriated and used, perhaps for a long period of time. He does not, therefore, procure any right to have this water escape in the way it does as against the original owner. So in the above case the operator of the power house would be fully entitled to change the course of the waste water and the owners of the orchards could use their water fully so that no waste water could come. But this waste water may be appropriated just as though it was an original development of water, saving at all times, of course, the rights of the original owner to fully use it. In a late case the exact point has been clearly decided that such waste water belongs to the person first actually appropriating it rather than to a mere riparian owner. By actual appropriation of the orchard waste water, the person so appropriating it could not be obliged to pay anything whatsoever to the water company, as it has no interest in the orchard waste water. What interest the company has in the power plant waste water is not stated. In the event of any contest with the water company, if they have an ownership in the power company water, it would of course be necessary to prove the amount of orchard waste water flowing down the ravine which was actually put to a beneficial use and would be entitled to receive that amount without payment. As between your neighbor and yourself it would probably be best for you to file an appropriation in the usual way, but the usual rule is that the first one actually appropriating and making use of water has the first right thereto. Sufficient facts are not stated with respect to the priority between your neighbor and yourself to enable a definite opinion to be given in respect to whether or not he would be entitled to deprive you of all of the water. The general rule, however, is that a prior user who has not made an appropriation of water can claim only that amount which theretofore he actually took out of the stream and placed to beneficial use. Consequently he would be entitled to receive only that amount which he placed to an actual beneficial use during the year prior to the time when you commenced pumping. As this character of water belongs to the first actual appropriator it is posible that you would not be able to prevent him, although that would depend upon the exact situation between you and your neighbor, the facts of which are not given.

Horse Trading

A man traded a horse with me and said it was gentle. The next morning when I drove it, it ran away and threw me out of the buggy and broke two ribs and I was unable to do anything for a long time. I took the horse back to the man from whom I obtained it. Can I demand payment of doctor's bills and damages?—Subscriber, Fresno.

One who sells personal property, knowing that the buyer relies upon his advice or judgment, thereby warrants to the buyer that neither the seller nor the agent employed by him in the transaction knows of the existence of any fact concerning the thing sold which would to his knowledge destroy the buyer's inducement to buy. There is, however, a diversity of opinion as to whether personal injuries due to defects warranted against are an element of damage, although it is generally considered that where such personal injuries must have been the natural and direct result, as where a dangerous article is sold as safe for use, the warranty is in effect a warranty that the article is not dangerous to use and it has been held that damages for personal injuries are recoverable. Generally damages may be recovered if the defects warranted against result in injury to the buyer.

Compulsory Schooling

To what age are children required to go to school? I understand that when a child finishes the eight grades of grammar school, he is released.—Subscriber, Fresno.

Unless excused by reasons hereinafter given, everyone having control or charge of any child between the ages of eight and 15 shall be required to send such child to a public school during the time in which said public schools shall be in session, except in such cases where the board of trustees may be satisfied that the child's bodily or mental condition is such as to prevent or render inadvisable attendance upon school, for which a physician's certificate shall be taken as satisfactory evidence or where such

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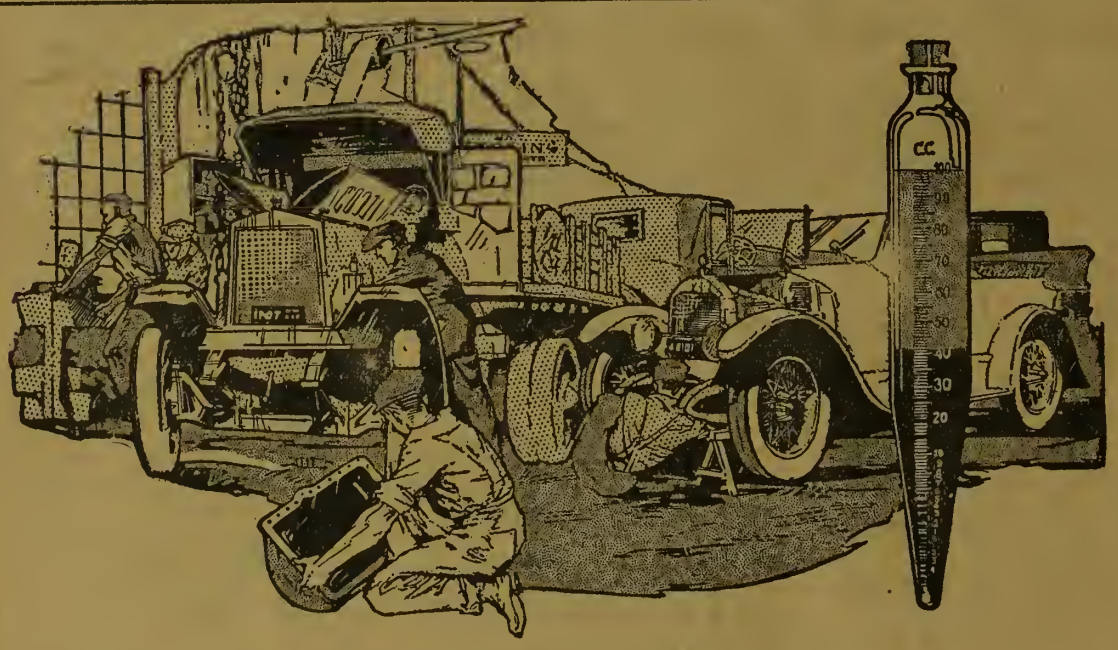

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child is being taught in a private school by private tutor or at home by a person capable of teaching in such branches as are taught in the primary and grammar schools of the state, or where a child between the ages of eight and 15 has been given a permit to work in accordance with the act prohibiting the employment of minors under certain ages, or in case no public school is located within two miles by the nearest traveled road of the residence of the child, or in case the child has completed the prescribed grammar school course, in any of which cases it is the duty of the board of education upon application of the person having control of said child to excuse such child from attendance, or if the person having charge of said child presents by affidavit proof that he is unable to compel the child to attend school, then the child is deemed to be a truant and subject to assignment to the parental school in the jurisdiction of the truant officer. Any parent, guardian or other person having control or charge of said child who shall fail to comply with the provisions of the act shall, unless excused or exempted therefrom as hereinbefore provided, be deemed guilty of a misdemeanor, the punishment for first offense of which is a fine of not more than $10 or imprisonment for five days, and for any subsequent offense not less than $10 or more than $50 or imprisonment for not less than five or or more than 25 days.

Damage by Domestic Animals

A neighbor's dog (I think) killed 30 of my rabbits. I have now set a trap to catch him alive. If I catch him can I kill him and how can I make the owner pay for the rabbits already killed?—Subscriber, Riverside.

If domestic animals injure property while wrongfuly in the place where the injury is done, the owner is liable although he had no notice that such animal was accustomed to do such wrong. A cause of action arises therefrom to the owner of the property injured against the owner of the animal, and it is not necessary to allege or prove on the part of the owner that the animal had previously been vicious. The value of the property damaged should be recovered, but it is well settled that the mere trespass of the dog will not justify a land owner in killing it. If he should kill it, he is liable to the owner of the dog for the value thereof and might probably incur criminal liability for malicious mischief. It is only where the dog is caught in the act of injuring property and it is necessary to save property which is of prohably more value than the dog or to save the person from injury tnat anyone is justified in killing a trespassing animal.

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Spring Snowflake

A bulbous plant in an old flower bed has small white, bell shaped flowers with a green dot on each petal. It flowers quite freely in March and April. Can you tell me what it is?—Subscriber, Covina.

From your description we judge it to be Leucojum vernum, the spring snowflake, a member of the amaryllis family, native to Europe.

Blackberry Pruning

Last year we planted some blackberries which are now in full bloom and strong new shoots are coming up. Should these be cut out?—Subscriber, Oxnard.

The hest berries are grown on the young wood. Do not cut any of this out. It is best, for the home garden, to pinch the end or terminal growth off with the thumb and finger so they will not grow longer. This is done when they are at any length, according to system of trellising, usually from two to four feet. This pinching will cause them to throw out lateral branches and these may be pinched off at a foot long. This will result in the heaviest crop. In hig plantations these growths are allowed to become woody and are slashed off with shears or hooks, but for home garden vines are best pinched off while soft.

May in the Ornamental Garden

Northern California

By A. R. Gould

THE month of May should be gay with flowers as many annuals will be in bloom. Last month we gave a list of useful flowers to grow for the season, naming varieties of gladiolus, dahlias, liliums and carnations, and we advise those who contemplate a long season's display to secure these subjects as it will more than pay.

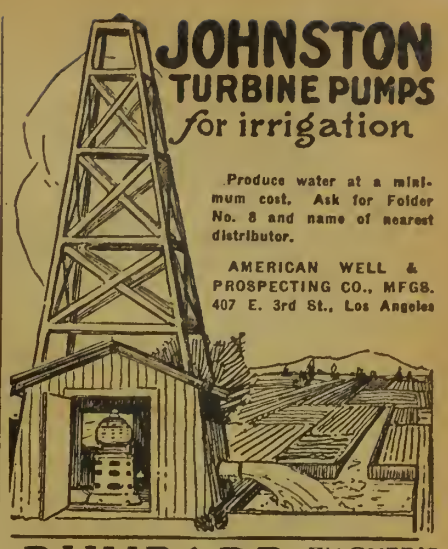
Some Popular Annuals

These we shall divide into two groups. The first will comprise those it is advisable to sow in their flowering quarters. They are: Clarkia; mignonette; evening scented stock; lupins; nemophila insignis; phacelia; poppies, Shirley, single and double annual; cardinal, double fringed, carnation, peony flowered; dimorphotheca and Bartonia aurea.

For transplanting sow asters, Semple Cregos, giant pink, rose, lavender, purple; astermum, single types in blue and rose; ageratum; agathea; candytuft, zinnia; larkspur; marigold, French and African; lobelia; nemesia; pansies; phlox Drummondi; snapdragons; sunflowers, stocks and verhenas. These will all flower satisfactorily this season if secured at once.

Plants for Ground Cover

Many people have banks and much bare ground to cover and often it a problem. For covering these we recommend coprosma Baueri, hypericum Moserianum, ivy geranium, English ivy, mesembryanthemum, evergreen strawberry, gazania, vinca minor, honeysuckle, halleana and lippia repens. These will thrive on most ordinary soils. They may be secured from your nurseryman.



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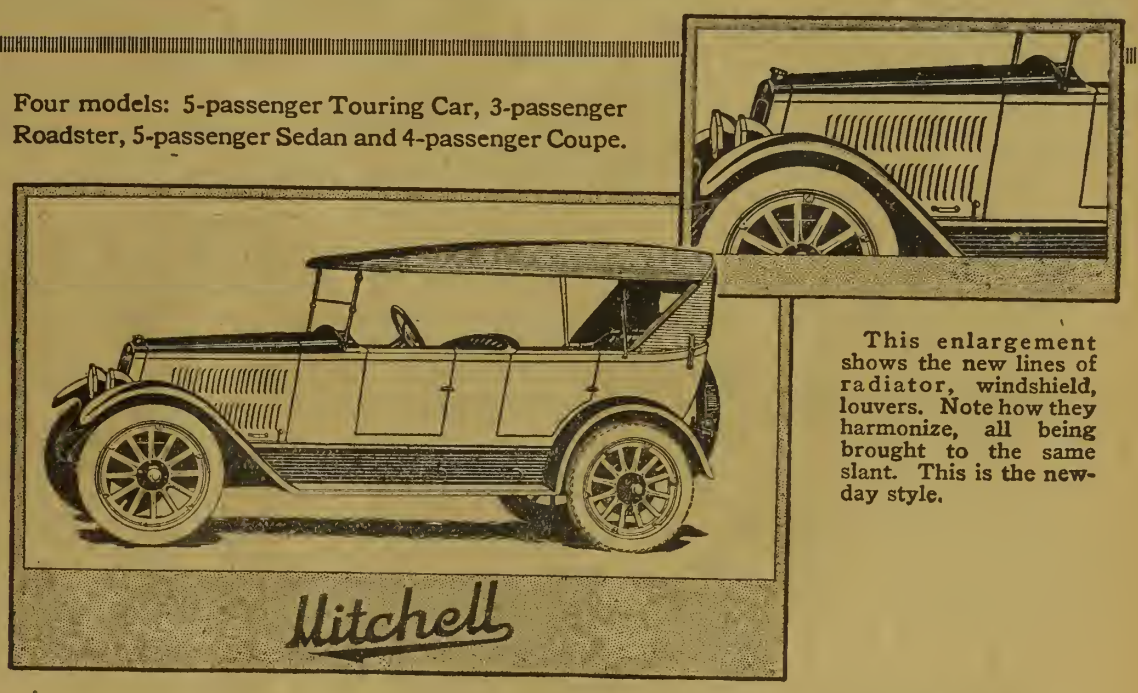

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Southern California

By Ernest Braunton

THE merry month of May is not a time of planting, though with late and copious rains the past April became a normal March with consequently belated planting. Therefore we may assume many have been delayed in gardening operations and now would plant of things usually disposed of in April.

Owing to cool weather we should still find plump bulbs of amaryllis, begonia, canna, cyclamen, dahlia, gladiolus, tigridia and tuberose. All will flower if put in ground at once, but cyclamen should go in a cool, shaded spot. It is still early to take up spring. flowering bulbs, but later in the month beds of narcissi and other bulbs should be yellowing in the tops and drying in the bulbs, so they may be removed

It is better not to closely clean these of soil now; leave such work for the replanting season when the clumps may also be divided. A good curing plan is to put all freshly dug bulbs in damp sand, place in a cool, dry place, and the bulbs will slowly become dormant as the sand dries. If sand is not available, sifted soil will do. This process results in bulbs retaining much more vigor and recuperative power than when dried hastily.

Seed Sowing

Seeds sown now will need closer care than those sown earlier. True, they will respond more quickly, due to increased temperature, but they will also burn more quickly or die from lack of soil moisture. Either lightly shade the seed beds during the heat of the day or water often and lightly.

Annual carnations, calceolaria, cosmos, coreopsis, candytuft, centaurea, foxglove, gaillardia, marigold (African), nasturtium, phlox, petunia, poppy, primula and scabiosa may still be sown, but calceolaria and primula should be sown in the house or a place well protected from heat. Nearly all those listed will germinate a larger per cent if sown or kept in partial shade.

Rains were late and sufficient this spring so that lawns have not dried out nor has grass been as vigorous as in hot, early springs. But when warm weather comes lawn grass needs much water, as it grows faster than in any other month. See that the water goes deep so new roots will reach down so far that grass will not wilt if unwatered for a day or two. Lawns merely sprinkled on top every day will need daily care throughout the summer for the spring rooting will be made near the surface only.

Chrysanthemums and carnations may both be planted now and both will need to be pinched or cut down to avoid spindly and too forward growth. Both these are cool weather flowers and should not develop blossoms until November. Possibly some 'mums may be allowed to bloom in late October, but carnations are best in December. Keep buds picked off from carnations until that time, for two reasons: First, because hot, dry weather dwarfs and burns the blooms, and, second, because the vigor should go into the plant and build it up so it may better yield good blooms in proper season. Both 'mums and carnations are gross feeders and must not at any time suffer for water or stems will become hard and permanently restrict growth.

Southern Arizona

By M. E. Bemis

AS in the vegetable garden, the number of varieties of plants which may be started is small among the flowers. Cosmos, a tender annual, with fine cut feathery foliage and large showy blossoms, is one of those which may be planted in May. The red flowered, or giant types, which grow five to six feet high, are best for this section. These produce handsome cut flowers and are easily grown and should be grown more extensively. There are two distinct varieties, the crimson and pink, also the mixed colors.

The zinnia also may be planted any time during the summer. These add to the beauties of the flower garden and should be cultivated wherever there is a vacant place.

It is not yet too late to plant castor beans, and where quick shade is needed these serve their purpose.

The running vines, such as balsam. may also be planted during May.

May in the Vegetable Garden

Southern California

By D. F. Reichard

MAY is here. The time for looking out for weeds, bugs and disease among your plants is also here. The fine rains of the last two months have given the weeds and grasses a new lease on life and they are taking the substance and moisture out of the soil as fast as they can where they have not been properly controlled. Besides being robbers, weeds harbor disease and insects. It is certainly depressing to see potatoes or corn trying to grow in a poorly plowed field with weeds running a winning race with the intended crop, whereas had the would be farmer taken the pains in the first place to have turned the weeds under properly and harrowed the ground, then waited a couple of weeks for the weeds to decay, then worked the ground over again, if only with a cultivator, he would get rid of most of his weeds and his ground would be in good shape for planting, and with little care would return a good profit.

For good garden results the plot should have been worked up some time ago, but for those who have not been able to get their garden started until now it should be given a thorough working up with incorporation of as many of the weeds as possible. Then soak it well and cultivate and your ground should be in fair condition for planting.

There seems always to be an impulse to put in potatoes. Do not do it for the next three months—conditions are not right for potato growth and development at this time; the yield will not justify the effort. The same may be said of peas. This is, however, the ideal time for planting all the more tender summer crops such as melons, cucumbers, casabas, corn, beans, roselle, pumpkins and squash. Put out plants of tomatoes, peppers and egg plant.

In the gardens that are under way it is well to look around to see if some of the stuff planted last January and February is not ready to be used. Pick stuff while it is young and tender. It is so much more pleasing to the palate than the stuff grown in a commercial way. Watch for aphis or other insects that might be about your plants. Keep a small quantity of Black Leaf 40 on hand for aphis and dry arsenate of lead for worms and other chewing insects. An application of these at the proper time will save your garden. Thin out the melons, cucumbers and squash planted last month to two or three plants to the hill; it makes stronger plants and they will yield better. Watch stuff that it does not want for water. If we don't have an occasional rain, irrigation will have to be resorted to.

Southern Arizona

By M. E. Bemis

THE list of crops which may be planted in May narrows down to a comparatively few things. This does not mean, however, that garden activities should cease during this month. The crops already planted and maturing need attention. Those which are growing need constant cultivation and watchful care. With the coming of warm weather there is a growing need for more frequent irrigations and each irrigation should, for best results, be followed by cultivation. The dust mulch is the ideal condition for the garden during the heated period which may be said to begin with May. There is no use in planting such things as beets, carrots, lettuce, etc., during the summer months; the seeds will not germinate.

Casabas, pumpkins and squash may be planted in May. The casaba is probably a hybrid of the muskmelon and watermelon. These follow the cantaloupe and mature on through the fall, taking the place to some extent of cantaloupes and watermelons, and are, with a great many people, a very popular melon. They should be planted the same as the cantaloupes. Casabas are at their best when allowed to become very ripe. The rind of casabas is very hard and they should be kept until they are mellow. There are several varieties. The winter pineapple is perhaps the most popular. This is a large green fleshed melon with corrugated skin and a decided pineapple flavor.

The ordinary varieties of summer squash, as mentioned in last month's garden calendar, or the common varieties of pumpkin, may be planted during May.

Another crop which may be planted in the garden or field, and which is deserving of more attention than is usually given, is peanuts. These do exceptionally well in the lighter soils, and, considering their food value, both for home consumption and for hogs, they should be grown far more extensively than they are.

The large Virginia Bunch has proven to be the most popular and yields the best of any varieties grown in Southern Arizona. It has been sometimes stated that two crops of the Spanish variety might be raised in the same season. Very likely this would be true under exceptional conditions, but these exceptional conditions have been found to be impracticable for growing these on a commercial scale, so that those who have had experience are practically unanimous in their statements that the Virginia Bunch is the best peanut for this section of the country. They should be planted in rows 20 inches in the row and the rows three feet apart. About ten pounds of shelled peanuts or 15 pounds of unshelled are required to plant an acre. The ground should be ridged just enough to provide for a small irrigating stream between the rows.

It is the common practice to throw the earth towards the vines so as to assist in burying the blossoms which contain the fruits, which appear in the form of pegs. Where the ground is very mellow these shoots or pegs will bury themselves in the soil of their own accord, but great care should be taken to have plenty of loose earth so that this effort of nature is aided rather than impeded.

After the nuts have formed it is very important that there should be sufficient irrigation to keep them growing and thus enhance the crop and hasten maturity. A shortage of water at the critical time in the heated period results in a crop of empty shells. Two or three irrigations a month will be required. The land should be cultivated after each irrigation, as long as it is possible to get between the rows. Gradually throw the earth towards the vines. Fortunately this crop is not molested to any considerable extent by insect pests.

There are a number of field crops which may be planted during May and some of these might well be used in the garden to occupy otherwise vacant ground, or in some cases to serve as a cover crop. Cow peas serve this purpose admirably. As a strictly commercial crop it is possible that cow peas have considerable value. These are sometimes sold in the Phoenix markets in a green state and are not an unpalatable dish.

The grain sorghums may be planted and as these furnish a considerable amount of grain they are a profitable crop to produce, providing the land is not needed for some other purpose before maturity. These grain sorghums include feterita, kafir corn, hegari and milo. The shallu, or Egyptian wheat, while it makes a splendid feed for chickens, is not grown to any extent in Southern Arizona, although for a few seasons it was very popular. More recently it has been entirely supplanted by the grain sorghums mentioned above. Hegari was grown in the Salt River Valley to a very large extent this past season and it is somewhat questionable whether or not this is of more value than the milo. My personal observations lead me to believe that the dwarf milo is the best of the summer crops for this vicinity. Two varieties have been grown here from selected seed and either one of these is of great value and is far superior to any seed which can probably be brought in from any other section. One of these varieties is known as the Avondale. This has been selected for its head qualities without so much regard to type of plant. Selections of this have been made for a number of years and have been grown very carefully so that seeds show a marked superiority and yields are all that could be expected. The Stannard variety is a strictly dwarf variety which has been carefully selected by the Stannard family for the past four or five years. Only first class heads from a desirable plant which is typically dwarf have been used for seed purposes. Consequently a field of this variety shows remarkable uniformity. Both of these two varieties are most excellent.

Millet as a catch crop or a cover crop may be planted any time during the summer. Golden millet is the popular variety for Southern Arizona. It requires about 30 pounds of seed for an acre and matures quickly, but is available only as a catch crop or a cover crop. The sweet sorghums can also be planted at this season.

For a summer forage crop there is nothing that does better, so far as quantity and quality is concerned, than Sudan grass. This should be sown broadcast at the rate of 25 pounds to the acre.

Broom corn is a crop that brings high prices and costs but little to raise. The average price of good broom corn is around $250 a ton. The yield should be from one-third to one-half ton per acre. The best variety for this section is the Oklahoma Dwarf. The chief expense of producing broom corn is in curing the brush. This by good rights should be cured in the shade.

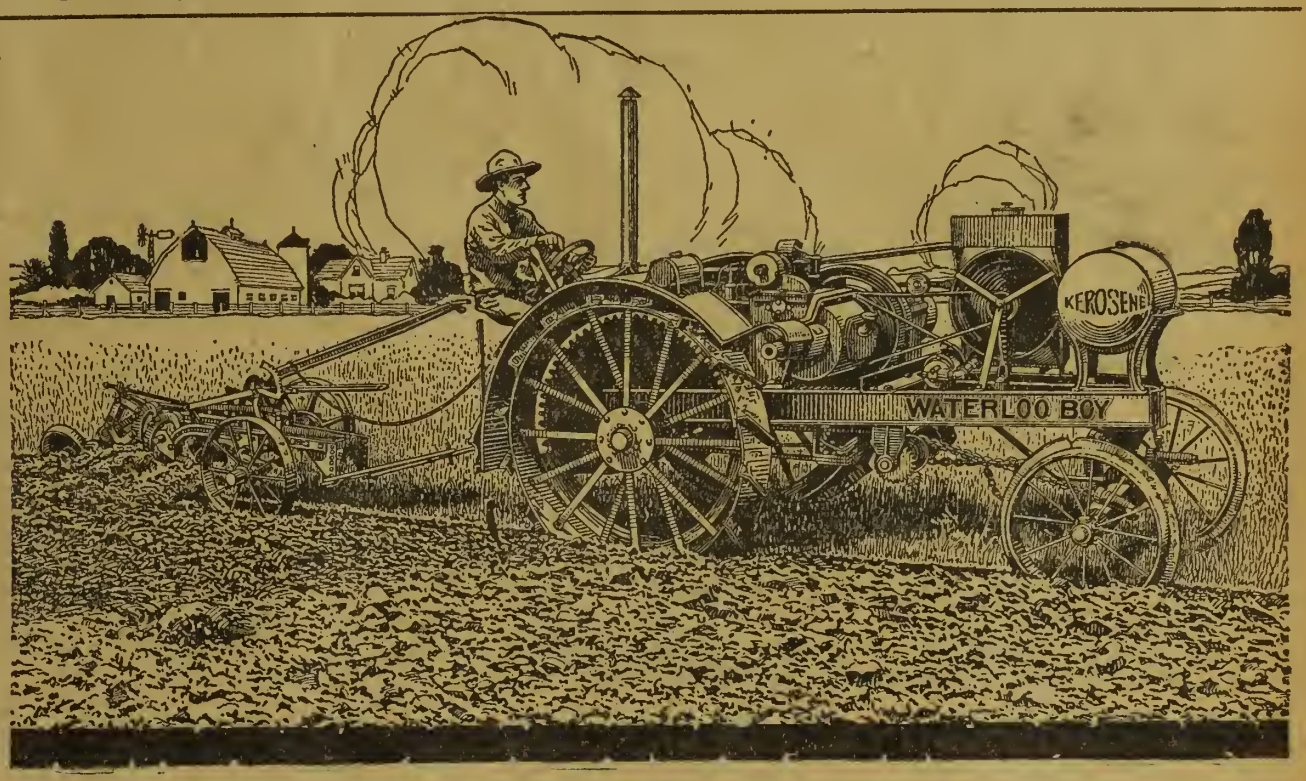
(Calendar for Northern California, Page 755.)

GROW A GARDEN

In these times of high prices every home should have a garden. It should be near the house. The housewife or her help cannot be expected to go far for products and they will often fail to use some if too much trouble to procure.

The home garden should grow all that the family desires in both fruits and vegetables. We must have fruits and berries of all sorts, and a great variety of the best vegetables. All these should be chosen with a view to seasonal supply, striving to use the extremes in both early and late sorts so fruits and vegetables may grace the table every month in the year.

You will be saved both time and money and have better products than you can buy, at lesser price, and if sufficient variety is grown one-half the table expenses will be cut off. Fruits and vegetables keep the system in good order and medicines are banished. Three-fourths of these drug store purchases are laxatives of some sort and all are unnecessary with a well balanced diet of vegetable oils, acids and other juices. To live long and live well the home orchard and garden is almost indispensable.—E. B.



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It gives you dependable service at small operating cost. Its twin-cylinder engine develops full 12 H. P. at the drawbar and 25 H. P. on the belt, using kerosene as a fuel. A patented manifold converts every drop of this low-priced fuel into power. Two gallons of kerosene per acre is the average amount used when plowing.

The cooling system always holds the engine at the proper temperature. While the motor runs at the right temperature for perfect lubrication, enough heat is maintained to insure complete combustion and full power. The radiator holds thirteen gallons of water. You don't have to stop in the field every few hours and fill it.

The Waterloo Boy is especially strong and rugged. Its various parts are designed to meet every possible strain. Every part is easy to get at. The engine runs without vibration. Its well-balanced weight provides proper traction in soft ground.

Buying a tractor is an important investment. We have a booklet describing the Waterloo Boy fully. Drop us a postal card or letter today. Address John Deere, Moline, Illinois, and ask for booklet WB-57.

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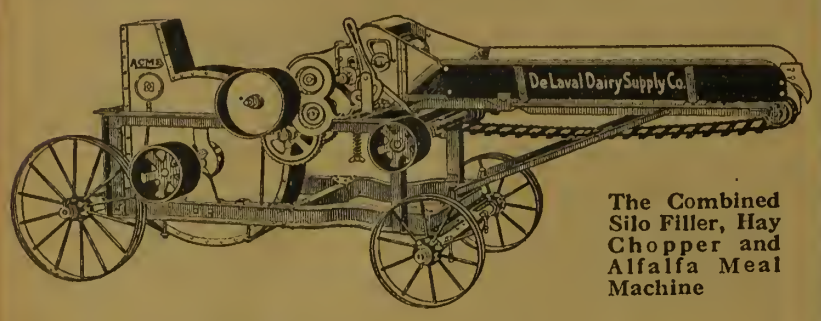
THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

Correct Type Superior Construction



The Combined Silo Filler, Hay Chopper and Alfalfa Meal Machine

The ACME Cutter

EXPERIENCE has proven that the cylinder machines far excel other types in capacity, quality of product and adaptability to varlous feed cutting purposes.

Your logical choice then, lies with the most durable and lightest running of the cylinder types. Study the construction of the Acme.

Note how the blower, the knives, the gearing and pulleys are set into and rigidly supported by the parallel steel frame members—two heavy channels on the outside at the bottom—three parallel steel angles at the top—all rigidly cross braced and securely riveted.

This sturdy construction, with three bearings for the cutter shaft, all bearings held in permanent alignment by rigid attachment to the steel frame insures a freeness from vibration and a degree of durability found in no other cutter manufactured.

OTHER VALUABLE FEATURES INCLUDE:

Low Feed Table, 6-Arm Blower Fan, Positive Safety Device, Steel Wheel Mounting, Separate Control of Blower and Cutter Speeds.

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De Laval Dairy Supply Co.

61 Beale Street, San Francisco

Build Up Your Soil With Whip-Poor-Will Cow Peas

WHAT THEY WILL DO:

They make the best summer covercrop.
Maintain a molst surface mulch.
Will prevent June drop.
Require less irrigation than other crops.
Need no irrigation where soil moisture has been conserved.
Build up poor soils with more nitrogen bacteria and humus than any other covercrop.
Afford the best kind of pasture for cattle and hogs.
As a hay have a food value of 43% more than Alfalfa.
Will improve your silage.
There is no better Bee Pasture.
Thirty pounds of seed is sufficient to plant one acre.
Our seed germinated 96%.

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Buy Your Seed From
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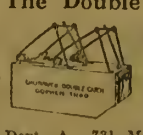

catches large or small rodent. Has been under severe tests. One farmer has used it continuously for 14 months without a failure. Will return money if not satisfied. Price, postpaid $1.00 Circular free.
E. J. CHUBBUCK CO.
Dept. A., 731 Market St., San Francisco, Cal.

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

UNIVERSITY FARM PICNIC

(Continued from Page 730.)

they wanted. Preliminaries began in March with 54 students. The number was gradually cut down until 20 men qualified for the finals.

During the morning the visitors were accorded the freedom of the farm. Each department had provided exhibits setting forth their principal activities, and the instructors were on hand to answer questions and to explain the hundred and one exhibits. One could, with very little effort, gain a useful short course in agriculture. More and more the tendency seems to be to stress the many opportunities to get before the public the newest and best practices of our rapidly developing agricultural science, and picnic day seems to present the opportunity.

During the morning a meeting of the Sacramento Development Association was held. The work and plans of the association were outlined by W. A. Beard, the secretary. Of particular interest was his review of the present status of the much talked of Iron Canyon project. The secretary said that there was little doubt but that the project would be carried through. Guy Chick of Sacramento told of the efforts to construct a dam at the lower end of Suisun Bay in order to keep the salt water from menacing the rich delta section during times of low water.

Dean Hunt of the college of agriculture and Dean Van Norman of the university farm school told of the work of those departments. Dean Van Norman also spoke of the increasing difficulty in conducting the institution on the appropriations based on estimates of several years ago.

The institution is really facing a critical period. The number of students is growing rapidly and the calls upon the small force of instructors are making it very difficult to operate with efficiency. So serious has the situation become as regards the animal husbandry department that the livestock interests of the state are becoming alarmed and expect to make a strong effort to get increased support for that division. There is a growing feeling that a different plan from the present organization must be developed and put into practice if the college of agriculture of the University of California is to take a high place among the leading institutions of the kind. Expressions are freely heard on the part of students, faculty members and farmers and ranchers that the place for the college of agriculture headquarters is at Davis rather than at Berkeley. And when the suggestion is studied, it does seem that Davis is the logical place and that eventually such a move must be made. Certain it is that until that end is accomplished students and graduates are handicapped in the amount of real practical training that they are given. The idea that a semester or two at the farm, coupled with their training at Berkeley, is going to turn out as efficient graduates as is possible in institutions where the boys have four years of training on a farm is a proposition that admits of no argument.

At the noon hour everyone and his family ate their lunches, if mountains of fried chicken and the usual "accessories," ad lib. and ad infinitum, can be termed a "lunch," under the trees of the campus and along the banks of Putah Creek.

The big event of the day was, of course, the parade, and this year's parade was decidedly an improvement over former years. Aside from the magnificent livestock from the barns and paddocks of the farm, the many floats were most creditable and were conceived with the idea of really carrying a message.

During the afternoon the visitors were entertained with many athletic events. Several notable speakers, including Governor Stephens and President Barrows, addressed the visitors. A circus was staged by the students, and for those who were not able to get in the main tent there were a number of side shows. One large hall was given over to the young folks who wanted to dance, and many danced all afternoon and late into the night, for the big event of the evening was a dance.

This annual event is decidedly worth while. It serves in a most acceptable manner to bring the farming interests of the state in closer contact with the work of the institution. The strong features and possibilities of the school are made plain along with the weaknesses of the institution. If this year's picnic does nothing more than convince those most interested that if the most is to be made of the great opportunity for making available in the most efficient manner the possibilities of the school, it will soon be necessary to consider a complete reorganization of the college of agriculture, the event will be justified—besides furnishing a pleasant day of recreation for the thousands who attended.

BONITA HOLSTEIN CALVES SELL WELL

Satisfactory prices were obtained at the sale of Holsteins held at Bonita Stock Farm, owned by J. M. Henderson Jr., Sacramento, last week. The offering was notable in that it consisted entirely of young things and was the first sale of the kind ever held in this state. Buyers from a wide territory were in attendance and evidenced a strong demand for young breeding material.

The top price of the sale was paid by M. H. Cusick of Lodi for Bonita Pontiac Mystic, a yearling daughter of King Segis Pontiac Polkadot. Cusick also bought the top bull, Bonita Sir Glista Aaggie, a son of Supreme Glista Pietje and Willow Grove Glista Spofford.

C. L. Hughes of the California Breeders Sales and Pedigree Company managed the sale and Ben A. Rhoades of Los Angeles, assisted by J. A. Davis of Manteca, cried the sale.

The detailed list of sales follows:

FEMALES

1, Bonita Lyons Nudine, Oct, 1917, F. A. Faist, Franklin, $290.
2, Florrissy Lawn 2nd Bonita, Feb., 1919, J. R. Crawford, Burrell, $255.
6, Bonita Mooie Reka, Dec., 1917, F. A. Faist, $100.

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One Pump Will Do Your Work

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

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9, Bonita Victorine De Kol, Sept., 1918, M. H. Cusick, Lodi, $400.
12, Model Ruth Bonita, April, 1919, F. H. Harvey, Galt, $300.
18, Bonita Pontiac Mystic, Feb., 1919, M. H. Cusick, $775.
20, Bonita Glista, Spofford, April, 1918, M. H. Cusick, $450.
23. Bonita Hazelwood Ormsby, Feb., 1919, F. H. Harvey, $250.
24, Bonita Walker Segis Ormsby, Dec., 1917, M. H. Cusick, $350.
25, Blue Label Bonita, March, 1919, J. R. Crawford, $210.
26, Bonita Glista De Kol, April, 1918, R. C. Gruelkhe, Dixon, $250.
27, Bonita Doris Glista, April, 1919, J. F. Garside, Galt, $205.
28 Bonita Windsor Hengerveld, Dec., 1917, M. H. Cusick, $350.
29, Bonita Daisy Hengervold Glista, April, 1919, F. A. Falst, $230.
31 Bonita Domino Fayne, May, 1919, J. R. Crawford, $165.
34, Bonita Babe Piebe De Kol, May, 1919, J. R. Crawford, $200.
35, Glista Bonita Colanthus, May, 1919, J. R. Crawford, $250.
36, Bonita Glista Pietertje, June, 1918, F. H. Gruelkhe, $270.
37, Bonita Glista, Colanthus, Oct., 1918, J. R. Crawford, $290.
38, Blue Label Bonita Glista, Jan., 1918. J. F. Garside, $185.
39, Bonita Johanna Glista, Jan., 1919, J. R. Crawford, $250.
40, New Year Model Burke Bonita, March, 1919, W. B. Goold, $190.
41, Model Witkop Bonita, April, 1919, C. F. Holman, Stockton, $250.
42, Model Bonita Pontiac, April, 1919, W. B. Goold, $275.
43, Hattie Bonita Pietje, May, 1919, C. F. Holman, $245.
44, Bonita Lady De Kol, May, 1919, F. H. Harvey, $235.
45, Model Sunlight Bonita, May, 1919, F. A. Falst, $225.
46, Model Creamella Bonita, June, 1919, C. F. Holman, $160.
47, Bonita Bonnie Bertha 2nd, Aug., 1919, Anderson & Fogarty, Sacramento, $290.
48, Glista Colanthus Bonita Hengerveld, Sept., 1919, F. A. Faist, $295.
51, Bonita Fobes Canary, Oct., 1917, Bost & Johnstone, Corona, $160.
56, Bonita Pontiac Segis, Aug., 1917, M. H. Cusick, $250.
57, Bonita Segis Fobes Glista, June, 1918, J. R. Crawford, $200.
59, Bonita Vale Posch, Dec., 1917, A. R. Strother, Campbell, $250.
61, Glista Pietje Daisy, Oct., 1918, J. R. Crawford, $215.
64, Unnamed, Sept., 1919, J. R. Crawford, $190.
65, Beryl Bonita Vrooman, Sept., 1918, R. Stevens, Stockton, $180.
71, Bonita Ormsby Hiawatha, Nov., 1917, R. C. Gruehlke, $250.
73. Bonita Friend Glista, March, 1919, F. H. Harvey, $300.
74, Glista Bonita Larcola, June, 1919, R. Stevens, $225.
75, Bonita Supreme Lone Rock, June, 1919, J. R. Crawford, $205.
76, Glista Bonita Corona Maid, July, 1919, J. W. Schultz, $205.
77, Model Bonita Ormsby, Sept., 1919, J. R. Crawford, $205.

BULLS

10, Glista De Kol Bonita, Nov., 1919, Catata Cattle Co., $140.
14, Glista Florind Bonita, May, 1919, A. C. French, Manteca, $205.
16, Lone Rock Bonita, Feb., 1919, W. B. Goold, Walnut Creek, $200.
21, Bonita Spofford Prize 3rd, April, 1919, Catata Cattle Co., $165.
32, Bonita Pontiac Fayne, Jan., 1919, M. H. Cusick, $400.
50, Glista Posch Ybma, Nov., 1918, Catata Cattle Co., $140.
52, Model Countess Canary, May, 1919, J. R. Crawford, $250.
54, Supreme Gene Oak, Feb., 1919, J. R. Pearson, Modesto, $225.
60, Model Glista Pauline Pietertje, Aug., 1919, Catata Cattle Co., $125.
66, Vrooman Glista Bonita, Otc., 1919, Catata Cattle Co., $195.
78, Pietje Bonita Korndyke, Jan., 1919, J. W. Schultz, $330.
79, Beach Segis Bonita, Feb., 1919, J. R. Crawford, $250.
82, Supreme Beauty Bonita Glista, May, 1919, Geo. S. Bell, Galt, $190.
85, Sir Bonita Circle De Kol, Sept., 1919, H. J. Schultz, Elk Grove, $150.
86, Bonita Fenicia Segis, July, 1919, F. C. Allen, Lockeford, $150.
87, Model Livingston Bonita, May, 1919, Catata Cattle Co., $175.
88, Bonita Mystic Supreme, Feb., 1918, M. A. Smith, Franklin, $300.
89, Bonita Sir Glista Aaggie, June, 1918, M. H. Cusick, $600.

HOME OF THE CHAMPIONS

Rhoades & Rhoades, livestock auctioneers, announce the complete dispersal sale of the Fred Hartsook herd of registered Poland Chinas. Sale will be at the Hartsook Ranch at Lankershim next Thursday, May 6. Rhoades & Rhoades announce this to be a complete dispersal sale without reservation of these pure bred hogs. Among the offerings will be winners of blues and championships at California state, Riverside, Fresno, Modesto and Los Angeles fairs. Among these is a grand champion junior yearling that was at the California state fair in 1918. Mr. Hartsook has spared no pains in gathering the herd that will make this sale true to name, "Home of the Champions." There will also be offered a number of registered Holsteins, including several young bulls. These are from some of the state's greatest butter makers. Amongst these are producers from 24 to as high as 37.34 pounds butter in seven days.

Dissolution of Partnership Sale

75 Registered Holsteins 75

An offering of highly bred cows, heifers and bulls of splendid individuality, and in fine physical condition

Leeman & Kilgore Farm, Ripon, Cal. Wednesday, May 12, 1920, at 10 A.M.

The dissolution of partnership which makes necessary this absolute dispersal sale affords an opportunity to buyers for the selection of breeding animals of rare merit considered from any standpoint, individuality, pedigree, production, and good health. Among the many splendid females will be found:

MISS GELSCHE WALKER KORNDYKE, daughter of Prince Gelsche Walker and a 29 lb. daughter of Korndyke Queen De Kol's Prince. At last freshening she made 32.76 lbs. butter from 708.9 lbs. milk in seven days, and is being carried on strictly official test up to sale day. In 90 days she has made 324.54 lbs. butter from 8,165.1 lbs. milk. As a junior two year old she mads 687.31 lbs. butter from 15,246 lbs. milk in 348 days.

FAYNE SPRING FARM PONTIAC DE KOL, a 26.30 lb. four year old daughter of the famous bull Spring Farm King Pontiac 6th. She is fresh and on test at this writing and promises to substantially increase her record. She is a beautiful individual and is one of the best bred young females to be sold in California this season.

MERCI PAULINE BURKE DE KOL, has recently completed a record of 29.18 lbs. butter from 535.9 lbs. milk in seven days, and she is a high class individual, sired by De Kol Hengerveld Burke.

A 25 POUND DAUGHTER of Segis Pontiac De Kol Burke, out of a 24 lb. three year old daughter of King Mead of Riverside.

A 27 POUND DAUGHTER OF A 28 POUND COW, bred to Sir Aaggie Korndyke Alcartra, grandson of Tilly Alcartra.

A DAUGHTER OF KING MORCO ALCARTRA out of a dam that made over 1,000 lbs. butter in one year and over 33 lbs. in seven days.

A 24 POUND GRANDDAUGHTER of Sarcastic Legislator, bred to King Gelsche Walker Korndyke, who is by King Morco Alcartra, son of Tilly Alcartra, and out of the 32 lb. Miss Gelsche Walker Korndyke.

A 24 POUND 3 YEAR OLD daughter of Karel Vale Cornucopia, bred to King Gelsche Walker Korndyke.

A 24 POUND JUNIOR 4 YEAR OLD daughter of Dutchland Colantha Sir Ormsby.

A 22 POUND DAUGHTER of Woodcrest Aaggie Jewel Son, bred to Sir Aaggie Korndyke Alcartra.

A 20 POUND 4 YEAR OLD whose dam is sister to two 1,000 lb. yearly record cows.

A YEARLING DAUGHTER of the above cow sired by King Morco Alcartra.

A 22 POUND DAUGHTER of Dutchland Hengerveld Sir Gladi, bred to King Gelsche Walker Korndyke.

A 19 POUND 3 YEAR OLD great granddaughter of King Segis, bred to King Gelsche Walker Korndyke.

A 16.81 POUND 2 YEAR OLD daughter of a granddaughter of King of the Pontiacs that made 850.33 lbs. butter from 18,712.1 lbs. milk in one year as a senior three year old.

A YEARLING DAUGHTER OF KING MEAD OF RIVERSIDE, out of a daughter of Korndyke Queen De Kol's Prince, that made 634.48 lbs. butter in one year as a junior two year old, her dam with 828.62 lbs. butter in one year.

A YEARLING DAUGHTER OF SEGIS PONTIAC DE KOL BURKE, out of a dam that made 801.08 lbs. butter in one year.

A 16 POUND 3 YEAR OLD daughter of Count Segis, bred to Sir Aaggie Korndyke Alcartra.

A 15.76 POUND 3 YEAR OLD granddaughter of King Segis, bred to King Gelsche Walker Korndyke.

A DAUGHTER OF KING KORNDYKE SADIE VALE 22ND, out of a 30 lb three year old.

A DAUGHTER OF KING SEGIS PONTIAC JANNEK, out of a 27 lb. four year old.

A DAUGHTER OF PRINCE GELSCHE WALKER, out of a granddaughter of King Segis Pontiac that made 549.53 lbs. butter in one year as a junior two year old.

DAUGHTERS OF OTHER GREAT SIRES, out of highly bred dams.

An Extraordinary Offering of Highly Bred Bulls

Besides the two royally bred herd bulls there are in this offering a splendid selection of young bulls, many of which are out of young dams that already have large records and that can be expected to increase them materially at later freshenings. It is a foregone conclusion that owing to the number of young bulls to be sold there will be some rare bargains. Following are some of the bulls in the sale:

SIR AAGGIE KORNDYKE ALCARTRA 194050, born Oct. 16, 1915. This is the senior herd sire. He is by Prince Alcartra Korndyke, the great son of Tilly Alcartra heading the J. S. Gibson Co. herd at Williams, whose daughters have made up to over 1,000 lbs. butter in one year, and over 31 lbs. in 7 days. The dam is Hazel Aaggie of Oakwood Daughter, with 860.91 lbs. butter from 21,208.5 lbs. milk in one year. She is now on yearly test again in the Gibson herd and promises to go right around the 1,000 lb. mark. The records of the dam and sire's dam of this bull average 1,096.58 lbs. butter and 27,316.6 lbs. milk in one year. Look over his calves in this sale and you will concede high merit to him as a herd sire.

KING GELSCHE WALKER KORNDYKE, born November 22, 1918, the junior herd sire. is by King Morco Alcartra, the great son of Tilly Alcartra in service in the Morris herd. The dam is Miss Gelsche Walker Korndyke, whose records have been fully set forth above. Six of the seven nearest dams of this bull average 30.56 lbs. butter from 692.9 lbs. milk in seven days. Three of his seven nearest dams average 1,031.56 lbs. butter and 25,832.4 lbs. milk in one year. Here is a high class individual of the richest breeding, and he is just ready for medium heavy service.

A SON OF KING MORCO ALCARTRA out of a 16 lb. two year old whose dam made 850 lbs. butter from over 18,700 lbs. milk in one year.

A SON OF KING MEAD OF RIVERSIDE out of a 27 lb. dam that made 589.92 lbs. butter in one year, second dam a 28 lb. cow that made 780.48 lbs. butter in one year as a four year old.

A SON OF SIR AAGGIE DE KOL ACME, son of the world's official record cow Aaggie Acme of Riverside 2nd, 1,331.78 lbs. butter in one year. The dam is out of a cow that made 520.12 lbs. butter in 305 days as a four year old, third dam with 646.97 lbs. butter in one year.

A SON OF KING MORCO ALCARTRA out of a 23.73 lb. four year old daughter of Prince Gelsche Walker that made 652.48 lbs. butter in one year as a junior two year old. Second dam a 31.91 lb. daughter of Korndyke Queen De Kol's Prince. Third dam a 23 lb. cow that made 701.53 lbs. butter in one year.

TWIN SONS OF IT, whose dam was the first cow to make over 1,200 lbs. butter in one year or 37 lbs. in seven days. The dam is a 15.76 lb. granddaughter of King Segis.

A SON OF SIR AAGGIE KORNDYKE ALCARTRA, out of Miss Gelsche Walker Korndyke, the great 32 lb. daughter of Prince Gelsche Walker.

A SPLENDID LOT OF YOUNG SONS OF SIR AAGGIE KORNDYKE ALCARTRA, out of well bred dams, many of them with good records.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER;
EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED
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California Breeders Sales and Pedigree Company

J. M. Henderson, Pres. C. L. Hughes, Sales Manager,
Sacramento, California.

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare; Col. John A. Davis, Manteca.

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This is one of the most attractive offerings ever made in the West. The cattle are all young, of wonderful type throughout, and the herd has a clean health record that is rarely ever equaled. We will disperse this herd at public auction for the owner, Mr. C. W. Anderson, at

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Thursday, June 17, 1920

Write for catalog now, and watch future announcements for details of the offering.

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Sacramento, California.

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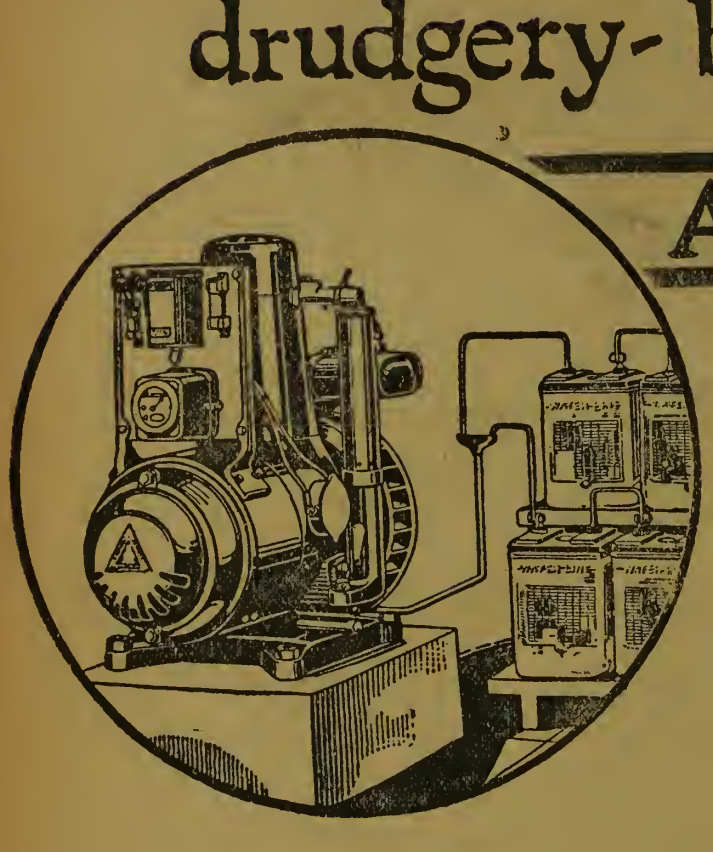

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When DELCO-LIGHT brought the first cost of an electric light and power unit within the means of every thrifty farmer, it performed a personal service TO YOU. You will appreciate this fact as soon as you install a DELCO-LIGHT—so why not act at once? Why not be among the 100,000 satisfied users who say that it is one of the triumphs of this electrical age? Without it, countless farms could not share in the blessings of electrical development. Country life would be no further advanced in this respect than in pioneer days.

From E. W. Slygh, Armada, Calif.—"The Delco-Light installed over a year ago has given perfect satisfaction. The fuel expense in October and November for lights and ironing was 70 to 80 cents per month. If I had to go back to using a lantern in the barn I should feel that I was one hundred years behind the times."

DELCO-LIGHT is as "good as gold" for any of the many tasks it is called upon to perform. But even gold is first tested for its worth. So, also, Delco-Light expects to be called upon to prove its merit to you. For this reason, it is sold on a money back guarantee. You can have Delco-Light installed in your home at once to make good in a 30-day test—and it will. But if you are not satisfied with the way it lights your home and outbuildings or with its labor-saving performances, it will be taken out without expense to yourself and your money will be refunded cheerfully.

From Cottage Garden Farms, McKinleyville, Calif.—"Our Delco system comes up to our fullest expectation. After tests and comparisons, I find the Delco system the safest, most economical and most compact lighting outfit made."

You want electricity as distributed by DELCO-LIGHT because of the increased health that comes to your household from constant, dependable brightness—because of the untiring help it contributes through its economical labor-saving devices. DELCO-LIGHT gives them to you at once. No waiting for power companies to find men and materials to put electricity in your home. No paying or waiting for transmissi
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Loomis, Calif.—"After using my s, I have come to the conclusion e farm practically a life time. It for lighting the farm house and ng the labor within them. Wash r and ironing is relieved of the c iron."

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From Bell & Canfield, Lompoc, Calif.—"About a year ago you installed our Delco-Light. We consider Delco-Light a number one investment as it saves us about $360 a year."

Don't go through another hot season without the comforts of DELCO-LIGHT electricity. No more hot oil lamps to draw the bugs and raise the temperature of kitchen and living rooms. No more dangerous, smoky lanterns in the barns. Instead, all the easy comforts of the city. A button pressed—and you have bright, clear lights to read and work by; electric fans to cool the house. No more fear of fire from exposed flame. No more dread of encountering pitchforks or sharp tools in the barns and outbuildings.

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Write or call today on the DELCO-LIGHT dealer nearest you. Direct him to install a DELCO plant in your home at once on the money-back guarantee of a 30-day satisfactory test. Don't lose a day in the delivery of a light and power service that give satisfaction the moment you call on it. Remember, more than 3,000 DELCO-LIGHT plants have been sold on the Pacific Coast during the past four years with the above warranty—and not one has been turned back.

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ASK THE DEALER NEAREST YOU

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Anderson & Doyle, Salinas, Calif.
L. E. Atkinson, Sonora, Calif.
J. E. Bartlett, Care of Medford Hotel, Medford, Oregon.
Brennan & Son, Loomis, Calif.
Howard Bowles, 104 W. Mill St., Santa Maria, Calif.
Cia. Electrica Intern., C. L. Urlarte, Mgr., P. O. Box No. 127, Nogales, Arizona.
M. B. Charles, 39 E. San Antonio St., San Jose, Calif.
Robert Coker, 932 Ripley St., Santa Rosa, Calif.
de Jongh & Cochran, G. C. Egelston, Mgr., Fresno, Calif.
de Jongh & Cochran, A. E. Morrison, Mgr., 129 East 6th Street, Los Angeles, Calif.
Harry Dolan, Yerrington, Nevada.
W. R. Dodge, P. O. Box No. 682, Chico, Calif.
Electrical Installation Co., 26 West Carrillo St., Santa Barbara, Calif.
C. J. Fulcher, Lookout, Calif.
Feher & Worley, Susanville, Calif.
Everett P. Guidici, Chilcoot, Calif.
J. Gordon Hussy, P. O. Box No. 868, Bakersfield, Calif.
Geo. Hambric, Jackson, Calif.
G. C. Hopkins, 405 East Main St., Visalia, Calif.
Harris Brothers, 141 North 1st st., Phoenix, Ariz.
Hawaiian Electric Co., Honolulu, T. H.
P. L. Klingerman, P. O. Box No. 181C, El Monte, Calif.
Roy LeMasters, Care of Hughson Hotel, Modesto, Calif.
T. L. Laereman, 645 Main Street, El Centro, Calif.
Lincoln Highway Garage Co., Ely, Nevada.
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H. E. Montague, 4261 Arista St., San Diego, Calif.
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More and better Milk

Long Beach, Calif.
Dec. 12, 1919.

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Gentlemen:- I have been using your Besgrade Dairy Feed for about four years. I can get more milk and better test by feeding it than any other feed I can use and would recomend it to any dairymen.

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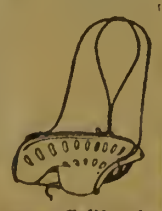
To the seat of your tractor or farm machinery. It saves your back and you ride in comfort. The National Back Rest fits on nearly any seat no matter what style or shape. It can be quickly and easily attached without the use of tools. No screws or bolts. Will not slip off. Three dollars delivered. Some agency torritory still open. Satisfaction guaranteed or money refunded.



CARL G. JORN
Jorn Bldg., 57 Plaza Square, Orange, California

DISPERSAL

50 Young Registered Holsteins

30 Heifers 20 Bulls

State Fair Grounds, Sacramento

Saturday, May 29

This is a complete dispersal of the remaining stock owned by Henderson Company, all young things under milking age.

THE HEIFERS are mostly granddaughters of King of the Pontiacs, being sired by King Pontiac Segis Inka. They are a beautiful lot and many have high record dams.

THE BULLS are mostly sons of King of the Black & Whites, out of choice dams, and they are a most attractive lot of youngsters.

Write for Catalog.

Management

California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Calif.

Registered Hereford Bulls

We have a few choice bulls from one to three years old for sale. Our Breeding Herd was purchased from the most noted breeders of the Middle West, and are of Anxiety Breeding.

E. A. Noyes & Son, Sutter, Cal.

GOLDEN GLEN STOCK FARM

Sixty registered females in our herd of working Jerseys. Eight cows now on official test. All Golden Glen cows hereafter go on test at freshening time. Performance at the pail is to be the test of every cow's chance to remain in this herd. Walnut Park Noble 142138 is sire in service. In market today for strictly high class herd bull prospect.

Geo. W. Thomas & Sons, Arlington, Cal.

At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

May 5, W. J. Higdon, Tulare.
May 6, R. C. Sturgeon and others, Tulare.
May 12, Leeman & Kilgore, Dispersal, Ripon.
June 17, C. W. Anderson, Burbank. Dispersal.

Milking Shorthorns

May 5, Thos. Harrison, Santa Rosa.

Duroc-Jerseys

July 21, Elmer Lamb, Ceres.

Fred B. Ellis of the Sunkist herd of Lindsay, has just received his big new Duroc boar, Major Disturber, of Disturber-Pathfinder stock, which he recently purchased from Marco Hellman of Los Angeles. Ellis is getting his new herd sire in shape to put up against all comers at the state fair association circuit of shows this fall.

Beauty of Walnut Park is queen of the J. E. Wherrell herd of Jerseys at Riverside. She recently finished a record of 655 pounds of butter fat from 15,000 pounds of milk for one year's time. In addition she dropped twin bull calves that have been sold for $600. Gross returns for the year's production, $1,400. Beauty of Walnut Park is dam of Walnut Park Noble at head of Geo. W. Thomas & Sons' Golden Glen herd at Arlington.

Geo. W. Thomas & Sons at Arlington are now lined up with one of the state's good business herds of registered Jersey cattle. The official test is to gauge the capacity for production in this herd henceforward. Mr. Thomas is confident that he has Register of Merit material in abundance. There are 30 cows in the milking string just now showing a composite test above five per cent, not a few running above six and seven per cent. A notable accession to the Golden Glen herd is that of 30 females from Nevada.

Geo. V. Beckman and Sons of Lodi report a fine bunch of spring pigs. Ten sows bred to Lakeside Defender farrowed 101 pigs. The smallest litter was of seven pigs. These, with a bunch of fall pigs, will be shown at the coming fairs. One of the fall litters is sired by Liberty Bond, a great Missouri boar.

Greenwood Farms, Live Oak, report the sale of the junior yearling Duroc boar with which they won fourth prize at the 1919 state fair, to Everett Platter of Sutter City. The boar was a son of Johnson's Defender Jr.

At the sale of grade Holsteins held last week by the Stockton state hospital an average slightly above $150 was obtained.

Forty-nine carloads of livestock were shipped from Cottonwood, Shasta County, April 24. The value of the shipment was placed at $129,000.

Professor F. W. Woll of the animal husbandry division of the University of California has left for an extended trip to Denmark and other European countries to study the foreign dairy situation.

Much interest is being accorded the forthcoming sale of milking Shorthorns to be held at Santa Rosa, May 5, by Thos. Harrison. This will be the first sale of the kind ever held in the West, and owing to the prominence of the herd and the quality of the cattle it is expected that the event will attract buyers from a wide territory. During the last few years the interest in the milking Shorthorn has developed very rapidly in the West and a number of very high class herds have been established.

A pure bred Holstein calf club has been organized at Live Oak, Sutter County. The boys will start with about 20 calves.

The dates for the annual fair held at Anderson, Shasta County, have been fixed for October 1 and 2.

F. L. Graham, manager of the Eastman Ranch, San Fernando, has recently secured an outstanding son of the noted Poland China boar, Liberator, from Bert Harriman of Missouri. It is probable that the youngster will be seen at the state fair and other fall shows.

In This Column Every Issue

HEALTH
FAMILY A Square Deal in Holsteins QUALITY
PRODUCTION

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For SALE at
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We have listed and priced for immediate sale a number of choice animals of both sexes from our

Los Altos and Brentwood Herds

In building up these herds during the past five years we have adhered rigidly to a high standard of

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We now offer you selections from these exceptional herds. Animals of both sexes in lots of one to fifty. Many in calf to our phenomenal yearly record bulls.

Ideal For Foundation Herds

START RIGHT
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We are not offering cheap cattle, BUT OUR PRICES ARE REASONABLE AND STRICTLY CONSISTENT WITH QUALITY AND HEALTH. Remember a

Federal Health Certificate

with every animal. If this means anything to you

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Toyon Farm Association

Mills Bldg. San Francisco

Farms at
Brentwood and Los Altos

E. N. Whittemore, manager of the Berkshire breeding herd maintained by D. J. Bastanchury at his Santa Catalina Rancho, La Habra, recently visited the Berkshire herds of the Sacramento Valley. Whittemore reports having purchased a sow from Zed Williams of South Carolina, carrying the service of Laurel's Champion Best, a full brother to the $5,000 Laurel's Champion Grand Leader. The Santa Catalina herd consists of around 35 head of sows.

Bruce S Bennett, field secretary for the Western Berkshire Congress, is now engaged in selecting consignments for the congress sale to be held at the university farm sometime next month.

California Ayrshires are making good. A splendid record has just been completed by the eight year old cow, Rena Ross 3rd, owned by J. Henry Meyer, Elkhorn Farm, Watsonville, her record being 16,134 pounds milk, 649.30 pounds fat, 4.02 per cent. This constitutes her third record, the three totaling 45,958 pounds milk, 1,884.70 pounds fat, or an average of 15,319 pounds milk, 628.23 pounds fat, 4.10 per cent. Rena Ross 3rd belongs to a noted family of producers developed by Highland Farms, Bryn Mawr, Pennsylvania. She has five daughters, all full sisters. The six cows have 15 Advanced Registry records averaging 13,389 pounds milk, 546.03 pounds fat. The five daughters are all sired by Finlayson Imp., leading A. R. sire of the Ayrshire breed, he having over 100 entries to his credit, averaging approximately 10,500 pounds milk and 450 pounds fat.

J. I. Cazier and Sons, Hereford breeders of Wells, Nevada, have just received a young bull from Robert H. Hazlett of Kansas. The youngster, a son of Bocaldo 6th, grand champion bull at the leading 1916 shows, and out of a Publican dam. Messrs. Cazier also selected four females from the Mousel herd and six from the Jesse Engle herd.

Chas. Rule of Jenner has purchased two young bulls and two females from the Mousel herd in Nebraska.

James Marwick of Santa Barbara, who has been breeding Percherons, has decided to enter the ranks of the Aberdeen-Angus breeders and has purchased a number of high class animals from leading Scottish herds to use as a foundation in building up a top herd.

E. E. Greenough writes: "Sunshine Farm Jerseys are coming fine on test. Our senior yearling heifer, Beauty of Sunshine Farm, will finish with over 400 pounds fat if nothing happens, class AA. Edna of Venadera's Birdie made 65 pounds fat in December. We have just sold our young bull, Duchess Exile King, to Mrs. Sylvia Stornetta of San Luis Obispo. This calf is a line bred St. Lambert-Flying Fox bull and should prove a fine sire. His dam was third prize aged cow, Sacramento, 1919."

WESTERN BERKSHIRE CONGRESS HOLDS SUCCESSFUL SALE

The Western Berkshire Congress held its first promotion sale of the season at Marysville, April 22. Much interest was shown by the farmers of that community, but the outstanding feature was the selling of some animals that had been developed by some of the pig club members of the community.

While the main object in holding these sales is the introduction of Berkshires into new territory, it is also planned to cooperate with pig club members and the younger breeders in creating a market for their breeding stock. That the main object was accomplished is attested by the fact that every animal consigned to the sale by the various breeders remained in the community.

The farm bureaus of Yuba and Sutter Counties gave the sale their hearty cooperation and much of the success of the sale was due to their efforts. The bred sows sold for an average of $90, while the bred gilts sold from $60 to $90. Cols. Leachman & Snook of Sacramento were the auctioneers. Bruce S. Bennett managed the event for the congress.

The De Laval Milker

Solves Milking Problems

One man can milk three times as many cows in an hour with a De Laval Milker outfit as by hand

The De Laval Milker is simple in construction, easy to operate, and dependable in action. It is faster, more reliable and more sanitary than any other method of milking.

The De Laval Milker is always on the job, week-days, Sundays and holidays, and during the present shortage of help, this is an important item in solving the milking problem. The fact that the De Laval way is easier and more pleasant lightens the work. Better satisfied help is the result, and the boys are kept on the farm.

Wherever cows are milked the world over, the name "De Laval" stands for quality and highest value to the user. The fact that it bears the name "De Laval" is a guarantee that it will give the service claimed for it.

Write to nearest De Laval office for Milker Catalog, mentioning number of cows milked

De Laval Dairy Supply Co.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

61 Beale Street San Francisco, Cal.

DISPERSAL SALE

28 Registered Holsteins

Because he must go East, and will not entrust the care of his choice herd to strange hands, Mr. L. B. Van Blaricon has instructed us to disperse it at public auction on his farm one mile north of

El Monte, California
Saturday, May 8, 1920

This is one of the choicest herds in Southern California. The owner has milked his own cows for the past six years, and the herd has been tuberculin tested regularly without a reactor for the past three years. The breeding of the herd is most substantial and the sale includes:

A GRANDDAUGHTER OF RAG APPLE KORNDYKE 8TH out of a 21 lb. four year old that made 512.12 lbs. butter in 305 days, second dam the 36 lb. cow Alba Sadie Cornucopia Creetia who made at a previous freshening 866.28 lbs. butter in 338 days.

A 26 POUND 4 YEAR OLD granddaughter of King Segis De Kol Korndyke.

A 25 POUND DAUGHTER of Arcady Cornucopia Johanna Lad.

A DAUGHTER OF JOHANNA McKINLEY SEGIS, 40 lb. son of King Segis.

A 21 POUND 4 YEAR OLD daughter of Woodcroft De Kol Sarcastic Lad.

A DAUGHTER OF A 28 POUND COW, that has three A. R. O. daughters.

SEVERAL 16 TO 19 POUND 2 YEAR OLDS, by good sires and out of highly bred dams.

TEN DAUGHTERS OF KING LYDA PONTIAC, who is by a son of King of the Pontiacs and out of a three-quarter sister to the first 41 pound cow Valdessa Scott 2nd.

If you want to buy clean, high producing, well bred females, in good condition, this sale is well worth a long trip.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL TUBERCULIN TESTED BY A DEPUTY STATE VETERINARIAN.

Catalog Free on Request to Management

California Breeders Sales and Pedigree Co.

J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, Calif.

Auctioneer—Col. Ben A. Rhoades, Los Angeles

TULARE'S
Best Consignment Sale

65 - Registered Holsteins - 65

Sale Pavilion, Tulare, Cal.
Thursday, May 6, 1920

Contributors to Sale:

R. F. GUERIN, Visalia. R. C. STURGEON, Tulare
LES McCRACKEN, Ripon. THE VICTORY HERD, H. E. Spires, Caruthers.
ALEX WHALEY, Tulare.

This is an exceptionally uniform lot of highly bred cattle of most popular breeding, containing an unusually large number of high record females, bred to outstanding bulls, and sold under most liberal guarantee of health.

A 30 POUND COW and two beautiful heifers bred to Sir Aaggie De Kol Acme 2nd, five of whose seven nearest dams average 1,154 lbs. butter in one year.

COWS WITH RECORDS UP TO OVER 28 POUNDS butter in seven days, and heifers out of dams with records up to over 29 lbs. butter in seven days, bred to King Sadie Vale Idyl Segis, grandson of King Korndyke Sadie Vale out of a 35 lb. daughter of King of the Pontiacs.

R. C. STURGEON'S ENTIRE MILKING HERD, and some choice heifers, bred to Segis Pontiac Abbekerk, 35 pound son of Segis Pontiac De Kol Burke. An exceptionally good lot of cattle.

FOUR CHOICE FEMALES bred to Sir Plebe De Kol Segis Pontiac, son of the famous bull King Segis Pontiac Count, out of a 25 lb. dam that made 717 lbs. butter in one year. The first females bred to a son of King Segis Pontiac Count ever sold in California.

TEN OPEN HEIFERS, sold by Les McCracken, by 35, 32 and 31 lb. sires and other sires of equally rich breeding.

Every animal positively guaranteed to be a breeder; every animal tuberculin tested and sold subject to retest by the buyer.

Management

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres., C. L. Hughes, Sales Manager, Sacramento, Calif.

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare.

Milk Goats for Mining Camps

By E. P. Taylor, University of Arizona

"GOATITIS" is a new disease in Arizona. A well defined case always follows a good long draft of cool rich goat's milk and the symptoms are a call for more goat's milk and a desire upon the part of the person affected to immediately get into the milk goat business.

There are about 15 mining camps of considerable size in Arizona, some of them with a population of 25,000 or more men, women and children. Bisbee, Jerome, Clarkdale, Verde, Oatman, Ray, Superior, Hayden, Miami, Globe, Clifton, Morenci, Metcalf, Douglas, Ajo and the smaller camps have a combined population of about 175,000 souls, which is a very large percentage, about 50, of the total population of the state.

The people in these mining and smelter towns are up against it for milk for their babies and their families to drink. While dairy cows have vanished before the wave of cotton in the Salt River Valley to the number of 50,000 during the last year or a little more, the milk supply situation has become even more of a problem in the mining camps where alfalfa hay and all kinds of shipped in feeds come high.

I recently visited the town of Ray, a copper mining camp of about 4,000 stomachs and where the milk question has become a serious problem, and while there met a man with one of the best defined cases of "goatitis" it has been my pleasure to encounter. This man is T. S. Jacobs who is connected with the Ray Consolidated Copper Company and with other enterprises in the district which have given him a chance to see what a serious problem the milk supply for a mining camp has become. After witnessing what Mr. Jacobs is doing in the way of supplying goats' milk to his own family and neighbors to meet the situation I was convinced that his case of "goatitis" was fully warranted.

What Mr. Jacobs is doing thousands of others in mining camps and railroad towns and other towns in Arizona may do. His milk goat experience is worthy of telling for the benefit of others.

Mr. Jacobs lives on a hilside in Boyd addition to Ray. He has a wife and three healthy happy children all of whom like goat milk and who get plenty of it to drink. Mr. Jacobs started last November with "Altdorf Dora," a registered Toggenburg doe bought at a cost of $100 from a breeder in California. Dora likes the copper hillsides of Ray and, since bringing triplet kids several months ago, with the feed and care given her has been making a very fine milk production record. When fresh she gave four quarts per day and she now runs 55 to 62 ounces per milking.

At the time of my visit to "Altdorf," which is the name Mr. Jacobs has given to his goatery, Dora had just completed a milk production record for March of 99.2 quarts of milk for the month, or an average of 3.2 quarts per day. For February she had produced on an average of 3.08 quarts per day.

Tacked to the wall of Dora's milk house was a sheet with the exact records for February as kept by Mr. Jacobs, which showed feed and cost as follows:

Barley	41.25 lbs.	@	4.28c	$1.77
Bran	37.8 lbs.	@	3.84c	1.45
Beet pulp..	5.9 lbs.	@	3.1 c	.18
Corn	1.0 lbs.	@	.....	.08
Alfalfa				1.30
Total				$4.78

Her milk production therefore had been at 5.4 cents per quart for feeds and these at retail prices bought in a local way at mining camp figures. For the month of March cost of feeds amounted to 5.2 cents per quart.

Mr. Jacobs has compared this cost of production for February with the cost for feeds to milk cows at Ray. At wholesale prices feed in Ray to milk cows cost $17.78 per month per animal as compared with $4.78 for feed for a single milk goat.

During the month of March Mr. Jacobs had fed Dora all the baled alfalfa she would eat from her manger, and twice a day, night and morning, at milking time she now gets two cups (11 ounces) rolled barley and two cups (11 ounces) bran.

Mr. Jacobs has equipped his little goatery with three houses, a "kid house," a feed house and a milk house. Dora eats her feed of grain in a stanchion in an electric lighted milk room, standing upon an elevated milking platform while the milker sits at the side upon a projecting seat.

Only a small goat run is provided, such as most any miner's backyard would provide. Mr. Jacobs showed me hundreds of acres of hillsides tributary to the town of Ray, covered with wild grasses, alfilaria and brush which could be easily enclosed and utilized for milk goat pastures handy to the miners houses. Goat milk sells for about 30 to 35 cents per quart in a city like Los Angeles and it is safe to say would bring much more than this in a mining camp where only canned milk, patent milk powder, and milk substitutes abound. A look at the rosy cheeks and healthy bodies of Mr. and Mrs. Jacobs' three children fed upon goat milk convinced me that goat milk for babies was the proper thing.

Goat milk properly handled does not have a bad odor nor does it have a disagreeable flavor. There has been a prejudice against it which is rapidly being overcome. In Europe goats milk is a common article of diet. Physicians give testimony to its value as food for infants as well as for older children. It is in great demand as an invalid food and many adults prefer it to cows milk. It is very rich and usually requires dilution.

Milk as a necessity in the diet of the child is being urged by mothers, physicians, school nurses and home demonstration agents. In Arizona the home demonstration agents have made this subject one of the leading projects for education among the people. The supply of milk has fallen very low. In one railroad town in northern Arizona the home demonstration agent took a survey in a group of 85 children to ascertain the number of children who were receiving milk to drink. She was surprised to find that not one received fresh milk in their diet. An investigation in the homes of these children verified the appalling fact.

Surplus male kids are a rare delicacy as food. Goat and kid skins are of considerable value. The number of goat skins imported into the United States annually in normal times is 40,000,000. The milk goat industry is one which is sure to develop rapidly for as shown milk goats may be kept where milk cows cannot.

HANDLING OF FOAL

It is of the highest importance in horse producing that the young start life in full health and vigor. The foal should as soon as able to stand, take a good draught at the "colostrum" or first milk of the mare. This milk or colostrum has purgative properties which discharge from the alimentary tract the foecal material which collected within during foetus life. If the foal does not naturally pass the foecal matter, then give a gentle purgative of castor oil.

With the alimentary tract cleared the foal can utilize the natural milk which follows. The young foal will naturally at once gain weight, strength and make a good growth. The owner of the mare and foal should know the condition under which the dam must foal.

If the dam is not able to supply the proper amount of nourishment, the foal will not make the proper growth and development. The mare should have a good pasture grass, but if this is not available some concentrates, such as, oats, rolled barley or wheat bran with some corn should be used.

The first few days after foaling, the mare should be in a box stall and a small lot, with simple feed and not too abundant.

In seven to ten days the mare and foal may be turned to pasture; but protect them from the inclemencies of the weather. Keep under favorable conditions, and the mare and foal will shift for themselves, but use watchfulness as to the first appearance of dif-

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Parasiticide. Disinfectant.

USE IT ON ALL LIVESTOCK

To Kill Lice, Mites, Fleas, and Sheep Ticks.
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to any one who can prove that we do not do all that we advertise.

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Tulare Cooperative Poultry Association store is now doing a daily business of $1,000

ferent ailments. Diarrhoea is one of the most common troubles and should be checked at once. The correctives for this are as follows: Boiled milk, parched flour or a gruel. These materials are simple and can be used most successfuily. Constipation, another ailment, may be relieved by the use of castor oil.

At the age of two months the foal should acquire a taste for grain. As soon as the colt begins to eat readily a pen should be built, making it high enough to keep the dam out, and the foal will pass below. Thus, it will soon get the habit of feeding from the regular feed trough. Keep the ration, and especially the oats, well supplied.

By using this system the colt at weaning time will be easy to wean, and then it does not miss its dam. The foals are usually weaned at five or six months. At weaning time increase the ration and the foals will make a good growth and later mature into a good grade of horses.

THE HORSE COLLAR

Friction and pressure are the two important factors to be considered when fitting a collar on the horse. The injuries due to pressure can be largely eliminated if distributed over as large an area as possible. The contact area of the collar of the horse when pulling should be distributed with the same intensity from the withers down to the breast on a line with the shoulder joint, including the anterior edge of the shoulder blade.

This adjustment is not easy at all times on account of the variation, in conformation and size, of the animal. If the collar is of the correct size and the structure of it and the hames are such as to give it the proper rigidity, these variations on the bearing surface of the animal and collar will soon adjust themselves and come into correct apposition. The contour of the bearing surface of horses usually varies considerably and, therefore, the collar when once molded to one horse should not be used on another.

Friction cannot be entirely eliminated on account of the variations of movement of the animal. Correct apposition, however, in adjusting the collar will eliminate much of it.

The bearing surface of the collar should be smooth and cleaned frequently. Dry perspiration on a collar will soon cause sore shoulders.

The collar should not pinch at the crest of the neck and should be loose enough below to permit the free passage of the open hand between the neck and the collar. Pads under the collar should not be used except when a sore area is being protected by a window cut in the pad thus preventing the collar from coming in contact with the irritated portion.

PIN POINTS ON SILOS

By University of Arizona.

The tractor will help farm more acres, but will not grow beef and dairy products.

The tractor does not add fertility to the soil.

The silo dies not change roughage into concentrates, but it does reduce the amount of grain necessary to keep cattle in first class condition.

A pit silo is good insurance; costs little; will not blow down or burn up; is easy to fill.

It is dangerous to feed moldy or frozen silage to pregnant cows.

One acre of corn silage at ten tons will feed two cows a year. More tonnage, more cows per acre.

Care must be taken to feed only first class silage to horses or mules, and then in limited amounts only.

In the corn crop, 30 to 40 per cent of the crop value is lost in the fodder that is not used.

Dry fodder plus water in the silo increases the feeding value 50 per cent.

There are types of silos to fit every need, so build the silo that fills your requirements.

There is no best silo. Any silo rightly made is good. The most expensive silo, poorly constructed, is worse than none.

It is not a good policy to build the silo in a barn, especially a dairy barn, on account of the odor.

Silos with angles are hard to tramp and the air is liable to circulate down the corners and cause the silage to spoil. A round silo is best.

Be Fair to Yourself

Every man or woman in California who owns a herd of registered Holsteins; every man or woman in California who hopes to own a high class herd of registered Holsteins, should, in justice to their own best interests, attend the dispersal of the famous W. J. Higdon herd, for it is one of the rarest opportunities to secure breeding animals of the very first rank. Mr. Higdon retains only the young daughters of King Korndyke Pontiac 20th as the basis for a future herd, the sale offering consisting of

55 Registered Cows, Heifers and Bulls
Sale Pavilion, Tulare, Cal.
Wednesday, May 5, 1920

King Korndyke Pontiac 20th

SIX 30 TO 36 POUND COWS constitute the largest group of thirty pound cows ever offered by a California breeder at one time, and as individuals and as to pedigree they are equal to their great records.

COWS AND HEIFERS WITH 1,000 LB., 800 LB., 700 LB. YEARLY BUTTER RECORDS are in the offering, splendid individuals.

TWENTY DAUGHTERS OF PRINCE RIVERSIDE WALKER will be sold, and they are one of the very best groups of daughters of one bull ever offered in any sale ring. Remember that they are all granddaughters of Aaggie Acme of Riverside, 1,054 lbs. butter in one year at 12 years of age, she the dam of Aaggie Acme of Riverside 2nd, 1,331.78 lbs. butter in one year, the world's official record, she in turn the dam of Miss Aaggie Acme Burke, 1,034.44 lbs. butter in one year as a first calf junior 2 year old, and her record of 24,338.8 lbs. milk in one year the world's record in class. Think what wonderful foundation breeding animals these heifers are.

You know all about KING KORNDYKE PONTIAC 20TH, who is bound to make a fortune for the lucky breeder who takes him out of this sale ring.

AND DON'T OVERLOOK the real herd headers among the younger bulls, including three sons of King Korndyke Pontiac 20th out of 30 lb. dams; a son of Prince Riverside Walker out of a 32 lb. 3 year old with over 750 lbs. butter and over 20,000 lbs. milk as a junior two year old; a son of King Korndyke out of a great yearly record daughter of King of the Pontiacs; two younger bulls of rich breeding.

Every Animal Positively Guaranteed to Be a Breeder; Every Animal Tuberculin Tested and Sold Subject to Retest by the Buyer.

REMEMBER—That this herd has been regularly tuberculin tested since its foundation; that there has never been a case of contagious abortion in the herd; that the herd is composed of young cattle that are on the upgrade, the sort that can not fail to make money for their new owners.

Management

California Breeders Sales and Pedigree Company

J. M. Henderson, Pres.; C. L. Hughes, Sales Manager.
Sacramento, California

Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Bell, Tulare

TESTIMONIALS

"Cows increased in one week 3 per cent in milk."
A. L. McCULLOCH, Alpaugh, Cal.

"I never saw hogs do so well or grow so fast as on this molasses ration."
C. H. HARTWIG, Yuba City, Cal.

"It has enabled me to keep my stock in better condition at less expense."
J. M. HENDERSON, JR., Sacramento, Cal.

"Have one calf that refuses to drink new milk—prefers skimmilk with molasses. What do you know about that?"
R. HECKLEY, Santa Rosa, Cal.

"It has been a great advantage in getting the stock to clean up the roughage."
H. H. AMES, Chowchilla, Cal.

"One cow will turn down the choicest handfuls of alfalfa hay unless it has been 'Molassed'."
REDWOOD AYRSHIRE FARM, La Honda, Cal.

MOLASSES

cheaper than hay, but has same feeding value as corn or barley.

W. H. YOUNG COMPANY

58 Sutter Street San Francisco, Cal.

The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

"SOME MILES"
WHO THS 7H BLAME NOW DADDY?
TIRES IS LIKE EGGS YOU DONT SMELL 'EM, UNTILL YOU TRY EM!
BANG
BANG!
DADDY BOUGHT SOME NEW TIRES,
THE BRAND WAS VERY POOR,
THEY ALL BLEW OUT IN SIDE OF A MONTH,
NOW HE'LL BE A "HORSE SHOE" BUYER SURE!
For a long hard run-use Horse Shoe Tires

Livestock Auctioneers—Hammond and Bradley

Our big $45,000 two days' sale of 500 head of dairy cattle and hogs near Hanford, Kings County, April 23-24, was an out-and-out big success.

We have booked a 3 days' sale in Tulare County, devoted to the subdivision of a big ranch property into smaller holdings—dates to be announced later, and to be featured in columns of California Cultivator.

We cover the Arizona field as well as the Imperial and San Joaquin Valleys. Correspondence solicited and information promptly given.

Office 1053-55 South Main St., Los Angeles Phone 63545

LARGE TYPE POLAND CHINAS

SIZE QUALITY

A few outstanding fall boars for sale. We are booking orders for spring pigs of either sex.

PROLIFIC PROFITABLE

Write us your wants

Geo. V. Beckman & Sons Lodi, Cal.

SONOMA FARM BUREAU ACTIVE FOR BETTER LIVESTOCK

A meeting of the executive committee of the dairy department of the Sonoma County farm bureau was held at Valley Ford on April 22 to outline a plan of work for the coming year. The question of marketing hogs was brought up and various plans considered, such as holding auction sales at regular intervals and pooling hogs in carload lots and sending to San Francisco with a local manager. In the San Joaquin Valley the counties of Stanislaus, Tulare, Fresno, Kings and Kern have organized a hog auction system whereby there is a sale held in one of these counties each day of the week. This system has been extremely successful in that better prices are obtained by the producer and the farmers have seen the value of producing good hogs and the kind that the packing houses want. The system of pooling hogs and selling them through a local manager has been tried in Napa County with similar success.

It was suggested that it might be a very good plan to cooperate with Mendocino, Marin and Napa Counties so that a series of sales could be held regularly. Under such a condition a permanent manager could be employed to arrange and supervise these sales and grade the hogs, and buyers from a distance would be attracted to compete for these hogs.

A committee of the following men was appointed to look into the feasibility of establishing either hog auction sales or a pooling system: W. B. Hopkins, J. R. Gallagher and E. Steinbeck.

The plans for holding a sale of pure bred dairy bulls were put in the hands of A. Purvine, C. A. Le Baron and S. A. Gambonini. The dairymen of this county have already obtained some pure bred stock and desire to increase this number. By having a sale in September there will be an opportunity to purchase pure bred sires, as well as to see what good stock looks like. The fact that the sale will be held within reach of the dairymen should increase the interest taken and guarantee its success.

At present there are about 3,700 cows under regular monthly test in this county. The benefits of cow testing are growing more apparent to the dairymen and there are many whose cows are not now being tested who desire to put their herds under test in the future. There will therefore be a reorganization of the cow testing work so that more territory can be covered with less duplication. Next year there should be more than double the present number of cows under test.

It is desired to have an exhibit at the county fair this August showing the benefits derived from cow testing. This will be handled by the cow testing committee, composed of J. R. Gallagher, W. B. Hopkins and E. Steinbeck.

Mr. Rathbone of the Petaluma high school is arranging the preliminary organization of a calf club. This plan has been tried in other schools and has proven successful financially to the members as well as in educating them regarding the use of pure bred stock.

A plea for real hog pasture, not simply hog yards, is made by Forest Henry of Dover, Minnesota, a well known institute leader for the agricultural extension division of the Minnesota college of agriculture. Mr. Henry believes in giving the hog a goodly modicum at least of the treatment and attention accorded other farm animals. He says:

"The most profitable hog pasture is a pasture so large that the hogs do not eat one-half of it. If it be alfalfa or clover, what remains uneaten at haying time can be cut and cured into hay. An acre of alfalfa or clover will make as much pork, so far as it can be used, as an acre of corn. The one builds up the farm and requires very little labor; the other reduces farm fertility and requires much high priced labor.

"Good pastures not only make cheap pork, but keep the hogs in much better health and reduce the danger of hog cholera to the minimum. In these days a hog cannot be grown on grain alone and at the same time make money for his owner."

Harrison's Opportunity Sale of Milking Shorthorns at Santa Rosa, Cal., Wednesday May 5, 1920

52 Head, 43 cows and Heifers

Including most of the Harrison show herd of recent years. Cows and heifers of Blue Ribbon Caliber, some of which are as yet undefeated in the show ring. Many Record of Merit cows and others on official test.

9 Bulls an offering of real merit

Including Foothills Corporal, Grand Champion at Portland in 1919 and one of the best Dual Type bulls in the United States. Also young bulls of Royal Heritage and worthy of consideration as herd heading propositions.

Foothills Corporal 510415

When such individuals as Foothills Corporal, a Grand Champion and one of the best dual type bulls ever offered at auction, Colonel Oxford 1st, a young bull very rich in Clay breeding, Welfares Belle, winner of five blue ribbons last year and as yet undefeated in the show ring. Naomi 2nd, whose February record stands third in the United States, Bethsinda, one of the most richly bred cows of the breed and many others now on test and with enviable records are offered for sale, it is time for the admirer of Dual Purpose Shorthorns to act. It is with great reluctance that Mr. Harrison has consented to part with some of these cattle that would be priceless at any other time. Now is the opportunity to improve your herd at your own figure and obtain the benefit of Mr. Harrison's years of constructive breeding.—J. P. Bennett, representing the California Cultivator.

Send for Catalog and kindly mention the California Cultivator Auctioneers: Crank, Leechman and Snook

THOMAS HARRISON, SANTA ROSA, CAL.

FOR SILAGE AND FODDER

free from the coarse shell-like coatings of ordinary sorghums—

with wide corn-like leaves that add greatly to the food value—

as rich in sugar as sweet sorghum without its tough fiber—

producing an immense quantity of nutritious seed—

Yielding from seven to fourteen pounds, to the plant, of fodder alone—

and eaten clean by horses, cows and pigs—

Plant Diener's Sweet Fodder Sudan

a direct development from Sudan Grass alone with none of the faults of a hybrid

NEW: First grown in 1919 in Tulare County, California, under special arrangement with Mr. Richard Diener of Kentfield, California.

ECONOMICAL: For fodder crops, two pounds of seed to the acre are plenty. Closer planting recommended for pasture.

A Typical Plant, on August 22, 1919, showed:
20 stems, 5/8 inch or less; 68 seed heads. Of the 50 mature heads, which weighed 31 ounces, the largest ran 13 to the lb.
Plants 6 to 8½ feet, weight 7 pounds. At frost, yield of seed and fodder weight had doubled.

Send for illustrated leaflet and prices.

COMPLETE LINE OF SEEDS for late crops — sorghums, corn, etc.

Information and full particulars of anything in the seed line cheerfully furnished on request.

C. C. MORSE & CO.

Operators of World's Largest Seed Farms

733 Front Street San Francisco

BRAEMER RANCH

Santa Barbara California

Buy Pigs and Poultry

Registered Hampshires

If you are looking for a young boar or some well bred gilts, we have some that should just suit you from the best blood lines in the country now for sale at moderate prices. If possible come and see them for yourself and inspect our thoroughbred stock of Percheron Horses, Aberdeen-Angus Cattle, and Collie Dogs.

S. C. Buff Orpingtons

Start your season right with reliable birds, we have some choice cocks and cockerels for sale at reasonable prices.
Eggs for hatching in limited numbers from our Pacific Coast prize winners. Bred to win and lay, $10 for 15 eggs guaranteed to give satisfaction.

PACIFIC NEW AND RENEWED PIPE SAVES MONEY

Renewed screw casing costs from one-half to two-thirds less than standard pipe. Large savings on standard pipe, fittings and valves, special fittings made to order. Pacific Pipe is thoroughly tested and guaranteed for 150 pounds working pressure; asphaltum dipped; serves every purpose. Let us save you money. Write

PACIFIC PIPE CO. 237 HOWARD STREET SAN FRANCISCO

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

Caledonia Farms' First Sale of Shorthorns

At The Farms, West Sacramento

Thursday, May 27

70 Scotch and Scotch Topped Cows

Imp. Caledonia

The forthcoming sale of Caledonia Shorthorns should be regarded as one of the important events in the development of the breed in this state. The writer has been familiar with every Shorthorn sale held in California during the last four years, and he does not hesitate to say that, taken as a whole, the offering from Caledonia Farms constitutes one of the most uniform and desirable lots yet to be offered.

It is not only the largest offering of females ever made in the West, but it makes available for the first time cows bred to or with calves at foot by the outstanding bulls, Imp. Caledonia, Gainford Matchless and Pine Grove King. It is quite within the facts to say that no Western herd possesses three bulls of as great merit.

It has long been Mr. Cebrian's intention to make Caledonia herds a source from which foundation material could be supplied and the present offering has been selected with a view of supplying the needs of the established breeder and particularly the beginner. There will be included a goodly number of Scotch females, but the major part of the offering will consist of carefully selected Scotch topped females. The offering will be presented in splendid breeding condition. Every animal is guaranteed to be a breeder and all have been tuberculin tested.

There is in this state no more alluring opportunity than the production of registered Shorthorns and the coming sale affords an opportunity to select superior females from one of the choicest collections of the breed owned in America.

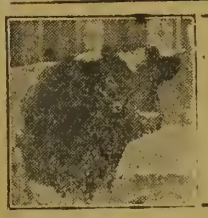
(Signed), R. P. ROYCE, Livestock Editor, California Cultivator.

Caledonia Farms offers about 40 exceptionally good young bulls suitable for range service, at private sale. They can be seen and purchased on sale day. Write for the special bull sale list.

WRITE FOR THE CATALOG

Auctioneer:
COL. BEN A. RHOADES
Los Angeles

Management:
CALIFORNIA BREEDERS SALES AND PEDIGREE CO.
C. L. Hughes, Manager, Sacramento

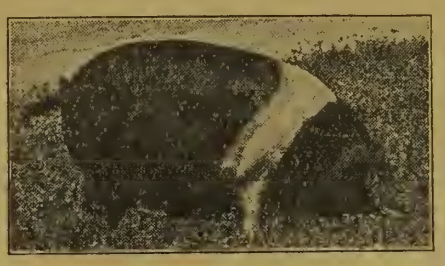


EXPORT SHORTHORN SALES

Approximately 130 high class, registered Shorthorns were exported in April from this country to Argentina and Uruguay, the largest shipments ever made to either country. The prospect is that other shipments will follow in the near future. The outlook is encouraging for orders from other South American countries also.
It pays to grow Shorthorns.

AMERICAN SHORTHORN BREEDERS' ASSOCIATION
13 Dexter Park Ave. Chicago, Illinois

LLANO VISTA RANCH



Hampshires and Milking Shorthorns

In our early spring litters are 150 pigs—mostly the get of our great new herd boar Sasin by Director. Out of 24 big fall boars we have just four left, and they are crack good ones at that. Don't wait. They will go. All leading blood lines represented.

F. A. Langdon, Perris, Cal.

If you are interested in this very great breed you will find it worth your while to visit the

Ortega-Underhill-Rancho O. U. R.

Registered Hampshires

Thos. T. Dinsmore, Manager Santa Barbara, Cal.

You will find there some of the best blood in the country and a truly great herd in course of construction.

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows.

HARVEY'S CHOICE
Grand Champion Boar at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair

SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

A. E. Harvey, Manager Redlands, Cal.

When Writing Advertisers, Mention the Cultivator.

Early to Market—Full Weight

51 per cent of all hogs marketed in the United States in 1918 were Duroc-Jerseys.

Duroc-Jersey hogs have proved themselves in championship shows as well as on the market.

Duroc-Jersey hogs raise large families and put on weight quickly. They are hardy, easy feeding animals that mature at an early age, and are uniformly red in color.
Write for our Free booklet "*Duroc-Jersey Hogs Are Prolific and Profitable.*"

The National Duroc-Jersey Record Association. Dept. 130 Peoria, Ill.
The largest swine record association in the world—12,000 members

Mayflower Thoroughbred Stock Farm

Big Type Durocs—Rhode Island Red Chickens

Herd boar Orion's Cherry King J. K. 303675—a 1,000 lb. prospect; sire Joe's Orion Cherry King 5th, he by Fannie's Orion, that sold for $20,000; dam Grand Lady 29th by Grand Model.

Mr. Breeder, if you don't like his pedigree don't buy his pigs. Prices $50, $75 and $100 at three months old and they must be right. My sows are all of select breeding, and pigs showing up fine. 9 to 11 in litters. I do my own breeding and feeding, and you get exactly what you buy.

If interested in good stock at a price that anyone who wants good stock can pay would be glad to have you write me.

John Kincaid E. Bakersfield, Cal.

Winsor's Giant Orion

The Greatest Proven Sire on the Coast
The Largest Duroc-Jersey Boar in the West
30 Sows Bred to Him Averaged 11½ Pigs Per Litter

We will hold a summer sale of sows bred to Winsor's Giant Orion and Great Sensation 3rd. Pigs by these boars will be the most profitable investment you can make in Durocs. Pigs by these sires will make your herd popular. They are the big type.

R. K. Walker, Hog Dept. **WINSOR RANCH** Morris C. Allen, Ranch Mgr.
BONITA, CAL.

A-1 Duroc Ranch

Where one of the state's greatest herds of Duroc-Jerseys is maintained. For years our Durocs have proven profitable to farmer and breeder alike. Better place your order now for spring pigs as what we will be able to spare will go quickly. Remember, this is the home of the state's highest priced ($1500) and most valuable Duroc-Jersey sow.

J. P. Walker, RFD 1, Box 40½, Visalia, Cal.

Lamb's Complete Duroc Dispersion Sale
Wednesday, July 21st, 1920

Principal blood lines, Pathfinder, Orion Cherry King and Golden Model. Write for catalog and information. A few weanling pigs, both sexes, at private treaty prior to sale day.

ELMER LAMB, Ceres, Cal.

Arenal Ranch, Lankershim, Cal.

We are offering an exceptional Duroc herd boar and show boar prospect, March 11, 1919, farrow; litter mate to Arenal Critic, the young boar that will represent Arenal Ranch in the fall shows.

We have some classy September stuff also. Spring litters run high in numbers and growing out in tip-top fashion. When writing address

E. Avery Newton, 1026 Marsh-Strong Bldg., Los Angeles

The Greatest Duroc Boar of His Age!
Choice Wonder 3d

a winner at the 1919 Iowa State fair, sired by the great boar, Mahaska Wonder, and a litter mate to the first prize junior boar of Iowa, heads our herd. He is the largest, heaviest boned, best footed boar in the state and he is being mated to the sows that have made this herd famous for futurity winners. Get your order in early for his pigs. Prices are most moderate. Satisfaction guaranteed.

JUNE ACRES STOCK FARM V. F. Dolcini, Davis, Cal.

Sows and Gilts---GET ONE

Bred to farrow next two months. We are making an extremely low price on these to reduce our herd. At the price we won't keep them long. Write today. Quick, before they are all gone.

H. P. Slocum, Willows, Cal.

THE VICTORY HERD——Holsteins and Duroc-Jerseys

Holsteins of known value, headed by Sir Piebe De Kol Segis Pontiac, a son of King Segis Pontiac Count, acknowledged one of the breed's greatest sires. A young bull from this herd is bound to prove a profitable investment.

HILLCREST FARM, H. E. Spires, Mgr., Caruthers, Cal.
Duroc-Jersey Swine of Highest Quality

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

Good Milk Fails to Make Good Butter

By E. H. Hageman

QUESTIONS like the following come constantly to the Cultivator. Therefore these are quite fully answered in the hope that many readers may benefit.

What is, or may be, the reason for good milk failing to make good butter, or sometimes, to make any butter at all? The cow is well fed, mature but not aged, the milk plentiful, sweet and rich, the handling cleanly and careful. The cream, fine in color, taste and quantity, acquires a slightly bitter taste after 36 hours; the butter is impossible to get in cold weather, and when obtained is not sweet enough to be choice and is too dry in texture. Bean straw is not the trouble.—Subscriber, Carpinteria.

I have a good Jersey cow, fresh for the first time. Gives about one gallon of milk at a milking. We feed her good alfalfa hay, wild oat hay and good barley hay and have been giving her a good armful of green mallard weed every noon. She came in fresh three weeks before she was due. Her milk is nice and sweet, also the cream, but when the butter is about 36 hours old it commences to get strong. My wife works the butter thoroughly. Please advise what to do to keep the butter sweet longer than it does.—Subscriber, Porterville.

Subscribers having trouble as above may be assured that unless the cows find or are given strong flavored food, such as spoiled silage, onions, cabbage, rag weed, or any other strong flavored material, it is not the cow that is guilty, but invariably the person handling the milk from time of milking until the finished product is reached, because the good "bossie" protects the milk in her udder just a little better from contamination than does the average dairyman after the milk is drawn. The process of making butter really commences at the time of milking,

In a one or two cow dairy the tendency is natural on account of the small supply produced at each milking to hold the milk in the pans or other vessels too long before skimming the cream. Then the cream is usually held too long before churning, which results in undesirable bacteria or ferments gaining control of the flavor.

In small dairies a dairy thermometer is usually lacking when we know that it is a fact that proper temperatures are a leading factor in dairy manufacture. A churning temperature for winter or cold weather will not do for summer or warm weather, or vice versa. It is for above reason that often in cold weather when cream is churned at weather or natural temperatures, butter will not come at all. Temperatures must be controlled by artificial heat or cold in dairy work if success is expected. On account of weather changes, lactation period of the cows, feed conditions, etc., a change of cream raising and churning temperature is required also, and therefore the necessity of good thermometer.

No one can give you word for word instructions to make good butter. You must experiment and think out a lot for yourself. A little expense and effort should not be spared, because you can feel just as proud and pleased to make good butter from the cream of one or two cows, as from a larger herd, bec use it is more difficult to make uniformly good butter from a few cows than from many cows.

Cream and milk should not be kept in the house near the stove in cold weather, where it may acquire the flavor of each member of the family or placed near vegetables or other food products. Provide a nice clean dairy room, protected from the cold weather and hot weather in summer for which a concrete built room answers best.

Pasteurizing cream for butter making is not being practiced in small farm dairies, but it is worth while to give it some thought. Practically all butter made in creameries is made from pasteurized cream. The greatest obstacle on the farm would be to cool the cream from pasteurizing temperature which is 145 degrees Fahrenheit to churning temperature of about 50, which would require some source of artificial cooling. The process would be as follows:

Heat the cream on the stove in a double boiler to 145 as quickly as possible, stirring cream while heating. When 145 is reached hold at that temperature for 20 minutes, then cool as quickly as possible to 50 in ice water. Hold at 50 for three hours and churn as usual. Pasteurizing as above will rid cream of foreign flavors, dirt and disease germs and will make a uniform, good keeping quality butter.

Veterinary Queries

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Hog Paralyzed

I bought a young hog about six weeks ago and the morning after bringing it home noticed it was stiff and sore all over. In a few days it went down behind and is not able to stand very long at a time. Its hind legs give way and it falls down while eating. The hind legs are full of hard lumps. I thought it was kidney trouble and gave medicine for that, but it did no good. It does best on milk diet and seems worse when feeding stock feed. What would you advise doing?—Subscriber, El Cajon.

Probably he got warmed up too much bringing him home and caught cold, giving him rheumatism. That also will affect the kidneys. Keep him in the sunshine as much as possible but protect him from the cold at night. Give him a warm, dry place to sleep. Feed sour milk if you can get it. Get four ounces of tincture of juniper berries and two drams of salicylate of soda. Mix them and give a teaspoon of the mixture in the feed twice a day.

Cow Pox

I am having some trouble with my cows. The skin above and on the udder is swollen and breaks out with small sores that have bloody matter in them. I called a veterinarian to see the first one that had it and he said it was cow pox. Is there any solution that I can dip the cows in that would stop it?—Subscriber, Dunham.

Bathe the parts once a day with a solution of permanganate of potash, using a dram to a quart of water. Wash the hands after milking each cow to prevent spreading the trouble. Also mix five pounds of epsom salts and three pounds of common salt and give a handful in the feed once a day.

Cow Ailing

I have a cow that came fresh January 14, having gone two weeks over time, and bore a heifer calf. The afterbirth did not follow in time and I had to have it removed. She is in good condition and gave eight gallons of milk for a while, but dropped back to seven, which she kept up until recently. She has now dropped to three gallons and is having some trouble with the two back teats. They do not milk out clear and feel lumpy and thick. She was tested for tuberculosis just before calving by the state and pronounced all right. She has plenty of grass and I am feeding a five gallon pail of mill run and beet pulp twice a day. Do you think I am feeding too heavily? I have three other cows that are doing all right, but am anxious to know what is wrong that I may save her and prevent trouble with the others.—Subscriber, Berkeley.

You are feeding the cow too heart-

DR. HESS DIP and DISINFECTANT

A Dip that is standardized, of uniform strength and **GUARANTEED.** One gallon makes 70 gallons of dipping solution.

For Scab, Ticks and Skin Troubles

Dr. Hess Dip and Disinfectant cleans and makes the skin healthy. It is more than a Dip—it is also a Disinfectant. Use it freely about stables, hog pens and poultry houses to destroy disease germs and maintain good health conditions. Also for home use, in garbage cans, sinks, cesspools. Sold by 28,000 dealers on a money-back guarantee.

Dr. HESS & CLARK
Ashland Ohio

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Venadera Herd
Register of Merit Jerseys
Senior herd sire Altama Interest sire of 12 cows in Register of Merit. Junior herd sire Jap's Perfection Owl, a line bred Spermfield Owl bull.
Guy H. Miller, Modesto, Cal.

Young Jersey Bulls
For Sale
One at the head of your herd will pay big dividends on his cost. Write to
W. J. Hackett
Modesto Cal.

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right.
S. F. Williams
Chico, Cal.
Member Orland Jersey Cattle Club

Use Shire Horses for Farm Power and Profit
Breed to SHIRE STALLIONS and raise Geldings that will top the market. SHIRES produce the largest and moet powerful geldinge that work well, and are selling at present from $200 to $350. The demand for good draft horses is increasing.
For Booklet or information on Shires write
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have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.
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OF EVERY DESCRIPTION
Bought, Sold and Rented
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Los Angeles, Calif. 618 So. Spring St.
San Francisco, Calif. 440-442 Sansome St.

The American Polled Hereford Association is planning an auction sale of bulls and cows to be held at Fresno, May 7.

ily. Her system is clogged, her blood too rich, and indigestion probably accompanies the rest. First physic her out by giving the following: One ounce of aloin, two drams of powdered nux vomica, three ounces of turpentine and one quart of raw linseed oil. Mix all together and divide into two doses. Give the medicine as a drench and give the second dose 24 hours after the first. Mix three pounds of epsom salts with two pounds of common salt and give a handful of this in the feed every morning. Also get four ounces of powdered gentian, four ounces of bicarbonate of soda, two ounces of powdered nux vomica and six ounces of corn meal. Mix all together and divide into 16 powders. Give one powder in the feed every night. You had better show this to your druggist and let him prepare it all for you and write directions. Reduce the feed you have been giving one-half and be sure to feed alfalfa hay or some kind of roughage that will form a cud. If you can get some green alfalfa or volunteer oats it will be good, but get the ripest you can find, so it will form a cud. Rub the udder and milk out all you can but do not try to inject anything into the udder.

Cow Swelling Under Throat

I have a cow that swells some under the throat and the swelling extends down the dewlap. Have bathed it with sheep dip and fed her sulphur but she does not improve. Our dog had mange and was with the cow a great deal. I thought that might have caused it, but she does not rub as I suppose she would with mange. Will look for a remedy in the Cultivator.—Subscriber, Live Oak.

Probably it is not mange and will leave soon. However, you had better wash it off clean and when dry rub in some engine oil, the same as is used in automobiles. That will cure the mange and will do no harm whatever is wrong. Feed laxative feed and give a handful of epsom salts in the feed for a few days.

U. S. BRED STALLIONS FOR FARMERS

The United States department of agriculture has bred and developed several stallions in its horse breeding project now located at the United States Wyoming horse breeding station, Buffalo, Wyoming. The stallions will be leased to private breeders and community breeding clubs for the coming breeding season. In this way it is proposed to assist in the improvement of the light horse stock of the range country where stallions of merit are not availabe and in those sections where light horses are preferred.

The number of available stallions is limited to about ten, as only the best of those produced have been retained or will be allowed to go out for public service. These stallions range in height from 15 hands 1 inch to 16 hands 2 inches, weigh from 1,500 to 1,400 pounds, and in nearly all cases are tried sires and known producers.

The object of the work at the station in which these horses are being produced is the preservation and development of a utility horse suitable for range and farm conditions. The points especially emphasized are the development of size, soundness, tractability, action, and stamina, in a useful animal which can be used under the saddle, on the road, or in the field.

Persons interested should address correspondence to the Wyoming Horse Breeding Station, Buffalo, Wyoming.

There was large enrollment of farmers at the short tractor course conducted at Fresno under the auspices of the state board of education and the farm engineering department of the college of agriculture.

Chico, Butte County, held wild flower show and festival last week.

COMPLETE DISPERSAL SALE

OF THE

Fred Hartsook Herd

OF

REGISTERED POLAND CHINA HOGS

"The Home of Champions"

At the Hartsook Ranch, between 3rd and 4th Sts., on the Lankershim Blvd., at

Lankershim
Thursday, May 6th
at 10 A.M.

The owner has instructed us to close out without reserve one of the grandest lots of registered Poland China Hogs that have ever been offered at public sale in California.

To those who have attended the California State Fairs, Riverside, Fresno, Modesto and Los Angeles fairs this herd needs no introduction as it took a very large percentage of all the ribbons.

Included in this sale is a sow that was the Grand Champion Jr. Yearling at the California State Fair in 1918. A sow that was included in the Grand Championship Herd at Sacramento, Fresno, Riverside and Los Angeles. Three sows and a boar sired by Model Major, 1916 Grand Champion, Aged Class, State Fair, and the Boar that won the Sweepstakes over all breeds at Modesto. Three sows and a boar from Big Beauty, Grand Champion at Sacramento in 1918 and one of the Grand Champion Show herd. The balance are sired by either Model Major or I B A Wonder, the Reserve Grand Champion at the Panama Pacific Fair and one of the Grand Champion herd at the Liberty and Riverside Fairs. Six young boars out of Beauty's Pride and sired by Long Smooth Jumbo, a boar that stands 46 inches high. A special attraction. An 18-month-old boar sired by Model Major and out of Big Beauty. Never before in California have buyers had an opportunity such as this to select the very cream of the Poland China breed.

The Registered Holsteins

Include seven young bulls, a number of which are ready for service, sired by Hazelwood Finderne Fayne, whose sire, Finderne Pietertje Fayne, is siring some remarkable high producing daughters and is by King Hengerveld Aaggie Fayne, the sire of Finderne Holigen Fayne, who produced as a 3-year-old 37.34 lbs. of butter in 7 days. The dam of Hazelwood Finderne Fayne is Bonnie Lass Pauline, butter 7 days 33.79 lbs. and 30 days 133.58 lbs. She was the Grand Champion cow at the National Dairy Show in 1912. The dams of these bulls to be sold are ARO cows with records as high as 24 lbs. of butter in 7 days. Never before have Southern California dairymen had such an opportunity to buy royally bred herd sires at their own price. FRED HARTSOOK, Owner.

Rhoades & Rhoades, Auctioneers

BERMA RANCH

Size and quality predominate in our big type Poland Chinas. No better big type sows are found in the state. Buy Berma Poland Chinas and you buy wisely.

C. E. DACK R. H. Box 196 Fresno, Cal.

TWO PREMIER SIRES

are found at the head of our herd. Caesar's Buster and Rosebud's Jumbo are siring the type of Poland Chinas you want. Get them early.

THOS. CAESAR & SON, Reedley, Calif.

BERNSTEIN'S RANCH

Home of King's Big Ben, where he is siring those early developing big type Poland Chinas that are ready for the market at 6 mo. They have size, bone, quality and are from the easy feeding families.

W. Bernstein Hanford, Cal.

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POULTRY

SPECIAL EGG SALE.

For the balance of the season I will sell hatching eggs in settings only from my "ACTUALLY" trap-nested hens with records from 200 to 284 eggs pullet year laying at $5.00 per setting. May and June chicks if hatched by hens are the best chicks of all the year. Order now. Breeding stock for sale, immediate shipment, as I will need the room for young stock very soon.

ENGLAND'S EGG RANCH.
Geo. C. England, Owner.
The home of "ACTUALLY" trap-nested S. C. White Leghorns every day in the year since 1912. P. O. Box B-337, Inglewood, California.

For Sale — White Muscovy Quackless Ducks; eggs 35c. White Wyandotte eggs $3 and $5 per setting, from prize stock. Goose eggs from the best stock in the West $1 each. A few breeders for sale. Turkey eggs from Chicago, Madison Square and several Coast show winners, 50c, $1, $2, $3 each. Guinea fowl $2 each; eggs $2 a setting. White King Pigeons $2 unmated pairs; mated working pairs $3. Special price in quantities of over 25 pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

One Hundred Fifty White Leghorn Chickens thirteen months old; good layers, $2.25 apiece. Act quick, won't last. Address O. H. Clemenson, Bell, California, Box 1043. Residence 213 N Cudahy Ave.

Watch Us Grow—Baby chicks. Booking orders now for May, June, July at reduced prices. Brown and White Leghorns, R. I. Reds and B. Rocks, Anconas and White Wyandottes. Order early; safe arrival guaranteed. E. W. Ohlen, Campbell, California.

Thoroughbred Bar. P. Rocks, records 190, 210. Dec. pullets, laid in 4-2 days. Fertile eggs, $2.50, 15 eggs. Chicks 30c, hatched exclusively from stock in our yards. Cash with orders. Phone 5599, 36 Little Delmas Ave., San Jose, California. Warren Poultry Yards, mornings only.

Baby Chicks from my carefully selected, thoroughbred Breeding Pens of S. C. White Leghorns. Good, strong chicks at $15.00 per 100. Orders booked now for May, June and July delivery at reduced prices. Write for particulars. Every order receives my personal and most careful attention. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Golden Rule Poultry Farm — Specialty breeders in profitable quality in Barred Ply. Rocks and White Leghorns. Remember the best is none too good for your foundation stock. Guaranteed hatching eggs. PENN & STAMELEN, Porterville, California.

Baby Chicks—Purebred S. C. White Leghorns, bred from our own stock. Best strain. Folder and price list mailed to you for the asking. Order now for May and June delivery. Buena Vista Poultry Yards, Sonoma, California.

If You Are After Good Layers, buy your Barred Rock, White Leghorns, Ancona, Rhode Island Red, Buff Leghorn and Black Minorca Baby Chicks from the STEVENSON HATCHERY, Watsonville, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Thoroughbred White Leghorns and Mottled Anconas. Eggs from carefully selected stock of high laying strains. The White Leghorn Hatchery, Pomona, California.

White Leghorn Baby Chix. Heavy laying. Hoganized stock. May and June delivery. $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 405 Sixth Street, Petaluma, California.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

Baby Chicks—Reduced prices for May and June. Expectionally fine White Leghorn stock. Also other varieties. Quick delivery. Safe arrival guaranteed. Write for circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

Model Poultry Farm — White Leghorn Specialists. Baby Chix and Hatching Eggs for May and June delivery. Our prices are right. W. C. Smith, Prop., Corning, California.

Beautiful Ringnecked Pheasants—Mated pairs $10. Eggs $5 setting. White Holland Turkey eggs 50c. PAUSE PHEASANTRY, Box 176, Fair Oaks, California.

Goldcroft Ranch—Buff Orpingtons, fine breeders and sturdy growing stock for sale. Eggs $3.00 per setting after April. Box 13, Los Altos, California.

Buff Leghorn Pullets — Six dozen, 12 months old. Good stock, laying well. THE FERRIS RANCH, S. Reservoir, Pomona, California.

White Rock Eggs — From heavy laying strain, $1.50 per setting; $8.00 per hundred. C. W. Sebastian, Wasco, California.

Purebred Chicks from selected hred-to-lay White Leghorns, Barred Rocks, Rhode Island Reds. Price right. Maxwell Hatchery, Madera, California.

For Sale—Pure bred Buff Orpington eggs $3.00 per setting of 15; incubator lots $10 per hundred. Mrs. M. L. Trewhitt, Rt. B, Box 47, Hanford, California.

"Eastman's Bred-to-Lay" trap-nest Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Fowler's Reds — Win—Lay—Pay. Cockerels and eggs for sale. Send for mating list. Duarte, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7 C, Ceres, California.

Gape Cure—Chicks, turkeys. Easily used, 25c. SOUTHERN REMEDY CO., Box 145, Kansas City, Missouri.

POULTRY

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We are offering to the California public the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

BABY CHICKS
FREE! FREE!
A Fireless Brooder with every order of one hundred chicks. We ship in the brooder, thus there is no chance of chilling in transit and you have an excellent way to raise them. We have the following varieties of thoroughbred chicks every week: Anconas, Barred Rocks and R. I. Reds, $20.00 hundred. Extra fancy dark R. I. Reds and White Rocks at $25.00 a hundred. White Leghorns $17.50. We guarantee safe delivery. Every one a strong, healthy chick. Orange County Hatchery, 403 E. Santa Clara, Santa Ana, California.

Spring Baby Chicks For Sale—400,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) Stock. Price during May and June, 25, $5.00; 50, $9.00; 100, $14.00. Special prices 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition; no money in advance, pay on delivery. Shipped safely anywhere west of the Rockies. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., PETALUMA, CALIF., 438 Seventh St.

Barred Plymouth Rocks—"Nothing Better In Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Vodden, Los Gatos, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY Electric), Box 122, Artesia, California.

White Leghorns—Chicks and hatching eggs from the home of heavy layers. Most modern methods and orchard range assure heavy producers with excellent vitality. Progressive poultrymen demand the best. Fall chicks pay big. Free folder tells why. Orders booked year round. Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, California.

Santa Cruz Chicks—We specialize on very best White Leghorns, hatching many thousands each week; also Brown and Buff Leghorns, Anconas, Minorcas, Wyandottes, Orpingtons, Barred Rocks and Rhode Island Reds. Write for folder. B. W. Archibald, Soquel, Santa Cruz County, California.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Black Minorcas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tobener Poultry Ranch, Route 2, 306, San Jose, California.

Day Old Baby Chix—From mature hen eggs. White Leghorns, $15.00; Barred Rocks, Black Minorcas, Rhode Island Reds, $20.00 per 100. Terms. One-third cash with order. T. C. Hawley, 504 E. Elm St., Lodi, California.

White Leghorn Baby Chicks—We get our hatching eggs from a flock of 1,500, two year old Walter Hogan hens that have been carefully Hoganized by an expert. Buy the best—all from one flock. Lyon Hatchery, Gardena, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

Wanted—The addresses of parties sending to the Warren Poultry Yards, San Jose, Calif., for hatching eggs and chicks, Feb. 20 to April 10, 1920, inclusive and amount of remittance.

For Sale—Guaranteed Day Old Pullets, S. C. White Leghorns. March delivery. One ranch here buys 20,000 a year. Eureka Hatchery, Petaluma, California.

White Wyandottes — Prize winning and heavy laying stock; eggs $3.00 and $5.00 per 15. Baby Chix, Cockerels. R. W. Stawetaki, Route B, San Jose, California.

Rhode Island Whites — Hatching Eggs, Chix from best matings possible. Free mating list. Phil. Lehrbach, 1608 N. Ave. 56, Los Angeles.

White Minorca Baby Chicks and Hatching Eggs—Dark Cornish and Silver Campine Eggs. Folder. Leech Poultry Yards, Baldwin Park, California.

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S. Reservoir, Pomona, California.

Baby Chicks, standard varieties, high quality, low price. Catalog now ready. Can fill large orders. Madera Hatchery, Madera, California.

Single Comb Red Hatching eggs, $2.00 per 15. W. M. Marquam, Bishop, California.

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Thoroughbred S. C. White Leghorn Chicks, 100 or 1000 lots from Hoganized and Trapnested Stock. Inventors and Distributors of "Forbros" Poultry Separator and Trapnest (combined). Write for circular. Forster Brothers, 2918 Otis St., Berkeley, California.

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350 HEALTHY HOLSTEINS.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—Pure Bred Hereford Bulls. H. F. Bergman, Aguanga, California. Phone Hemet X991X.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Wineville, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

WANTED

I WANT A MAN

A REGULAR MAN!

I am tired trying to get along with inefficient labor. What I want now is a man ambitious, straight-shooting, who knows how to farm, who is honest and not afraid to work or use his head. If I can find such a man, married, of course, who is really capable and familiar with Island farming, I can make him an attractive offer. If you can't fill the bill don't bother to write—but if you can, write Box 913, Sacramento.

Herdsman or Foreman (married) with college training and lifetime experience handling purebred dairy cattle. Will consider change of position, lease or partnership. Familiar with all the fine points of breeding and general dairy farm management. Box 3, California Cultivator.

Wanted—To hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

If You Want to sell or exchange your property write me. John J. Black, 116th St., Chippewa Falls, Wisconsin.

Wanted—Position on ranch near Los Angeles by man familiar with all kinds ranch work. Address Box 1, Cultivator.

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Pedigreed New Zealand Rabbits and utility stock. Also other utility varieties. Prices low. Variety Farm, Clovis, California.

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For Sale—Turkey Eggs, Mammoth Bronze and Wild Domestic, crosses; raise more pouits, introduce wild blood into your flock. Get hardy, vigorous pouits. With each order we send you formula for raising close to 90% of those you hatch and special feeding instructions. Will be worth many dollars to all turkey raisers to know the real way. Pamphlet tells you all. The WILD & DOMESTIC Turkey Home, R. D. Box 26 A, Hemet, California.

Mammoth Bronze Turkey Eggs — "Gold Nugget" and other prize stock. Flock shows enough wild blood for vigor and fine breeding has added size. NO EGGS sold from other than our own stock. Hints given for feeding and care. Turkeys have range. Guarantee fertility. Prices reasonable. Carrie Andrews, BO-K-HAUNT, Hemet, California.

For Sale — Turkey eggs—Bronze, also Mammoth Bronze, also Thoroughbred Mammoth Bronze Toms. Robinson Turkey Ranch, San Dimas, California.

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Pathfinder Wonder—is son of Great Wonder I Am, the largest boar that ever lived, out of a daughter of PATHFINDER. He is one year old and measures 66 inches from his eyes to the root of his tail. We have a fine bunch of yearling gilts of King's Col. and Model Col. breeding that we will breed to him and sell at reasonable prices. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

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Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

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A Trio of Champion bred Duroc pigs for $100. Our best gilt, bred, $150. Big stuff. El Dorado Duroc Breeders Ass'n, Placerville, California.

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The most popular herd in the West. Winsor Ranch, Bonita, San Diego, Co. Address: R. K. Walker.

Durocs — Spring gilts and hoars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

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Big Type Poland Chinas—900 lb. grand champion El Pronto heads herd—line bred Big Timm. Viola L. Renwick, Santa Barbara, California.

Guaranteed growthy big type Poland Chinas, not pampered, selected for general farm conditions. Stock all ages. Walter Ficklin, Box 946, Fresno.

Tohoqua Big-Type Polands—Young pigs to sell. Champion big-type breeding. Ferguson & McKaig, Orland, California.

Pure Bred Poland China pigs for sale. J. R. Carhart, Fullerton, California.

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BRED FOR EARLY FARROW TO

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ANCHORAGE FARM BERKSHIRES

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BRED GILTS FOR SALE.

—A SHOW PROSPECT—
A big, high, long, stretchy boar a year old, ready for service, from a full sister of the 1919 Reserve Grand Champion sow. This boar has world and national champion breeding on both sides. Several good judges have said that this boar would have a great chance for championship honors this year. The price is very reasonable. Sandercock Land Co., 70 Market St., San Francisco. In charge Natomas Land Sales.

Lark Meadow Ranch Berkshires. Choice gilts and sows safe with pig to noted boars. Priced for the rancher. Papers furnished promptly. Geo. A. Stingle, El Monte, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calaveras Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

DUCKS

White Pekin Baby Ducks—White Pekin Duck Eggs for hatching. 152 East Spruce St., Inglewood.

White Muscovy (Quackless) Ducks—Eggs, Ducklings, Breeders. Free circulars. Caldwell Farm, Box 274-E, Los Angeles.

White Mammoth Pekin Ducklings — Ten days old, 25c each. Four weeks old, 50c each. Eggs $1.00 a dozen. A. Surtman, Petaluma, California.

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The Gypsum You Need — Best agricultural lime, complete fertilizers. H. E. Matthews, 1010 N. Madison, Pasadena.

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After SEVERAL YEARS of successful experimenting on our loose sandy soil, filled with lime, we are embarking, on a large scale, upon the raising of Spanish peanuts.

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Responsible and experienced farmers can get share leases on tracts of 40 acres and upward of land, all plowed, ready for planting; good water rights, in concrete mains, low rates.

Land is in Southern California, fifty miles east of Los Angeles, bordering on or close to paved highway.

One man with team can readily care for forty acres. Good farming produces crops of from 1000 to 2000 pounds, which should sell, at harvest, from 10 cents a pound upward. The hay can be sold in advance, on contract, at three-fourths the price of prime alfalfa. Produces a ton to the acre.

The peanut is a legume and enriches the soil in which it grows. Investigate this, you will see that a good farmer, with a team, should clear several thousand dollars in a season.

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Lessees are given, without charge, option to buy and any time within six months, at low prices and on very easy terms. Splendid fruit-growing soil and climate. Peanuts are splendid for intercropping. Rent terms, one-fourth crop; company pays one-fourth water. Provides threshing facilities.

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For Sale—Two acres in North Moneta, 7 room Colonial bungalow with tile bath, toilet, and strictly up to date with built-in china closet and buffet and beautiful open fireplace. Plate glass windows in front, hardwood floors throughout. This is a beautiful home, and must absolutely be seen to be appreciated. This house was built by day labor and very best of material used. There is a family orchard of 125 fruit trees, all varieties, up to date garage, cement walks throughout the place, lawn, flowers. The place is equipped with two large up to date chicken houses twelve by sixty feet each. The price will be made right to the party who appreciates an ideal up to date place. Address Owner, E. G. Gildmacher, R. D. 2, Box 541, Inglewood.

Stock and Dairy Ranch—600 acres, 200 grain, 300 pasture, 100 hay land, 50 A. good potato land. Could be irrigated; 10 miles from railroad on highway in Calavaras County; 75 head cattle, 10 horses, 100 hogs, 2 houses, 3 barns, harnesses, wagons and all farm implements; plenty of spring water all year. This place joins town. Anyone wanting a stock and dairy farm would be pleased with this, the best buy in the state, $30,000: terms to suit. For further particulars apply to T. S. Nemie, 1448 East Washington Street, Stockton, California.

Oranges and Grapefruit
15 Acre Farm $2500
Bearing grove 100 orange, 50 grapefruit, 25 peach trees, also pears, plums, guavas; 7 acres fine truck land, some wood, near RR station, all conveniences, pretty bungalow, fireplace, 2 porches, good water; aged owner makes price only $2500, easy terms. Details page 58 Strout's Spring Catalog Bargains 33 States, copy free. STROUT AGENCY, 831 E J, 405 So. Hill St., Los Angeles, California.

12.80 Acres—5 acres bud soft shell 13 yr. old; 3 acres common soft shell; 79 full bearing Navels; 79 full bearing Valencias; about 3 acres 2 and 3 yr. old Valencias. No buildings on place. 10 shares Santa Ana Valley Irrigation Water stock. Price $42,000. Income $5,000 per year and increasing; 3 crop payment per year. $20,000 down, balance 60 per cent. Write Sadie A. Skiles, 2701 N. Main, Santa Ana.

FOR SALE AND EXCHANGE
10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.

FOR SALE
Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

For Sale—145 acre farm in Sonoma County, mostly bottom land, fine for fruit or dairy, well improved, beautiful location, a good bargain. Particulars, write Box 75, R. F. D. A, Geyserville.

Diversified Farming Lands—Unsurpassed irrigation system; investigate; now's the time. Alex. Murdock, Stockton, California.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

LIVE STOCK

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Next sale all breeds, second week in August at ranch. W. P. Dwyer and W. S. Gullford, Box C, Butte City, Glenn County, California.

Grape Wild Farm—Berkshires, Guernseys. Big Type Berkshire Boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Carruthers Farms—Live Oak, California. Shorthorn cattle and Berkshire swine of quality and select breeding.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

TREES

Avocados, Special Offer — The largest fruited and heaviest bearing varieties; Spinks, Rey, Knight, Fuerte, Queen, Linda, all balled from field; 2 to 3 ft., $4 to $5 each. Also large trees of Colorado, Taft, Fowler, San Sebastian, Queretaro, Challenge, and others, balled, 4 to 7 ft., $3.50 to $6 each. Pioneer Nursery, Dept. C, Monrovia, California.

For Sale—Placentia Perfection and Eureka walnut trees, also Eureka Lemon and Almond trees. These are all high grade stock. Ketscher's Nursery, 1101 E. 4th St., Santa Ana, California. Phone 572WK.

50,000 Florida Sour Orange Seed Bed Trees; 100,000 California Sweet Seedling Seed Bed Trees; Valencias, Eureka Lemons; Supply Co. buds. SOUTHLAND NURSERIES, 1941 East Colorado St., Pasadena, Cal. Phone, Colorado 6352.

For Sale—Washington Navel, and Valencia late orange trees; Marsh Seedless grapefruit and Eureka lemons. Fine large trees, reasonable prices. H. H. Ford, Redlands, California.

For Sale — Valencia Orange and Eureka Lemons for fall and spring planting; all A-1 yearling buds selected from best bearing trees. Order early, good trees are scarce. A. R. Thurston, Montebello.

Avocado Trees—Mathers' Avocado Nursery. Home of Field Grown Trees. P. O. Box 585, Pasadena. Nursery Phone Colorado 6044.

For Sale—Orange seed bed stock. Nursery Colorado and Huntington Drive, Lamanda Park. Paul B. Magee, R. F. D. 2, Pasadena.

Bishop's Nursery, Highland, California, has Avocado, Citrus, Olives, Rhubarb, Carob Trees, Berry Plants, etc. Write for circular.

Fine Stock Valencia Orange trees, budded Placentia and Eureka Walnuts on black root. A. R. Marshall, 1212 Ross St., Santa Ana, California.

Fine Straight Rooted Florida Sour Seed Bed Stock, 6 to 10 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Trees Citrus—Navels, Valencias, Lemons and limes. First class stock from yearlings up. About 10,000 in all, will sell right. W. T. Cole, Springville, Calif.

For Sale—500 Pedigreed W. Navels ½ to ⅝ two years, 500 Pedigreed Eureka Lemons ⅝-¾ two yrs. Budding cloth 70c yd. postpaid. Cyrus W. Wilhite Citrus Nurseries, Glendora, California.

2 Year Pedigreed Lemons, $1.35; Valencias, $1.50. Seed bed stock. L. A. Tuttle, R. 2, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; Inspection Invited.

For Sale—4 Year Old Manzanillo and Mission olive trees. E. E. Barnes, Highland, California

SEEDS AND PLANTS

Cotton Seed For Sale—Mebane and Durango seed, ginned from our crops, grown West Side San Joaquin Valley, which gave generous production, grading excellent staple and color. Quantity limited. Shipped in new sacks weighing approximately fifty-five pounds. If ordering less than ton state number of sacks wanted. Should plant approximately twenty pounds per acre. Prices: seven one-half cents per pound; in lots of ten tons or more to one consignee, seven cents per pound. All quotations f. o. b. Southern Pacific Westhaven. Boston Land Company, Westhaven, Fresno County.

For Sale — Millions of Stone Tomato plants, grown on new land, from seed saved by myself and guaranteed. Eggplant, pepper, cabbage, cauliflower, rhubarb and other plants. Write for prices and order early. Ran short last year. Reference: Chamber of Commerce, or any bank or business man in Pomona. L. C. Johnson, 795 West Seventh St., Pomona, California. Phone 2987.

Concord Grapes, and 5 other Eastern varieties, 20c each; Cornichon, Black Morocco, Red Emperor, and 8 other California grapes, 10c each, $5 per 100. Special cleanup prices on fruit trees and berries, Mammoth, Himalaya, Crandall and Mercereau Blackberry; Cuthbert, Surprise, Superlative and Blackcap Raspberry 75c dozen, $4.50 per 100. Postpaid for cash with order. Pioneer Nursery, Dept. C, Monrovia, California.

Rhodes Grass—Is making Imperial Valley famous and will make any other section famous, if it is planted, especially if the soil is hard or alkali. Write Imperial Valley Seed House for Literature, El Centro, California.

Dairymen — Hog Raisers — Poultrymen! Plant Diener's Sweet Fodder Sudan. Wonderful yield; sweet, soft, nutritious stems and abundant seed. Write for circular. D. J. Whitney, Exeter, Cal., or Morse Seed Co., San Francisco.

All Kinds Seeds — Plants and Nursery stock. No. 1 Alfalfa 35c. Sudan 8c and up. Dwarf Milo Maize, Honey Sorghum, Amber Cane. Box 501, Fowler, California.

R*O*S*E*S—$1.50 per doz. Fruit and Ornamental trees, plants, vines, etc. Write for special price list. Kavan Bros. & Currier, San Bernardino, California.

Napier Grass—Strong roots, 25 one dollar; hundred $2.50; thousand $20.00. W. Rubell, 221 N. Catalina Ave., Redondo Beach.

For Sale—About 140 lbs. desert raised alfalfa seed. H. P. Ware, Goffs, San Bernardino Co., California.

Stock Beet Seed—Any variety. Write for prices. Aurora Seed Mill, grower, Stockton, California.

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Millions Acres Free Land in U. S.—Full description and all the information as to how to find them contained in "The Homeseeker," a 100-page book. Send for particulars, or $2 for book direct, The Homeseeker, Dept. M, Los Angeles, California.

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Men With Spare Time—Ranchers especially, can find excellent renumerative proposition, salary guarantee, working for an old reliable California company. Turn your spare time into cash. Write J. H. Yetter, 115 North Broadway, Los Angeles.

THIS MONTH IN THE VEGETABLE GARDEN, NORTHERN CALIFORNIA

By A. R. Gould

NOW that the rainy season is practically over it will be necessary to conserve the moisture as much as possible and frequent cultivation will be the best method to employ. It has been proved that surface cultivation through established crops will not only keep the moisture in the soil, but increase the yield of the crop and make some difference in soil temperature. The wheel cultivator may be used advantageously and will save time where plots of one-quarter of an acre or even less are under cultivation. Where irrigation becomes necessary small furrows or trenches should be drawn between the lines of the crops, and if a good supply of water is given once every two weeks or so and the cultivator used the next day between the rows sufficient moisture will be retained for the crops. Any plots cleared from winter crops should be well trenched with manure before other crops are planted. It rarely pays to be too economical over the manure bill. Furthermore it is useless to expect good crops from poor soil.

Beans.

Sowings of the following may be made from now on: Canadian Wonder, Golden Wax, Stringless Green Pod, all good dwarf varieties, and the following pole beans: Early Golden Cluster, pods six to eight inches long, and Kentucky Wonder, a popular variety, very tender. The Scarlet Runner is a useful as well as ornamental climber and may be planted at once. Davis White Wax and Tepary are excellent varieties grown for shell beans. Sow in rows two to three inches apart and space the rows two feet apart.

Corn

Continue to sow Golden Bantam, Golden Cream, Country Gentleman and Crosby's Early. Sow in rows two feet apart and have the soil well prepared previously.

Celery and Leeks.

Plants of these may be set in trenches prepared last month and they should be planted at least nine inches apart to allow for proper development. Water immediately after planting out.

Peas.

Where the aphis or green fly are still busy with these, spray with Black leaf 40. Continue to sow Little Marvel and Stratagem for succession and these will require frequent irrigation to keep them in active growth.

Lettuce.

Sow Los Angeles, White Pari Cos or May King and transplant later to six inches apart in the rows. This crop repays for extra care, frequent cultivation and watering.

Cucumbers, Melons, Squash.

These may be planted in the prepared plots this month. We advise the following varieties: Arlington White Spine cucumber, very early; Long Green, for general purposes. English Telegraph is usually grown in frames for early use and is long and very tender. Lemon is a most popular variety also, being lemon shaped and yellow in color.

The best melons are Honeydew, Persian and Rocky Ford, all muskmelons or cantaloupes. Casabas, usually grown for their winter keeping qualities, are Winter Pineapple and Santa Claus. For watermelons plant Chilian, Kleckley, Sweet and Klondyke.

Squash and vegetable marrows are worthy a place in every home garden. Sow seeds of the following summer varieties: Early White Bush Scallop. Mammoth White Bush, English Vegetable Marrow; winter varieties for keeping. Delicious Hubbard or Perfect Gem. For pumpkin pies, Mammoth King and Small Sugar. For stock feed grow Connecticut Field, which will produce over 20 tons to the acre. Work plenty of manure into the hills before planting and water the seedlings until they get well established.

Tomatoes.

There is still time to secure strong, healthy plants of varieties, Stone, San Jose Canner, Ponderosa and Earliana. Protect these from the strong sun with paper covers or cheesecloth for a few days after planting. Do not use the same plot for these as used the previous year, and it is not advisable to use the old potato plot.

Potatoes.

The early varieties as recommended last month may still be planted, but secure good seed and plant on clean ground.

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WE SELL FOR LESS, SEE US.
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3-in., 16½c; 7-in., 43½c; 8-in., 48½c.
SPECIAL BARGAINS
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WINDMILLS
8, 10, 12 FT. SIZES
USED REDWOOD TANKS, ALL SIZES
NEW, USED GALV. TANKS, ALL SIZES
New 1000 gal., $43.75 2000 gal., $59.75
PUMPS
Large Bulldozer Pump, $135; No. 3 hor. centrifugal, $65; large hor. duplex boost pump, $49; No. 6 Gould centrifugal, $160; No. 3 double-acting AMES pump head, $350; rods and cylinder extra; many other snaps. Complete Pumping Plant, 15 h.p. Western engine with deep-well double acting AMES pump, pipe, rods, cylinder belt, complete, $950; all guaranteed good shape. Complete Pumping Plant, six h.p. Lambert engine and No. 3 hor. centrifugal pump, complete, $225, or with deep-well plunger pump, cyl., rods and pipe, $300. We'll say it's a bargain. DEMMITT CO., upstairs, 120 N. Main, Los Angeles.

For Sale—Sandusky Tractor and P. & O. 3 Disc Plow. Used for one season. Have quit farming and will sell these implements at right discount. Inquire, Alberhill Coal and Clay Company, 604 Pacific Electric Bldg., Los Angeles.

Avery Tractor—Ten H. P., too large for my place. First $250.00 takes it. Forkner Cultivator, also orchard wagon for sale cheap. Chas. Collier, between Monte Vista & Central Ave., on East Holt, Ontario, Cal. Phone 8593 Pomona.

For Sale—Holt 75 H. P. tractor (Caterpillar) is absolutely in perfect condition. No reasonable offer refused. Apply Sam F. Scott, 354 Pine St., San Francisco, Cal. Phone Kearny 2556.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—One 3 inch Bean centrifugal pump, with 30 feet of suction line, elbow and head check valve. Almost new. Cheap. Chas. L. Beltz, Rt. 2, Box 799-A, Santa Cruz, California.

For Sale—No. 2 Ross Combined Alfalfa and Grain Cutter and Grinder. Used about six months. Requires not less than 6 horse power. H. R. Greene, Riverside, California.

For Sale—2 De Laval Silos, Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

For Sale—Bean Tools, Planters, 12-foot Hallock Weeders, Cutters, 2 and 4 row Cultivators, Farquhar Thresher, Fanning Mill, Bradford Bros., Placentia, California.

Agency Discontinued—New floor sample S.25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros. Co., Carpinteria, California.

For Sale — Caterpillar "18," just overhauled, in A-1 shape. A. L. Stevens, San Dimas, California.

MISCELLANEOUS

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Leaf Mold, any quantity. A. H. Tyrer, Calabasas, California.

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Better service is assured by the advertiser if when writing you mention the California Cultivator.

Keep Close to Nature, a Veteran Turkey Breeder's Advice for Raising Poults

By Jean A. Koethen

"KEEP them dry. Keep them clean. Keep them hungry." This is the formula W. D. Robinson of the Robinson Turkey Ranch at San Dimas gives for raising nearly every poult hatched. Mr. Robinson has been breeding turkeys a good many years and has forgotten more about turkeys than most of us will ever know. In fact, he understands them so well that he can almost raise turkeys with his eyes shut. "Don't let them out in the wet." "See that there are no lice on them or on the mother." "Move the coop often." "Above all, whatever you do or don't do, never overfeed," All this sounds familiar. It has been drilled into us from the day we set our first turkey egg. Yet, coming from a man whose yards are filled with beautiful big Mammoth Bronze turkeys, it has added emphasis.

"How do you know," I asked Mr. Robinson, "that you are not overfeeding?" and he answered in almost the very words of the Rhode Island station bulletin, "When they don't come running the minute they they see you, there is something wrong."

No Grain for Poults

The natural feed for little turkeys is greens and animal matter. Grain, Mr. Robinson believes, should not be fed till the birds are nearly grown. Hard boiled egg is the best substitute for the bugs and flies and grasshoppers a little turkey picks up on range, and so, till they are large enough to go out and hunt their meat, egg takes its place.

The poults are not fed at all the first two days after they are hatched, but are kept confined in the coop. As they are always raised by turkey mothers they are not urged to eat but are quietly hovered till they begin to look for food.

The first feed, and the only feed the Robinson turkeys get for ten days or longer is a mixture of boiled egg, lettuce and onion tops and rolled breakfast oats, with a little sand added. One egg for ten turkeys, with an equal amount of rolled oats and twice as much onion and lettuce, all chopped together, makes a satisfactory mixture. Half a teaspoon of this for each poult is thrown on the ground for the first meal, the morning of the third day, and this meal is repeated at noon and again at night. The hen is fed by herself and is not allowed to eat with the poults.

Eighty-seven Years Young

Mrs. Robinson looking over her Los Angeles County Turkey Ranch. They are the Mammoth Bronze and true to name both in coloring and size.

This ration of egg and greens and rolled oats is continued for a week or more and then the egg is gradually discontinued till by the tenth day the birds are getting only rolled oats and green. By this time they are able to pick up quite a little on range and are allowed to run except when the weather is wet or chilly, the hen being kept in the coop. Lettuce and onion are the only greens Mr. Robinson feeds, and the onion is never omitted.

When they are a month old the poults are still on rolled oats and greens, but by this time they are able to range some distance from the coop and pick nearly all their living. The noon meal is now dropped and the poults get only a little at night, Mr Robinson's only rule for feeding is to watch the turkeys and keep them ravenous.

POULTRYMAN'S CALENDAR—MAY, THE TURKEY MONTH

Hatch turkeys with chicken hens, turkey hens or incubators, but brood them, if it is at all possible, with turkey hens. A turkey hen can hatch and rear 18 or 20 poults at one time, and she does not overfeed them as a chicken hen does. A chicken hen can cover from eight to ten turkey eggs.

Probably nine-tenths of all the little turkeys that drop off before they are three months old die from overfeeding. Feed very little at one time and never more than four times a day. Feed green with every meal, especially onion tops. Avoid corn. The most successful feeders give no grain except rolled oats till the poults are three months old.

Keep them hungry. Keep them clean. Keep them dry.

All little turkeys should have green range. Adult birds may thrive in confinement for a while but poults must run and pick most of their living.

Sour milk and cottage cheese are generally believed to be particularly wholesome for poults.

enously hungry. If they come in at night with full crops they get very little, if anything. They have the run of the ten acre citrus orchard, but the mother is always confined. "If you have a patch of alfalfa for them," said Mr. Robinson, "they need no other food."

Mash After Three Months

When the turkeys are three months old and have "shot the red" a commercial egg mash is placed before them and they have access to this at all times from now on. The grain they get they have to thresh for themselves. A bale of barley or wheat is placed in the pen and they help themselves. A little rolled barley and milo is also given but no corn is fed till fattening time.

The breeders are fed in the same way, with mash always accessible and rolled barley or milo at night.

Water is an important part of the turkey's ration and should be always fresh and clean. Three times a day in summer is not too often to replenish the water vessels.

To insure fertility Mr. Robinson mates a tom to from eight to 12 hens, but changes toms every day. The turkey hen, he has discovered, is quite temperamental and will often refuse to mate with one tom but encourage another. His breeders are from one to two years old. Older birds than this are not good breeders and if younger birds are used the progeny are apt to be weak or the eggs infertile.

Poultry Queries

Conducted by J. A. Koethen

Use Mature Toms

I got into hot water, it sems, when I quoted a government bulletin as recommending the use of young turkey toms for breeding. I. H. Severance of Cowell, who has raised turkeys by the thousand, he says, writes: "I know, spite of al the bulletins this side of Washington, that a turkey tom is not fit for a breeder before he is two years old, and three years is better. You never heard of a 15-year-old boy being the father of a Jim Jeffries, and you never will. Nature don't work that way."

I had misgivings when I quoted that bulletin, and yet some expert breeders advocate the use of yearling toms. W. D. Robinson of San Dimas, whom I visited recently, says it doesn't make much difference, if only the toms are well grown. It stands to reason, however, that any bird used for breeding should be fairly mature if the offspring are to be large and vigorous.

Good Book on Poultry Raising

Please tell me where I can get a good book on success in poultry raising.—Subscriber, El Cajon.

Have you tried the Cultivator book, "Poultry for Profit"? It does not pretend to say all there is to be said about successful poultry raising, but it makes a fair start. When you have digested that, try Professor Dryden's new book, "Poultry Breeding and Management," published by Orange Judd Co., New York, and then Harry R. Lewis' "Productive Poultry Husbandry," published by J. B. Lippincott Co., Philadelphia. I do not know the price of the two last named, but the Cultivator book is $1. There are a number of good bulletins on the feeding of hens and raising of chicks published free by our own agricultural experiment station at Berkeley.

Squab Raising

Please give me the name of a book or paper on squab raising. I should also like the names of breeders of Carneaux and White King pigeons.—S. D. M., Ceres.

The names have been mailed you. The best book I have seen on squab raising is the National Standard Squab Book, published by George H. Dean Co., Boston. It gives full directions for feeding, housing, etc.

Blackeye Beans for Poultry

Roy R. Mathews of Buena Park writes: "We have fed Blackeye beans, field run and as screenings from the cleaners without being reground, and prefer them for grain ration to any other grain. Our first test of value came in June when our hens (about 500) had begun to decline in production on a mash, milo maize and cut alfalfa diet. We substituted Blackeyes for milo and after a day or two the flock began eating readily. Within a week or two egg production increased materially, ten to 15 per cent, till we used up our supply, when we discontinued as before with milo and the hens began to decline as is usual during summer months. A short time later we found a couple of sacks of cull Blackeyes we had overlooked and again substituted, with a marked egg increase. The following season we got similar results. We feed them through a self feeder or in straw litter, giving all the hens will eat. If I could get them at the same price as

(Continued on Page 760.)

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Downey, Cal.

White Leghorn Chicks

guaranteed strong and vigorous from our proven layers. Four extra with each 100: 40 extra with each 1,000. $16.00 per hundred, reduction by the 1,000. Write us for April chicks. (Reference California National Bank).

Address, JAMES D. YATES, Poultry Judge
R. No. 1, Modesto, Cal.

GET MORE EGGS.

"Lady Victory"

1918 Champion laid 304 eggs in 365 days. Highest official record of any living hen. She laid 25 eggs in Jan., 27 in Feb., 29 in March.

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Feeding Milkoline will make you more money —reduce mortality of your flock— keep flock healthy and less liable to disease.

Increase Poultry Profits Any poultry raiser can easily double his profits by doubling his egg production. Feeding **Milkoline** with other feed greatly assists assimilation, keeps digestive organs vigorous and is a wonderful appetizer, tonic and bowel regulator. **Milkoline** contains nutritive elements vital to egg production and not found in grain rations.

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Jas. E. Keyes, Petaluma, Calif., says: "After feeding **Milkoline** for eighteen months to 2,500 hens, I find that worms cannot exist in poultry where **Milkoline** is used. I reduced mortality with laying hens 10 per cent. I increased the egg production of my flock **thirteen thousand eggs** in one year. Feeding **Milkoline** to laying hens keeps them in splendid health thereby preventing disease and derangements of all kinds."

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has a base of modified buttermilk with essential fats and acids added. **Milkoline** comes in condensed form. Will not mould, rot or sour. Keeps indefinitely in any climate. **Milkoline** is simply **"Good Buttermilk Made Better for Feeding."** Flies don't bother it.

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Many feeders say **Milkoline** lowers feeding cost one-third, because their hens assimilate all feed they eat. Our liberal **Guaranteed 30 Day Trial Offer** enables you to try **Milkoline** at our risk—to prove that it will make you mighty good money.

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Milkoline is not featured as a cure for anything or a preventative, but due to the acidity in the buttermilk it is a germ destroyer and helps keep poultry healthy, which is the best preventative against disease. **Milkoline** is invaluable as a life saver for baby chicks.

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5 Gal. Keg	$7.50
10 Gal. Keg	12.50
15 Gal. Keg	16.50
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Prices on smaller packages given in booklet. Buy in barrel lots—it saves you money.

Only 2c a Gallon For feeding mix one part of **Milkoline** to 50 parts of water (small feeding 5 tablespoons to gallon of water). Feed either with water or mash feed. **Milkoline** keeps their appetite keen and its action is highly essential to normal egg production. When fed as directed **Milkoline costs only 2c a gallon** or less. Trauhaft & Newman, Lankershim, Calif., say: "We would not go back feeding straight buttermilk at any price."

Guaranteed Trial Offer **Milkoline** has been producing so many amazing results and we are so certain of what it will do for you that we will ship you 1 Gallon for $2.25, **express prepaid.** Take 30 days—feed half to your poultry. If not entirely satisfied simply return unused portion and we will refund every cent you paid us. No charge for portion you have used. **Milkoline** is legally guaranteed to be satisfactory. You are always the judge. We suggest ordering larger quantity—you get the benefit of lower price—you risk nothing—you must be satisfied or we refund every cent you paid us. **Make this test now.** The sooner you begin using **Milkoline** the quicker you will be making money.

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New York Belting & Packing Co.,
519 Mission Street, San Francisco,
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Los Angeles

(4)

Los Angeles Markets

Los Angeles, April 28, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price, 55 cents.

Dairy Exchange prices last week on extras:

April	21	22	23	24	26	27
'20 ...	55	55	55	55	55	55

CHEESE

Brokers' prices:

California, lb., 28, price to retail merchants, 28@30.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 42 dozen; case count Produce Exchange closing price 39 dozen; pullets, Produce Exchange closing price 39 dozen; pewee pullets, 29.

Dairy Exchange prices last week on extras:

April	21	22	23	24	26	27
'20 ...	39	40	40	42	42	42

POULTRY

Price to producers: Hens, lt., 32; heavy, 37@39; broilers, 28@32; fryers, 40; roasters, 38; old roosters, 14; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 18.

LIVE STOCK

Los Angeles, April 27 — Weighed and delivered off cars without food or water:

Hogs (hard-grain), 125 to 175 lbs., 15.50 175 to 225 lbs., 16.50.

Cattle (on foot, gross weight)—Steers, good, 12.00@12.50; medium, 11.50@12.00; cows, good, 10.00@10.50; medium, 9.50@10.00; bulls and stags, 7.00; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, April 27, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Market unsettled, movement slow. Old Stock: Stockton: Burbank, fancy and special brands, 7.25@7.75, mostly 7.25. Idahos: Russets, fancy 8.00@8.50, mostly 8.00. New Stock: Market stronger. Local Early and White Rose, No. 1's, 2.75@3.65 lug; No. 2's, 1.50@2.00 lug; 8@10 per lb.

Onions: Demand and movement moderate, market steady. Homegrown and Stockton: White Globes, per cwt., 6.00@7.50, mostly 6.00@6.75. Yellows and Browns, 6.00@6.50 per cwt.; lugs, 1.75@2.25; per lb., 6@8. Imperial Valley: Bermudas, 2.50@3.25 crate; lugs, 1.75@2.25; Crystal Wax, scarce, lugs, 1.75@2.50; crates, 3.50@3.75. Garlic, 40@50.

VEGETABLES

These are the actual prices obtained April 27, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., best, 50@1.00.

Asparagus: Supplies moderate. Delta section: Best, 11@14; local, 18@19.

Beans: Wax, lb., 13@15; Ky. Wonder, 20@22.

Beets: Doz., 40@55; lb., 4@5; sk., 2.50@2.75.

Cabbage: Market unsettled, movement moderate, very little good stock. Per lb., best, 2@3½, some low as 1¾; per crate, best, 2.50@3.00; others, 1.75@2.00. Red cabbage: 4@5 per lb.

Carrots: Doz., 40@50; lb., 2; sk., 1.75@2.25.

Cauliflower: Supplies very light. Local stock: per doezn, best, 1.25@1.50; others low as 1.25; field crates, scarce, 2.50@3.00; pony crates, 1.75@2.00.

Celery: Market steady for good stock. Local and northern per dozen bunches, best, 2.00@2.75; crates, 5.50@6.50; fancy shipping stock, 8.00@10.00; poor stock low as 2.00 crate.

Cucumbers: Illinois: Hothouse, 3.00@5.00 per dozen, according to size.

Peppers: Floridas: Bells, 40@45 per lb., Chilis, 40@45.

Lettuce: Supplies heavy. Crates, best, mostly 50@75; few $1.00; others low as 35.

Parsley: Doz., 15@30.

Parsnips: Lugs, 1.00@1.50; sacks, 3.00@3.50; per dozen, 45@55.

Peas: Local and Imperial Valley: Market firm; lb., 6@9.

Rhubarb: Strawberry, bx., 1.75@1.90; few high as 2.50; Crimson Winter, 90@1.25.

Spinach: Doz., 20@30; lb., 2.

Squash: Imp. Valley, summer, cr., 1.50@1.60.

Tomatoes: Imp. cr., 2.25@3.00; Mex., lug, 2.50@3.25; lb., 10@13.

Turnips: Per dozen, 50@60; per sack, 2.50@3.50.

FRUITS

These are the actual prices obtained April 27, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: White Pearmains, 2.00@2.75; 4@6 per lb.; Yellow Newtown Pippins, 4-tier, 2.00@2.75; 4@6 per lb.; Romes, 3.50; lb., 8.

Bananas, 8@10.

Strawberries: Local, per crate, 3.50@5.00; per tray, 1.75@2.50.

Grapefruit. California and Arizona: per box, 4.00@4.50; other, 3.50@3.75. Local, 2.00@3.00 per box.

Lemons: San Fernando Valley stock: fancy packed, 4.00@4.25; loose, 3.00@3.75; juice, 2.50. Local stock: packed, 2.50@3.00; loose, 2.00@2.25; 2@3 per lb.

Oranges: Market slightly weaker. California Navels, packed, 4.50@5.50; best brands, 6.00@6.50; others low as 3.00@3.25. Local stock: packed, 3.50@4.75; large sizes low as 2.00. Tangerines. California stock, mostly 6@9 per lb.; some best high as 14; 2.75 lug.

HONEY

Demand and movement slow, market dull, prices slightly lower. Carloads f. o. b. usual terms: per lb. White orange blossom, 18; White Sage, supplies practically exhausted, 19c; extra light amber sage, supplies very light, 16; light amber alfalfa, supplies light, 14c. Beeswax, demand and movement moderate, l. c. l. lots 40@42c.

BEANS

California Lima Bean Growers' Association fixed prices October 13, but market falling. Limas, 14½; baby, 13.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.

No. 2, 26.

Diamond Brand Buds, 34.

Golden State Buds, 34.

1918 No. 1 price was 28; fancy budded, 31½.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	27.00@30.00
Barley	22.00@25.00
Alfalfa	23.00@27.00
Barley Straw	16.00@18.00

Alfalfa Growers of California, f. o. b. Los Angeles: Choice alfalfa, 38.00@39.00 per ton; choice dairy alfalfa, 30.00@38.00; No. 1 dairy alfalfa, 33.00@36.00; No. 1 alfalfa, 34.00@36.00; standard alfalfa, 33.00@34.00; standard alfalfa, 30.00@33.00.

GRAIN AND FEEDS

Price bid local grain exchange, April 27:

Barley, 3.12.

Corn, yellow, sk., 3.60.

Milo: 3.17@3.20; Eastern, 2.96.

San Francisco Markets

San Francisco, April 27, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	59
Prime Firsts	Nominal

Extras past wk. and year ago:

April	20	21	22	23	24	26
'20 ...	58½	58	58½	59	58½	58½
'19	54½	..	55	56	55	

Rcts. wk. ending April 26, 17,535 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	26½
Ore. Trips	30
Cal. Flats	30

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	46½
Firsts	42
Extras, pullets	43
Undersized	35½

Extras past week and year ago:

April	20	21	22	23	24	26
'20 ...	43	43½	45	46½	47½	46½
'19	50½	..	50½	50	..	

Rcts. wk. ending April 26, 869,035 doz.

POULTRY

Wholesale prices are:

Leghorn, 40@42; large, 43@44; roosters, young, 43@45; old, 23@25; broilers, 38@43; fryers, 52@58; turkeys, live, 42@43; dressed, 48@50.

Ducks, Indian Runner. 30@32: Pekin, 33@35. Squabs, 55@60; pigeons, doz., 2.35@2.50.

Belgian hares, live, 22@25; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle — Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 11@12; do 1,200 to 1,400 lbs., 10@10½; do, second quality, 8@9; thin, 6@7.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 4@5.

Calves—Light weight, 12@12½; medium, 11@12; heavy, 8@10.

Hogs—Weighing 100 to 150 lbs., 16¼; 150 to 225 lbs., 16¾; 225 to 300 lbs., 16¼; 300 to 400 lbs., 15¼.

Lambs: Milk, 15@16; Yearlings, 13@13½.

POTATOES

Wholesale selling price.

Rivers, fancy, lb., 5¼@6; Idaho Gems, lb., 7¼@8; new, lb., 8@9.

ONIONS

Wholesale selling price:

Fancy, brown, 5.00@5.75; choice, 4.50@4.75; white, 5.00@5.25. Green onions: River, 50@75; bay, 1.00@1.25 per box. Garlic, 40@45.

VEGETABLES

Wholesale selling price:

Artichokes, 1.00@5.00.

Asparagus: lb., wh., 6@10; gr., 4@7.

Beans: So., 13; Hothouse, 20@22 lb.

Brussels Sprouts: lb., 8@9½.

Carrots: sk., 1.00@1.50; long, 40@50 per dozen.

Cauliflower, doz., 1.25@1.45.

Cabbage: lb., 2¼@2½.

Celery: cr., 1.50@3.00.

Cucumbers: Eng. doz., 2.00@2.25; hothouse, bx., 3.50@3.75.

Lettuce: L. A., 75@1.50 cr.; Imp., 2.00@2.50.

Peppers: Fla., 50@65 large: 25@35 small.

Peas: lb., Bay, 5@8.

Radish, 7@9 doz. bunches.

Rhubarb: bx., 1.25@2.00.

DECIDUOUS FRUITS

Apples: Newtown Pippins, old stock, 2.50@2.75; Oregon, 2.60@3.25; Spitzenberg, 2.00@3.00; Winesaps, fancy, 3.75@4.00.

Bananas: lb., 8@11.

Loquats: lb., 5@9.

Pineapples: Doz., 3.50@6.00

Strawberries: Peninsula dr., 75@1.50.

CITRUS .....

Box: Lemons, fancy, 4.50@5.00; choice, 3.00@3.75; standards, 2.50@3.00; lemonettes, fancy, 1.00@2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 3.00@7.00; limes, 4.00@4.50 per crate; tangerines, 1.50@3.25 crate.

DRIED FRUITS

Prunes:

Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.

For "practically peeled" add 1½c per pound (any grade).

Prices above are all bulk basis.

For packing in 50 pound or 25 kilo boxes add 1 cent per pound.

25 pound or 12½ kilo boxes, all 1¼c per pound.

10 pound boxes, add 2 c per pound.

Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.

Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.

Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:

Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:

Whits: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:

Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.

1918 No. 1 price was 28; fancy budded, 31½.

Raisins:

California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅜; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12½; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾; Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, $2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

RICE

The domestic market continues active, with stocks in the hands of weak holders practically exhausted. The market is firm, with fancy being quoted at from $10.75 to $11.00 singles. Choice is 25 cents less.

BEANS

Jobbing prices at San Francisco, per cental: Small white, 5.75@6.00; large white, 6.20@6.35; cranberry, 6.00@6.50; red Mexican, 8.50@8.75; pink, 6.40@6.50; California Bayo, 9.50@9.75; blackeye, 7.25@7.50; red kidney, 13.00@13.25; lima, 10.25@10.50; Garvanza, 9.00@9.50; Kotenashis (in bond), old crop, 5.25; new crop, 5.75.

Dried Peas: California, 5.25@5.50 cental.

HOPS

1919 crop, 1.00 per lb. Prices to growers for 1920 crop, 80 per lb.

HONEY

Demand and movement slow. Cash to producers: Light amber alfalfa, 14@16½; white orange blossom, 16c. Beeswax, 38@40 per lb.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

Hard White—	Per Bus.	Per Cen.
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.50
No. 3	2.00	3.48½

The above are minimum prices.

For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.05@3.15.

Corn: California yellow 3.10@3.15 per cental; Egyptian white 3.50@3.65; milo maize 3.00@3.10.

Barley No. 1 Feed, 3.00@3.10.

HAY

Under date of April 24, Scott-Magner says:

We quote today wholesale prices in carload lots as appear from dealer's transfers upon the hay market in San Francisco, for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat or Wheat and Oat hay	35.00@38.00
No. 2 Wheat or Wheat and Oat hay	33.00@35.00
Choice Tame Oat hay	37.00@40.00
Other Tame Oat hay	33.00@37.00
Wild Oat hay	Nominal
Barley hay	Nominal
Alfalfa hay	32.00@37.00
Stock hay	29.00@32.00
Oregon Cheat and Oat mixed	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, April 28, 1920.

With a shortage of cars and the natural slowing up of shipments at this time of the year, there has been a dearth of good stock in the market. Prices have mounted and first class Navels and Valencias are commanding around $9.00 and $10.00. Large size stuff is still off.

Lemons have not been favored as have the oranges. Imports large. California growers holding back stock for better prices.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 15,200 cars; lemons, 2,933; total, 18,133. To same date last season: Oranges, 17,801; lemons, 4,174; total, 21,975. From Central California this season: Oranges, 4,304; lemons, 286; total, 4,590. To same date last season: Oranges, 2,440; lemons, 251; total, 2,691. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

April 21

New York: 2 or. Nav. 5.80-7.40.

St. Louis: 3 or., 8 lem. Nav. 5.20-6.80, Val. 5.75-7.20, lem. 4.25-4.65.

April 22

Boston: 4 or. Nav. 5.10-7.10, Val. 6.50-6.95.

April 23

New York: 2 or., 1 lem. Higher. Nav. 6.55-7.80, Val. 8.20-10.50, lem. 3.70-4.80.

Cincinnati: 3 or. Nav. 6.65-6.40, Seeds 6.35, Sweets 5.85-6.20.

April 26

New York: 7 or. Nav. 7.25-10.85, Val. 8.90-11.30, Bloods 9.75, Tang. halves 3.75-4.55.

Boston: 2 or., 2 lem. Nav. 7.75-8.80, Bloods 6.90-8.65, lem. 3.40-4.10.

April 27

New York: 13 or., 1 lem. Nav. 7.25-10.85. Tang. halves 4.20. Sweets 7.50-8.40, lem. 3.95.

Place Your Order NOW for Nitrate of Lime

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Economy, durability and train-like regularity are the standards set by Essex. These things have been shown in the hands of more than 30,000 owners.

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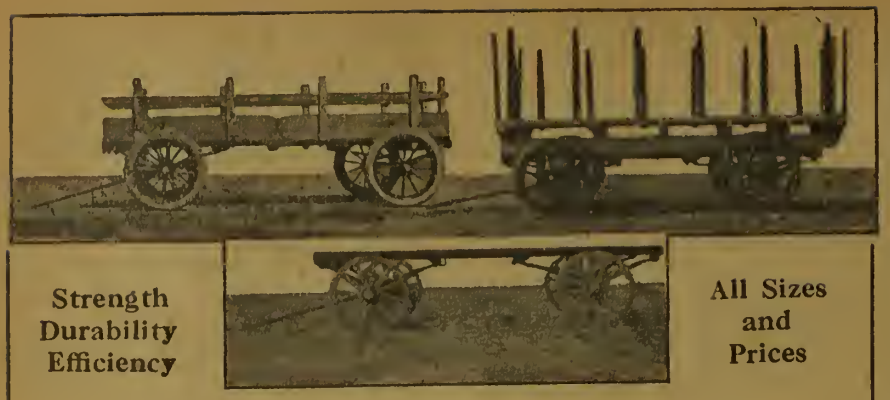

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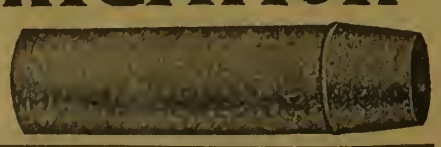

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POULTRY QUERIES

(Continued from Page 757.)

other grains I would feed them alone.

Another subscriber, who does not wish his name published, writes:

"It does not seem to be generally known that all stock will eat cow peas. I have fed them for years, both here and in the South, both the Blackeye and others of the cow pea family. Two years ago when beans were cheap I bought a lot of Blackeyes and Lady Washingtons. I never could get the hens to eat the Washingtons, but in three days they were eating the Blackeyes just as readily as corn or wheat. The old hens ate them the first time I fed them. I put a few in the pullets' mash dishes and in three days they ate them readily. I consider them one of the best grain foods. Hens will gather them from the vines if turned on them, and as they grow so easily in California, with or without irrigation, and make such good hay they should be grown much more for feeding. There is a variety called the Brabham (?) that is immune to the eelworm and can be cut two or three times if given water. In fact, I have grown two crops without water. It is a very rank grower, upright in growth and a good yielder of small seed."

We are very glad indeed to hear from both these men. In these days anything that can be grown at home deserves a trial.

Waste Oil for Mites

A very cheap and effective remedy for the "mighty mite," lasting longer than carbolineum or cresol and right at hand for every motor car user, has been discovered by Roy R. Mathews of Buena Park. "Secure the drainings of old used oils from your own car and tractor crankcase," he says, "or from garages, and daub with an old rag or paint brush on every inch of the roosts, the walls where the hens' bodies may touch and sides and bottoms of nests, and you will get every mite. As there is a body to these oils an application protects from mites for several months and is not injurious to hens. I believe crude oil as it comes from the well would serve as well. If this is too thick, thin with kerosene or distillate."

Sore Eyes

Every summer there appears in flocks which run at large or in confined flocks that are fed on barley a condition often diagnosed as "swellhead" or eye trouble, but which is really due to foxtails or barley beards in the eye. Sometimes these "stickers" can be seen and then they are easily removed with the fingers or a pair of tweezers. Sometimes they are in the nasal passage, and then the hen often goes blind and sometimes dies just because her owner does not discern the cause of the inflammation. W. P. Wolfe of San Ysidro has found an effective method of locating this concealed sticker. He writes:

"Whenever I notice a hen in my flock with a watery or swollen eye I take time to catch her and clean out the crevices in the roof of her mouth, for just there is where the trouble starts. Then I pull a feather three or four inches long from her wings. This feather I put first in the opening in the roof of her mouth which leads to her eye, slanting it in an angle toward the affected eye, and push it gently toward the eye. As the quill comes out of the eye I take hold of it and pull, turning it as I pull. This cleans out whatever is clogging the channel. I often find two or more pieces of barley beard on the feather. I have practiced this now for ten years in my flock and have never lost a hen when I noticed the trouble in time."

Weak Legs

We have several hens attacked by that weak leg trouble, and while I noticed your answer in the last Cultivator, still it does not seem to fill our need. Five hens have now been attacked and we have wondered if lime was lacking. We do not feed lime nor use shells, so all the lime they get is from the ground and alfalfa.—Subscriber, Runnington.

Certainly your hens need shell, and unless they are on granite soil they also need grit. Lack of lime would be responsible for the soft shelled eggs but not for inability to stand in adult hens. That is something that goes deeper. When there is stiffness, swelling or soreness of the joints, we diagnose rheumatism or tuberculosis. Inability to stand, without visible symptoms, might be due to paralysis, as I suggested in the Cultivator of April 10, but there is another disease, a very rare one, in which this symptom appears. This is a blood disease called infectious leukaemia. In this disease there is considerable temperature and death occurs in a few hours or within two weeks. I should not dare to say, without knowing more particulars, that this is what your hens have. You do not say how long they live or whether any have died. At all events it will be well to isolate the sick birds and clean up thoroughly. Infectious leukaemia is a filth disease and can only be prevented by rigid sanitary measures. There is no cure for the affected birds.

Portable Henhouse

Please give me some information in regard to small portable henhouses for use in groves.—R. H., San Fernando.

A coop we have used for several years should be satisfactory in a grove. It is six feet long, three feet wide, three feet high in front and two at the back. One side is open. It is built of 1 by 3 timber with shingle roof, and the back and sides are covered with burlap. Sometimes we have had the back and sides covered with tarred paper and the roof might be the same, but we prefer shingles. This coop will hold 20 hens. It is not suitable for rainy weather but no portable house would be.

Mating Ganders

Is my gander, ten months old, too young to mate?—Subscriber, Bellevue, Washington.

Yes, far too young. Geese are not mature till they are three or four years old and it would be foolish to mate that gander before he is two years old. You might get a few fertile eggs, but they will not hatch well, and the goslings, if they do hatch, will be small and weak.

AMERICAN EGG LAYING CONTEST LEAVENWORTH, KANSAS

Ten Highest Pens for Five Months

White Leghorn, Pennsylvania, 548 eggs; White Wyandottes, Pennsylvania, 508; White Leghorns, Missouri, 495; Rhode Island Whites, Kentucky, 493; White Orpingtons, Ohio, 492; Single Comb Reds, Nebraska, 489; White Leghorns, Iowa, 479; White Leghorns, Washington, 477; White Leghorns, England, 473; White Orpingtons, Ohio, 466; White Leghorns, Texas, 462.

Ten Highest Pens for March

Rhode Island Whites, Kentucky, 126 eggs; S. C. White Leghorns, Ohio, 113; S. C. White Leghorns, Missouri, 111; S. C. White Leghorns, Pennsylvania, 107; S. C. White Leghorns, Iowa, 102; S. C. White Leghorns, England, 102; White Wyandottes, Pennsylvania, 101; S. C. White Leghorns, Washington, 100; White Orpingtons, Ohio, 100; S. C. White Leghorns, Pennsylvania, 97

FARM BUREAU EGG LAYING CONTEST AT SANTA CRUZ

Bellows Bros of Lakeside set a new weekly record for the contest, with a score of 57 eggs for their ten hens. The average per cent production for the week was 66. Five hens scored 100 per cent, while 100 hens each made a record of 85.7 per cent; 399 hens laid a total of 1,846 eggs.

High pens for the week are: Bellows, 57 eggs; Gray, 56; Wood, 56; Gibson, 56; Stailing, 55; Enterprise, 55; Barker, 52; Wallis, 51; Amsbaugh, 51.

Household Department

ARIZONA

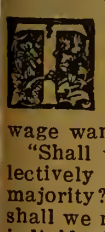
A ride across the desert on an Arizona train
Reveals some mighty wonder-works of mountain and of plain.
It seems as if some giant lifted up the hills amain,
Then tired of his burden, and let them fall again.
On one side, massive granite peaks lie just as they were hurled;
The other side lies level to the last rim of the world.
One sees the hills where Chief Cochise, with his Apache band,
Took shelter from pursuers in his fatal, final stand.
A country filled with romance—on every range a tale
Of how men fought, and built, and wrought to make their will prevail.
These men were of the sturdy type, who faced whatever came—
They never asked about the past, nor even asked a name,
They judged a man by what he did and how he bore his share
Of hardship and the seamy side of life as lived out there.
They drove the Indians from the hills, they sacrificed their lives.
To make it safe for other men to come and bring their wives.
They're gone! But in their place have come the men who grow the grain,
The cattle and the sheep and goats, to populate the plain.
These men have made the fertile land, long dry, again to bloom
With varied fruits and nuts and flowers and cotton for the loom.
Impounded waters in the hills, which erstwhile ran away,
Are waste no longer, but are used to make the desert pay
Its yearly tribute to the men who satisfied its thirst;
The waters then may flow away, yet work their wonders first.

But leave the roaring way of steel, its soft and cushioned ease,
And come with me into the wilds of Arizona, please.
I'll take you out beneath the stars, set in a vivid blue—
A blue so clear, so deep, so bright, that it will seem to you
The velvet curtains of the night have let the stars drop through:
They really seem so very close you'd like to pick a few
Out of the garden of the sky, there are so many there—
From horizon to zenith there are diamonds everywhere:
One needs no moon nor sun to shine, in this ethereal night,
For the desert in the starlight is a land of heart's delight.
What if the tall seguaro (tree cactus) throw its arms
Athwart the sky as we go by, and cause us brief alarms?
What if the barrel cactus, with its "Donofrio" air.
Give one the stark impression there are brigands everywhere?
We know they are immovable, have neither words nor mouth;
We detect old Donofrio from his leading toward the south—
We forget them and look upward to the constellations high,
And give each its designation astronomical—or try.
We watch the sunrise splendor o'er the mesa from the dawn,
Or see the hill top sun drop like a gopher in a lawn,
When night comes on so quickly we can scarcely realize
That the glory of the night-sky is again before our eyes.
'Tis a cycle of magnificence,—a wondrous twenty-four—
Nor eons of eternity may add an hour more!
We can see "the painted desert," the old Apache trail,
The Colorado canyon; we can shoot the mountain quail;
But the charm of Arizona is the desert, free and wide,
Lacking e'en the settler's cabin with the olla just outside.
To the far-flung verdant spaces, with the yucca all ablow,
And the bright-hued cactus flowers—that is where I like to go;
Where mesquite grows; and cat-claws keeps grabbing at your hat;
Where ocotillo rubber plant points now this way, now that;
Where rounded hills and spike-rock buttes invite a close inspection
Of hidden springs and other things that wait for your detection.

This land of Arizona grips you, holds you, makes you fall
Fast in love with all its wonders: If you come, you'll stay—that's all.

—The Goat Journal.

WHEN CHARLOTTE UNDERTOOK



THE Club of Fearless Women was tasting new life, for it had thought of another fearless thing to do. This was when first it had decided to wage warfare on the price of shoes.

"Shall we put it to a vote, and collectively abide by the decision of the majority?" asked the president, "or shall we make it a matter of voluntary individual pledges? The question is open for discussion before voting."

There was a short silence.

"But would we have to wear them everywhere—to church and everything?" asked a member in a far corner, aghast.

"I will reread that part of the motion," replied the president. "It provides that the members of the Fearless Club shall appear on all occasions in wooden shoes until the price of customary footwear shall have dropped 6 per cent, and until such later time as the club shall deem the purpose of the measure best fulfilled."

The members stirred and looked at one another, but without comment, until trim little Mrs. Harden said, looking at the toe of her little boot. "Then I would favor making it a matter of individual pledges."

No other expressions ensued, and it was put to a vote. The novelty of the suggestion was alluring, but the vote decreed that pledging should be individual and voluntary with the members. At its announcement there were some smiles of scorn for such recreancy.

The pledging did not follow so rapidly as the first enthusiasm for the measure had promised. The three youngest members and the president responded the first day. Others promised to reflect on the matter.

On the succeeding Sunday the prelude to the first hymn was being played in one of the city churches when there was an unusual sound at the rear of the room. Some heads turned back. The sound was lessened as the cause of it reached the carpeted aisle, and Charlotte Benton was seen making her way to a vacant seat. She walked rather queerly, and her face was deeply crimson. Some members of the congregation looked at each other open mouthed, and two small heads ducked low in the pews from which stifled snorts were heard to issue. Mrs. Hardin's small gloved hand was observed to cover her face in what seemed to be a very protracted devotion that shook her frame slightly. Charlotte Benton was wearing shoes of wood.

Had anyone but had time to notice it, her face, though nearly poppy-colored, was much less red than that of a young man who sat in the gallery. At the close of the service he waited for her at the rear of the room.

If coming into the church had been an ordeal to Charlotte, meeting this young man was a worse one. But she had been steeling herself for it, and after flinching for an instant before the dreaded disapproval in his eyes she laughed and defied it.

"Charlotte, what nonsense is this?" he groaned.

"No nonsense—just an unusual degree of common sense," she replied. "We're only used to mild doses of that, you know. This may look a little queer at first, but every improvement does."

"Do you know that the whole congregation was looking at you through out the service, and that half of them are probably hanging about to see you come out of the church?"

"Do you know what my last pair of shoes cost?" she countered.

"Is that all. And do you mean to wear these quite regularly? Because I should say it would be to the interest of the church to take up a collection and buy you a pair of shoes. The sermon would get more attention."

There was a queer little silence. Then:

"We're beginning to get acquainted, aren't we?" she laughed.

"I should say so!" he snapped.

She looked at him in a strange, composed manner.

"Charlotte," he said, with earnest exasperation. "we're not quarreling, of course. But won't you just tell me the real reason for this little freak? Was it somebody's dare?"

"I've told you, Frank. Shoes are costing so much more than they need to. It would be different if I were doing this alone. But women everywhere are considering it, and some are doing it. There have to be pioneers in everything, you know. That's what our Fearless Club is for."

"But, Charlotte," he said, flushing, "you don't have to be concerned with the price of shoes. It would be different if you did."

"Wouldn't it be farcical," she demanded, "if our club, organized to stand on principles instead of conventions, were to shirk this little thing they can do to remedy a wrong?"

"But other members of your club were there, and their feet were—'not

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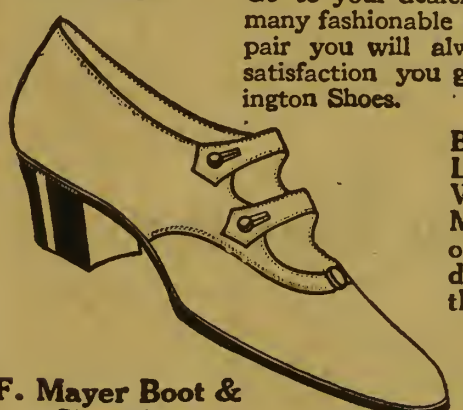

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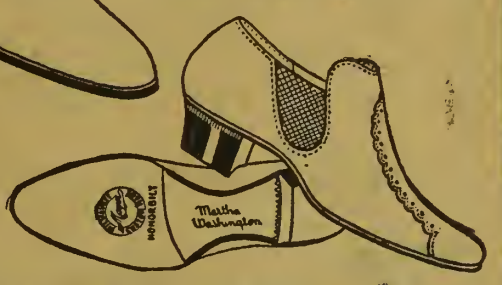

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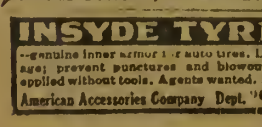

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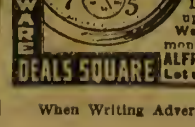

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arrayed like one of these,' " he protested, pointing to the curious shoes.

"Not all wore them. The soprano had them on, but she took good care to be in the railed choir box early. But I should be ashamed to have my name on their rolls if I hadn't stood by this."

He looked away for a while. "But you could have been in the church before the service began," he said.

She shuddered. "That was awful. I almost lost my courage when I found I would be late. Were you so very ashamed of me, Frank?"

Frank Holster colored again. "Of course it wasn't that, Charlotte. But you must see that it's rather striking, at the least."

"But I belong to a club that does striking things, Frank. Love me, love my club. We don't do them for the notoriety, as actresses and politicians do; we do them because the only thing that restrains other people from doing those things is fear, conventionality; because they're the reasonable thing to do, if you dare to really think about it. Every inventor is considered a crank, and every original thinker a madman, but why? Should they be? And if they shouldn't, why don't the rest of us help the original thinkers to push the world forward a little, or pull it back from a silly habit? And you know it is a silly habit to pay from 14 to 20 dollars for a pair of shoes. And you know that as long as we do pay it—

In this vein the little enthusiast continued till her fiance left her at her door. He had not reached the gate before he turned back.

"How long have you pledged yourself to wear them?" he asked.

"Until prices drop 60 per cent, or as much longer as it seems to be doing good."

"And what about June 4?"

She looked at him with reproach. "Why, Frank, do you think I would have risked not being free from these awkward things by then? Women everywhere are going to do it, you know. Dealers will have to take those startling tickets off their window models a long, long time before June."

"Oh, no, they won't. It takes months to organize concerted action of that kind, and then you will have to count on waiting for a supply of the wooden article. Besides, not every woman has so much heroism. Look here, Charlotte I'm not going to be married to a clattering Hollander."

She laughed, but his positive tone gave her a curious feeling.

"Not if I still am a clattering Hollanded on June 4? Of course I won't be, but if?"

"What will you do about it?"

"I won't break my pledge, Frank." She turned slightly pale.

"Which one, then?"

She was seriously troubled. "I'm sorry," she said. "I don't see how I could have taken such a risk. But I'll have to stick by this, Frank."

"Why the last pledge, more than the one to me?"

"Because this is the one I don't want to keep. I didn't want to take it. If I chose to keep the pledge I preferred, I would be in doubt of my own sticking powers always."

She looked so prettily distressed over it that he laughed tenderly and said:

"Never mind. It will come out rightly, somehow. I'm not giving up June 4."

"But you say you're not going to be married to me in my wooden shoes," she insisted. "If they're not off my feet by then, you can't keep both vows."

"We could have a quiet wedding, after all, instead of the one we planned, then."

'No, we couldn't, Frank, because that would be in a sense knuckling under on my part. I have to live up to these shoes. That's way I went to church this morning. We'll have the wedding we planned on or none on June 4. Besides, you've said that you won't marry a woman in wooden shoes, so you shan't. You'd be breaking a vow yourself if you did."

"But I've also vowed I won't give up June 4," he reminded. "There we are. We can neither be married nor not be married June 4, it seems."

She laughed. "Can't you think of a way out of that?" she said.

He could not.

"Why, I could be married to you without any shoes on."

"Charlotte!"

A phrenologist at that moment would have found Frank's "bump o conventionality" so swollen from th blow it had just received that he woul have credited its size to an undu share of that trait. But Frank wa not all made of conventionality.

"Suppose the price of shoes doesn' drop within that time. Or within year. What would you do, Charlotte Would you do that?"

"Frank Holster!" she stormed "Your conceit is positively past belief It is!"

"But what would you do?" he sai when he caught her eyes again. "Yo belong to the Fearless Club."

They were laughing eyes, but he di not seem dissatisfied with their an swer.

Time travels in a car in these days It very soon lacked but three week of June 4. No wedding invitations ha been ordered, for Frank had insiste that he would not be married to bride in such footgear.

Charlotte's entire club, a very influ ential one, now clattered unanimousl in wooden shoes.

A special meeting of the club wa called on a certain day. No one knew why.

The president, when she had calle them to order, held up a pair of shoes

"I bought these yesterday," she an nounced. "What are you going to d with me for it?"

There was a grasp of incredulity.

"Clara Worthington," said one o the members disgustedly, "if I'd bee told that one of us had weakened wouldn't have thought of you."

The president smiled at her with a fectionate mischief in her eyes. "An now, would anyone like to know wha I paid for them?" she said sweetly.

They considered. The shoes wer plain, but of excellent workmanship.

"Fourteen dollars," sai one.

"Fifteen," said another.

The president held out the bil "Seven dollars," it read.

"Oh! Mail order shoes," said on airily. She looked at her own woode ones with complacency.

"No. I purchased them at 824 Wa ton Street," smiled the president.

There was a stampede at her des for pencils. Everyone took the ad dress.

"But what about the pledged mem bers? We know nothing certain ye of the effect this man will have. H may put his prices over them all afte his opening week is over."

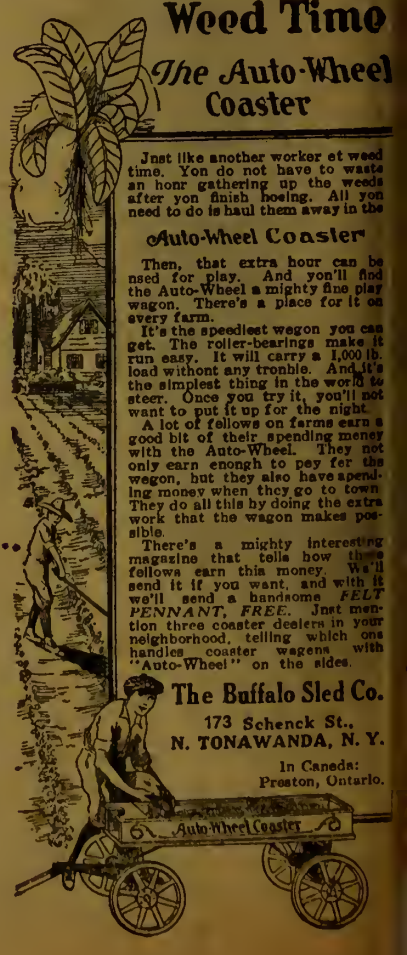
"I think not," said the presiden "He's here on principle, he declare You ought to go down and hear hi talk, women. We have won. Othe shoe men in the city will simply hav to come to his prices."

With two deft ankle movements, on of the pledged members sent her woo en shoes across the floor.

"Dear friends," she said. "I am no open to congratulations. I thoug

Weed Time

The Auto-Wheel Coaster



Just like another worker at weed time. You do not have to waste an hour gathering up the weeds after you finish hoeing. All you need to do is haul them away in the

Auto-Wheel Coaster

Then, that extra hour can be used for play. And you'll find the Auto-Wheel a mighty fine play wagon. There's a place for it on every farm.

It's the speediest wagon you can get. The roller-bearings make it run easy. It will carry a 1,000 lb. load without any trouble. And it's the simplest thing in the world to steer. Once you try it, you'll not want to put it up for the night.

A lot of fellows on farms earn a good bit of their spending money with the Auto-Wheel. They not only earn enough to pay for the wagon, but they also have spending money when they go to town. They do all this by doing the extra work that the wagon makes possible.

There's a mighty interesting magazine that tells how these fellows earn this money. We'll send it if you want, and with it we'll send a handsome *FELT PENNANT, FREE.* Just mention three coaster dealers in your neighborhood, telling which one handles coaster wagons with "Auto-Wheel" on the sides.

The Buffalo Sled Co.
173 Schenck St.,
N. TONAWANDA, N. Y.

In Canada:
Preston, Ontario.

The Cultivator Patterns

BE SURE TO SEND SIZE

3198. A Practical Dress for Maternity or Invalid Wear. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. The width of the skirt at lower edge is 2 yards. A Medium size will require 7¾ yards of 38 inch material. Price, 10 cents.

3191. Girls' Dress. Cut in 4 sizes: 8, 10, 12 and 14 years. A 12 year size will require 4 yards of 44 inch material. Price, 10 cents.

2842. Ladies' House Dress. Cut in 7 sizes: 36, 38, 40, 42, 44, 46 and 48 inches bust measure. Size 38 requires 4¾ yards of 44 inch material. Width of skirt at lower edge, is about 2⅛ yards. Price, 10 cents.

3200. Child's Dress. Cut in 4 sizes: 4, 6, 8 and 10 years. An 8 year size will require 3½ yards of 27 inch material. Price, 10 cents.

3188. A Pretty Frock. Cut in 3 sizes: 16, 18 and 20 years. A 16 year size will require 6¼ yards of 44 inch material. The width of skirt at lower edge is 1½ yards. Price, 10 cents.

3199. Juniors' Dress. Cut in 3 sizes: 12, 14, and 16 years. A 14 year size will require 3¾ yards of 44 inch material. Price, 10 cents.

3187. An "Easy to Make" Apron. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. A Medium size will require 5 yards of 36 inch material. Price, 10 cents.

2813. Girls' Dress. Cut in 5 sizes: 2, 4, 6, 8, and 10 years. Size 6 will require 2¾ yards of 36 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest **NEW YORK** styles, all patterns ordered are filled in **NEW YORK.** Therefore, we promise to deliver all patterns ordered within **TWO WEEKS:** we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

surely I should weaken before it was over."

"I knew you wouldn't," said another. "But I thought Charlotte might weaken about June 4. Aren't you glad——" she began, turning round to where Charlotte had been.

"Where is she?" she asked.

Then they heard her phoning in the hall. "Go down to a store at 824 Walton Street, if you can, Frank," she was saying, "and see if you find out any news. No, I'm not telling you what. No, indeed."

The Fearless Club voted to pay for and indorse a week's supplementary advertising of the new store, and invited the proprietor to speak before its next meeting.

At the end of the week his prices had wrought havoc among the gilt edged price tags throughout the city. The wings of soaring profit were clipped. Some dealers even undercut the new man slightly on featured lines; others dangled a few cents above his prices.

At the end of the week, also appeared invitations for the Benton-Holster wedding.

The event was a brilliant one. In the dining room the keynote of the decorations was the lady's slipper, for masses of which the members of the club had exhausted the resources of the city.

Among the invited guests was the new shoe merchant of Walton Street. Old friends did not understand why, until, after the ceremony, he came up to congratulate the pair.

"Mr. Snider," Charlotte said to him, "you did not know that, but for you, I couldn't have been a bride today."

Mr. Snider's eyes twinkled very small points of light. "Why, how is that?" he said.

"Because I had made a vow that I would never have a pair of wedding shoes like these"—she displayed a lovely pair— "while the shoe trade had us by the throat. And my husband wouldn't have me in my little wooden shoes."

Mr. Snider was laughing himself to tears. She looked at him with wonder.

"Is this knot tied securely and everything signed up?" asked the shoe merchant of the officiating minister.

"All is done," said the pastor.

"Then," said Mr. Snider, "don't thank me, Mrs. Holster. Thank him." He pointed to the bridegroom.

Charlotte gave her husband a look of unguarded admiration, which changed swiftly to one of mock severity.

"You!" she said.

"His capital," explained Mr. Snider. "I made up the speeches the customers got."

She gasped.

It seemed a long time before she had the opportunity to ask of Frank, "How much did the investment cost you?"

"Not half of what it was worth, dear."

"But you had to buy on the same basis as the men who sell for fabulous prices?"

"To start with I did. There wasn't time to choose new stocks, you see. I had to buy out a couple of retailers."

"Then my wedding shoes really cost you hundreds—thousands of dollars," she stormed.

"But you won, didn't you? I brought the other stores down to reason."

"No, Frank, we didn't win. Don't you see that the efforts of the club haven't brought about their natural fruits yet, if special interference stepped in? Eleanor," she called to her bridesmaid, and another apparition, almost as lovely as herself, came to her side.

"Please see that my wooden shoes get put into one of the suitcases. I am going to need them after today. We mustn't quit till we've won a victory for women. As for you, unprincipled man, your sentence will fall tomorrow, when you find you're married to little Dutchie after all."

"I don't object to the sentence, your honor," he replied. "Does little Dutchie?"

A few minutes later they rode away, and some one hurled after their limousine, as they went, a wooden shoe.—Oregon Farmer.

Soap that is allowed to dry and harden lasts twice as long as if used when fresh. Therefore it is cheaper to buy it in quantities and keep it in a dry place.

THIS WEEK'S PATTERNS

The dainty dress illustrated in 3188 is typical of the spring styles. The charming look of old time simplicity is combined with the "new silhouette." It may be adapted to almost any figure. The V neck is universally becoming; may be widened or lengthened according to thin or plump. The fullness at hips may be flattened or puffed out vice versa. It would be lovely in the soft, clinging voiles, marquisettes, or printed georgettes, or give the opposite sheer, flaring effect in organdie. Marvelously beautiful organdies are appearing in shop windows, of dark brown over brown silk slip; also dark blue, lavender, rose, etc. The browns are the newest quite, and in spite of their sheer fragility, look practical because of their lovely dark color. With flower trimmed hat of the floppy garden style you have a picture!

3198 is especially good for the stout, mature figure, equally attractive in soft wash goods, silk or wool.

The ever practical and attractive middy with kilted skirt is shown with slight variation in 3191. No girl—or her mother—can be quite happy without one or more. Make it of heavy wash material, Indian head, Devonshire, duck, denim, flannel, etc.

3199 has the flaring side pockets which daughter will like for their modish effect. This jumper-guimpe style is too practical and popular to need comment.

The two house dresses are good, as always. On the way to the office this morning I saw a lovely one in buff solid color gingham, trimmed with clear blue. Rather gay? Yes, but why not? It made one think of California's true colors, blue and gold, the blue of sky, the gold of poppies and daisies, and the altogether lovely out doorness of this wonderful springtime.

The little girl's dress, 3200, is simply irresistible. Can't you just see your plump, happy little girl in that dress of sheer white or soft solid color chambray, with its graceful drop yoke and dainty insertion?

Then the little house dress, 2813, made just like mother's, will be a delight to the little daughter who is going to be mother's helper. Maybe it will make dish washing and dusting a rather nice game.—R. P. D.

ANGEL FOOD

The Cultivator is glad to give a recipe for angel food which is vouched for by a friend as "simply heavenly." Here it is:

Whites of 8 eggs, 1¼ cups sifted sugar, 1 cup sifted flour, ½ teaspoon cream tartar.

Sift a little salt over whites, beat until fluffy. Put in the cream of tartar and beat until very stiff. Sift the sugar and flour separately and fold the sugar in first, then the flour. Bake in a moderate oven until it rises to the top of pan. Then put on more fire and bake for about five minutes. Use "pipe" cake pan.

Perfect Icing

1 egg white, 1½ cups sugar, 3 tablespoons water. Place in the double boiler, having the water boiling in the under pan. Beat with a Dover beater for five minutes. Spread on cake. (Cake should be cool.)

TO CLEAN NEGLECTED STOVE

Where the cook stove has been badly neglected a solution of any good washing powder in boiling water, applied with a scrubbing brush, will remedy the greasiness. After the scrubbing rinse thoroughly with clear water and wipe dry. The tarnished nickel may be improved by a brisk rubbing with steel wool. This is obtained from a paint or hardware shop. If this does not clean and polish, the nickel will need to be taken off and renickled at a foundry.

RAISIN BUNS

One quart flour, one half cup sugar, one-half teaspoon salt. Sift all together. In the meantime scald one cup milk and add a good sized teaspoon of butter. When lukewarm add one-half yeast cake and mix to a soft dough. More flour may be added to the dry mixture after sifting. Put these to rise about 9:30 or 10 a. m., and at 4 they will be ready to form into rolls. Put into pans a little bit apart. Let rise until light and bake in hot oven for about 15 minutes.

Any woman so capable and clever as to make her own and her children's clothes deserves better than an out-of-date, hard running sewing machine to work with.

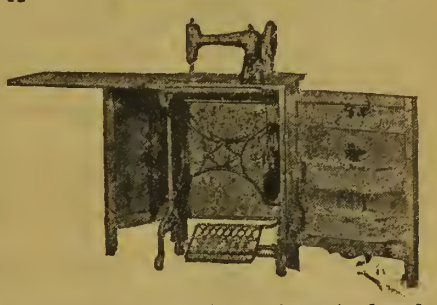
No matter how pleasing the patterns selected, or how beautiful the materials, it is Drudgery, and nothing else, to sew on an old awkward machine incapable of fine adjustments or good sewing. Such a machine takes the economy as well as the pleasure out of home-sewing. Besides it is a menace to good health and good dispositions.

It is easily possible to get the full present worth of your old machine and forever rid yourself of its many shortcomings. Trade in your old machine on

THE
"FREE"
SEWING MACHINE
Guaranteed For Life

and begin enjoying and profiting by the uses of this machine called rightfully, for its many perfections, "The Sewing machine of Today."

Two Illustrations of the "FREE"



In the illustration above, the unique and satisfying features of the "FREE" cabinet are shown, with the case open and extended. On the left is the same machine closed when not in use. In the "FREE" all the old, time-worn defects of imperfect sewing machines have been eliminated.

The "FREE" has these proven advantages:

It sews faster; it runs lighter;

It lasts longer because it has less vibration;

It makes an absolutely perfect stitch;

It is easier to operate; and lastly,

It is a beautiful piece of furniture.

Barker Bros. will accept your old machine in part payment on a "FREE" and will allow convenient payment terms on the balance.

If you want to know how to get full present value for your old machine, applied on the purchase of a "FREE"—and at the same time enjoy Barker Bros. convenient payment terms on the balance, write us fully, describing the make, condition and age of your old machine, and we will tell you how you may easily and quickly begin to enjoy sewing on a "FREE".

Barker Bros
ESTABLISHED 1880

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Every possible safeguard is taken to insure the uniformity of Sperry Poultry Feeds. Not only do our chemists make daily laboratory tests, but practical tests are going on all the time at our Experimental Farm.

— so that you'll KNOW what you're feeding

LONG before the present feed law became effective, the manufacturers of SURELAY recognized the right of every feeder to know *what* he was feeding his flock. That's why the exact analysis was printed on the back of every sack.

There is no secret about SURELAY—or what it will do. It is based on a practical formula that has made this top-grade feed a prime favorite among successful poultrymen. It contains at least a dozen ingredients balanced and blended more skillfully than can possibly be done by hand. Our daily laboratory tests (an advantage that the hand-mixer cannot have) assure *absolute uniformity* day in and day out.

In this way *we* know just what goes into SURELAY—and *you* know just what you're feeding. No guess-work about it! You know that every pound, every sack, you buy contains the *exact* ingredients your hens need to bring about the greatest egg-production in the most natural way.

Our booklet, "Makes Hens Happy," is a helpful handbook you ought to have. Full of many profit-hints and poultry pointers —and its free! Simply fill in the coupon and mail today!

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — May 8, 1920 — No. 19

Where Part of the Cars Were Parked

The twelfth annual picnic, held at the university farm, Davis, April 24, drew one of the largest crowds in the history of the event. Picnic day is an annual event, held each spring, by the student body of the college of agriculture, and serves to bring the public in close relation to the institution.—Photo by McCurry.

University Farm Picnic. Parade and Part of the Crowd

The only horses noticed at the last picnic held at the university farm were in the parade. Maybe a few visitors arrived on the trains, but most came in their cars, a few by aeroplane.—Photo by McCurry.

PATRIOT

Motor Trucks

This is one of the tests of the Washington Model Patriot Truck, capacity 5000 to 7500 pounds.

Circling through a freshly plowed field, with a load of 7000 pounds besides the body, every wheel cutting its own track. Try this with any other truck you know.

More power in trucks is the vital need of the farmer, and this is what the Patriot provides.

PATRIOT MOTORS CO., Manufacturers
1339 P Street, Lincoln, Neb.

Revere Model	Lincoln Model	Washington Model
1500 to 2500 lbs. Capacity	3000 to 5000 lbs. Capacity	5000 to 7500 lbs. Capacity

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Built for Farm Loads and Country Roads

California Cultivator

Vol. LIV, No. 19 | Los Angeles, May 8, 1920 | One Dollar Yearly

The Writing on the Wall for Cattlemen

By A. L. Spellmeyer

THE Year Book of the department of agriculture, 1918 issue, on page 290 gives us the information that in the year 1900 there were 89 cattle, all kinds, to the 100 of human population, and on January 1, 1919, 64. Since then more people and less cattle.

The same source gives an approximate slaughter record under government inspection of cattle, January 1, 1918, to January 1, 1919, 10,938,287, and of calves, 3,323,077, or a total number of over 14,000,000 cattle. Exports approximated in beef weight the equivalent of about 1,000,000 cattle. It is very probable that some 4,000,000 additional cattle were killed throughout the U. S. A. on farms, ranches and in local abbattoirs, not under government inspection.

Statistics are at times misleading, but their general trend will show fact, and the disparity of margin is so great that there is little doubt that a national cattle shortage is imminent in this country. It can be safely assumed that the men who decry such a conclusion are either ill informed or lined up with a packer propaganda, as the writing on the wall is plain to read and unless more cattle are raised or less killed, the shortage will bust the low price lid upon which the packers are heavily sitting at the present time.

The world is short of food, Europe is consuming the Argentine surplus and Australia has been drouth stricken. Production in this country has been badly injured through drouth and lack of profit and the price forays upon a manipulated beef market, and if there is any doubt concerning the general veracity of the government's cattle estimates it is probably because the number at present is overestimated, but there is no doubt of the actual record of animals killed and inspected.

The new report, December, 1919, of the federal trade commission, Part VI, gives pertinent facts regarding the growing cost of cattle, gathered by observation from many ranches and districts, and it is not your opinion nor mine, but cold, impartial fact. A calf crop of 57 weanlings from 100 cows is a good one for an average in this U. S. A., and one ranch which did make an 80.9 per cent calf crop from 100 cows had a calf cost at weaning time of $48.41 per head.

Now you have the official cattle numbers in this country, which approximated 45,000,000 beef type cattle and 24,000,000 dairy cattle, you have a probable slaughter number of 18,000,000, and the fact that the average calf crop raised to weanlings is under 60 per cent of cows run. And you have the additional fact that from 1907 to 1917, or for ten years, the average number of cattle slaughtered under government inspection approximated 9,000,000 cattle and calves, and in that ten years beef cattle numbers decreased from 51,000,000 to 41,000,000. The reported increases of a few million beef cattle in 1918 and 1919 are without doubt due entirely to closer taxation, and do not exist, although the dairy cattle have increased. But we finish in 1919 with some 4,000,000 less cattle of all kinds than we had in 1907, and it was in 1907 and 1908 that cattle started to advance due to known shortage.

For the last few years we are exactly in the position of a man living on his principal instead of his interest. An accounting cannot be long deferred, and there is no question but that facts and truth are known and realized by an overshadowing meat oligarchy, still in active operation, and that prices are being manipulated and held down.

It is probable in the cry for lower living costs such a course is being mistakenly fostered and encouraged by authorities who fear that higher prices to producers will mean higher prices to consumers.

Let us be conservative, not forgetting that in the ten years from 1907 to 1917 we ran behind in our total cattle numbers 4,000,000 head, with an average killing of some 9,000,000 government inspected.

Let us figure a total slaughter of this 9,000,000 and 3,000,000 outside of inspection, and see how much of a herd we must have (and figure 80 per cent calf crops) to maintain numbers and kill 12 head yearly: 12 twos steers, 12 yearling steers, 12 yearling heifers, 24 calves, 30 cows and twos heifers, 2 bulls. A herd of 92 cattle—and we have forgotten all about such things as loss, number maintenance, etc., or nationally figured 92,000,000 cattle to stand killing of 12,000,000.

If this is the case and you have followed such a dry subject as figuring this far, the natural inquiry is how cattle stood the average of 9,000,000 killed under government inspection and several million killed without it for ten years with only a decline of 4,000,000 total and with only a decline for that ten years in beef cattle from 51,000,000 to 41,000,000, to 1917 inclusive.

The answer accords with many of the objections of the men who think cattle supply adequate and even that a surplus exists, viz., that the government numbers were wrong and that, figuring in small units, a herd of 72 cattle did permit an annual slaughter of an approximate 12 cattle and only decreased 68 head, counting beef and dairy grades together, in ten years. If the government figures were wrong in 1907, why are they not wrong in 1919 or 1920?

But this we must not forget, that owing to war needs and taxation, great care was taken in recent food surveys; every assessor figured numbers of livestock closely, and people who previously were tax dodgers turned in their actual numbers. The efficiency of close estimation, of income tax, and of all war collections caused apparent increases in cattle which in actual fact were misleading.

Any way it is figured the fact stands forth that if this nation could not maintain its cattle numbers with 72,000,000 supply in ten years with a slaughter of only 9,000,000 to 12,000,000, it certainly cannot do it with less than 70,000,000 and over 14,000,000 slaughter under government inspection alone. 1920 figures show total cattle decrease of 500,000 head.

It won't be many years when the lid will come off of this cattle problem, and the country has no time to waste if it figures cattle as necessary for food, clothing or soil maintenance. Shortage is being catered to by continued price forays, and it is indeed a serious condition and indicates the attitude of food controlling forces when cattle producers cannot even make a living profit and meat is at the highest point in our history for the consumer.

What is the Citrus Experiment Station Worth?

By Fred M. Reed

THE writer is a near neighbor of the citrus experiment station at Riverside and also a rank and file member of the class of people generally known as "practical farmers." The term "practical farmer" seems to apply to people who have been engaged in farming for indefinite periods of time and who have made good at least to the extent that after spending most of their lifetime in the business they have not failed entirely and have some property to show for their work. Conversation among this class of men frequently leads up to the subject of the local station, and it is an interesting study to note the remarks and criticisms made by them about the station, its staff and its work.

Some farmers are seemingly hostile by force of habit and have never even looked for any benefit from the work of the station. Another great class of farmers has no knowledge whatever of the station nor of its staff, much less any idea of the problems that it is investigating. It is a safe guess that of all the citrus growers of Southern California 50 per cent belong to this class. Then there is, of course, a considerable percentage who have enough interest in the institution to visit it, to apply to its officials for information and help and to keep track of the results of its investigations as given out from time to time.

The objections of the hostile critics among the farmers seem to fall along the following general lines: They say the station is manned by "school men" of little or no practical experience as farmers and that their training and habits of work are such that they could not make a living in the citrus business if left to their own resources. They say the station groves are not a commercial success and do not produce sufficiently to make them a paying proposition on the best plots they have. They say the business management of the station is extravagant and that if a "practical" farmer were to run his property on such lines he would soon come to the end of his string. They say, also, that the statements of the staff both in printed publications and at public meetings, such as institutes, are vague, inconclusive and indefinite: They say several other things, but these are a fair sample of what some so-called practical farmers say about the station. When the writer has heard ten who were getting these criticisms out of their systems he has possibly heard one who recognized or spoke in praise of the demonstration of the effect of continued use of nitrate of soda, the demonstration of the necessity of available nitrogen in fertilizer, of the investigation of the best plants for cover crop purposes, of the demonstration of a practical treatment for "scaly bark gum disease," of the continual control and research in the work of fighting scale and other insects. Few of these volunteer critics speak of the value of having a staff of trained men within reach when new troubles show up in the citrus business. The cost and expense of the upkeep of the station is often dwelt upon as being out of all proportion to the results, but we have never heard anyone remark that the little kingdom of Denmark maintains some 28 agricultural experiment stations and schools. One seldom hears about the untold millions that have been spent and mostly lost by the successive waves of settlers in California who had no one to ask for advice except the real estate agents and the neighbors, as to what, how, when and where to plant. How many experiment stations could be equipped with the money that has been unnecessarily spent for potash in commercial fertilizers? In the future how much more productive will the average citrus grove of the state be in view of the demonstration by Dr. Webber in regard to the selection of seedling nursery stock? While it may be true that the aforesaid criticisms of the station will not do any great harm in the long run, it is equally true that great good would follow if a larger proportion of citrus growers could be put in closer touch with the work and results of the experiments at the station.

Agricultural News Notes of the Pacific Coast

Northern California

Chico will hold truck and tractor demonstration May 22.

Hop prices are hopping, some growers holding for as high as $1.25.

The university farm is planning for a tractor short course to begin June 1.

Santa Rosa honored Luther Burbank by May Day celebration and pageant.

Eldorado County farm bureau will erect fruit dryer of six tons capacity.

Mendocino County farm bureau members are discussing long and short pruning.

Sacramento canneries will turn out at least $15,000,000 worth of canned goods this year.

Florin, Sacramento County, will ship over a half million dollars worth of strawberries.

Santa Rosa hop growers have refused 80 cents per pound for the coming season's hops.

Great extension of berry fields will be made by berry planters of Paradise, Butte County.

Stockmen's Protective Association held a meeting at Livermore, Alameda County, last Saturday.

R. P. McCune of Paradise, Butte County, is to be the new president of the county farm bureau.

Serious injury was visited upon many almond orchards of Butte County by heavy winds last week.

A meeting of irrigation district representatives is to be held in Oroville, Butte County, Saturday of this week.

Mendocino County's precipitation for the season was about 17 inches, over four inches of this coming in April.

Over 207,000 trees have been added to Sacramento County orchards this year, Horticultural Commissioner Brosius announces.

The department of the interior has ruled against cutting the rim of Lake Tahoe and taking the waters for irrigation in Nevada.

Sheepmen of the Sacramento Valley are reporting extreme shortage of feed. Some growers have been compelled to sell their stock.

Irrigators are again asked to return to night and Sunday pumping so far as possible to conserve the current for industrial uses.

The movement for a new irrigation district in Alameda County, especially including lands near Livermore, is gaining supporters.

Governor Stephens is calling for purchase of a liberal number of the state highway bonds which are not selling because of Coast money market.

Tehama County farm bureau centers: Antelope, May 11; Dairyville, 12; Oak Park, 14; Richfield, 17; Bend, 21; Los Molinos, 24; Proberta, 26; Mantone, 28; directors' meeting, Red Bluff, 22.

The first California cherries shipped East this year sold in Chicago at $10 a pound, according to word just received by F. B. McKevitt of Sacramento, who shipped the fruit from his orchard in Vacaville.

Horticultural Commissioner Sherrard of Tuolumne County is able to prove to the farmers in the most emphatic way the value of squirrel eradication by the showing of crops in squirrel free sections compared to those ravaged by the pest.

Central California

San Jose reports apricots hard hit by frost.

Terra Bella, Tulare County, is organizing farm bureau center.

Fresno held a commercial car show last week and early this week.

Oakdale, Stanislaus County, farmers are building a cooperative garage.

Stanislaus County farm bureau is encouraging cooperative cold storage plant.

Porterville, Tulare County, held historical pageant, picnic, and made a holiday on May 1.

Canneries are hard hit by the sugar prices but report normal pack will be put up this season.

Tulare County reports the first cutting of alfalfa already stacked, of fine quality and a heavy crop.

The rate on irrigation water this season in the Tulare district has been fixed at $1.50 per acre irrigation.

Weed Patch, Kern County, farm bureau center has committee working on problem of cold storage plant.

The boys club of Kern County will hold sale Saturday, May 15. There will be 60 head pure bred hogs offered.

Los Altos, Santa Clara County, reports narrow escape from injury from light frosts in tomato and fruit growing sections.

Engineers have reported unfavorably on the proposed formation of five Miller & Lux and Mordecai irrigation districts.

The San Joaquin Counties Association is planning improvement of its exhibit in the state exposition building in Los Angeles.

Stanislaus County grain crop, especially wheat, is proving larger and of better quality than appeared possible early in the season.

San Joaquin County farm bureau cow testing association reports liberal proportion of cows running from 1 to 1.7 pounds fat per day.

Tulare County dairymen are building silos as never before. Barley is being used as ensilage. This will be fed out and corn silage filled later.

Warehousemen have applied to railroad commission for permission to increase charges, maintaining that labor and other expense compels it.

Los Banos, Merced County, as well as other West Side sections, reports serious loss of moisture from drying north winds. The hopes of many a grain farmer have been destroyed.

Apple shippers of Pajaro Valley, Santa Cruz County, are offended because of articles in Eastern papers which make what is charged "false and malicious attack on a California industry."

Santa Cruz County sealer of weights and measures has ruled: "When green peas are sold or offered for sale in sacks, such sacks shall contain not less than 68 pounds; that is, when such sack of peas is mentioned as indicating quantity sold."

Tulare County dairymen received over $230,000 for milk delivered at creameries for month ending April 15. The following prices obtained: L. A. Creamery, sour cream 70½, sweet 72½; Good Luck, sour 69, sweet 74; Dairymen's Cooperative, average 71.

Southern California

Ventura County has a county chamber of commerce.

Walnut growers are dusting orchards for the aphis.

The asparagus shipping season of the Imperial Valley closed with April.

Cucamonga, San Bernardino County, will have dehydrating plant for wine grapes.

Orange County's planting of beans will be 8,000 acres short of that of last year.

The minimum wage of women working in canneries in California will be $16 per week.

Imperial County farm bureau observed May Day with a farm home department picnic.

Fillmore, Ventura County, celebrated May Day with picnic and exhibition of products.

Arlington, Riverside County, Poultry Association is discussing brooders and brooding methods.

Mark Rose has been chosen by Holtville irrigators as irrigation director on the Imperial irrigation board.

Perris Valley, Riverside County, is planning to secure water from Warner's Ranch to cover at least 40,000 acres.

Lake Elsinore has been purchased by interests which will erect hotels and make of the section a greater health resort.

A Cotton Growers Association has been formed in the Imperial Valley. It will have to do with labor, marketing, or any problem of its members.

The melon shipping season of the Imperial is beginning, and during the next 60 days 14,000 cars of cantaloupes are expected to go out of the valley.

Several cotton growers of the Salt River Valley of Arizona have purchased a large tract in Blythe, Riverside County, and will grow long staple cotton.

The El Cajon, San Diego County, farm bureau center recently demonstrated the work of gopher eradication and held afternoon and evening social sessions.

"More refrigerator cars" is the cry from Imperial Valley. Cantaloupes are all ready for shipping and the loss will be very great unless a far greater number of cars is secured.

Imperial Valley cotton growers are petitioning the gins to finance aud render such aid to cotton growers as will enable them to handle the coming labor shortage economically.

Imperial Valley now has a cotton expert who is employed by the Goodyear Rubber Company, but will give much of his time to giving information where desired in cotton culture.

The Arrowhead Springs Hotel purchased by the federal government for $700,000 will soon be ready to receive patients in returned ex-service men. Most of the patients will be those who have suffered from shell shock.

Secretary Brooks of the Poultry Producers of Southern California is making addresses before poultry associations, giving information as to egg markets and production of a thoroughly standardized egg. One week's shipment of eggs recently totalled 43,000 cases, or 11 cars.

The Coast and General

National Wheat Growers Association recently met at Kansas City.

Lane County, Oregon, is conducting a $2,000,000 road bond campaign.

Cattle and Horse Breeders Association will meet at Burns, Oregon, May 24 and 25.

A hop grower at Aurora, Oregon, recently sold his 1920 crop of hops to an English concern for 37 cents.

Sheep shearing has started in Nevada. Large herds of cattle and sheep are being sent to northern pastures.

A farm in Chandler recently sold for $1,000 an acre. This is believed to be the record price so far for farm lands in the Salt River Valley.

An association has been formed for the improvement of the Apache Trail from the base of the mountains east of Mesa to the Roosevelt Dam.

Sheep shearing in the desert sections of Southern Arizona is practically over. The wool this year is said to be of exceptionally good quality.

Frank W. Hanna of the United States reclamation service is prominently mentioned as successor of W. R. Elliott, the present Salt River Project manager.

Some cotton has recently been sold at $1.35 a pound. This is the top price so far received by the grower for American Egyptian cotton in the United States.

Mesilla Valley Cotton Growers Association with headquarters at Las Cruces, New Mexico, will establish four gins; at Las Cruces, La Mesa, Anthony and Ft. Filmore.

Nearly 4,000 acres of land in Graham County in the Gila Valley will be planted to cotton this year. This is by far the largest acreage of cotton ever planted in this section.

Idaho and Utah beet sugar growers have a sliding contract with factories which provides $12 per ton minimum and $1.50 per ton increase for every cent increase in the price of sugar above eight cents a pound at seaboard during the year.

Mormon Lake in Northern Arizona is increasing in size. Thirty years ago there was practically no water there; now the lake covers ten sections of land. The lake is said to have raised six feet since last summer.

A plan is being proposed by W. S. Norveil, state water commissioner, for increasing the acreage of walnut trees in Arizona. Considerable work is being done under his supervision in grafting the Franquette variety of walnut on the native black walnut tree.

The exhibits and farm products which have been displayed at the Phoenix chamber of commerce, a part of which were shown at the International Soils Products Exposition at Kansas City last fall, have been divided among the other commercial organizations of Maricopa County.

The Arizona commission of agriculture and horticulture has recently adopted more stringent precautions regarding the introduction into the state of cotton lint, linters waste, seed or any product or commodity which has been used in connection with cotton or is a product of cotton, in order to prevent the introduction of the cotton boll weevil or the pink bollworm of cotton.

Grape Mildew and Its Control in California

By F. Flossfeder

CALIFORNIA is very fortunate in its freedom from most of the serious fungous vine diseases which do so much harm and cause so much expense and uncertainty of grape growing in Europe and other parts of the world. However, there is one fungus, the powdery mildew (Oidium Tuckeri-Uncinula spiralis), which when not controlled at the right time and in the proper way will very often cause serious damage in our vineyards.

This fungus, which belongs to the group or family of Erysipheae, is a native of America, from where it was introduced into Europe and noted for the first time in 1845 in a grape house in Margate, England. Two years later this fungus had spread to France and Belgium, and at the present time it is found all over the world where grapes are grown.

In California the oidium has never produced such widespread and serious injury as it does in France and other European countries. This is due to the dryness and heat during summer of the atmosphere of our grape growing districts. The dryness of our climate is undoubtedly the cause of our immunity to Peronospora, which can only germinate its spores in water. We very often find that in certain seasons the attacks by the disease (oidium) are more intense than in others and that a great deal more damage is done to the leaves, shoots and fruits than we suspect. Indeed, in certain districts where the moisture condition and heat are right for the development of the fungus, not seldom the whole crop may be lost. For this reason we should look out for this trouble as early as possible and eradicate it by use of sulphur.

As before said, this fungus infests all herbaceous portions of the grapevine. It goes through the winter in the "perithecia" form, containing a certain number of small sacks called "asci," and these latter contain the spores. The perithecia can be found on the canes of any grapevines badly infested with mildew during the winter, and also in the soil. The perithecia, or winter spore, is very resistant and as experiments have shown, excessive moisture and low temperature will do it no harm whatever. As soon as the temperature rises and the moisture conditions are favorable, the winter spores break open, emitting the spores, which are small single celled bodies filled with protoplasm. These spores when deposited on herbaceous portions of the vine will form a tube which will soon branch and we get what is called the mycelium, which consists of a very large number of branching threads running in every direction and having a grayish appearance. The mycelium is attached to the leaves or any other green portion of the vine by its haustoria, which penetrate the outer cells and by which the fungus obtains its nourishment from the host plant. The dark fernlike markings which are very often noticeable on the canes of the dormant vines in the winter time were caused by the mycelium when the shoots were young. As soon as the shoots of the vine are attacked they turn grayish white in color. The tip is turned downward. The leaves are attacked from the lower and upper surface and turned inward. Everything will look grayish white, and if we place a portion of the leaf under a microscope, we will find that this coloring is caused by the large number of branching threads, by hyphae and summer spores. The berries are attacked when green. The result is that the outer layers of the skin are destroyed by the haustoria. Finally the berry breaks open and will either dry out or rot, and the latter will infect the neighboring berries, and the result will be that the whole bunch of grapes will be destroyed.

Very often we have the mildew in our vineyard, but do not notice it until it is too late, and for this reason we should keep our eyes on the vines, examining them very often and carefully, not by looking at the vine from a distance but by going right into the center, and if there is any mildew present we certainly will find it there. Grapevines growing in the shade of trees or buildings are more easily infested than others standing in the open field, due to the fact that the conditions here are more favorable for the growth and development of the fungus.

It must be borne in mind that there is a considerable difference in susceptibility in the various species and varieties of grapes. All American vines such as the Labrusca, Riparia, Rupestris, etc., are much less severely attacked than the varieties of the European species, Vitis vinifera, L. Among the latter there exist, however, various degrees of susceptibility. The Carignane, Flame Tokay, Valdepenas, Muscat of Alexandria, Cabernet, etc., are very susceptible to the disease. For this reason, if we have two or more varieties of grapes growing, it is of the utmost importance to examine all the varieties thoroughly.

The only remedy we have in the control of this fungus is sulphur, which acts by means of the fumes it gives off when the temperature is sufficiently high. The sulphur fumes destroy the mycelium and the summer spores, and when present in sufficient abundance will destroy every vestige of the fungus in the vineyard except the perithecia or winter spores. The sulphur fumes are given off in effective quantities when the temperature of the air reaches about 75 degrees Fahrenheit. Above this point they are given off more actively the higher the temperature. The lower the temperature the more slowly the fungus is affected. If the highest shade temperature of the day is between 75 and 80 degrees Fahrenheit, it will require from seven to eight days to destroy all the mycelium. When the temperature rises to 90 degrees Fahrenheit the fungus commences to show signs of injury in 24 hours and in four or five days is destroyed. If the thermometer rises to above 100 degrees Fahrenheit in the hottest part of the day, one or two days are sufficient to completely rid the vineyard of the disease.

In order to obtain these perfect results, however, the sulphur should be applied to every part of the vine. The nearer a spore or a piece of mycelium is to a particle of sulphur, the quicker it is killed. There should be no square inch of leaf surface without sulphur, for except in the very hottest weather the sulphur on one leaf will be of no good to the neighboring leaf. We should take good care not to forget to sulphur the center of the grapevine, for it is here where the mildew is very frequent. The sulphur is best applied in the morning when the leaves are more or less moist with dew. It is much less effective when the leaves are wet, as the drops of water have a tendency to gather the sulphur into patches, which will leave parts of the leaf untreated. Grapevines should not be sulphured in very windy weather, as most of the sulphur will be driven away by the wind and fall on the ground, where it will be wasted.

The proper time for sulphuring will depend on the number of sulphurings needed, and this number will differ according to locality, weather, variety and the exposure of the vineyard, and will vary from one to three in the interior valleys, and from two to five in the coast counties, or even as high as six or seven with very susceptible varieties in bad seasons. The first sulphuring should be given when the young shoots are about eight to 12 inches long, and the second when the vines are in bloom.

It is true that we do not need to sulphur our vines when there is no mildew present, but it is just as true that a good many grape growers neglect to sulphur their vines because they are under the impression that as there was no mildew last year there will be none this year. This, however, is a great mistake. In order to be on the safe side we should go through the vineyard once or twice every week and make a thorough examination of our grapevines in every portion of the vineyard, bearing in mind that one variety is more susceptible than another and that those vines which grow in the shade of trees or buildings or along irrigation ditches should be given double attention.

The methods used in California for sulphuring vines are the following: Throwing the sulphur on the vines by hand; distributing by perforated cans of various forms; shaking through the tissue of a cloth sack; various forms controlled by any of these methods of hand bellows; various forms of knapsack bellows, and power blowers driven by a small gasoline engine. Both blower and engine are mounted on a vineyard truck.

That the disease can be completely controlled by any of these methods cannot be denied. However, they differ greatly in amount of labor, sulphur and care necessary in applying. If it is only a question of a few vines which have to be sulphured, there is no reason why the first three means of application should not be used. However, if we have to sulphur extensive vineyards we would not be able to use the latter forms of applying because about 90 per cent of the sulphur used is wasted, falls to the ground, where it will be of no benefit to the grapevine. The hand bellows is a fairly good method, but it is slow and very tiring to the arms of the man using it. The best of all are the knapsack bellows, also known under the name of dust sprayers, sulphuring machines, etc. These machines are made in America and Europe, and there are several good machines on the market. With these it is possible to cover the whole grapevine with a cloud of sulphur dust and do the work in a very fast and efficient way. Power blowers are more or less wasteful with the sulphur, but owing to the high wages which are paid to all kinds of help at the present time, it may be a paying proposition in large vineyards to use a power outfit which will do the work very rapidly, and the price of the sulphur wasted is very small compared to the increase in wages paid to the men doing the work with knapsack machines.

It is by no means a matter of indifference what kind of sulphur we use. There are a good many different brands of it on the market, some of them good, others bad and useless for this kind of work. If we wish to get the maximum amount of efficiency we should use nothing but the very finest sulphur which we can buy for the sulphuring of grapevines, and this will be the sublimed sulphur. It is true that this is the most expensive, but experiments have shown that it is the cheapest in the long run. It is not of so great importance how much sulphur we put on the grapevines as it is to have the powder as evenly distributed as possible all over the vine, and this can be done with the finest sulphur only. Sulphur fumes, atomic sulphur, bluestone solutions of various strengths applied during the winter, and other so-called patent sprays have been recomemnded for the control of grape mildew, but experiments carried out by this station have shown that finely ground or sublimed sulphur have given the best results.

Cantaloupes in Imperial Valley

By F. W. Waite

IMPERIAL County raises more cantaloupes than any state in the Union, and we are now on the eve of handling the largest crop in the history of the county.

Going back into history for a few minutes, we find that water was first turned into the Colorado Desert, now Imperial Valley, in 1901, and in 1905 there were 297 carloads of cantaloupes shipped, 577 in 1906, 644 in 1907, 1,891 in 1908. It might be of interest to mention that the crop for this year was very disastrous to the growers; many of them were in debt to the shipper after a year's hard work. Note the comparison: 1,891 cars for the year 1908, making a total loss, while in the years 1916-17-18 and 19 they averaged a profit around $300 per acre, with a total shipment in 1919 of over 8,000 carloads, due to improved methods of marketing under federal management and standardization.

In 1909 there were 1,411 cars shipped, in 1910 1,621 cars, 2,580 cars in 1911, 2,887 cars in 1912, 3,502 cars in 1913, 4,451 cars in 1914, 4,721 cars in 1915, requiring 8,500 planted acres to produce this number of carloads.

In 1916 there were 8,600 acres planted from which 4,617 carloads were shipped, the first car expressed on May 16. In 1917 there were 12,776 acres planted and 5,080 cars were shipped. From 10,942 acres planted in 1918 4,405 cars were marketed, 8,802 from 14,088 in 1919 and this year,

(Continued on Page 780.)

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Does the young California farmer spend the day before the picnic washing up and polishing his neat little piano box buggy, braiding the roadster's mane and tail and trying a blue ribbon on the buggy whip? He does not.

Note the upper of the two illustrations on the cover page of this issue. That's a California picnic scene in 1920. There wasn't a piano box buggy entered the grounds that day, but there were gas wagons until they couldn't be counted—literally thousands of them.

These are swifter than were the days of 1880 or even '90 or 1900. We are living faster; we are seeing more; we are accomplishing. To gas is due a portion of the credit, more to American genius and American push.

SULPHUR THE GRAPES

We do not know how much it costs, but the high cost of living has nothing on the high cost of mildew in California vineyards. Prof. Flossfeder writes about it in this issue and shows how exceedingly simple is the method of control. According to the methods suggested by Prof. Flossfeder's article, we may use a small gasoline engine with power blower or knapsack bellows or a pepper box or a cloth sack or, in the absence of all the improved methods, scatter the sulphur by hand, but in any case, use the sulphur.

WRITING ON THE WALL

Near the end of Mr. Spellmeyer's article he says: "It won't be many years when the lid will come off of this cattle problem, and the country has no time to waste if it figures cattle as necessary for food, clothing or soil maintenance."

The worst of it is that Mr. Spellmeyer isn't "seeing things"; neither is he naturally pessimistic. His article contains a world of information regarding the cattle situation. Cattlemen haven't had a fair deal and they know it. Worse, they know they are losing money, and the result will be to the cattle business the same as it would be to any other business—a continuous money loser is going to quit the game. He can't always continue to live on his principal.

INCREASING PRODUCTION

The British ministry of agriculture is endeavoring to secure a great increase in food production. It has appointed agricultural organizers, horticultural superintendents and other educators to go into the field and in a way carry out America's farm bureau county agent idea with the producers of England. At present there are being held farm institutes offering winter courses to boys and summer courses to women. There are 14 agricultural colleges in England, every one of which is turning away students who wish to register. British food imports amounted last year to over $3,000,000,000. It is hoped to reduce this great importation by at least $1,000,000,000 by this campaign of greater food production.

CANTALOUPES

If anyone is inclined to ask as to whether California produces cantaloupes it will be of interest to note Mr. Waite's article on page 769. Mr. Waite does not touch upon all of California; in fact, he is covering only his own county way down next to the Mexican line. This season Imperial County has planted 21,920 acres from which there will be shipped some 11,000 cars, and that all within the next 60 days. That is, there will be shipped that number of cars, providing they can be had. The growers are now wondering as to whether car shortage may not compel them to leave 5,000 or 6,000 carloads of magnificent fruit to rot on the vines. Besides the Imperial, other melon centers are the Coachella Valley of Riverside County, several small valleys near Los Angeles, and then for later melons, the great fields of Stanislaus and adjoining counties.

QUARANTINE BOARD

The Western Plant Quarantine Board, which held its first meeting, and in fact organized, at the time of the state fruit growers convention at Riverside, will hold its second meeting at Salt Lake City next week, Tuesday, Wednesday and Thursday. This organization is made up of quarantine officials of the Pacific Coast. It was brought into existence more for the purpose of harmonizing the activities of quarantine officials than to have any direct influence on legislation.

The work of quarantine officials is looked upon more favorably than some years ago. Naturally they come in contact with producers who at times have felt that quarantine officials have been antagonistic to their best interests, but a more complete understanding of quarantine and of its power to keep out of the country pests which cost the producers millions has given more correct idea of the value of their work.

ORCHARD FRUITS

The bureau of crop estimates reports serious injury to fruit trees in many portions of the eastern United States. Arkansas: "Apples in central section injured by freeze." Connecticut. "Prospects fair for good apple crop; thousands of trees girdled by mice." Florida: "Heavy crop of citrus." Georgia: "Pear crop damaged by cold and blight; first crop of figs damaged by cold." Idaho: "Outlook for apples favorable; wet, windy weather hinders spraying." Indiana: "Little damage reported; fruit trees in bloom." Maryland: "Freezing weather injured fruit buds." Missouri: "Peach trees in bloom." New Jersey: "Trees wintered well." New Mexico: "All fruits except a few apples and pears killed by blizzards." North Carolina: "Peaches damaged." Ohio: "Cherries, peaches, pears damaged by freezing weather.' Oregon: "Early fruits full bloom." Pennsylvania: "Little damage shown." Tennessee: "Peaches damaged 50 per cent by frost." Virginia: "Fine peach crop; apples in bloom."

STANDARDIZATION

Horticultural Commissioner Ryan of Los Angeles County is putting on the fruit stands boxes and crates of berries and small fruits as good bottom as top. He is not growing berries, but the Japanese are and have been in the habit of showing some remarkably fine surface layer fruit. Some of Mr. Ryan's inspectors have been inconsiderate enough to look below. Stiff fines have resulted, and one may now be almost reasonably sure of a good ripe, plump berry on the lower layer as well as the top. Here are two short paragraphs from an extended report of the situation:

"A case brought against a Japanese potato grower and a Chinese dealer on April 14 in Judge Frederickson's court for selling and offering for sale a deceptive pack of potatoes resulted in the assessment of a $25 fine against the dealer and $50 against the grower.

"In the early morning hours of April 13 a visit to the Ninth Street wholesale market (Los Angeles) for the purpose of securing evidence netted 11 berry growers who had prepared deceptive packs. One complaint was issued against a grower who sold potatoes in lug boxes prepared in such a way that the big ones hid the little ones. These cases were heard in Judge Frederickson's court. He fined each of the 12 defendants $35. after he had ascertained that they had been informed of treatment accorded violations the week preceding, with the remark that next week it would be $50."

CALIFORNIA RESOURCES

The California Development Board is publishing reports of its 29th and 30th years of existence and in addition giving a fund of information as to California resources and possibilities. The board could not wait for complete returns from the 1920 census, but estimates the state's population at 3,537,217. The estimates made by the board give the state a population increase in the past ten years of 47.79 per cent. The county having greatest percentage of increase in population is Imperial with 219.82. Counties showing an increase greater than 50 per cent are: Fresno, Kern, Kings, Lassen, Los Angeles, Merced, Orange, San Diego, San Joaquin, Stanislaus, Tulare.

Of greater interest, however, than the population increase is a series of tables having to do with commerce and production, especially that portion of the book having to do with farm products, and that is by far the greater portion of the book. For instance, alfalfa is the king of field crops in California. The 972,162 acres of alfalfa produces about 5,000,000 tons of hay. Alfalfa is grown in every county in the state, Tulare County leading with 102,300 acres, Imperial has 96,140, Merced 92,000, Kern 90,000, Fresno 68,480. Imperial County was formerly leader in alfalfa production, but cotton has crowded out much of the alfalfa.

The greatest increase is shown in California's fruit crops, but when we begin to talk of California fruit production a long story is before us, so only one instance is taken: "During 1919 California fruit growers produced fruit valued at $234,613,000, which is but $6,000,000 behind the valuation of field crops.

TO ESTABLISH OPEN MARKET FOR WHEAT

Plans for a national conference to discuss methods of reestablishing a free and open market for wheat, through the grain exchanges of the country, upon the approaching termination of the authority of the United States Grain Corporation on June 1, were outlined recently in a letter sent out by Julius H. Barnes, United States wheat director.

Representatives of wheat and flour trade organizations and newspapers are meeting this week in Chicago to confer with Mr. Barnes on suitable measures to be taken to "provide for and to permit establishment of a free and open market for the purchase, sale and handling of wheat and wheat products," upon the expiration of the wheat guarantee act.

"Problems of great national importance make such a meeting imperative in the public interest at the earliest possible moment," Mr. Barnes declares. One is the present level of wheat prices kept far above that of the United States guaranteed price by export buying of wheat only, which, in addition to being artificial and liable to stop at any moment, handicaps our own mills and results in underproduction of mill feed for our dairy industries. Another is the apparent reluctance of the exchanges to return to the prewar conditions of open trading and reestablish the hedging facilities which have been suspended during three years of government wheat control. This attitude of the exchanges is due largely to the extraordinary trade hazards resulting from world disorganization. Exchange hedging facilities, upon which wheat marketing depended for years prior to the war, must be restored by individual initiative before the underlying security provided by the grain corporation is withdrawn, otherwise the country faces the risk of wider margins between the producer price and the consumer price, and consequent hardship to the consumer. Foreign buying of wheat, largely concentrated in the hands of governments at the present time, is forced by bread subsidies abroad and by the inability of their war crippled private agencies to "carry at high values sufficient stock and sufficient flow for assurance of the bread requirements of their people. The decision of purchase and prices paid rests in a few officials and it is measurably true that these officials, with or without concerted action, can influence the price level for America."

Greater Tire Mileage—and the Goodyear Service Plan

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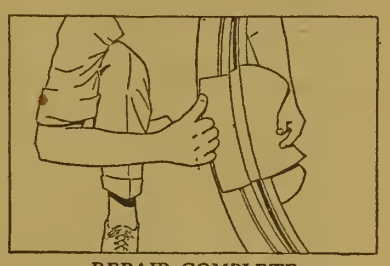
FABRIC BREAK

A fabric break may be repaired on the road by using the Rim-Cut Patch without cement. It should be vulcanized later. If the tire is too old to be worth vulcanizing, a satisfactory repair can be made by using the Rim-Cut Patch and CEMENTING IT IN with Goodyear C-35 Patching Cement. To do this follow these directions: First be sure that the fabric at the break is dry; then clean the inside of the tire at the break with gasoline; after it is dry apply two coats of C-35 Patching Cement, allowing each to dry. Give the outside of the patch the same treatment; insert the patch by seating the toe of the tire bead in the crease in the patch wing. Now work the patch down all the way across the tire, pressing it down firmly and smoothly, and then adjust the other wing of the patch around the other bead. For cord tires, the Goodyear Cord Patch is the ideal tire saver to use.

RIM-CUT PATCH BEING INSERTED



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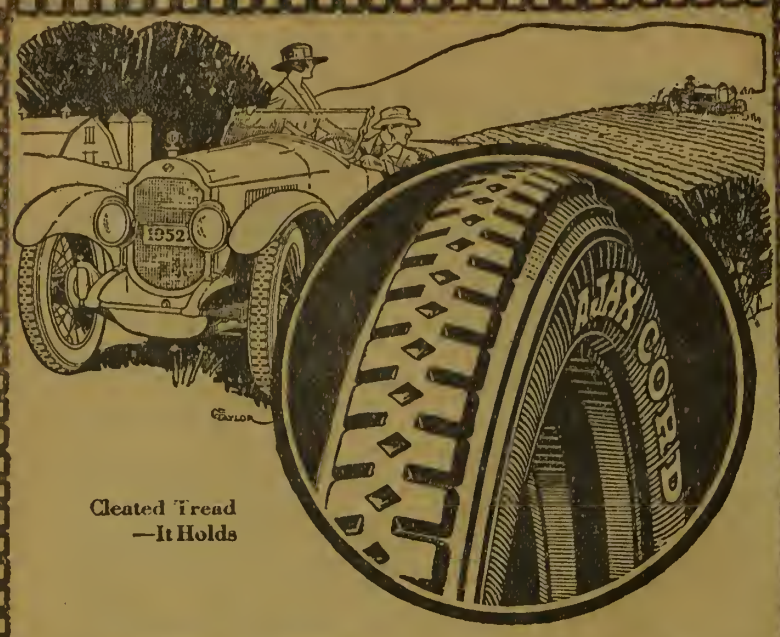

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Citrus Pruning Schools

By Ernest Braunton

IT must not he taken for granted that all citrus owners are citrus growers, even if they live in the orchard and do their own work. So many graduate from the office or salesroom that citrus culture is Greek to them. They sometimes own an orange or lemon grove almost before they are well able to tell these two varieties apart when no fruit is present.

To aid these inexperienced orchardists the several county farm bureaus have pruning schools which are conducted on each of several farms for a period of half an hour or thereabouts, but one or two young trees being pruned in each orchard. Usually all the owners of citrus trees in a neighborhood will gather and watch and listen to the instructor until he has visited the orchard of each. So that in a day, or even in a half day, they gain a considerable knowledge of the principles of the professional pruner.

Instructor and Class.

Such a school was attended hy the writer on April 23 in the Hansen Heights and Orange Cove districts, both branch valleys from the great San Fernando. Pruning was done on trees in the orchards of C. S. Berryman, A. Cheney, S. Fontaine, C. L. Kingsley, C. H. Landenherg and A. P. Smyth. Trees at each of these places had been selected that were close to the highway and much in need of judicious pruning, and the owners had been notified to have a lot of rapid fire ouestions on tap. The instructor was Vincent F. Blanchard, assistant farm adviser of Los Angeles county, some of whose instructions follow herewith:

It is important that pruning be begun early; the nurseryman who grew them should start aright, though he does not always do so. The gravest fault of the average nursery tree is that all the branches diverge from one point in height, on the trunk, forming what the botanist calls an umbel, or as the braces start from an umbrella handle. These young branches which are to form the head or framework of the tree should be three or four in number, not more, and diverge from the trunk at distances of six inches from each other. If the orchardist does not receive his trees so started he should train new growth in such way as to induce proper heading.

"As the twig is bent so the tree is inclined," must not be lost sight of. If the head was started right leave the young trees alone until needing shaping or thinning, or both. One little tree but three feet high was found that had ten branches where it should have had only three. But owing to the position of these seven could not well he cut away and leave a good framework, so four or five were left. Another reason for not cutting away all the surplus at once is the denudation of foliage. Leaves are the lungs of a tree and the plant food factory and every leaf you take away, if there be space for all, stultifies to a slight degree the natural functions and consequent manufacture of food. A heavy crop of leaves is necessary to the health of all plant life, unless it he parasitic.

Thin, Don't Head.

Thin the tops to allow sun and air to get in so that all foliage left may function properly, taking out undesirable wood. This may he suckerwood, crossing branches, or those so hanging over the center as to exclude light. Do not head back, that is, cut off at any point a young branch merely to shorten it, for chopping off a stub but induces more suckers at this point or an undesirable mistletoe-like mass of small and weakly twigs. When a shortening is made, cut the leader off just above a good lateral branch that then becomes a new leader. Don't forget the meaning of the word "leader" and lead in the right direction.

Do not head back in a young tree to make nature fill a gap in the frame more quickly; she will do it in time and in a better way. But begin early to train and do not delay until long shoots hearing fruit have to be cut out. This commonly occurs in lemon trees and Valencias. Weakly growths may also be thinned so they will develop and form their proper proportion of the top, and some of these must be left to huild on, even though small and weakly at first. Too dense growth in young heads will finally cause the death of nearly all leaves so nothing is left; therefore thin judiciously; but do not overprune.

The danger from sucker growth is that it fills the tree top with non-fruiting wood and takes the strength that should he diverted into the fruiting framework every good tree should have. Avoid strong, heavy upright growths in the center.

It has also been noted that trees of sucker growth suffer far more damage during heavy windstorms than trees of more sluggish growth. As the trees become old the short, lower branches may become wiry and nearly leafless, shaded out by the stronger secondary branches above. The former should he cut off except they bear fruit. Valencias are sometimes left until sucker wood comes into bearing and forms too much of the tree to be cut away with profit, hence the value of early and continuous training. In navels such wood does not bear well and should he taken out for the type of wood constantly changes and must be closely watched. The Valencia remains true to type in comparison. Ill shapen and poor types of lemon trees not possihle to reclaim through use of the shears or saw should he topworked (hudded) to gain a good framework.

Claremont Pomological Club

By V. V. Le Roy

The regular monthly meeting of the Claremont Pomological Club was held at the Chaffey high school, Ontario, on Saturday, April 34. Prof. Chas. J. Booth and wife were the hosts of the day.

The first speaker on the program was Prof. R. S. Vaile of the state citrus station at Riverside. From his large observation of practical ranchers and data from many scientific experiments he talked mostly about the water in our soils. Many tests in other states have lately shown that the dry dust which we have kept in our orchards to conserve moisture helps in this particular but little, if any. The real value of our cultivating is to keep the weeds out and keep the soil in condition for deep furrowing for irrigation.

Weeds rob the soil of great quantities of moisture. Summer cover crops should not be grown unless one has plenty of water and can give the trees frequent irrigations. Dry soil takes up moisture very little, while if furrows are down to the moist earth the water soaks in rapidly Take a dry sponge and put it in a bowl of water and it will stay dry for a long time. Wet it and wring all the water possihle out of it, and then put it in the bowl and all of the water will soon be in the sponge. Soil acts the same way. So keep soil always wet. Cultivating also keeps the fine fihrous roots down where the hot sun will not burn them.

The temperature three inches below the surface of the soil is five degrees hotter than it is in the sun. Practically no phosphoric acid or potash applied in the usual way in fertilizing gets to the feeding roots. Hence we do not know yet from crop results or the experiments carried on so long at Riverside whether these two elements are of much value or not, because they have not been applied down in the root area. In his observations he does not know that deep plowing or late plowing, where roots are cut off, is a factor in the June crop. He has

known of many orchards that have been plowed late in April that have set a full crop, just as full as a neighbor's who plowed early. He is inclined to believe that low moisture condition is much more accountable for excessive dropping.

About eighty took dinner with the hosts in the domestic science dining room. After lunch Dr. Hill, head of the high school, spoke a few words of welcome and commendation of the club and its work.

Elbert S. Lewis of Uplands, in the auditorium of the school, gave an illustrated talk on "Lemon Root." He showed that the bad conditioned and non-productive trees in lemon orchards are so because the buds of lemon above the union with the root stock have grown into the soil and, taking root, sapped the vitality of the trees, causing it to stop bearing. Much of this is caused by allowing the soil to get above the bud union. Hundreds of sick, unprofitable trees have been restored to vigor by removing the soil below the bud union and sawing off the lemon root.

E. L. Durham, C. E. Needham and G. G. Laidlaw all gave many instances where this has been done in the last two or three years under Mr. Lewis' direction.

Dr. H. J. Webber was the special speaker of the day, this being his last appearance before he leaves for South Carolina, where he has been engaged by the Pedigreed Seed Co. He spoke of his sorrow at leaving California. "Seven years seems to be the allotted period of my work in different states. I have been here now seven years. I was in Florida seven years, in New York seven years, and have been stationed at times in many other states. In all the other states they have special products, but California can grow them all or nearly all, as well as any of them, and many that most of them cannot produce." He spoke of many of the problems we have, such as alkali; the pests and diseases which have to be controlled. Just now the problem we should set ourselves to solve is the nematode menace, the little worm that is doing so much harm and for the effective control of which there is yet nothing known.

The next meeting will be with Wm. Pierson of La Nerne.

GROW WOOD

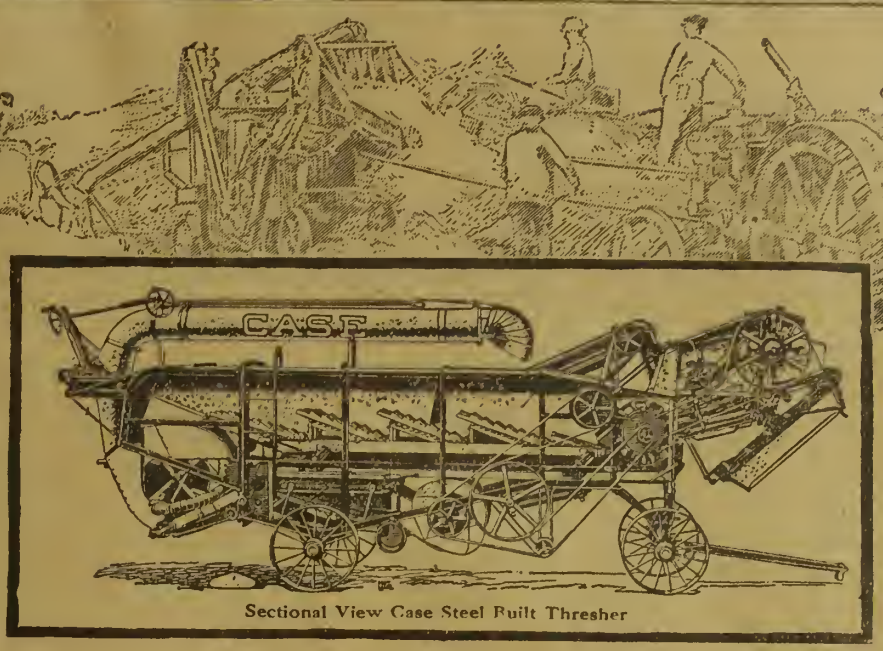
By Leonard Coates

Your remarks in issue of April 24, advising any who has the space, or a property line, to plant trees for wood, are extremely pertinent. It is this foresight, even in apparently small things, that means so much. Everyone is aware of the high cost of all commodities, and that of fuel is certainly not the least important. However much some may wish to think to the contrary, the cool fogs of the coast and the frosty nights of the interior turn one's thoughts and desires to an open fireplace.

As pointed out in another article in same issue, American farmers need to heed more carefully the methods practiced by many European peoples in providing wood for fuel. I have before alluded to the custom in France, Belgium and England, observed while on a tour of those countries, of systematic and intelligent decapitating, "pollarding," or sometimes merely thinning out branches, instead of ruthlessly chopping down a tree, leaving, in most cases the stumps to rot. Trees, properly cut, would produce an increasing supply of wood almost indefinitely. For this purpose they should be cut during the winter and spring, the branches sawn off smooth, close to trunk, or in a sloping form.

Naturally, the eucalyptus family lends itself most opportunely in California for wood, although if a deciduous tree is preferred the catalpa, locust, black walnut and others could be used.

Correlative to this important subject, it is also a fact that the same principle may be applied in the renovation or recuperation of fruit trees. Unless from disease, the roots of fruit trees do not die in man's ordinary lifetime and frequently would prove an inheritance to his children and children's children. It is abuse and neglect that cause the trees to weaken, and the grubbing hoe and dynamite finish the job. All quite needless. Prolong the healthy life of your fruit trees by more careful pruning, and if,



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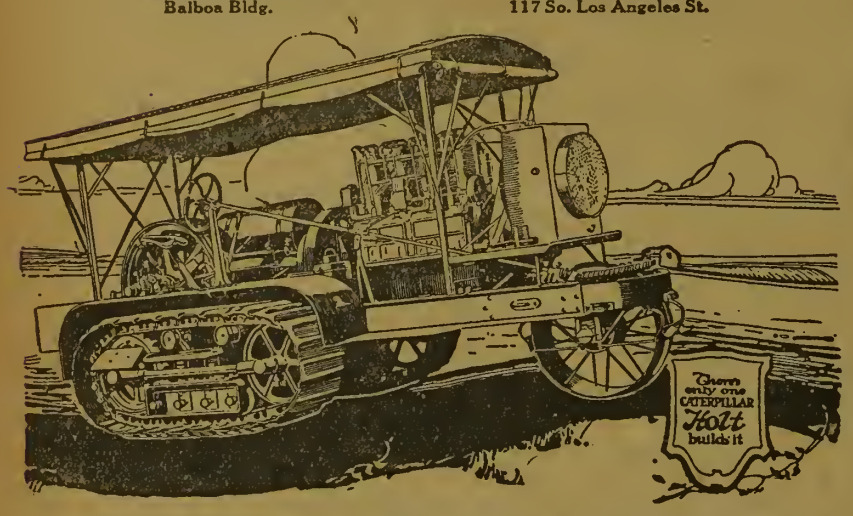

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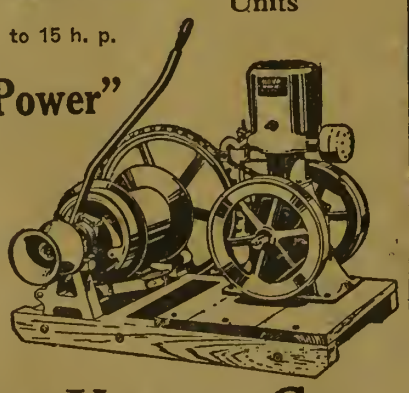

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after bearing many crops, they show signs of weakening, carefully remove the top, giving the cut surfaces a covering of asphaltum. The root is strong and intact; in two or three years a new orchard, producing the finest fruit, is the natural result.

If the recently formed deciduous fruit experiment station would take some old orchard and make such a demonstration, it would be of great value. The farmer wants demonstration by the experts; he does not want to pay for more "experimentation."

CROP REPORT

Continuing the crop reports begun in issue of April 24:

A. Everett, Moorpark, Ventura County

Regarding deciduous fruit crops in Ventura County, I am not prepared to say anything definite excepting on apricots, but think the outlook is fairly good for other varieties. There is generally a poor prospect for apricots, especially where they had a heavy crop last year and could not be irrigated. With irrigation in many places there is a very poor showing. Climatic conditions have caused three or four blooming spells on our apricot trees. The heavy 'cot crops are from the first and second settings. Even now there is bloom on many of the trees, and some of them have more bloom than at any previous time this year. I am still in doubt whether fruit will set on so late blooming. The leaf growth is very backward, which is favorable.

On 100 acres of my old orchard there will be a second crop and on another old orchard of mine, irrigated at a different time, there is a very poor showing. For the county less than one-half crop is my estimate at this time.

J. N. Ballantyne, Lodi, San Joaquin County

Almonds, 75 per cent; apples, none in district; apricots, 75 per cent; cherries, 80 per cent; peaches, 95 per cent; pears, 75 per cent, prunes, 80 per cent.

N. E. Mathews, Santa Ana, Orange County

There have been so many apricot orchards dug out in Orange County that it takes some scouting around to find them now, but a careful estimate from some of the growers gives from 50 to 60 per cent of a crop for the county, possibly owing to a peculiar condition existing this year in the fact that the apricots, like some of the other fruits, show some good sized early cots and some quite small late ones.

Sonoma Forecast Favorable

County Horticultural Commissioner O. E. Bremner, after an extensive survey of conditions in his county, is quoted as saying that "the prune orchards have blossomed wonderfully—the best in years. Even four year old trees are full of blossoms, and it looks like a most prosperous year for the county."

CROSS FERTILIZATION IN PEARS

In Eastern states not only the Bartlett, but several other varieties of pears are nearly self sterile. The Keiffer is notorious in this respect. In California less trouble is experienced than in other states, but even here self sterility is occasionally quite marked. It is well, therefore, to interplant varieties which it is known will cross, thus minimizing the risk of crop failure. In many sections of California the White Doyenne is planted with the Bartlett, though the latter is never here so self sterile as it often is on the Atlantic Coast. Quite frequently self sterility is due to overblooming and then another variety in bloom at the same time insures a crop, for in this weakened condition of the floral organs they readily accept pollen from another variety.

DRYING PERSIMMONS

The acreage of persimmons in California is doubtless growing as fast as that of any other orchard tree and all who grow persimmons are interested in preserving the fruits so they may be used throughout the year. The methods of drying vary somewhat in practice, and herewith is given one that has brought splendid results in Australia:

The fruit was taken from the trees while still quite firm, with portion of strig attached. It was then peeled, leaving the strig and a small surrounding piece of peel intact. It was suspended by string attached to strigs, and placed in the sun until dried so that no moisture would exude upon pressure between the fingers. The fruit was then placed upon trays and dusted with sugar on the other side. The drying process was then continued for a time, but not until it became hard and leathery. It was then packed in shallow boxes, and has kept splendidly. It is necessary that each fruit hang quite free whilst drying, for if placed upon trays in the first instance that part which comes into contact with the tray remains moist.

PINK BOLLWORM AGAIN

Advices received by the state department of agriculture from Washington confirm the reports from Louisiana that the pink bollworm has invaded two parishes in that state, as well as having appreciably extended its range of infestation in Texas. This produces a serious situation for the cotton industry in the United States and unless drastic measures are adopted, and that without delay, the dreaded pest will be beyond control and the value of the important extermination work in Texas will be reduced to nothing.

California has succeeded, so far, in excluding the two prime cotton pests, the boll weevil and the pink bollworm, but only through heroic measures, and never a month passes but that the California department inspection service does not hold up shipments of cotton seed and other commodities from weevil and bollworm infested states, which could harbor and distribute these two dreaded pests, and spell ruin for our cotton industry.

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New Standardization Law

The new standardization law which is now affecting the marketing of crops for the first time covers 17 products in fruits, nuts and vegetables, as follows: Almonds, apricots, berries, cantaloupes, cherries, grapes, onions, peaches, pears, plums, potatoes, prunes, quinces, sweet potatoes, tomatoes, walnuts and oranges. In addition to the information sent out by the state director of agriculture, the county horticultural commissioners have been sending out charts which show in reduced form the general requirements of the law, 12 in number.

In two of these the full list of 17 must qualify, that is, all shall be virtually free from insect pests, fungus diseases and all other serious defects, and all but the oranges must be uniform in quality and free from pests. A group including apricots, berries, cantaloupes, cherries, grapes, peaches, pears, plums, prunes, quinces and tomatoes must also be mature, but not overripe, well colored for variety and location, and free from bruises. Those to be free from frost damage are apricots, berries, cherries, grapes, peaches, pears, plums, prunes, quinces and oranges. The same list, except the orange, must be free from sunburn, and to the list is added cantaloupes, potatoes, tomatoes and walnuts.

Uniformity in size must be observed in apricots, berries, cantaloupes, cherries, peaches, pears, plums, prunes, quinces and tomatoes. Approximately the same numerical count must be in each layer of packed straight-side container of apricots, plums, prunes and oranges. In apricots, plums and prunes no layer below the top in a sloping side container shall contain a greater number than in the top layer. The sugar content of grapes, except Emperor, Gros Coleman and Cornichon must be 17 per cent, according to the Balling scale, and the three noted must have not less than 16 per cent of sugar. In oranges the sugar content or soluble solids must be eight parts to one part of acid and 25 per cent must be orange or yellow in color before picking. If the test is less than eight to one, 75 per cent must be colored before picking.

The containers must have in plain sight and in plain letters name of grower and address, or packer's name and address; variety of fruit if known, or words "unknown variety," or words "mixed variety" if more than one, minimum net weight or number of fruits within four, except pears and peaches, which must have correct number within four. It is a misdemeanor to prepare, sell or offer for sale a deceptive pack of fruits or vegetables, either fresh or dried. Anyone in doubt as to the requirements of this law may get the chart noted from his county horticultural commission or the state department of agriculture at Sacramento.—E. B.

Sharing Prosperity

The John S. Armstrong Nurseries at Ontario have had a most satisfactory growth for many years. In fact, Mr. Armstrong located in Ontario in 1889 and has been in the nursery business there since that time. There has been a continuous growth and the nurseries have become a great factor in the upbuilding of the community and in the prosperity of the state. The most successful of all these years has been 1919, and Mr. Armstrong has felt that the prosperity that has been given should be shared in by those in large measure responsible for the prosperity. Hence the following letter from Mr. Armstrong to each one of the half hundred employes:

"In accordance with my custom, a cash bonus, or what may be properly called a share of profits, will be distributed to all employes of the Armstrong Nurseries at the close of the fiscal year, May 31.

"As our shipping season is drawing to a close, it is possible from the balance sheet of March 31 to be fairly accurate in computing the profits of the year; hence am pleased to make this announcement at this time.

"This has been an unusual year and therefore the division of profits will be increased over previous years. This being true, I feel that some recognition for length of employment should be given, and that those who have been with me for a number of years should be given a little larger share. Hence the following plan for this year has been decided on, which I trust will meet with the approval of every employe:

"Continuous employment, ten years or more, 25 per cent of the year's salary.

"Continuous employment, five to ten years, 22 per cent of the year's salary.

"Continuous employment, two to five years, 20 per cent of the year's salary.

"Continuous employment, one to two years, 15 per cent of the year's salary.

"Employment under one year, ten per cent of salary received.

"It is only fair to mention the future. It is my purpose to continue the distribution of profits from year to year, but such profits must come from the year's business in which they are earned, and therefore I cannot promise that the future years will be as large as this one or that there will not be years when there will be no profits, as has occurred in the past. However, the outlook at this time is promising and, without any promises, I can only expect that the business will continue to prosper.

"The business is now far beyond a one man job. It will thrive and prosper just as each one connected with it feels his responsibility to do his part, and I want to say that the future may be judged by the past. Your cooperation and loyalty will continue to be a strong force to promote success. I only wish each one of you had an opportunity to hear and read the expressions of confidence so freely given by our customers at our salesyard and in correspondence. This is the result of your good work in your department, for it is necessary that each department hold up the Armstrong standard to bring such results.

"This personal expression I wish to add: It gives me far more pleasure to make this announcement than it will give you to receive it, and I hope you will accept my sincere appreciation for work well done."

TRACTOR COURSE AT UNIVERSITY

The tractor short course to be held at the university farm, Davis, from June 1 to June 11, is planned for the man who wants to learn the principles of the gas engine and tractor, the operation and repair of tractors, and the latest in tractor construction.

The lecture demonstration subjects are gas engine construction, gas engine principles and types, fuels, carburetion, carburetors, ignition, battery and magneto, governors, cooling system, lubrication, transmission, clutches, tractor management, plows and hitches. Charts, models and tractor parts will be extensively used in the lectures.

Practice work will include magneto timing, ignition, trouble finding, carburetor adjustment, valve timing, babbitting and scraping bearings, soldering, forging practice, motor repairing, instruction and operation of the fifteen or more tractors which will be used in connection with the course.

Registration is limited to 180 students, who must be over 18 years of age.

GASSING SQUIRRELS

I fill a continuous sprayer with gasoline or distillate, go to the squirrel holes and give a few strokes, throwing the gas ay back into the burrows, then fill the opening with earth and the job is done. I have never had one dig out. I like this better in the fields than poison, as there is no danger of stock or poultry getting poisoned. It is much faster if two work at it, one with the sprayer and the other with the shovel; then there is no laying down of tools. Yours for progressive farming, S. C. Hill, Gorman.

THE WONDERFUL PALM FAMILY

By Ernest Braunton

THE cocos family, to which group the coconut of commerce belongs, is native to the Americas alone, but the buoyant husks of these nuts enable them to cross oceans without impairing their germinating power. Thus edible coconuts have been stranded on the coast of Norway, whence no man knoweth. This has enabled the coconut to become naturalized in a tropical belt around the earth. In Southern Florida is found its only anchorage in the United States. On the island of Ceylon there is a belt of these palms 120 miles long, said to contain 11,000,009 plants.

One group of palms, to which the coconut belongs, is called social because growing in forests or thickets, and in the later class no country can surpass the United States. In the swampy tangles of lower Louisiana and Florida the Sabals, Adansonii and serrulata and Rhapidophyllum hystrix form impenetable thickets of great extent. In Algiers the hardy Chamaerops humilis, a common dwarf fan palm, holds possession of vast tracts of land to the exclusion of all other plant life. In the marshy parts of the Philippines there are broad expanses covered with Nipa palms, N. frutescens, the most common species there.

Though generally of single stem, some palms branch, and freaks have been known to occur in all species. The two species most common in Los Angeles — Phoenix Canariensis and Washingtonia filifera—have both been observed by the writer to have a single branch or side head of lesser dimensions than the main top or crown. But the doum palm of Egypt, Hyphaene thebaica, always branches into two or more heads and in the desert region there, between the Rivers Dande and Zanza, there is a vast forest of them. In length of stem the rattan palms of the Malayan Peninsula have rope like stems, hundreds and occasionally a thousand feet long, forming tangled masses in the tops of forest trees. One has been reported at 1,700 feet.

A few palms have huge gourd like swellings in the middle of their stems. This is often seen in Chili in the coquite, Jubaea spectabilis, the hardiest palm grown in California. But in Central Africa the Delib palm, Borassus arthiopum, a very tall species, has a swelling that is characteristic of the species; not an abrupt bulge, but gently tapering at both ends into the main shaft. This is said to give the trunk the strength necessary to sway with the fierce gales that lash them about like so many stalks of grass. The Peruvian wax palm, Ceroxylon andicola, has a heavy coating of wax on the stem, which gives it the appearance of a marble shaft. A single palm will furnish 25 pounds, which is scraped off, mixed with tallow and made into candles. Another palm from Brazil furnishes wax used in making phonograph records.

The giant Iriartea exorrhiza of Panama and adjacent territory has stilted roots which so raise the trunk above the ground that a man may stand under this grated or barred canopy with the tall palms above his head. The trunk of the peach palm, Guilielma speciosa, of Venezulea, is so hard and flint like that it will turn the edge of the best ax. The size of palm seeds range from half as large as the average garden pea to the fruit of Lodoicea maldivica, the double coconut, which weighs 40 pounds. The flowers of the average palm are not specially atractive, but the centralized flower spike of the talipot palm, Corypha umbraculifera, is sometimes 30 feet high above the leaves and is estimated to bear 60,000.000 flowers. It flowers but once, and dies. The leaves of this palm are so large that ten or a dozen persons may conveniently stand under a single leaf, and Raphia taedigera, a feather leaved palm of Brazil, has beautiful leaves 60 feet long. The total number of species of palms is about 1,200, of which California proper has one, Lower California, a half dozen, and the southeastern United States about the same number.

The division of forestry of Hawaii is selling to planters forest and ornamental tree seedlings at $1 per thousand. The favorite is the Australian red cedar.

THE TEMPLE ORANGE

Florida growers are making strong claims for the new Temple orange, stating it to be superior to anything yet grown in that state. Circular sent out by the distributor says:

Orders from California have been refused. Necessarily; for all the wealth of the distributor could not gain entrance to a single Floridan tree under present quarantine regulations.

The Description

"It has been by reason of the good looks of California oranges that they became so widely distributed." "Its origin is a mystery. When first discovered the parent tree was producing fruit of a most distinctive character. The skin is semi-loose, not as much as in the tangerines, but enough to make it easily peeled without soiling the hands."

We have so many of the mandarin-tangerine type that we need no more, but if it is a cross between this class and one of the standard varieties it should prove of value. If it is, as claimed, "as good to look at or eat as any California variety," Floridans are to be congratulated.—E. B.

RIVERSIDE CITRUS CENTER

The citrus growers gathered to the number of over 100 the other night and organized the Riverside Citrus Center. H. A. Lynn was elected director and an executive committee, consisting of A. L. Woodill, J. L. Bishop, H. B. Chase and W. G. Frazier, was appointed. It is anticipated that a real live center will be the result.—E. L. K.

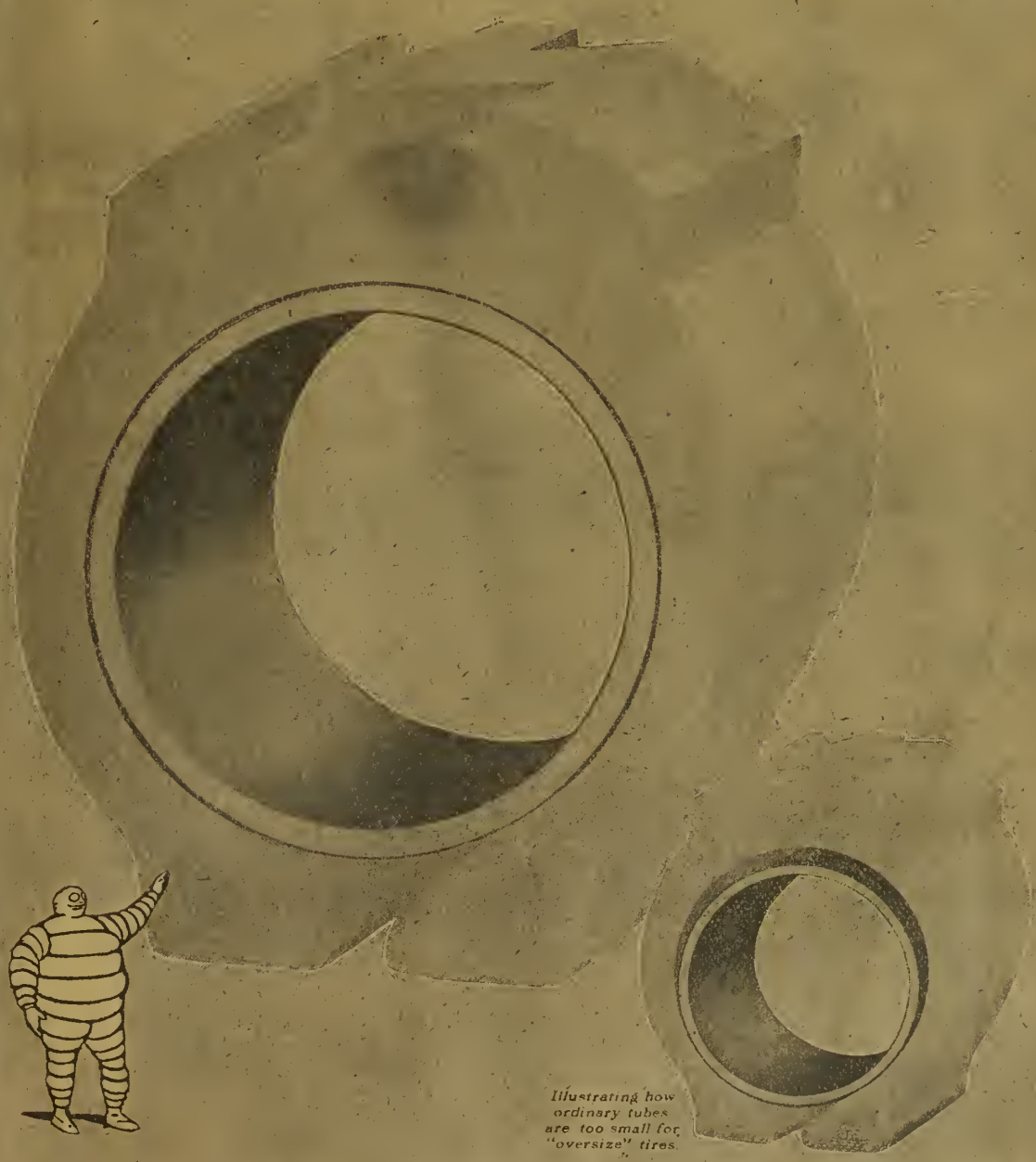
NEW ZEALAND TREE TROUBLE

The government orchard instructor of New Zealand has made public a report on the new disease affecting principally apple and pear trees. It is said to make the trees look as if they had been scorched by fire, all fruiting and laterals, and in many cases strong wood shoots being destroyed by the cankerous results of the infection. The trees badly attacked have lost all the year's fruit. The exact nature or origin of the blight has not been determined, but is being carefully studied in the government laboratories.

Florida reports "unfavorable rains, soil already too wet in most sections, cotton seed rotting, corn and peanuts making slow growth on all lowlands, melons only fair on highlands."

MICHELIN

tubes fit "oversize" casings



Illustrating how ordinary tubes are too small for "oversize" tires.

Michelin Tubes are not only made ring-shaped to fit the casing without wrinkling, but in addition are full size in cross-section, and are therefore not stretched thin when inflated. This is especially important when buying tubes for Cord Tires, which are nearly all "oversize".

Tubes that are not really large enough for normal size casings work under a still greater disadvantage in "oversize" casings. Therefore it is greatly to the motorist's advantage to specify Michelin Ring-Shaped Tubes, the only tubes that both fit and fill the tube space in the casing.

Michelin Tire Company, Milltown, New Jersey

Other factories: Clermont-Ferrand, France; London, England; Turin, Italy.

Dealers in all parts of the world

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THE OLD RELIABLE LINE

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Improved Russell features save doubly. Russell Threshers *work faster*—and save both time and labor; they get *all the grain*—and turn what was formerly lost into clear profits.

These exclusive features include the big easy-running 15-Bar Cylinder that works tooth-and-nail with the patented High-Finger Grate and separates most of the grain right there; and the patented Distributing Beater that spreads the straw evenly across the rack and gets the very last grains.

No other thresher has these features—and no other can equal the Russell for *getting out the grain*.

Six Sizes of Threshers
for Grains, Seeds, Rice and Beans

The Russell is the thresher chosen by many thousands of expert threshermen all over the world—you can safely follow their example.

And Russell threshers, like the steam and kerosene tractors, are *built up* to old reliable standards, not *down to* a price.

Get posted on the latest improvements in Threshers—send for the Russell catalog

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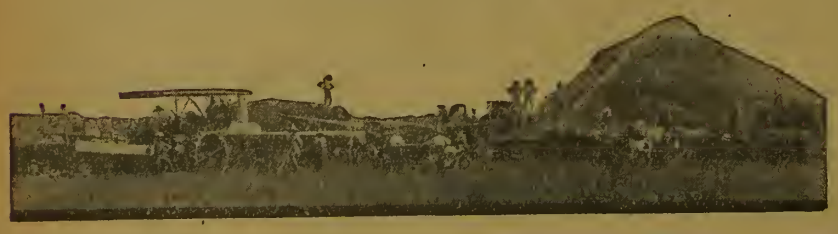

Buy Your OilPull Now

Even with a greatly increased production Rumely will be unable to build enough OilPull tractors this year to fill all orders.

If you want to be sure of getting *your* OilPull this year, wouldn't it be a good idea to place your order now?

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RHUBARB 90% of the Rhubarb grown in Southern California is Wagner's Improved Giant—Growers making over $1,000 first year. Splendid results in 6 months from planting. May, June and July best months to plant for crop next winter. Get plants true to name from the originator. J. B. Wagner, Pasadena, California.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Little Leaf

What is the matter with my apricots? They are showing practically no growth; leaves exceedingly small and some turned brown. They have plenty of water. Trouble affecting old and young trees alike. In some places only part of the trees affected. —Subscriber, Kerman.

This question was referred to Prof. H. S. Fawcett. He writes: "I do not find any evidence of fungous trouble upon these specimens and they are not of sufficient size nor in such condition that I can make any suggestion from their apearance about the cause of the trouble. To make merely a rough guess I am wondering whether the trees are affected with one of the types of the so-called 'little leaf.'"

Moss on Trees

What makes moss grow on fruit trees? What kind of spray should be used and when?—Subscriber, Healdsburg.

Moss grows on trees when weather conditions favor it, that is in sections of continuous moisture in atmosphere. A one per cent solution of corrosive sublimate. Blue vitriol and sulphuric acid are also effective. Six per cent blue vitriol and two per cent sulphuric acid are the proportions to use with the water. Winter spray of lime-sulphur is also good. Some have used concentrated lye, which may be sprayed or brushed over trunks and larger branches.

Poor Onions

Last fall I planted a lot of onion seeds and the plants were so small I did not set them out until January 12. Very little rain came at that time, alternating with extremes of cold and heat, consequently they did not do well and lots of them are going to seed. Some are sending out side shoots. If I break these off what will happen and when should it be done?—Subscriber, Newman.

Breaking out the side shoots will do no good. The only thing you can do with these onions is to market them at once as green onions. The longer you allow them to stand in the garden the poorer they will be. The seed saved from them is worthless.

Peach Borer

Is there any way to get rid of the peach borer?—Subscriber, Live Oak.

Cut out and kill, or destroy by inserting flexible wire, then clear away soil from around crown of trees and paint up to ten or 12 inches height with whitewash composed of quicklime 30 pounds, tallow four pounds and salt five pounds, thinning with water sufficient to make creamy mixture.

Citron Melon

Please tell me when and how to plant citron melon.—Y. T., Compton.

There is little to tell concerning this hardshelled melon, which for cultural purposes must be classed with the gourds. It seems to be impossible to prevent growth once the seeds are in the soil. Planted even six inches deep in a roadway, the plants will persist in coming to the top. It is best to plant seeds two inches deep in hills several feet apart, as the planter chooses. In California they will make a good crop in any soil without special care.

Deeper Rooting in Clay

We have hard clay soil and the roots of the trees do not go deeply into the ground. How would it do to bore holes, say four or six inches in diameter, three or more feet deep and fill the holes with sand and fertilizer? Clay soil when blasted packs hard again when irrigated. Would it be advantageous to blast the ground after boring and fill the cracks with sand and fertilizer?—Subscriber, Rainier, Oregon.

We do not question that boring and opening up the way to the subsoil would prove beneficial, but at present lahor costs we fear it would prove expensive. It appears to us that frequent use of dynamite, and in this case probably the subsoiler, might open the way for the roots and the water at a more economical cost. Of course the advantage in the hole boring would be in its permanency and the placing of sand or gravel in the soil, which would make a perpetual opportunity for roots to gain lower levels. We do not think the blasting would give opportunity to fill cracks with sand to any great extent.

Bats

Can you please tell me how I can get rid of bats? They are between the walls of the house and make an awful noise at night. We chased them out and nailed the holes shut, but they make new holes again. They'll find their way in somehow and the smell

Actual tests

By exhaustive study and engine tests, our Board of Lubrication Engineers has determined the correct consistency of Zerolene for your make of automobile. Its recommendations are available for you in the Zerolene Correct Lubrication Charts. Get one for your car at your dealer's or our nearest station. Use Zerolene for the Correct Lubrication of your automobile, truck or tractor.

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For Motor Cars

A grade for each type of engine

ORNAMENTALS

Trees, Plants, Shrubs direct from the nursery to you. Choice stock. Big assortment. WRITE FOR CATALOG, which illustrates and describes best varieties for California conditions.

LEONARD COATES NURSERY CO.

Morganhill California

is terrible.—Subscriber, McFarland.

We are totally at loss as to handling bats and can give no helpful suggestion. The only light our library gives to us in the matter: "The curious winged bats make up the order cheiroptera. They fly only at night and feed exclusively on insects flying at the same time. For this reason they may fairly be said to be amongst the most beneficial of the mammals and their wanton destruction should never be permitted." However, when they destroy the value of a residence they must be controlled if possible, and we ask our subscribers who have had experience to give their method of handling them. If the house is so open that the bats find ready entrance it would probably be of no benefit to attempt control by use of poisonous gases.

Sick Rabbit

I have a sick rabbit which gets damp just above the tail and seems to try to sit on the damp place and seems to be practically paralyzed. Does not eat well. Feed alfalfa hay and mash, some green, mostly milkweed, clean pens every day.—Subscriber, Orange.

Would advise feeding less milkweed. Clean alfalfa hay, rolled barley and assorted green feeds are better than any quantity of one or two kinds. Watch results and if any one green feed is very juicy, feed less of it, as at times in California under irrigation green feeds have too much water and of course are detrimental, especially to stock confined. Stock running out are better as they can select what they desire.

Lime-Sulphur Spray

Please give formula for mixing lime and sulphur for spraying orange trees. —Subscriber, Buena Park.

The simplest method is to secure the commercial concentrated lime-sulphur and mix with water at the rate of one gallon lime-sulphur to 33 gallons water. If, however, home made mixture is preferred see California Cultivator, August 9, 1919, page 136, formula 10.

Cow for Supplying Home Table

Never have offered either milk or butter for sale but occasionally a neighbor calls and buys a small quantity. Am I prohibited from selling this under present state law? — Subscriber, Fillmore.

This question and many others of similar nature have been referred to a practical dairyman and will be answered in a series of short articles later. It may possibly be two or three weeks before these articles will begin, but we know they will be invaluable. A word, however, to this owner of the cow. If she is healthy and in perfectly healthful surroundings we certainly would sell such supplies as we had that neighbors might prefer. However, by application to your county veterinarian you can have a tuberculin test administered without cost.

Morning Glory

How can I control or rather kill out morning glory?—Subscriber, Lodi.

The best method for eradicating morning glory is through cultivation. Chemical methods are expensive and require handling by experts. In cultivation, however, one should use great care and not drag particles of roots to uninfested ground. Let the cultivations be not more than one week apart. A few weeks of this thorough work will completely eradicate the pest if properly done.

Trespassing Stock

My land is not fenced and the horses, cows, hogs, turkeys, etc. from a neighboring ranch continually trespass on my property, destroying crops. I have many times asked owner to keep stock out of my field when it was in crop, but he ignores my request. I have taken his horse out of my grain field and locked him in my barn, also penned up his pig in order to protect my property. What is the law in regard to this?—Subscriber, Manteca.

This is a question which cannot be answered with much satisfaction. So-called fence laws, estray laws and so far as there is any in reference to them—tresspassing livestock are "up in the air" at this moment because of the recent decision of the state supreme court. In fact, the owner of stock which trespasses and damages is responsible for all damage done. This under the common law and not because of any specific enactment. Livestock, grain, fruit men and other producers of the state have this matter under advisement, and committees are now at work hoping to devise a bill which can be recommended to the state legislature, which will be fair to livestock and other producing interests. After the next session of the legislature, January, 1921, it is to be presumed that a more definite answer can be given. As a direct answer to the above would say that the only advice we have is to secure all possible evidence as to the actual damage done by the stock. As to the estrays which have been taken up, the law specifies that they shall be fed but makes an allowance so small that at present prices of feed the holder of the stock would be ruined if he took up any number and kept the same for any length of time.

Peppers and Tomatoes

When and how shall I plant chili peppers and tomatoes?—M. I., Long Beach.

It is now too late to plant peppers, commercial growers doing this work from March 20 to April 10. Full planting directions were given on page 471 in the Cultivator of March 20.

This is the season for planting tomatoes for fall crop for shipping and canning and we may continue planting seeds to July. While a hot bed is best at all times, tomato seeds planted now will germinate without artificial heat. Sow seeds in warm place in light soil, covering not more than a quarter inch deep. When plants are three to four inches high, transplant to field in rows four to six feet apart, according to variety, and plants three to six feet in the rows. The best varieties for present planting are Stone and San Jose Canner. These two are about in equal demand at the canneries. There is no need of rushing the planting of tomatoes.

NATIONAL TRACTOR AND IMPLEMENT SHOW IN CALIFORNIA

California tractor and implement people are highly gratified at the probability that a great tractor and implement show will be held on the Pacific Coast some time this year, presumably in the latter part of September. Final action has not yet been taken by the national association, but it is hoped by the local people that one of the five national shows staged by the association will be held in Los Angeles. San Francisco has fraternally yielded her claims to Los Angeles and will join in supporting a national show there. The exact location in Los Angeles is not yet decided, but it will be a great outdoor event, though a still exhibit. The local committee is hoping that it can be brought off early enough that good weather can be absolutely assured. It is thought that a manager will be chosen by the national association. Local committees are already at work, though waiting for final decision of the national committee.

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With the rational use of Acid or Super Phosphate—always recommended by us—there will be no disturbance of normal soil conditions, either in one year or in one hundred years.

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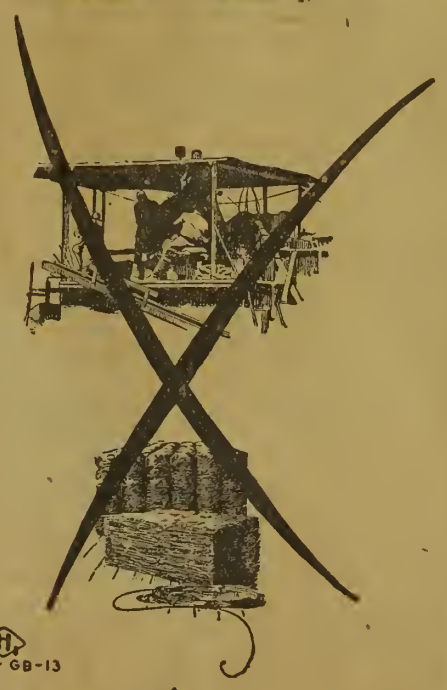

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Place your order at once for one of these money saving Grain Bins. They range in capacity from 600 bushels to 5450 bushels.

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California Tomatoes

By Ernest Braunton

DURING the great world war, when every section of our country was called upon to do its uttermost in food production, it was discovered that California is the natural home of the tomato. Owing to the mildness and equability of the climate we may produce two crops, or really a continuous crop throughout the year, whereas less favored states can produce but one, and that in midsummer.

Now that the clouds of war have rolled away the other states are eagerly watching California to learn if we still are going to supply the nation's needs in tomatoes. Owing to dryness of climate we can grow a crop when in any other spot in the United States it would rot from dampness or freezing. The tonnage, too, is sometimes enormous here, and always sure, whereas, from various causes, the crop in other parts is sometimes a complete failure. Though we have occasional light crops, a failure has never been known.

Soil and Climate

Just where tomatoes may not be grown is hard to say, or what the limitations of soil. We have reports from Escondido and Elsinore in the south to Stockton and Oakland in the north, and successes are reported in all soils. As a rule a light sandy or gravelly soil is generally favored. But at Escondido a good crop was obtained in white river bottom sand, and near El Monte in a peaty soil that had the appearance of dark brown corn meal, they still yielded well. In the former no irrigation was necessary and in the latter it could not be given, for the strong soil, with irrigation, produces too much plant.

In northern sections both silt and peat lands in delta sections and heavy black soils are used, though the latter are best as they merge into sand or gravel. Climatically all of California, except the belt of heavy fogs or heavy rains, the tomato claims for its commercial field. Aside from the districts named advices have come from Modesto, Tulare, San Fernando, San Gabriel and many intermediate points. The outlook is for an enormous acreage. The failures as regards financial returns can be traced in nearly all cases to attempting too much. The crop comes all at once and must be quickly harvested or it is lost. Enough help cannot be obtained on sudden call and the crop rots on the vines. Twenty acres is a good field; 80 acres invites disaster.

Time to Plant

A leading seedsman who supplies growers with 2,000,000 plants annually says that the first of August is the best time for planting or the fruits will mature too early and in hot weather, when they have to be picked all at once; a very short season results. But the superintendent of the biggest cannery at Los Angeles says his contract growers have already planted much acreage and that all will be planted by June 1. The first named authority is more in touch with the Central California fields. Planted in August, the crop is harvested in October-November and the picking season is longer by reason of cooler weather.

Most thorough preparation of the soil before planting is necessary. It should be plowed early and deeply. Then, just before planting, it should be cultivated and harrowed smooth. Late experiments have demonstrated the value of trench planting in many districts. Tomato roots must be kept cool, and to insure this some plant in deep furrows and as the plants are cultivated later the furrows become filled and the roots are left well covered with soil. In some districts and in some soils this is not advisable, but it is good practice for the summer crop. Distance apart is another varying factor. Where plants grow rankly, six by six feet is practiced, or even greater distances. The plant growth in each field must determine this point.

What Varieties?

The dealer who ships to Central California says the demand is, first, for the Stone; second, for San Jose Canner; with the Baltimore a poor third. The Los Angeles canner quoted contracted last year for Stone and San Jose in equal acreage, but this year it is all San Jose. The tonnage is most variable. It is reported that ten to 14 tons is the range throughout the state, but the total in the Los Angeles district does not run above seven or eight tons to the acre, though as high as 25 tons have been grown.

In the best tomato district no irrigation is necessary, for good preparation, followed by two cultivations after planting, carries the crop through to maturity in good condition. It has come to be the common practice to have professional growers furnish field grown plants, and one such in Los Angeles County now has orders for more than 3,000,000 plants. These are packed in moss and shipped to all parts of the south half of the state. The advantage of this is that growers can get their plants just when they need them and the propagation cannot interfere with farm routine. While canners contract for plants, they are shipped from propagator direct to grower. The returns last year ran from $17 to $20 a ton, the latter figure being paid in several districts.

Tomato Troubles

Winter blight comes only after rains commence and is not therefore of importance to growers of the summer crop. The blossom end rot in some sections is serious at times and is controlled only by excellent care of the plants throughout the season. Anthracnose or ripe rot is found but occasionally, and loss is small, but if serious Bordeaux spray is the remedy. Nematodes are a pest in a few sections in sandy soil and of course control is difficult and is a matter of dealing with the soil by changing crops.

The most serious trouble experienced by California growers is summer blight or wilt, and this has been the cause of enormous losses. When fields become affected the disease generally increases very fast until a large part is affected, yet in other fields its progress is slow. No effective means of control have yet been found. When once a field is affected it should be abandoned for tomato growing, also the seed bed. Get new seed, new seed bed, new field. The hope of the future lies in breeding blight resistant varieties.

CANTALOUPES IN IMPERIAL VALLEY

(Continued from Page 769.)

1920, there were 21,920 acres planted, estimated that ten or eleven thousand cars will be shipped, but on account of serious car shortage due to railroad strikes, it is estimated that there will not be over 4.500 to 5,000 cars moved.

Last season there were 3,500 cars on hand in this vicinity on the first day of May. At the present writing there are no cars on hand and there cannot be expected more than 150 cars to come to the valley each day after they commence to arrive, and it is a question when they will be moving to the valley. All other products will have to be moved, including the great orange crop of Southern California.

There are 500 cars needed for Imperial Valley tomatoes, 1,500 cars for Coachella Valley onions and 1,500 cars for Southern California early potatoes. The first and second are now moving and the third will soon be. There are 150 cars daily for citrus fruits and 100 cars for vegetables. By these figures one gets a better conception of the outlook. The railroad officials say that it is a physical impossibility for them to meet the situation.

Somehow there are conditons of nature that enter in, to assist in adjusting our affairs which may prove a benefit in disguise. On account of ten days' cold weather, accompanied by extra strong west winds, the possible large crop has been cut down, perhaps 25 per cent in some sections, the soft sandy soil districts suffering more than other sections due to the blowing sand cutting the young plants.

In ordinary seasons there are from seven to eleven melons on the crown, or first, setting, but in many cases there are only from one to five melons on the first setting, and the second setting is not as strong and vigorous as desired. This condition will cut down

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UNION MADE
OUTWEAR TWO ORDINARY PAIR

Consider the Guarantee Along With the Price

We guarantee Headlights to outwear two pairs of ordinary overalls. Consider this when you are pricing overalls; and bear in mind that Headlights are roomier and more comfortable than other overalls, due to the generous measure of denim that we put into them.

LARNED, CARTER & CO., DETROIT
World's Greatest Overall Makers

Factories: Detroit St. Louis San Francisco
Port Huron, Mich. and Perth Amboy, N. J.

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the yield and assist in the car shortage adjustment, which of course is unfortunate and not desired by those interested in these crops mentioned.

The season will not open until about May 25 on account of the cold windy weather. There are 30 distributors, a few of whom do their own growing, who will handle the shipments. The largest acreage, handled by a distributing company, has 2,000 acres; three have around 1,600 acres; seven, about 1,000 each; a dozen, from 500 to 800 each; the rest between 200 and 300 acres each. The largest acreage is in the Brawley district, Heber second and Westmoreland third.

The distributors assist the Japanese growers by advancing money for the growing of the crop, having a contract with the growers covering all particulars, and it is some lengthy one at that. They have made advances to the growers of from $40 to $75 per acre, which means an expenditure of at least $4,000,000 by them, to say nothing of labor and expenses by the grower.

The following is a list of the different items of expense in bringing a crop of cantaloupes to picking time: Rent of land, $45; plowing three times, $18; floating and bedding, $5; planting and covers, $25; seed, $2.50; thinning, $5; hoeing twice, $4; clutivating three times, $3; turning vines, $1; irrigation labor, $3; total cost of production, $111.50.

Covering means covering each planted hill with oiled paper, held in place with a small wire over each hill. There are 1,200 plants to the acre. This means is used in early planting which is done the last of December and the first of January. Plantings made later in the season are not covered.

Harvesting and marketing expenses are as follows: Picking and packing, per crate, 35 cents; crates, 30 cents; paper wrappers, six cents; hauling from the field, one cent; hauling to the shipping shed, eight cents; total, 80 cents.

The average freight expense to Eastern points is $1.20 per crate. There is an average of 45 melons to the crate and 336 crates to the car. Commission for selling by the distributors is 15 per cent of the gross sales. A good average yield per acre is 200 crates. With the above figures anyone who is interested can figure out the cost of production and marketing.

With a car shortage, not over half being available, this will mean that not over 100 crates per acre will be shipped, which will mean that the melons will have to sell for $3 per crate for the growers to come out even without sustaining a loss.

The federal bureau of markets will have a representative in the valley to handle the marketing as usual. The horticultural commissioner is now arranging for the required number of inspectors to properly inspect the crop under the standardization law which in substance requires that all cantaloupes, as well as all other fruits and vegetables specified, shall be mature, not overripe, virtually uniform in quality and size, virtually free from insect and fungous pests, rots, bruises, sunburn and other serious defects. All crates have standard size, all others marked irregular pack. All crates must be marked with name of grower, packer or shipper and post office of same with number of melons in each crate.

Anyone violating any section or part thereof is guilty of a misdemeanor.

Icing cars: It takes nearly 18 tons of ice to keep the melons in proper condition to the Eastern destination. The cars are iced while empty, using 11,000 pounds, then placed at a loading shed. When loaded they are re-iced, requiring 5,500 pounds. At Yuma 4,000 pounds are used, at Tucson 3,500 pounds, El Paso 3,500 pounds, and three more times to Chicago, using 6,000 pounds, and once more east of Chicago, taking 1,400 pounds.

When one realizes the enormous amount of labor in picking, hauling and loading and the icing before and after loading, and 300 cars are shipped daily for some time, he can understand something of the vast business involved in the cantaloupe industry. Last year the entire business of handling 8,800 cars was done in about six weeks. The highest number shipped in one day was 352 cars.

Riverside County is trying tobacco culture.

STANDARDIZED BERRIES

The standardization law which went into effect January 1, 1920, is working woe to the dishonest berry growers and dealers, particularly in regard to deceptive pack. The law states:

"Deceptive pack shall mean any package of fruit or vegetables which has in the outer layer or exposed surface fruit or vegetables that are so superior in quality or condition to those in the interior of the package or the unexposed portion as to materially misrepresent the entire contents."

It further specifies that the product shall be mature, uniform in size, free from insect or other pests, frost damage, sunburn and other serious defects not to exceed ten per cent, except in grapes, which shall not be more than three per cent defective. Standard sizes for containers are specified for all herries, apricots, almonds, cantaloupes, cherries, grapes, onions, peaches, pears, plums, potatoes (sweet and white), prunes, quinces, tomatoes, walnuts and oranges.

In all parts of the state reports show that prosecutions under this law are gratifying in results. In the Los Angeles courts during the past week there have been 26 convictions. In three cases strawberries were seized on retail stalls and both grower and retailer fined $25 each. In 11 cases seized from growers at the city market all were fined $35 each. One potato grower was fined $35, another $25, and the retailer who offered them for sale $50. The latter was Chinese; all the others were Japanese.

SUPERVISORS ENDORSE STATE FAIR

Resolved, that the California Supervisors' Convention endorse the state fair as a proper and representative institution for the advertising and display of the products and resources of the entire state through county exhibits as the logical units, and be it further resolved that this convention cordially endorse the action of the directors of the state agricultural society for the development of the state's resources and wealth, and urge upon all boards of supervisors the duty of providing funds for the annual exposition of the agricultural, mineral and manufactured products of California through representative exhibits from their respective counties.

CANARY ISLAND ONIONS

The 1920 yield of onion seed in the Canary Islands will be light, a matter of some interest to us, for about 85 per cent of it is exported to the United States. The greater part is contracted for in advance by American seedsmen. In 1918 we bought there $100,000 worth of onion seed, but in 1919 we purchased but three-fourths that amount.

FROM COFFEE TO COTTON

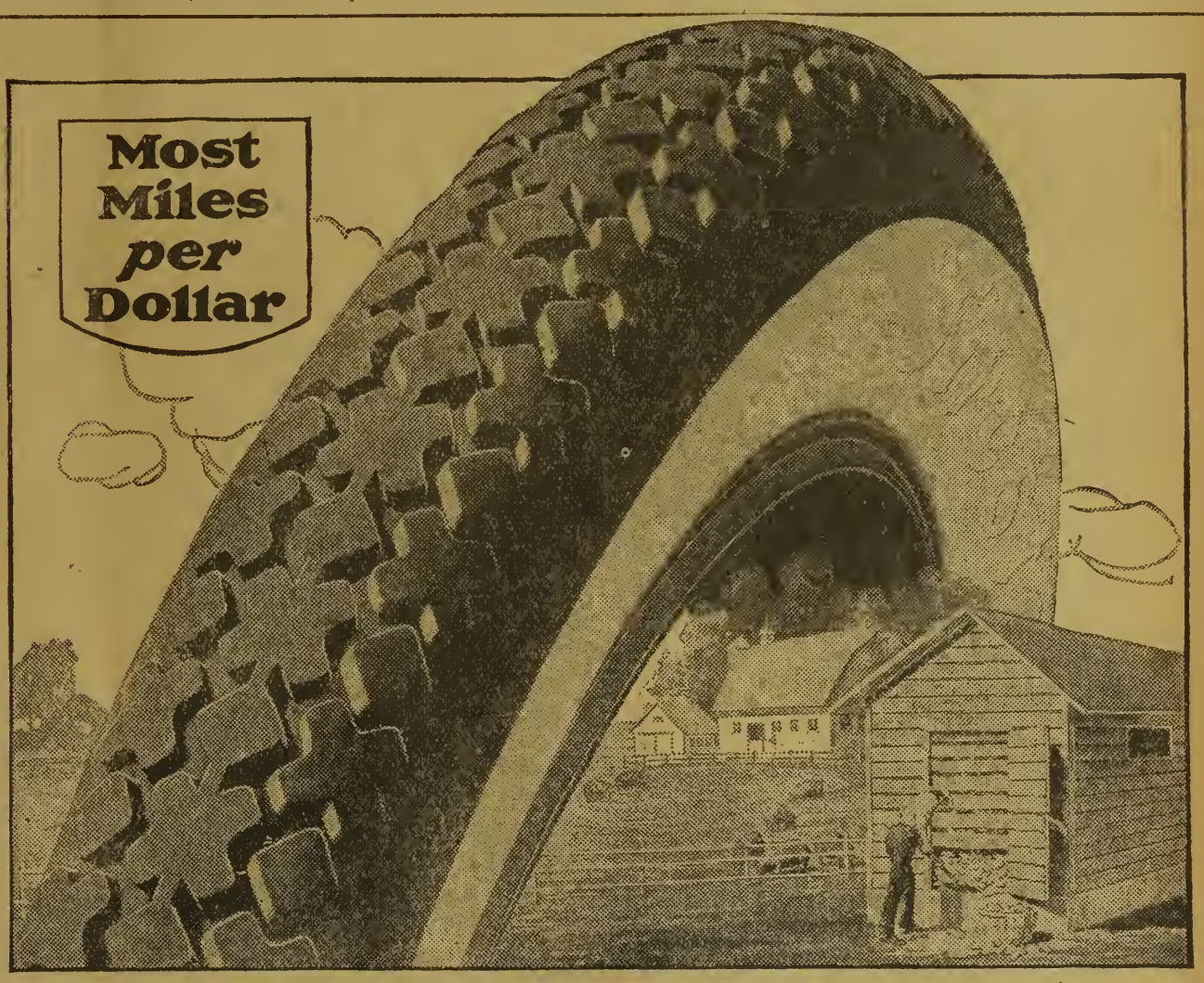
The state of Sao Paulo, Brazil, in parts of which the climate is like that of California, experienced killing frosts in July, 1918, which resulted in the growers turning from coffee to cotton. Mr. Navarro of Sao Paulo, agricultural expert, whom the writer has met, states that their landscapes much resemble ours, the most dominant feature being farm plantations of Australian eucalypts. Brazilian railroads have planted many thousands of acres of these trees, far surpassing in extent the plantings in California.

AMERICAN GINSENG

The port of Hongkong in 1919 received from the United States more ginseng roots than from all other sources combined. Out of a total value of $3,475,722, we furnished root to the value of $2,695,642. Many experiments have been made in California with the growing of ginseng in commercial quantities, but so far as we know none of them have been successful.

SUGAR FROM CUBA

During 1919 the United States imported from Cuba more than twice as much sugar, in value, as in 1918. From the Cienfuegos district in 1918 we obtained sugar valued at $16,514,200, and in 1919 it increased to a value of $36,701,015.



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There is much greater air capacity than the average, much more material, and it delivers extra mileage as a natural result. The thick, heavy tread performs as good as it looks. It checks skidding, sliding or spinning of wheels.

Equip with a set of these Firestone Cords and let them demonstrate to you the value of their extra size and extra heavy tread. Through Firestone planning, resources and methods this cord tire is produced and sold at a price that gives you most miles per dollar.

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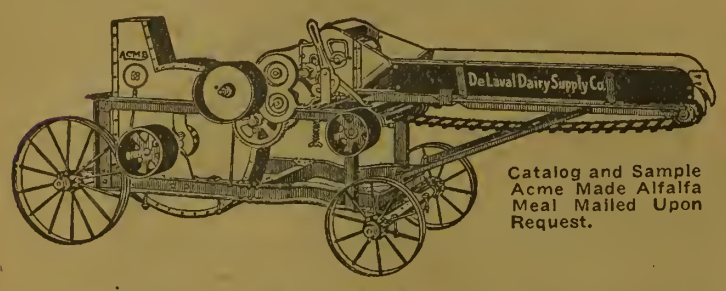
Means Superior Cutting Ability and Unequalled Durability

DURABILITY IS GUARANTEED BY ACME STEEL FRAME Construction. The exclusive design gives the Acme easy running qualities and light power requirements obtainable in no other cutters of equal capacities.

THE LAWN MOWER TYPE KNIVES (the choice of experienced users) produce a silage of superior quality. The 6-arm blower fan easily elevates it to the top of the highest silo. No clogging of pipes. No torn silage.

Other Valuable Features: Low Feed Table, Positive Safety Device, Reversing Gears, Separate Control of Knife and Blower Speeds, Steel Wheel Mounting.



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They are the large type and the best blood strains to be had anywhere

Herd Boars
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Weanlings, $15.00 each at Ranch—A large number always on hand to choose from. Crates $2.50 each, refunded when returned prepaid in good condition. Mail orders solicited.

Satisfaction or money back.

Diablo Stock Farm

Danville, Cal.

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Southern California Holstein Breeders Sale

The public sale of 100 registered Holsteins by Southern California breeders at Clearwater on April 27-28 accomplished in a large way the placing of foundation breeding animals in the hands of new breeders. Fifty-four individual buyers absorbed the offering, the largest number of buyers that has yet appeared in a western sale, and the cattle all remain in Southern California within a radius of 75 miles of Los Angeles.

While no unusual prices were recorded, and many real bargains passed through the sale ring, yet the total of $3,090 for 100 head was a quite satisfactory average.

The top price of the sale was reached when It Wavelet Segis, a two year old daughter of It consigned by Chas. S. Harrington sold for $1,025 to H. H. Covell.

The top price for female of milking age was fetched by Aralia Rosa, a 24 pound three year old consigned by A. J. Stalder and sold for an even $1,000 to Clyde D. Kennedy. She is a granddaughter of Prince Gelsche Walker and looked one of the bargains of the sale.

The top yearling female was Burr Farm Veeman Creamelle, a beautiful young daughter of Sir Veeman Korndyke Pontiac consigned by Burr Farm and sold for $600 to H. H. Covell.

The top bull was King Paul Korndyke Vale sold to H. Vosburgh for $1,000 and consigned by W. D. Millard.

The top bull under service age was a three months old son of Sir Veeman Korndyke Pontiac consigned by Burr Farm and sold for $300 to J. M. Mayo.

The 100 head sold for a total of $30,090, an average of $300.90.

Col. Ben A. Rhoades and Harold B. Rhoades did their usual effective work as auctioneers in the sale which was managed by California Breeders Sales and Pedigree Company, Sacramento.

Following is a complete list of animals sold with date of birth, price and name of buyer:

Consigned by W. D. Millard, Arcadia

King Paul Korndyke Vale, May 25, 1916, H. Vosburg, Monrovia, $1,000.
Lady Riverside Burke, Jan. 5, 1914, Agee Bros., Rivera, $415.
Bull Calf, Sept. 30, 1919, L. B. Van Blaricon, El Monte, $275.
Crumpy Wonder Aonda, Oct. 2, 1911, C. S. Ostergard, Hyde Park, $500.
Heifer Calf, Dec. 24, 1919, Ernest Otto McClure, Santa Ana, $135.
Abbie Korndyke Pontiac, Feb. 12, 1919, C. S. Ostergard, $415.
Heifer Calf, March 4, 1920, Burr Farm, Los Angeles, $95.
Queen Sharlet 2nd, May 10, 1913, H. Vosburgh, $475.
Queen Helen Korndyke, July 26, 1915, Chas. S. Harrington, Compton, $425.
Queen Belle Sharlet, Nov. 17, 1918, E. H. Thompson, Burbank, $195.
Romeo Pietertje Lass, Oct. 20, 1916, E. T. Hanning, Long Beach, $240.
Bull Calf, Oct. 15, 1919, B. S. Anslyn, Los Angeles, $65.
Sadie Adiantum Pontiac, Jan. 19, 1914. T. Parker, Pasadena, $325.
Heifer Calf, Oct. 14, 1919, Ernest Otto McClure, $105.
Lyda Beets De Kol, May 18, 1914, Elmer E. McConnell, Lankershim, $295.
Bull Calf, Sept. 28, 1919, C. S. Ostergard, $65.
Queen Pontiac Korndyke Sadie Vale, Nov. 7, 1915, Elmer E. McConnell, $375.
Mercedes Pontiac Nachefe, Jan. 20, 1918, J. C. McGrath, Artesia, $400.
St. Segis Wavelet, March 9, 1918, H. Vosburgh, $400.
Princess Pauline Alcartra, March 12, 1916, T. Parker, $350.
Heifer calf, Feb. 15, 1920, Ernest Otto McClure, $95.
Sharlet De Kol, Sept. 12, 1914, Carl Ettensperger, Pasadena, $810.
Bull calf, March 20, 1920, C. A. Phillips, Norwalk, $100.
Aaggie Wayne Hengerveld, Feb. 24, 1915, Elmer E. McConnell, $375.
May De Kol Pondyke, Nov. 28, 1914, J. C. McGrath, $190.
Heifer calf, Oct. 12, 1919, Ernest Otto McClure, $150.
Heifer, Oct. 31, 1918, B. S. Anslyn, $245.
Candida of Sleepy Hollow, Feb. 12, 1904, John Bottema, Clearwater, $215.
Heifer calf, Sept. 2, 1919, Josh L. Wilson, Jr., Lamanda Park, $205.
Mary Marmion, Sept. 18, 1913, Burr Farm, $350.
Bull calf, June 7, 1919, Bray S. Hicks, El Monte, $150.
Mabel Vale Nephele, Jan. 12, 1916, J. C. McGrath, $200.
Bull calf, May 21, 1919, N. A. Gray, Chatsworth, $105.
Bull calf, July 17, 1919, Geo. N. Henderson, Norwalk, $150.
Sarcanda Candida, July 30, 1918, Agee Bros. $205.
Heifer calf, July 14, 1919, Ernest Otto McClure, $180.
Maid Meditation 2nd, April 12, 1915, Geo. Tadema, Clearwater, $325.
Juliana De Kol Segis, March 27, 1915, John Bottema, Clearwater, $300.
Josie Pondyke De Kol, Oct. 2, 1915, Burr Farm, $390.
Josie Pondyke De Kol 2nd, May 26, 1919, Joseph Telford, Clearwater, $200.
Candida of Sleepy Hollow 3d, Feb. 26, 1915, Geo. Tadema $345.
Juliana De Kol Segis 3d, Aug. 17, 1919, Ernest Otto McClure, $175.
Hillview Shadeland De Kol, Oct. 10, 1915, John Bottema, $350.
Heifer calf, Anita M. Baldwin, $135.
Josie De Kol Fobes Tritonia 3d, Oct. 16, 1916, Chas. S. Harrington, $500.
Bull, Jan. 24, 1919, E. D. Brown, Hynes, $200.
Heifer calf, Jan. 24, 1920, Chas. S. Harrington, $180.
Bull calf, July 25, 1919, Geo. Tadema, $70.
Aralia Candida De Kol, Oct. 25, 1918, F. H. Helm, Monrovia, $180.
Heifer calf, Nov. 22, 1919, Ernest Otto McClure, $175.

Consigned by Chas. S. Harrington, Compton

It Wavelet Segis, March 9, 1918, H. H. Covell, Buena Park, $1,025.
It Claria Pontiac, Feb. 4, 1919, Ernest Otto McClure, $300.
It Yoshida, Nov. 25, 1918, Geo. Hight, Compton, $325.
Aro Aaggie Holland, Aug. 6, 1918, H. H. Covell, $325.

Consigned by Bost & Johnstone, Corona

Duchess Clothilde Segis, Jan. 20, 1916, W. L. Dukes, Compton, $300.
Lady Vale Newtonia, June 23, 1917, T. H. Brice, Los Angeles, $325.

Consigned by Rosamaines Rancho, Stalder Bros., Riverside

Aralia Rose, Oct. 20, 1916, Clyde D. Kennedy, Hemet, $1,000.
Alma Alcartra Sarcastic, April 11, 1916, Frampton Bros., Artesia, $275.
Heifer calf, July 9, 1919, Burr Farm, $160.
Whittier Pontiac Favorite 2nd, Dec. 26, 1914, F. F. Pellissier, Whittier, $350.
True Fayne De Kol Jane, March 22, 1918, W. L. Dukes, $310.
Heifer calf, April 22, 1920, J. A. Hamner, Riverside, $90.
Bull, Nov. 23, 1918, Wm. R. Heldoorn, Hynes, $205.
Bull, Nov. 14, 1918, J. H. Buster, Compton, $260.

Consigned by P. H. Krick, Anaheim

K. P. N. S. Spofford 2nd, March 30, 1918, Burr Farm, $150.
Lady Clorinda Pontiac, Jan. 24, 1916, J. F. Holland, $280.
Bull calf, Oct. 20, 1919, John Pearson, El Monte, $55.
Colantha Netherland Aaggie De Kol, Jan. 1, 1918, Chas. Harrington, $200.
K. P. N. S. Spofford, Nov. 24, 1916, Bost & Johnstone, $105.
Claria Pontiac Topsy, May 9, 1913, J. A. Hamner, $105.

Consigned by Burr Farm, Los Angeles

Changeling Tidy Abbekerk Florence, Aug. 8, 1911, J. M. Mayo, $600.
Burr Farm Veeman Creamelle, Jan. 26, 1919, H. H. Covell, $600.
Mollie Creamelle, Apr. 8, 1912, Bost & Johnstone, $725.
Dodo Pietertje Korndyke, Feb. 2, 1911, J. M. Mayo, $475.
Nemea De Kol Pontiac, June 28, 1914, T. H. Brice, $200.
Burr Farm Veeman Brudorin, Feb. 2, 1919, D. D. Elmore, Whittier, $310.
Ida Hengerveld Ormsby De Kol, Feb. 25, 1920, J. A. Hamner, Riverside, $250.
Burr De Kol Pontiac, Dec. 24, 1918, J. A. Hamner, $210.
Canary Korndyke Mercedes, April 5, 1914, T. H. Brice, $200.
Winsome Juliana, July 12, 1913, T. H. Brice, $310.
Creole Belle Netherland 3d, Feb. 27, 1913, J. M. Mayo, $575.
Durmelia 2nd, Dec. 8, 1909, F. F. Pellissier, $550.
La Reina Hartog Hengerveld, July 30, 1914. J. M. Mayo, $425.
Helm Segis Aaggie Korndyke, Aug. 26, 1916, J. L. Durrell, Hynes, $320.
Julietta Pontiac Paul, Feb. 14, 1913, J. M. Mayo, $375.
Topsy Clothilde Hengerveld, Dec. 30, 1908, J. M. Mayo, $500.
Heifer calf, Jan. 13, 1920, John Houston, El Monte, $100.
Heifer, F. F. Pellissier, $350.

Consigned by W. T. McAllister, Los Angeles

Mary Juliana Alcartra, Sept. 6, 1916, Wm. R. Heldoorn, $200.
Locust Terrace Goldie, Jan. 3, 1911, Wm. Marriott, Hynes, $300.
Fanny Segis De Kol, March 2, 1916, Burr Farm, $300.
Canary Fanny Pauline 2nd, March 25, 1912, F. F. Pellissier, $340.
K. P. N. S. Pontiac, Jan. 20, 1917, Burr Farm, $175.
Bull calf, Nov. 19, 1919, C. C. Stafford, $50.

Consigned by Agee Bros., Rivera

Bull, born Feb. 19, 1919, T. H. Logan El Monte, $160.
Bull, born April 1, 1919, M. del Georgia, Buena Park, $250.
Favorite Rowena Clothilde, Oct. 31, 1916, Burr Farm, $210.
Isabella Crane of Lucerne 2nd, July 14, 1912, Geo. Houston, $220.
Paragon Ormsby Segis, March 5, 1918, H. H. Covell, $425.

IMPORTS FROM MANITOBA

The United States imports from Manitoba, Canada, for the first three months in 1920 were valued at $10,578,601, an increase over the first quarter of 1919 of more than $2,235,000. These increases were in flaxseed, wheat, rye, hides, lumber, furs, flour, and newsprint paper. There were decreases in the imports of cattle and fish over those of last year.

To Settle the H. W. Meek Estate
We Will Sell Entire Herd at Public

Auction

Tuesday, May 11

Meek Ranch, 1 Mile West of Haywards

14 Miles east of Oakland on 14th St. road; 20 miles west of Livermore; 30 miles north of San Jose.

210 Milk Cows

These Cows are mostly Holsteins and are big, heavy producers. They will please you.

22 Heifers --- Springers

Sale Starts at 11 A. M. Terms Cash. Free Lunch

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Purebred Holstein Cattle in the North West

The North Dakota Farmer recommends Holsteins and reports: "The United States Government and the experiment station when selecting cattle for the breeding circuit at New Salem chose this breed as being best adapted to conditions." Holsteins are strong and healthy and do well in any climate. On account of their great yield they are the most economical producers of butterfat.

Send for Free Illustrated Booklets. They contain valuable information for any Dairyman.

THE HOLSTEIN - FRIESIAN ASSOCIATION
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CATTLE FOR SALE

95% Whitefaces

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Heavy Boned Hereford Steers
Mountain Raised—Healthy

100 Cows and Calves

100 Heifers and Cows

Inspect Cattle at Howard Ranch
12 miles Southwest of Chowchilla, Madera County, Cal., or write

A. L. SPELLMEYER
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Quality Holsteins

Our herd is headed by a grandson of the world's greatest dairy cow, Tilly Alcartra,

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whose dam and sire's dam average:
Butter, one year..... 1096.58
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All animals guaranteed

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SWINE INTEREST GROWS
By T. J. Hitte

In the San Fernando Valley the pure bred swine interest is assuming proportions that reflect the real importance of the pork making industry in California.

Something more than a year ago a few of the leading breeders of Duroc-Jerseys held a get-to-gether meeting at Van Nuys which resulted in the organization of a local association to be known as the San Fernando Valley Duroc-Jersey Breeders' Association. Today the association has a membership of 25 or 30, with a splendid interest prevailing throughout its ranks.

On a recent trip into the valley by the writer a few short stops were made that indicate fine progress and high anticipations as to the big livestock shows in the south end of the state.

A real live wire breeder here is L. R. Hitchcock. Mr. Hitchcock believes in being always on the job, and is giving close attention to all details of his business. The fact is he saves practically every pig that is farrowed, and he makes the most of that pig from that time forward. Last year he had about 16 young boars that were good enough to bring $125 each for the entire lot. The crack spring litter now numbers 12 out of Superb Rose, a Graham bred sow and sired by the noted reserve champion boar, May Rose King, owned at Elliott-Brant Rancho. These pigs are of March 10 farrow, strictly large for age, and shapely to the very dot. As futurity prospects they are right at the top. Princess Pat has fine litter of nine by the herd boar Nutmeg Gano. Her last year's litter of eight sold for an even $900. Jeanette is a big yearling raising nine good pigs by same sire. Model Lassie, daughter of Great Model, has nine beauties by Winsor's Giant Orion. Red D. Maid has eight by the noted Orion's King Gano.

At the L. & M. Ranch, Leest and Meunier, owners, may be seen choice sows and litters. Among these is a Top Sensation third litter of ten, two fine litters by Winsor's Giant Orion, and another of 11 by May Rose King, right age and caliber for futurity stuff. At the head of the herd is the very toppy young boar Liberty L. & M. Orion Defender. He is sired by Cherry Volunteer 2d and out of Ireland's Queen by Orion's Cherry King 5th. He is a big stretchy fellow, well up on his pins and is sure to set a fast pace in senior boar pig class.

At the Penfield & Maxwell Ranch are seen a pair of big fall yearling daughters of Orion's King Gano that are to be mated to the noted Cajon Ranch boar Pathfinder's Pride. These sows were raised at the L. & M. Ranch, and they are as good as the best. Mr. Maxwell figures that they are too good to make show stuff of.

Witt & Huey have recently laid foundation for a good herd near Lankershim. They own the young boar Pathfinder's Wonder by Pathfinder's Pride, and out of a Great Model dam, that gives fine promise. They likewise have an outstanding September gilt by California Orion Cherry King. Will exhibit at Los Angeles Livestock Show.

MERCED COUNTY PURE BRED BREEDERS FORM AN ASSOCIATION

As a result of a meeting of the pure bred breeders held recently, an organization was formed, not definitely named yet, but a suggestion was given out that the Merced County Pure Bred Breeders Association be the name. J. F. McSwain of Plainsburg was elected president and E. E. Greenough of Merced, secretary-treasurer.

The purposes of the new organization are: To boost the pure bred sire campaign carried on by the farm bureau; to do all in its power to foster the boys and girls agricultural clubs; to work with the chamber of commerce and board of supervisors toward establishing permanent grounds for county fairs and livestock shows.

This meeting was called by the farm bureau and there were representatives there of the Poland China, Jersey and Duroc-Jersey Breeders Associations. Besides these, there were representative Holstein, Hampshire, Guernsey and some pure bred poultry breeders.

Attend the Kern County Pig Club Sale

at Bakersfield, Cal. Saturday, May 15th, 1920

Featuring

The Kern County Pilot

The Kern County Pilot

This remarkable young boar is a full brother to The Pilot, Grand Champion at the National Swine Show and The Yankee recently sold for $40,000, the world's record price for a Poland China boar.

The offering includes three sows with litters by The Kern County Pilot. Twenty sows and gilts bred for early fall litters and twenty open gilts sold with breeding privilege. Everything to the service of The Kern County Pilot.

For Catalog and information write

H. K. Dickson, Pig Club Leader

Bakersfield, Cal.

Lendorris Liberty Bond, Skyrocket and Lendorris Liberator,

are our three herd boars.

They are a combination of the most popular blood lines and their individual excellence assures the purchaser of Poland Chinas the great size and quality desired by all. Our sow herd is in keeping with our three good boars.

A few choice individuals for sale at all times. We solicit your correspondence.

W. L. Haag and Son Hanford, Cal.

Do You Know?

That the WESTERNER is a son of BIG BOB—the greatest sire of BIG TYPE POLANDS that the breed has ever known? The progeny and direct descendants of BIG BOB have won near 75 per cent of the ribbons at the National Swine Show since its origin?

REMEMBER that THE WESTERNER is a son of BIG BOB, the sire of sires.

ALEX. D. McCARTY RIVERINA FARMS MODESTO, CAL.

For easy feeding, early maturing Poland Chinas,

Secure the Get of Model Big Fellow

He was Reserve Grand Champion at the last state fair and was next in line to Giant Bob, later sold for the highest price ever paid on the coast. I solicit your correspondence.

J. F. McSwain Merced, Cal.

FORRESTVIEW BOB

A Son of the Noted Caldwells's Big Bob

is the boar that is siring the class of Poland Chinas that have made it possible for me to have so many satisfied customers. They are my specialty. I strive to please.

J. H. Cook Paradise, Cal.

California Cultivator
Costs Only $1.00 Yearly

Fortuna Herd of Polands

Fraziers Model 659594, is a sow of extreme size and correct type. Her pedigree combines the best of Big Bob, Long Big Bone, Big Timm and A Wonder breeding. On March 25 she farrowed a litter of 13, by "The Californian." There is an outstanding boar pig in this litter. Write us about him.

Hugh C. Shinn, Tulare, Cal.

We Are Offering for Quick Sale Two Tried Sires

California Jumbo Buster and Blue Valley King

These two boars have sired a class of Poland Chinas that have made it possible for us to secure an ever increasing patronage. Write us at once. We feel sure you will be interested.

A. Buckland & Son, R.F.D., Fresno, Cal.

THE SEQUOIAN

One of the Largest Yearlings in the State, Heads My Herd

He is a young boar of great promise and bids fair to develop into a remarkable sire of big type Polands. Young stock of both sexes for sale at very reasonable prices.

Z. M. Dickey **Dinuba, Cal.**

I AM STILL OFFERING

exceptional POLAND CHINA values in breeding stock for quick sale. I can fill most any order you want from choice pigs to mature animals. Prices reasonable. I can please you. Write and see.

Eugene Miner **Lodi, Cal.**

Aviator A strictly big type boar that is siring a class of young Polands of the really big type. We expect to show this good boar and some of his get at the state fair this year. Satisfaction assured on any purchase you make of us.

CROSS BROS **MERCED, CAL.**

Trewhitt's Big Type Poland Chinas

have long been noted for their size and feeding qualities and have been bought by the leading breeders of the state for the improvement of their herds. Select your next purchase from a herd where you have the assurance of something better.

W. D. Trewhitt **Hanford, Cal.**

King's Big Bone Leader

is siring the big stretchy type of Poland Chinas sought by the discriminating breeder. He is assisted by Giant Bob 2nd, a son of the late grand champion and a pig of great promise.
Write for information. Stock for sale at all times.

Les McCracken **Ripon, Cal.**

McCune's Quality Herd

of BIG TYPE POLAND CHINAS

attained their prominence by a careful study of blood lines and individuality necessary to real constructive breeding. We produce the type you need in your herd. A few choice individuals for sale at all times.

H. D. McCUNE, **Lemoore, Calif.**

Fitting Hogs for the Show

By J. P. Bennett

It is not too early for the breeder who seriously contemplates entering animals in the show ring this fall to begin fitting the individuals. The old adage concerning the early bird and the worm might fittingly be applied here for, as a rule, it is the breeder who has given months of time and careful, intelligent attention to his offerings in fitting them, who is counted among those holding high stakes at the final showdown. Individuality in animals, conditions and climate make it impossible to suggest a set formula to follow in developing the individual to bring out its best points, but there are some general rules which might well be borne in mind at this time, altering them to suit one's own particular need.

The exhibitor of today and the exhibitor of yesterday have vastly different ideals of type and fitness, hence the animals must be developed along modern lines. One of the greatest improvements in show ring standards is the demand for growth and development rather than merely high flesh. Only a few years ago it was almost impossible to win at the leading shows without fattening the animal to such a degree that it oftimes seriously impaired its value as a breeder and sometimes altogether destroyed its future usefulness. This may all be overcome by proper and intelligent care in fitting. Today the demand is for size, growth, mellowness and good flesh rather than being merely overfat.

The hog is the most plastic of all breeds of animals. Thus it requires even more study of the individual animal and its particular need in the line of feed and the method best suited to its development. Pigs from the same litter may not all thrive under the same treatment, and it is almost always necessary to divide litters into groups, seemingly best suited, and that have the same natural tendency, handling them according to their need if they are to develop and grow out uniformly.

The feed and care of pigs for show purposes should start before the pig is farrowed by giving the sow the proper ration and care, thus aiding toward a strong, healthy litter that will have a running start on the rapid growth necessary to gain large weight at an early age. The man who has milk in any form to feed his show prospects has an advantage if he balances the milk with other feeds. The ideal pasture is alfalfa. The spring and fall pigs can be fitted on much the same ration and it must be one high in protein to insure growth. A wider ration may be used for the older animals. Exercise is very essential, not only to the health of the animal but to strengthen the legs and pasterns in order to carry the increasing weight. Great stress may be laid on exercise. Many otherwise great hogs have been defeated in the show ring because they were down in the pasterns, simply due to lack of exercise, and this condition can come on before one realizes it unless he is systematic in daily exercise. As show time approaches the grain ration may be increased as necessary to bring on the bloom of condition so much desired. The successful showman soon learns to proportion the feeds at his command to obtain the best results. Wheat bran and middlings, with a little tankage and oil meal, are the best growing feeds, especially if some milk can be added to the ration. Either buttermilk or sweet milk will answer the purpose. These, supplemented with alfalfa, will give good results. As the end of the fitting season approaches, grain should be added to harden the flesh. Too soft a feed will often cause waviness and unevenness in fleshing, a condition to be studiously avoided. Great attention should be paid to the feet. Keep them trimmed to keep the animals on their toes. A heavy pocket knife will answer the purpose on the young stuff, trimming the toe back to as near as is safe and smoothing the surface down with a rasp. On the larger animals a pair of hoof nippers may be necessary and if the animal is restless or unruly it is often best to snub it to a post with a small noose around the upper jaw, being sure to get it back of the tusks. A sharp wood chisel and mallet will be best for trimming the first part of the hoof, smoothing and shaping with a rasp. Care must be taken not to cut into the quick and lame the animal. However, in case this is done the fresh surface should be painted with iodine.

Aged boars should have their tusks removed, not only for safety in handling, but to make them more quiet and feed better.

The coat needs some care and attention. Unless the larger animals are shedding at present it would be advisable to clip them as soon as possible in order to grow a new coat before show time. There are methods of feeding that will cause shedding, but at this time of year, with the time of preparation none too long at best, it may be safest to make sure by clipping. An occasional spraying with some of the coal tar dips will keep the vermin away, loosen the scurf and improve the texture of the hair. At show time a light oil dressing is all that is desired if applied to a clean surface. Most old exhibitors have their favorite dressing and guard their formula very carefully. However, some light oil such as a light castor or low grade olive oil, cut with alcohol, applied lightly just before showing, will add much to the beauty of the black breeds. The use of lampblack and fish oil should be discontinued if used at all, as they are certainly an abomination.

The outlook for a great hog show at the California state fair is the best in the history of the institution, as many breeders have already declared their intention of showing, and I take this opportunity to urge a longer feeding period and more careful fitting than ever before, as there will be classy competition in all breeds and the ribbon is certainly compensation for any amount of time and trouble.

Sonoma Sheepmen Strong for State Pool

A meeting of the Sonoma County farm bureau wool pool committee was held in Santa Rosa April 23 to discuss the progress so far obtained and detailed plans for future work. The following were present: C. P. Smith, Santa Rosa; T. B. Purvine, Petaluma; Wm. Caughey, Santa Rosa; A. B. Purvine, Petaluma; Henry Rued, Santa Rosa; Paul Rued, Santa Rosa; C. W. Hunt, Petaluma; I. H. Stice, Petaluma; Mrs. C. Bassett, Fallon; T. F. Miller, Sebastopol; B. B. Hinshaw, Petaluma; Wm. Steinbeck, Bloomfield; S. B. Wright, Santa Rosa; Rene Guillou, Windsor; S. W. Baker, Santa Rosa; W. H. Heileman, Berkeley; Acting County Agent Melvin W. Buster and Assistant County Agent Henry P. Everett.

Prof. W. H. Heileman, secretary of the state farm bureau federation, was present to explain the general plan of this statewide pool and answer questions regarding the details of the system. This work will be carried on under the direct leadership of the state wool committee, composed of experienced and responsible wool growers, which in turn is under the supervision of the marketing department of the California farm bureau federation at Berkeley. In the separate counties the work is done by a local committee under the supervision of the farm adviser and the board of directors of the farm bureau. Only the spring wool clip will be accepted in this pool. This wool will be gathered into carload lots and consigned direct to the National Wool Warehouse and Storage Company of Chicago, where it will be graded and stored until sold. A commission charge of three cents per pound will be charged by this company to cover the unloading and shipping of the wool out of the warehouse, grading, insuring, storage for five months, and selling. The sale will be made under the direct supervision of the state wool pool committee, which is composed of seven men who are them-

selves large sheepmen of this state. In Sonoma County the following committee is in charge of the work preparatory to sending the wool to Chicago: B. B. Hinshaw, chairman; Paul Rued, Rene Guillou, O. N. Charles, Arthur Purvine, Robt. Caughey, Wm. F. Holmes, Jr. This committee will see the various wool growers who wish to pool their wool and have them sign a membership agreement. Later, when the wool has all been clipped, a date will be set to assemble this wool into carload lots and make the necessary tabulations prior to its leaving the county. Each grower's wool will be handled and graded separately and separate returns made on the basis of quality.

At the conclusion of the meeting all those present expressed themselves as being heartily in sympathy with the plan and voted unanimously to enter the state wool pool.

WINNERS IN STUDENTS JUDGING CONTEST

At the finals of the first annual university farm livestock judging contest, held at the university farm, Davis, on picnic day, April 24, five classes of livestock were judged. The judging was limited to men of the college of agriculture and of the university farm school who were among the 20 highest in the preliminary contest which had been held during the past month.

J. A. Murdy of the university farm scored the highest and was awarded the California Cultivator annual trophy to the champion judge of all classes of livestock. W. M. Stevenson, university farm, was second and received the California Breeders' Sales and Pedigree Company medal. The third highest score was received by L. S. Brown of the university farm. He was presented with the Western Meat Company's prize, "a trip to San Francisco to go through the packing plant." L. C. Jones, a farm school student, was the best judge of Southdown sheep and was given the Southdown association prize. The Poland China Breeders Association awarded to J. A. Waters the prize for the best judge of hogs. Scott Harrington won the California Cattlemen's Association trophy for the best judge of beef cattle. The latter two men were the only two men from the University of California who came out on top in the finals. The best judge of dairy cattle was L. S. Brown, who received the W. H. Dupee trophy for the best judge of Guernsey cattle. W. M. Stephenson, a farm school student, recently from the University of California and of Cornell university, won the cup offered by Mrs. Anita Baldwin to the best judge of Percheron horses.

CATTLE AND SHEEP CONVENTION FOR FLAGSTAFF

Hugh Campbell, president of the Arizona Wool Growers Association, states that a combined meeting of the Arizona Wool Growers Association and the Arizona State Cattle Growers Association is to be held at Flagstaff, July 7 and 8. The combined convention is sure to bring out a large attendance, as it is expected that Secretary of Agriculture Edwin T. Meredith will be present, also other prominent national livestock leaders and forest officials, including W. B. Greeley, recently appointed chief of the U. S. forest service, and E. A. Sherman, associate forester in charge of grazing on the national forests.

The chief topic of the joint summer convention will relate to grazing on the national forests, which is a subject of vital importance to both cattle and sheep men.

There are eight national forests in Arizona, with a combined area of 11,000,000 acres, which is 15 per cent of the entire area of the state. Grazing permits have been issued by the United States department of agriculture to Arizona stockmen this year for 352,200 head of cattle and horses, 365,500 head of sheep and goats and 1,855 head of swine.

The officers of the Arizona Wool Growers are Hugh Campbell, president, and Judge Perkins, secretary, with headquarters at Flagstaff.

The officers of the Arizona Cattle Growers are C. P. Mullen, president, and F. E. Schneider, secretary, with headquarters at Phoenix.

SHORT COURSES

The university farm is announcing its 1920 short courses. The first of these will have to do with gas tractors, June 1 to June 11. The greater number of the courses, however, are in the later period, September-December.

The course on general agriculture extends from September 27 to November 13.

Crop production, Sptember 27 to October 16; animal husbandry, October 18 to November 6; farm horticulture, November 8 to November 13; poultry husbandry, September 27 to November 6; dairy manufacturers, October 11 to November 6; milk testing, October 11 to October 23; buttermaking, October 25 to November 6; cheesemaking, October 25 to November 6; deciduous fruits, November 29 to December 11.

The purpose of the farmers' short courses is to enable persons, especially those of mature years and ranch experience, to acquire a knowledge of the fundamental principles of agriculture and of the results of the latest investigations in the production of fruit, field and forage crops, and livestock of the various classes. These courses also furnish an excellent opportunity for people without ranch experience who expect to engage in some line of agriculture, to obtain both theoretical and practical instruction that will prove of the greatest value to them in their farming operations.

A Modern California Livestock Farm

Caledonia Farms, West Sacramento, owned by Edward Cebrian, is one of the real assets of California and typifies the present trend in our pure bred livestock development. At Caledonia Farms there is one of the largest and choicest collection of Shorthorns owned in America. The first sale from this herd will be held at the farm, Thursday, May 27. Good land, good cattle, good buildings go hand in hand and make for prosperous communities. There is room in this state for many more such farms—Photo by McCurry.

Rough's Big Type Poland Chinas

All Our Offerings Are at Private Treaty

Home of the Grand Champion Superba

Our Poland Chinas are the genuine big type in blood and in reality—the offspring of the great Superba—the king of the big type Polands on the Pacific Coast. They also carry the close-up blood lines of such noted sires as Big Bob, Big Orange and A Wonder. It is the real pork type, the prolific type, the feeders type. They make the ideal mothers, and they tip the scales at any age, six months and up.

Our herd is absolutely clean—never a case of abortion in the herd.

SUPERBUS BY SUPERBA—Young show boar prospect; on dam's side close descendant of A Wonder and Big Orange.

NO RESERVATIONS

This herd is today in the prime of its usefulness. We are not closing out, but we aim to please buyers and will permit them to select from anything in the herd. With a few exceptions our big young sows will be sold open, or they will be bred to order. Can show you sows with fine litters or sows carrying litters. Every animal in herd (except spring pigs) is recorded and papers go with every animal sold. Herd is open to inspection any day and every day. Write for particular information. Letters promptly answered.

To Whom It May Concern: The writer has probably as close and thorough an acquaintance with Poland China breeding herds in the Middle West, as well as throughout the state of California, as any man in the state. It should, therefore, be of some interest and value to all concerned to know that he considers the W. H. Rough herd at Arlington second to none in the matter of popular bloodlines, size, stamina, prolificacy and high feeding qualities.—T. J. Hitte.

SUPREMIS—Big yearling son of Superba; sire of 63 pigs in spring litters—average 8 1-3 pigs to litter. His sire Superba won grand champion at the P. P. I. E.; also won grand championship and three firsts in four Corn Belt states. His dam Lady Lenature is an 800 lb. sow in breeding condition. She was shown in same rings with Superba, always standing first and first against all breeds at K. C. Royal.

BIG SIS 64TH with litter of 11, by Supremis. She is of Blue Valley Gold Dust and Big Long Jumbo blood lines.

BIG SIS 63D, suckling 9 by Supremis, a perfect type of brood sow, litter mate to Big Sis 64th.

Some of Our Big Yearling Daughters of Superba

Address all letters to W. H. ROUGH, Arlington, Cal.

Ormondale Ranch Shorthorns

Redwood City, Cal.

HERD SIRES

Boquhan Guinea Stamp, the great imported Young Broadhooks bull. Golden Goods Jr, sire of LITTLE SWEETHEART, Grand Champion International Show, Chicago, 1919.

Bulls and heifers for sale.

Duroc-Jersey hogs for sale.

James McDonnell, Supt.

The Get of Vaughn's Jones

are of such uniform excellence as to class him with the most prepotent sires in the state.

All his pigs measure up to the same high standard of excellence sought by careful breeders of Poland China hogs. Come and see for yourself.

A. J. Van Cleef Riverdale, Cal.

PICTURES TELL BETTER SIRES MESSAGE

He who runs may read the message told in the accompanying photographs—a remarkable series depicting the unmistakable benefits arising from the use of pure bred sires. "Little Gay," 17 years old when this picture was taken, is the starting point of this better stock story, which is told by a far sighted farmer near Dresser Junction, Wisconsin. This native white mare at 17 years of age weighed 975 pounds. "Not much to look at," but by right breeding splendid results were obtained, as the following pictures show.

Daisy, the daughter of Little Gay by a pure bred Percheron stallion, was 11 years old when this picture was taken; she weighed 1,400 pounds. This animal is no worse and no better than many so called "plugs" upon the average American farm.

Proper breeding produced the splendid offspring "Trixy," who was the third cross from the old white mare. Trixy begins to show results of careful breeding. She is seven-eighths Percheron, and at three years of age

The Pictures Which Tell the Story

weighed 1,500 pounds. Queen, her full sister, is another good farm animal and at four years of age weighed 1,650 pounds. When better sires will bring about such results, why should any farmer continue to use grade or scrub sires?

Registered Hereford Bulls

We have a few choice bulls from one to three years old for sale.
Our Breeding Herd was purchased from the most noted breeders of the Middle West, and are of Anxiety Breeding.

E. A. Noyes & Son, Sutter, Cal.

Livestock Auctioneers—Hammond and Bradley

Our dairy cattle sales are coming bigger and faster, and more of them; and likewise our big general farm sales. Our customers continually get the high dollar at the minimum of expense.

Try us out on the "live-and-let-live" plan of conducting business.
Write or wire for dates, terms, etc.

Office 1053-55 South Main St., Los Angeles Phone 63545

Johnson's Defender Jr.

Is some boar. As an individual he ranks as one of the best in the state. His get are the type that experienced breeders demand. Let me fill your order for anything in the Duroc line. You will be pleased with your purchase.

H. C. WITHEROW Live Oak, Sutter Co., Cal.

Over Two Million Calves

protected against Blackleg for LIFE with ONE treatment vouch for Purity Blackleg Aggressin (Germ.-Free Vaccine made by the Kansas Process). Absolutely safe to use Cannot transmit disease. Brand, castrate, etc. when you vaccinate. OTHER PURITY PRODUCTS: Anti-Abortion Vaccine for Cattle; Hemorrhagic Septicemia Vaccine for Cattle, and Sheep; Anti-Hog Cholera Serum, and High Count Mixed Infection Vaccine for Swine. For service that counts write, phono, or wire

PURITY SERUM CO., J. L. Thatcher, Mgr. Riverside, California

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Worms

Horse has worms. What shall I do for it?—Subscriber, Compton.

There are worms and worms and the treatment for stomach worms is so different from that used for pin worms or tape worms that the one asking the question should always tell the kind of worm the horse is infested with. Pin worms are only found in the last bowel and in the rectum, and medicine given in the feed will never reach them, as the strength is all gone before it gets back that far. Pin worms are only reached by enemas. Make a tobacco decoction by steeping a package of scrap tobacco in two gallons of boiling water for half an hour. Strain and when cool inject all at one time. Repeat this every day for a week. The stomach worm, which is about the size of a lead pencil and eight or ten inches long, can be destroyed by medicine in the feed For it mix three ounces of powdered areca nut, three ounces of powdered gentian, one ounce of sulphate of iron and four ounces of bicarbonate of soda. Divide into 20 powders and give one every morning in the feed. Worms are an indication of overfeeding. Regulate the feed so the horse will get one pound of hay to every 100 pounds it weighs, every 24 hours, and half as much grain when the horse is not working. He should have the same weight of grain when working as he gets of hay.

Cat Sick

I have a cat that has been sick three days. Will not eat nor drink. Acts like a chicken with the roup. Eyes and nose are running and she has a cough.—Subscriber, Fresno.

Cats are hard to treat. They do not like medicine and when you put it down them they usually throw it up. It acts a little like poison in this case. The best thing to keep a cat in good health is to give a small amount of dried catnip occasionally You can get it at most druggists.

Distemper

We have a dog that has been suffering for a couple of weeks with what our neighbors say is distemper He has lost appetite and flesh, coughs, and his eyes are sore and mattery. He is less than two years old. What will relieve him?—Subscriber, Klink.

The symptoms are those of distemper, but after two weeks it is practically impossible to cure him completely. You can help him some by giving five grains of calomel once a week for three or four weeks. Feed him raw meat and hard bread. If his muscles begin to jerk he should have one one-hundredth grain dose of strychnia once a day. Keep him in the open, in the sunshine, as much as possible. Distemper can be cured when taken at the very start by giving a good dose of calomel and following in about 12 hours with a large emetic of strong salt water given warm.

THANKS THE CULTIVATOR

Davis, Cal., April 28, 1920. California Cultivator, Ochsner Building, Sacramento, Cal.—

Dear Mr. Royce:

In accordance with the rules of the livestock judging contest recently held at the university farm, Davis, I have been designated the winner of the California Cultivator trophy, which has been presented to me. It is a trophy I shall always be proud of and I am taking this means of thanking you in a small measure for it.

I hope that this contest will be continued in the future, as it certainly is a means of promoting interest in the livestock industry.

Again thanking you. I remain, Sincerely Yours, J. A. Murdy, Jr., Davis, Cal.

First Public Sale
Caledonia Farms' Shorthorns

At the Farms, West Sacramento, Cal., Thursday, May 27

70 Scotch and Scotch Topped Females 70

30 will sell with calves at foot. 20 will calve before August 1st. Balance are bred.

Imp. Caledonia

Gainford Matchless

A Great Opportunity for Western Cattlemen

This offering is presented to furnish beginners and established breeders an opportunity to select female foundation material. Besides the large number selling with calves at foot or due to calve shortly, practically all will carry the service of IMP. CALEDONIA, one of the great bulls of the breed; GAINFORD MATCHLESS, grand champion at the 1919 San Francisco show, or PINE GROVE KING, a proven sire of merit. There are listed daughters of GLENNBROOKS MARQUIS, sire of the dam of the many sensational productions in the university herd; FOND LAVENDER, WHITEHALL KING, LAVENDER DIAMOND, CHAMPION OF SCOTLAND, KING OF PAICINES, PINE GROVE KING, SPICY PRINCE, FAYETTES MASTER, WHITHALL OF ORANGE, BUTTERFLY VISCOUNT, BAPTON PRIDE and others.

No better opportunity has been presented Western buyers in search of desirable Shorthorn females bred to as great outstanding sires. Make a start with Shorthorns now—it is profitable and pleasant business.

40---Top Young Bulls for Sale at Private Treaty---40

Every animal guaranteed a breeder. All over six months old sell tuberculin tested. Send for the catalog

Auctioneer,
Col. Ben A. Rhoades,
Los Angeles, Calif.

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Manager, Sacramento, Calif.

What is Meant by "Throw and Blow"

Most ensilage cutters have three or four fans on the cutting wheel. This means that each fan must elevate 1-3 or 1-4 of all the silage at every turn of the cutting wheel. When the cutter is working at maximum speed, the cut ensilage accumulates too quickly for the fans to elevate it with the result that it clogs in the pipe.

The Papec Ensilage Cutter has six fans on the cutting wheel. Each fan elevates but 1-6 of all the silage cut at a turn of the wheel. Naturally the six fans pick up and elevate the cut material more evenly and with less liability of clogging.

Moreover the fans in the Papec are set at such an angle that the ensilage leaving the wheel receives the full benefit of the centrifugal force—being elevated for 20 feet before the air blast is necessary to complete the operation.

This is but one of the many Papec features to which we invite comparison with any other ensilage cutter.

SIMPLEX SILO

It is better to start with the right principles than to be continually changing ideas as time proves them incorrect.

A silo should be air tight, sturdy, with smooth and perpendicular inside walls. The fact that the "Simplex" Silo complied with these requirements at the very beginning has gained for it the reputation of being scientifically correct.

MAIL THIS COUPON

SANTA FE LUMBER COMPANY,
16 California St., Dept. A, San Francisco, California.

Please send me folder describing Simplex Silos; also information about Papec Ensilage Cutters.

Name .....

Address .....

Santa Fe Lumber Co.

16 California St. San Francisco, Cal.

Careful Inspection of Every Part

DE LAVAL

For Forty Years the World's Standard

Perfectly designed, with a staff of skilled engineers constantly striving to improve it, the De Laval is built of the best of materials, by the best of mechanics, and with the best of equipment—with forty years of experience behind it.

Every piece of material and every part is carefully inspected and tested. The limit of permissible variation in size of most of its parts is less than one-thousandth of an inch.

These are the basic reasons why the De Laval costs more, does better work, produces a better product, requires less attention, and lasts far longer than inferior separators.

Your local De Laval Agent will be glad to demonstrate the superiority of the De Laval. If you don't know him please simply address the nearest main office, as below.

De Laval Dairy Supply Co.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

61 Beale Street San Francisco, Cal.

TESTIMONIALS

"Cows Increased In one week 3 per cent in milk."
A. L. McCULLOCH, Alpaugh, Cal.

"I never saw hogs do so well or grow so fast as on this molasses ration." C. H. HARTWIG, Yuba City, Cal.

"It has enabled me to keep my stock in better condition at less expense." J. M. HENDERSON, JR., Sacramento, Cal.

"Have one calf that refuses to drink new milk—prefers skimmilk with molasses. What do you know about that?"
R. HECKLEY, Santa Rosa, Cal.

"It has been a great advantage in getting the stock to clean up the roughage." H. H. AMES, Chowchilla, Cal.

"One cow will turn down the choicest handfuls of alfalfa hay unless it has been 'Molassed'."
REDWOOD AYRSHIRE FARM, La Honda, Cal.

MOLASSES

cheaper than hay, but has same feeding value as corn or barley.

W. H. YOUNG COMPANY

58 Sutter Street San Francisco, Cal.

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

California Cultivator

Costs $1 per Year

Dairymen Organize

About 20 of the leading dairymen of Los Angeles County met on April 24 at the court house and organized a dairy department of the Los Angeles County farm bureau. The reasons for this action are that the dairymen had no general organization in the county; the meetings of the farm bureau had little interest for them, being given over largely to fruits, etc., and that the farm bureau was doing no comprehensive work for them, merely testing cows for production.

There are at present three cow testing associations in the county, having about 3,500 cows under observation, but no other work is done. The new organization has its own officers, will call its own meetings, and discuss such questions as are of most vital importance to the dairy industry. It will also have specialists in this line of work address them whenever such aid may be procured. The first work will be a membership campaign. Next will come a survey of the dairy industry of the county to determine its extent and its needs.

The officers elected were: Director, Wm. R. Harriman, County Farm; director, G. M. Brown, Burr Creamery; secretary, W. S. Rosecrans; treasurer, Ralph McNees. An executive committee of three consists of: Dr. Maynard Rosenberger, former milk inspector of Los Angeles and now superintendent of the Adohr Farms; F. F. Peilissier, Whittier; I. J. Scott, Pomona. Four important meetings are being held during this week, at which the membership drive will be prosecuted.

The first meeting is with J. J. Jeffries, Burbank, at 1 p. m., May 5; the second at G. A. Brown's, El Monte, at the same hour on May 6; the third with I. J. Scott, Pomona, on May 7. At 11 a. m. on Saturday of this week, at the county farm near Downey, will be held a picnic and free lunch. At each of these meetings Dean H. E Van Norman of the state farm at Davis, and S. H. Green of the California Dairy Council, will be the principal speakers. It is expected this last meeting will be a grand rally, and it is hoped everyone will attend who is in anywise interested in the dairy industry.—E. B.

Sudan Grass for Silage

Sudan grass silage has been compared with corn silage in investigations at the Oklahoma experiment station. The grass was cut in the dough stage, cut immediately into three-fourths inch lengths and put into a cylindrical silo made of galvanized iron whose dimensions were four by nine feet, according to C. T. Dowell and W. G. Friedmann, writing in the station's 29th annual report. The weight of the grass put in was 2,095 pounds, and to this was added 697 pounds of water. The silage was thoroughly packed while being put in, and a circular top was placed on it. On this were placed three concrete weights, making a total weight of 1,262 pounds.

A Tractor Which Becomes a "Stationary"

The tractor is a dual purpose or, better, a many purpose addition to the farm. Its duty is not ended when the implements are propelled, but it may be brought into use for pumping, wood sawing, feed grinding, or many other uses, including that shown above, cutting and elevating silage.

After 245 days the weights and top were removed and the weight of the spoiled silage was taken; 10.12 per cent of the silage was spoiled. This per cent is not large when the size of the silo is considered. It was found by comparing the density of this silage with a sample of corn silage, which was put up at the same time and in the same kind of silo, that it was only 54 per cent of that of corn silage. This would indicate that the silage was not as compact as the corn silage and therefore would permit a greater spoilage than in the case of the corn silage, but this is shown not to be true.

Possibly the most important thing noticed in connection with this silage is that more reducing sugars were found in the mature silage than in the fresh silage. It should be noted also that there is only one-tenth of one per cent of sugar present in the fresh silage, and yet the silage was kept in perfect condition. This is contrary to the commonly accepted belief that in order for a field crop to be suitable for silage material it is necessary for it to contain a considerable amount of sugars so as to produce the acids necessary for preservation by fermentation.

Mr. Bayliss, herdsman at the college, states that this silage was eaten by cattle very freely. This probably would not be expected to be the case, since the grass, especially the stems, was quite tough at the time the silage was put up and would certainly point out the advantage of using the grass in the form of silage, since the stems would not be eaten if it were in the form of hay.

It is shown that the density of Sudan grass silage is 54 per cent of that of corn silage, both being put up under like conditions.

The loss due to spoiling in a cylindrical metallic silo containing 2,772 pounds was 10.1 per cent. This loss is small when the size of the silo is taken into account.

The silage kept perfectly in spite of the fact that practically no sugars were present in the green Sudan grass.

Three acids—acetic, propionic and lactic—were identified.

Sudan grass is particularly adapted to Texas, Western Oklahoma, Western Kansas, the middle section of Nebraska and a portion of South Dakota. It is one of the sorghums, and the time and manner of planting it are similar to those of other sorghums. Sudan thrives well and generally is reliable in territory where there is too little moisture for some of the legume hay crops.

An Indiana farmer, Edward Overman of Grant County, has been growing Sudan for five years and says he will continue to do so until something better is discovered. "Some are not satisfied with it," he says in the Indiana Farmer's Guide, "because they

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OR PAIN KILLER FOR THE HUMAN BODY
Gombault's
Caustic Balsam
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For the Human Body — It is penetrating, soothing and healing, and the best for all Old Sores, Bruises, or Wounds, Felons, Boils, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

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We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

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ANTHRAXOIDS
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For immunizing cattle, horses, sheep and mules.

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TRADE MARK REG. U.S. PAT. OFF.

will reduce inflamed, swollen Joints, Sprains, Bruises, Soft Bunches; Heals Boils, Poll Evil, Quittor, Fistula and infected sores quickly as it is a positive antiseptic and germicide. Pleasant to use; does not blister or remove the hair, and you can work the horse. $2.50 per bottle, delivered. Book 7 R free.

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For 30 years I have been devoting my entire time to pure bred beef cattle. I know where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited. R. M. DUNLAP, Hotel Land. Sacramento, Cal.

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

have not learned how to grow and care for it. They permit it to stand until it goes to seed or rust strikes it, when it is not so good.

"Sudan should be planted shallow the latter part of May, when the weather gets warm, and cultivated like corn. It will grow as rapidly as corn, and in six weeks it begins to head and is ready for first cutting. In two weeks it is up 30 inches high and ready for second cutting. If there is plenty of moisture it can be cut again in about three weeks, but it is best to pasture until frost kills it.

"This grass is relished more by cattle and horses than any green feed growing in July and August. It will produce more green feed at this time than any other grass, corn or sorghum. It will make more and better milk than clover and alfalfa, and there is no danger of bloating or digestive trouble. I would certainly claim that Sudan grass cultivated is better adapted to this climate than alfalfa and is more valuable."

STATE WOOL POOL

The California Farm Bureau Federation is organizing a cooperative wool selling pool to cover all the counties in the state. This work will be carried on under the direct leadership of the state wool committee, composed of experienced and responsible wool growers, which in turn is under the supervision of the marketing department of the California farm bureau federation with headquarters at the secretary's office of the California farm bureau federation at Berkeley. In the separate counties the work is done by a local committee under the supervision of the farm adviser and the board of directors of the farm bureau. There is a committee already at work in Sonoma County, consisting of B. B. Hinshaw of Petaluma, Paul Rued of Santa Rosa and Carl Haehl of Cloverdale. This committee will be enlarged to cover every part of the county to insure getting in touch with every sheep man in Sonoma County. At present the work of the committee consists in getting a list of the wool producers and the number of sheep handled by each to have data on which to base future activities.

It is the desire of those behind this movement to secure an equitable price for all spring wool entering the pool, whether from a large or small producer; for the small amounts will be made into carload lots. This wool will be assembled and shipped to some storing house where it will he graded and sold under the direction of a selling committee of the farm bureau composed of sheepmen from all parts of the state.

So far in the history of wool marketing, nothing has been accomplished aside from periodic local pools and the general marketing of wool wherein the individual grower has made consignment through the wool buyer. This is an opportunity for the sheepmen to combine their efforts toward perfecting a system that will adequately care for their wool not only for this season but for the years to come. This wool pool is a trustworthy and economic plan for the disposal of wool wherein all the costs of handling are on a fixed basis, known to everyone, and where the small and large producer are given equal consideration. It is a big opportunity for the wool growers of Sonoma County and it is to be hoped that the plan will receive the hearty cooperation of every sheepman in this county.

IT'S "MILK COW," NOT "MILCH COW"

Hereafter it will be "milk cow" and not "milch cow"—at least so far as the United States department of agriculture is concerned.

This decision marks the termination of a controversy in which etymologists in the department have had not a little interest. Those defending "milch" have pointed to scriptural use and certain of the classics as establishing precedents, while the opposition has contended that dairymen, ranchmen and farmers in generaly use "milk" instead of "milch" almost universally. The advocates of "milk" also favored that word because, they contended, it was more strictly an English word, while "milch" was akin to German. Since Americanization of language as well as ideals is an article in every patriot's creed, it is thought that this last sally of the "milk" defenders helped as much as any to decide the question in their favor.

Dissolution of Partnership Sale

75 Registered Holsteins 75

Leeman & Kilgore Ranch, Ripon, Cal.

Wednesday, May 12, 1920

COWS with records up to over 32 lbs., butter in 7 days, richly bred and in calf to high record bulls.

HEIFERS out of dams with records up to over 1,000 lbs. butter in one year, and over 33 lbs. in 7 days.

BULLS out of dams with records up to over 32 lbs. butter in 7 days, some out of yearly record dams, and by sires whose dams have made 35, 37, and 40 lbs. butter in 7 days, and 1,272, 1,325, and 1,331 lbs. butter in one year.

Breeding --- Individuality --- Good Health

This herd is a high class one judged from any viewpoint, and buyers of the most substantial sorts will find a most attractive selection in this offering.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer.

AT 9 A. M. SHARP we will sell the entire dairy equipment and all farming implements and equipment—AT 9 A. M. SHARP.

Management
California Breeders Sales and Pedigree Company
J. M. Henderson, Pres. C. L. Hughes, Sales Manager, Sacramento, California
Auctioneers: Col. Ben A. Rhoades, Los Angeles; Col. Geo. W. Belt, Tulare.

Complete Dispersal

A Beautiful Young Herd of Registered Holsteins

65 Registered Cows and Heifers, 3 Bulls

This is one of the most attractive offerings ever made in the West. The cattle are all young, of wonderful type throughout, and the herd has a clean health record that is rarely ever equaled. We will disperse this herd at public auction for the owner, Mr. C. W. Anderson, at

Edgemont Farm, Burbank, Cal.

Thursday, June 17, 1920

Write for catalog now, and watch future announcements for details of the offering.

Management
California Breeders Sales and Pedigree Co.
J. M. Henderson, Pres. C. L. Hughes, Sales Manager.
Sacramento, California.

DISPERSAL

50 Young Registered Holsteins

30 Heifers 20 Bulls
State Fair Grounds, Sacramento
Saturday, May 29

This is a complete dispersal of the remaining stock owned by Henderson Company, all young things under milking age.

THE HEIFERS are mostly granddaughters of King of the Pontiacs, being sired by King Pontiac Segis Inka. They are a beautiful lot and many have high record dams.

THE BULLS are mostly sons of King of the Black & Whites, out of choice dams, and they are a most attractive lot of youngsters.

Write for Catalog.

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Calif.

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where efficiency is our watchword and the production of extra heavy milking Holsteins and big type Poland Chinas is our specialty. A few choice animals of either breed or sex for sale at all times at reasonable figures. Write for information.

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Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

In This Column Every Issue

HEALTH
FAMILY A Square Deal in Holsteins QUALITY
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For SALE at
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We have listed and priced for immediate sale a number of choice animals of both sexes from our

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In building up these herds during the past five years we have adhered rigidly to a high standard of

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We now offer you selections from these exceptional herds. Animals of both sexes in lots of one to fifty. Many in calf to our phenomenal yearly record bulls.

Ideal For Foundation Herds

START RIGHT
BUY THEM HEALTHY

We are not offering cheap cattle, BUT OUR PRICES ARE REASONABLE AND STRICTLY CONSISTENT WITH QUALITY AND HEALTH. Remember a

Federal Health Certificate

with every animal. If this means anything to you

BUY FROM
Toyon Farm Association
Mills Bldg. San Francisco
Farms at
Brentwood and Los Altos

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

May 12, Leeman & Kilgore, Dispersal, Ripon.

May 29, Henderson Co., Sacramento.

June 17, C. W. Anderson, Burbank. Dispersal.

Shorthorns

May 27, Caledonia Farms, West Sacramento.

Duroc-Jerseys

July 21, Elmer Lamb, Ceres.

Dr. C. H. Sears sold to Guy Baldwin of Bakersfield one three year old jack, Missouri Douglass, Jr., dam and sire imported from Missouri.

Stanislaus County will hold a fair this year. Bonds have been voted by the city of Modesto for the purchase of 70 acres near that city for a site for the fair.

Empress Korndyke Pontiac, a junior four year old Holstein owned by Bridgford Company, Patterson, has made a new state record. In 30 days she has to her credit 137.78 pounds butter from 2,607.7 pounds milk. She is a daughter of Spring Farm King Pontiac.

At a recent sale of Aberdeen Angus cattle, all of which were imported, held at Chicago by Carpenter and Ross of Ohio, 121 head of bulls and females sold for $169,100, an average of $1,400 per head. Prices ranged from $275 to $4,100, the latter price being paid by a Missouri firm for the cow, Etheria of Maisemore.

B. O. Cowan of Santa Monica, for many years assistant secretary of the American Shorthorn Breeders Association, has been spending several weeks in the Hawaiian Islands. Writing to the Breeders Gazette, he says that he saw more good Herefords in the Parker Ranch herd than he ever saw in any one herd on the mainland. Hawaii has taken many California Herefords in the last few years and that territory is a fertile field for California breeders to cultivate.

Romie C. Jacks, owner of the Imperial herd of Herefords, writes that he has just sold to the Doheny Oil and Ranch Company of Los Angeles the bull, Wyoming 5th, and ten Anxiety bred heifers. Included in the sale were ten yearling bulls for the Doheny ranch in Santa Barbara County. The Imperial herd, while not old in point of years, was founded on an exceptionally strong foundation.

Azevedo Bros. of San Jose have just purchased from The Lewis Company a good young son of the foundation cow Tora, one of the Stanford bred cows which has proven a very consistent producer. At 12 years one month of age, running at pasture, she has just completed a seven day record of 22.13 pounds of butter, an extremely creditable record for that age, her milk production for 14 days being 1,002.5 pounds.

Clayton N. Slocum, pioneer Duroc-Jersey breeder of Willows, writes that the boar Sensation Wonder 1st, senior and grand champion at the last state fair, died recently from what is thought to have been poisoning. The death of this splendid boar is a severe loss to the Slocum herd and to the Duroc interests of the West. During the last few years Messrs. Slocum have been particularly unfortunate in losing a number of very valuable breeding animals, but they have a world of pluck and every time they meet with a reverse they seem only to come back the stronger. It is such indomitable spirit that wins in the end in the breeding business, as in any other work.

Santa Clara County is to have a new bank, located at San Jose, known as The Growers Bank, which besides serving the fruit interests will cater to the livestock men of the section.

On Saturday, May 15, the Kern County boys pig club will hold its first sale at the Kern County fair grounds at Bakersfield. This will be the first pure bred hog sale ever held in Kern County and will introduce to the public The Kern County Pilot, the $1,000 boar owned by the boys of the union high school. The Poland China breeders of the state owe it to themselves to support this sale as a means of boosting the Poland China hog. The boys and the club leader, H. K. Dickson, are to be commended on the work they are doing for the Poland China industry in their part of the state through the dissemination of better breeding stock. The entire offering of sows and gilts are either bred to or have breeding privilege to The Kern County Pilot.

A Buckland and Son, Fresno, have a late September boar sired by Liberty Bond and out of a King of Wonders sow that is coming in very nice shape, and if he keeps up his present gait will have to be reckoned with at the state fair in September.

Martin J. Haas of College Park, a practical dairyman with a good string of grades, has shown his confidence in registered cattle by purchasing a young bred heifer from The Lewis Company for $800, the animal being in calf to their herd sire, Ormsby Segis Marie Lad.

A short time ago Toyon Farm Association announced their 30,000 pound world's record holder Lady Aaggie Echo Hengerveld. They report still another 30,000 pound junior four year old, Cascade Fleta Johanna. This is truly a great record when one considers that the 30,000 pound cows may literally be counted on the fingers of the two hands. There are now four such cows in California and of these four two are owned by Toyon Farm. This is a record to be proud of, two of the only ten cows in the world. Cascade Fleta Johanna's record is all the more remarkable when one considers the conditions under which it was made. When she first freshened it was not anticipated that she was a potential record breaker. For two months Cascade Fleta received only the ordinary care and feed accorded to a cow on test. She was in a string of others and received just that which they received in care and feed. During this period she forced herself to the front and demanded recognition. Her possibilities were recognized, a box stall was given her, as well as every opportunity that would aid her in her efforts. For nearly seven months of this test period Cascade Fleta Johanna was with calf. This constituted another great handicap. Despite the fact that nearly everything was against her this great cow closed her 365 day test with 30,012.2 pounds of milk to her credit. Had she had a real chance there is no question that the few pounds of milk needed to establish a new world's record would have been forthcoming. She

Comfort in Concrete Hog Wallows
Duroc-Jerseys on the Diamond Bar Ranch enjoying a midsummer bath.

Kreso Dip No. 1
(STANDARDIZED)
Parasiticide. Disinfectant.
USE IT ON ALL LIVESTOCK
To Kill Lice, Mites, Fleas, and Sheep Ticks.
To Help Heal Cuts, Scratches and Common Skin Troubles.
USE IT IN ALL BUILDINGS
To Kill Disease Germs and Thus Prevent Contagious Animal Diseases.
EASY TO USE. EFFICIENT. ECONOMICAL.
FREE BOOKLETS.
We will send you a booklet on the treatment of mange, eczema or pitch mange, arthritis, sore mouth, etc.
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Write for them to
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Bunting's Mission Herefords Are Profitable
They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.
JOHN A. BUNTING
Mission San Jose Calif.

Veramont Hereford Bulls
VERAMONT HEREFORDS scored $97 top and $537.50 average for 8 head at our Davis Sale. Prince Patrician, the top and three others sired by Patrician 5th.
This splendid grandson of Paragon 12th and Lord Erling is proving a wonderful breeder. Watch his get at future sales and shows. A few more bulls for sale. Address:
H. M. BARNGROVER
Santa Clara Cal

DIAMOND G HEREFORDS
A few choice young bulls, Big, heavy boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.
H. H. Gable Esparto, Cal.

The Leading Live Stock Auctioneers
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Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References! The leading breeders in the state. Write or wire for dates and terms.
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Los Angeles, Calif.

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The discovery of Nico-Sulphur Dust by Prof. Ralph E. Smith of the U. of C., will revolutionize the control of citrus pests.

It makes possible the extermination of red spider and aphis in one operation.

We are exclusive distributors.

Niagara Dusting Machines in all types and sizes.

Germain Seed & Plant Co.
Established 1871
N. E. Corner Sixth & Main Sts.
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THE INEXPENSIVE TRACTOR FOR SMALL RANCHES

Does the work of one horse at one-quarter the cost. The Original One Horse Tractor—five years on the market.

Motors Equipment Tractor Co.,
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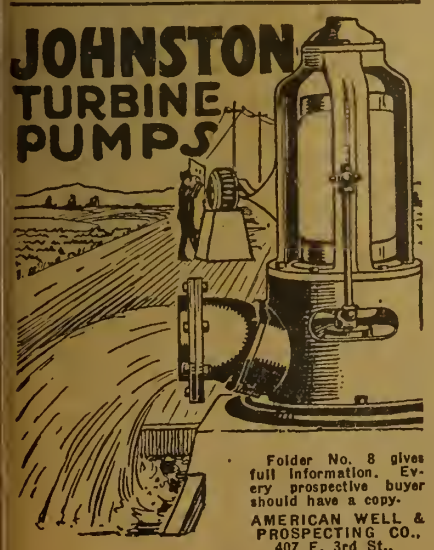
JOHNSTON TURBINE PUMPS



Folder No. 8 gives full information. Every prospective buyer should have a copy.

AMERICAN WELL & PROSPECTING CO.,
407 E. 3rd St.,
Los Angeles.

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

will get that chance another time and then bang goes another record. She will probably qualify in the ten months after calving division.

Baron Annabel Lilith, one of the tops registered Holstein cows owned by James J. Jeffries, Burbank, recently completed an official record of 38.28 pounds of butter in seven days. She is a big strong individual of excellent type and will be continued on a yearly test. Several cows in the Jeffries herd have recently made 28 and 29 pounds seven day records and twelve are now on yearly test and going strong.

Several more daughters of Sir Veeman Korndyke Pontiac have freshened with first calves and are hitting around 2 pounds butter in seven days in the herd of R. F. Guerin, Visalia. The daughters of this bull start off like real dairy cows and as the bull himself is being given heavy service in the Burr Farm herd at Los Angeles he seems bound to become one of the breed's leading sires in the west.

One of the largest Berkshire deals of the year was recently completed when A. B. Humphrey of Grapewild Farms, Escalon, sold to the Weyl-Zuckerman Company of Stockton, 35 young bred sows and a boar. The sows were mostly daughters of Big Leader. The boar is a son of Fashion Longfellow and out of a Grand Leader 2d dam. The Weyl-Zuckerman Company operate a large farming and vegetable growing company and have found it profitable to maintain a large herd of hogs to consume the waste. Heretofore they have been using grades, but they have become convinced that pure breds will be more profitable. Mr. Humphrey had planned to put the sows sold in an August sale, which of course has been called off. The Grapewild herd has been responsible for the establishment of many important herds during the past few years and it has come to be recnized as one of the leading herds of the breed.

The Redwoods Ayrshire Farm at La Honda recently sold a registered Ayrshire bull to Manuel Peres of the Home Dairy at Palo Alto. The Home Dairy specializes in milk of fine quality for the Stanford University trade. The Redwoods Farm also reports the sale of a bull to G. L. Vanderhooven of Martinez. Mr. Vanderhooven is going to use this Ayrshire on a grade herd with the idea of building up a herd of cows of high butterfat producing ability.

60,000 SHORTHORN PEDIGREE APPLICATIONS

The number of applications for pedigree registration received at the office of the American Shorthorn Breeders Association up to the close of March reached 60.000, approximately half of the total of the previous year, which was a record year. The number sent in during this three month period was increased, naturally, by those desiring to get in before the new rate went into effect. With this large volume of applications on hand the work of delivery is necessarily delayed. While the office space has been enlarged and the office force increased to the limit permitted by the space, there will be a delay in returns on applications until the accumulation has been taken care of. Once this is out of the way there will be a reasonably prompt service assured. However, the regular business continues to grow in volume more rapidly than even the most optimistic predictions forecasted and will involve, evidently, a steady increase of office space, a problem that is not solved on a day's notice, and a proportionate increase of the office force. Ninety clerks are now regularly employed in the office. Unfortunately labor conditions have delayed the plans decided on for the enlargement of the office. A little patience on the part of the Shorthorn people until the present congested condition is taken care of will help materially in the improvement of the situation.

F. W. Heiskell of the International Harvester Company, Chicago, is "doing" California. He has enjoyed California's good roads and is hitting the high spots all the way from Mexicali to Siskiyou.

Speaking of CONCRETE ROADS

More than 5,000 miles of concrete pavements on the basis of an average width of 18 feet were placed under contract in 1919.

Every state—your state—contribute to this wonderful record.

Below are the states in which contracts for more than 30 miles of concrete road were let during 1919

	Miles		Miles
Arkansas	87	New Jersey	87
California	210	New York	329
Delaware	55	Ohio	239
Georgia	90	Oklahoma	69
Illinois	570	Oregon	42
Indiana	280	Pennsylvania	491
Kansas	69	Texas	59
Maryland	95	Utah	84
Massachusetts	31	Virginia	91
Michigan	169	Washington	161
Minnesota	79	West Virginia	87
Mississippi	38	Wisconsin	132

North, east, south and west—
CONCRETE is the choice.

PORTLAND CEMENT ASSOCIATION

ATLANTA DETROIT LOS ANGELES NEW YORK SALT LAKE CITY
CHICAGO HELENA MILWAUKEE PARKERSBURG SAN FRANCISCO
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DENVER KANSAS CITY PORTLAND, ORE. ST. LOUIS
DES MOINES WASHINGTON

Santa Anita Studs

PERCHERONS

From such outstanding mares as Manon, first at Le Ferte, France, Grand Champion at Minnesota State Fair, senior and reserve Grand Champion at P. P. I. E.; Oaklawn Queen, reserve grand champion American bred mare at same show; and others of the same high class. We have secured a most useful and attractive lot of young stallions.

We now offer for sale six 3 year old stallions, first class in every respect.

Arabian Thoroughbreds

Heading our well known thoroughbred mares is the famous imported Arabian stallion Ibn Malruss, whose offspring combine beauty, strength and stamina in a marked degree.

JACKS

We have one of the largest groups of registered jennets on the coast, headed by King Bersheba one of the greatest show and breeding jacks in America.

From these matings we offer several 3 year old jacks, big rugged fellows that will sire the kind of mules that bring the top prices.

The well known Santa Anita Rancho guarantee of satisfaction goes with every breeding animal that leaves the Rancho.

Visitors welcome. Correspondence invited.

Santa Anita Rancho
Anita M. Baldwin, Owner
Santa Anita Cal.

National Financing of Roads

THE big question of interest in highway legislation before the present session of congress is the Townsend bill, providing for a national highway commission, a nationai highway system and national construction and maintenance of this system. The Townsend bill was introduced in the senate just before the holiday recess.

The attention of farm people has been directed to this hill hy wide publicity given to statements that this particular plan of going forward with a national highway policy had been approved and endorsed by the National Grange, the largest and oldest substantial farmers' organization. The action of the Grange is of interest and importance in this connection because it represents the deliberate judgment of a special committee appointed to consider the matter and this committee had as its chairman, Dr. T. C. Atkeson, the oldest member of the National Grange in point of service and its Washington representative, fully in touch with all the plans and suggestions for nationai highway activity.

The action of the National Grange was contained in three resolutions, two outlined the views of the Grange as to the policy which should be adopted, the third advocated continuance of the present cooperative work until the new comprehensive national policy could be agreed upon by congress and put into operation.

The two resolutions defining the Grange conception of a national highway commission and a national highway system and how to finance it read as follows:

"The present and potential development of high power motor trucks and high speed passenger cars practically revolutionized highway conditions and necessities of this country, and with due regard for the demands of the present and the future necessities for permanent, hard surfaced highways, we believe the time has come when all the national government highway activities should be unified in a single administrative department, under such limitations of powers as will secure the greatest possible degree of efficiency and economy in the expenditure of national funds. We favor the working out of a national highway law that will best serve the welfare of the whole country and distribute the expense of highway construction equitably between the beneficiaries."

Since this resolution was adopted in November the instructions to the Washington representatives of the Grange have been carried out. The Townsend bill has been completed, at least five great national organizations have endorsed it, while a sixth is now taking a referendum on it, and the matter is squarely before congress and the country.

The organizations endorsing the Townsend bill are The American Automobile Association (the automobile users), The National Grange, The National Highway Council, The National Automobile Chamber of Commerce and the United States Chamber of Commerce.

Very briefly, I wish to set forth here the important points covered by the Townsend bill and a brief statement of the argument which has convinced the Grangers that it is based on sound public policy.

The important points covered by the Townsend hill are enumerated in a statement approved by Senator Townsend as follows:

"Authorizes the construction and maintenance of a national system of highways exclusively at the expense of the national government.

"Creates a Federal Highway Commission to be named by the President with the advice and consent of the Senate to take over all the highway functions now exercised by the Department of Agriculture, and to construct and maintain a national highway system. This commission is to consist of five men selected with due regard for geographical representation.

"The national highways shall consist of two main highways in every state, comprising one per cent of the total highway mileage of each state as ascertained by the commission, where one per cent is not sufficient to cause these highways to connect with (a) adjacent states, (b) bordering countries, (c) waterways, the commission is authorized to extend the mileage in that amount.

"The commission is directed to consult the state highway departments as to locations of those highways and is further authorized to have all the work undertaken by the State Highway Department, supervisory power remaining with the Commission.

"In those states where national highways have been constructed to a point deemed adequate for present and future traffic needs by the commission, the commission is authorized to construct an equivalent mileage to that taken over, but maintenance in those cases will rest with the state.

"For the purpose of carrying out the act there is appropriated $50,000,000 which shall become immediately available; $75,000,000 for the fiscal year beginning July 1, 1920, and $100,000,000 for each of the three succeeding years, in all, $425,000,000.

"After making such deductions as may be necessary for administration and maintenance, the commission is directed to allocate the remaining funds between the several states annually in the same ratio that the mileage in each state bears to the total milage selected in all states."

The argument which is controlling the minds of the Granges which have considered this bill and taken action thereon in favor of the plan for a national system of roads built and maintained at national expense comes from one sentence in the Atkeson report quoted above: "Best serve the welfare of the whole country and distribute the expense of highway construction equitably between the beneficiaries." This, they say, the Townsend plan does.

The beneficiary of a highway is very much more than the man who lives on that highway. The economic benefit of good roads is essentially decreased hauling costs. If a road does not do that, it is a special purpose road. Take a road to a summer resort and it has no place in a national or other system. If it does do that and make the delivered costs of wheat, cotton or hogs, butter or oranges cheaper, then it is economically justified.

But the beneficiaries of such a road are not especially or chiefly, sometimes not at all, the people who live on or near that road. Let me illustrate:

The good road, desirable as it may be, does not make a farm raise a bushel more wheat, a pound more cotton, a single extra hog, a pound more of butter, nor an additional box of oranges. The road does not increase production, neither does it increase the cost of production on the farms except as it may cheapen a little the haulage of feed and fertilizer to the farm. The social benefit of the road is to be figured on, of course, but is hard to translate into dollars and cents.

The cost of production and the cost of distribution are two distinct items. After products leave the farm and the farmer they are hauled to market. Whatever the hauling and other distribution costs may be, the consumer pays them. If there are good roads this cost is lessened and the consumer pays less. The "consumer" is everybody, everywhere, more urban than rural; national and not local.

This is why roads are a national problem and why their construction at national cost is a fair distribution of the cost "equitably between the beneficiaries."

A 12-mile road through a farming district in Western New York, built four years ago, is a case exactly in point. Two railroad station villages which it joins have grown and prospered since it was built, but so far as is discernible the individual farms along the road have shown little or no change. Farmers don't talk a lot about this question, but these facts are well understood, and the Townsend plan is the first distinct and decided step in the direction of meeting this situation.

The national financing of roads under the Townsend plan goes only to a system of approximately one per cent of the total mileage of each and all the states. But these national roads will be the most used and most expensive ones. Each state will be relieved of this burden and thereby made able to build a subsidiary system, including the most used and most expensive county roads. Each county in turn can build roads then, having the big overhead cost removed and, in this way, as in no other way yet suggested, is there a chance that the welfare of the whole country will be served, and all the country in the course of the working out of a well developed plan will get some good roads built which will be available, useful, properly maintained, and go somewhere.

Farmers need no one to offer excuses for them, but lest some one should call this plan a subsidy to the country let me suggest that after this is all done the country will still have 90 to 95 per cent of its roads still

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Federal White Non-Skid "Rugged" Tread Extra Ply Fabric.

Rim-Chafe Ended, Road-Miles Extended

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Four cables of stranded steel grip the Federal tire in correct position.

The miles Federals *save* from the rim, you *use* on the road.

The sooner you begin to use Federal Tires, the more miles you can save.

Why not begin now?

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Manufacturers of Federal Automobile Tires, Tubes, and Sundries, Motorcycle, Bicycle and Carriage Tires, Rubber Heels, Horse Shoe Pads, Rubber Matting and Mechanical Rubber Goods

ain, old fashioned dirt, sometimes nd, roads, and the country people ill keep right on doing as they have the past, paying all their share of e taxes and maintaining all these rt roads besides.

Farm people and organizations verywhere can do good service now urging favorable action in Con-ress for national highways.

AVINGS EFFECTED AT THE ATH-LONE GRAIN ELEVATOR

Walter Hayes, a large scale farmer ear Athlone in Merced County, and mmett Cunningham, manager of the ank of Italy at Merced, are the prin-pal owners of the elevator building t Athlone, which has been handling rain in bulk during the past two or ree seasons. They are confident at the savings effected have already stified the investment and are more an ever convinced that the use of acks is an economic error.

Mr. Cunningham is no longer an ctive grain raiser, but he would be lad to see the farmers near Athlone vail themselves of the facilities al-eady provided, believing that such course would add to the general pros-erity. Some few changes are neces-ary in the equipment to secure per-ect convenience in handling, in par-icular a new cleaning device should e installed, but in case several more armers wish to come in there will e no difficulty in providing this.

The building has a capacity of 40,-00 bushels, and this, of course, could e used several times over in the ourse of a grain shipping season. It s strongly constructed (of wood), and s conveniently located.

Mr. Hayes is a strong believer in ulk handling and says that he never xpects to handle any large amount in acks. His farm, a mile or so from thlone, is very convenient to the levator, but he also employs the bulk ystem for all the grain grown on nother ranch which he manages and which is more than ten miles away. From there the grain is carried on a truck which operates very efficiently even though the road is wholly un-paved.

Quite a little land near Athlone which has in the past been devoted to grain raising is now being irrigated and planted to grapes and other fruits. Nevertheless, it is clear that wheat, barley and Gyp corn will be very im-portant farm products for at least an-other generation, especially in view of the more satisfactory methods of handling and marketing which are now becoming general.

QUEER DOCTRINE

In an agricultural section of a Sun-day paper we read some queer horti-cultural doctrines. The teaching seem-ed to be entirely against providing a dust mulch to prevent evaporation, lest the roots be smothered for lack of air. To us the article savored more of foolishness than of growers phil-osophy. To regard its teaching one would quit plowing and cultivating be-cause these operations "fill up the pores" and prevent "air laden moist-ure" getting down to the tree roots. A real farmer wonders where one found the notion that unplowed land would take water better than plowed land. Or how, during the rainless summer, a dust mulch can keep "air laden moisture" from going down to the roots. For years we have harbor-ed the notion that said "dust mulch" was to keep moisture from getting out, but lo! we now learn our mistake. It acts just like a rubber blanket to keep all of this copious California July rain carrying wet air down to said roots. Why didn't this Solomon or Daniel "come to judgment" sooner?

All these years we have been wear-ing out our plows, cultivators and horseflesh—to say nothing of our own legs—in the delusion that we were conserving moisture by making dust mulch to fill up cracks. And now alas! we are told we were just smothering the life out of our baby rootlets.

Come on, let's go fishing next June, and leave those big, wide open adobe cracks to admit the "air laden moist-ure" so those tender rootlets can breathe and drink at the same time.—Sunsweet Standard.

Grain Elevator at Athlone

Labor cost, time, storage space, efficiency all encourage bulk handling of grain. Capacity of 40,000 bushels in above elevator.

IMPERIAL GROWING

An interesting fact in the development of Northern Imperial Valley, which is cited by H. H. Clark of Calipatria, a successful farmer, is the interest in the northern district shown by old residents of the valley living in the southern part. This interest is being manifested in a most substantial manner, Mr. Clark points out, since many of the valley residents have invested heavily in lands in the Niland-Calipatria district. The development work done by these buyers is reffected in the northern district, where prosperity is met with on every band.

TRADE WITH EGYPT

During 1917 Egypt imported more than five and a quarter million dollars worth of goods from the United States, but during 1918 less than half that amount, for our consul reports: "No American vessels entered Egyptian ports during 1918." During the same years we purchased nearly $50,000,000 of goods from Egypt. The heaviest purchases we made were of cotton; the heaviest sales were of iron and steel manufactures.

The department of agriculture reports extended investigation into the question of whether cultivation increases rainfall and reports no such increase can be secured, so far as can be judged from 50 year records.

Use Your Fordson Every Month

January
Corn-shelling, feed-grinding, baling, wood-sawing.

February
Corn-shelling, baling, feed-grinding, wood-sawing, stone-crushing.

March
Feed-grinding, stone-crushing, corn-shelling.

April
Corn-shelling, feed-grinding.

May
Baling, corn-shelling, feed-grinding.

June
Baling, pumping.

July
Baling, pumping, threshing.

August
Baling, pumping, threshing.

September
Silo-filling, threshing, baling.

October
Silo-filling baling, clover-hulling.

November
Clover-hulling, feed-grinding, wood-sawing, baling.

December
Corn-shelling, feed-grinding, corn-shredding, straw-baling, wood-sawing.

To get full value from your Fordson tractor, 40% of its working time should be spent in operating belt driven machinery—this is the verdict of leading agricultural authorities.

You can profitably use your Fordson for belt work every month from January to December. Study the "Belt Calendar" at the left.

But there is one vitally important thing to remember—to assure the most satisfactory results you should use the belt especially designed for the Fordson tractor—the Little Giant tractor belt.

The Little Giant tractor belt has a clinging grip that conquers pulley slippage. It has a unique construction that withstands the effects of exposure to all sorts of weather conditions necessary in farm work. It is made of four-folds of a single piece of extra quality, heavy weight canvas duck, closely stitched and specially treated to increase the toughness and wearability. The edges are double stitched to increase the resistance to edge wear.

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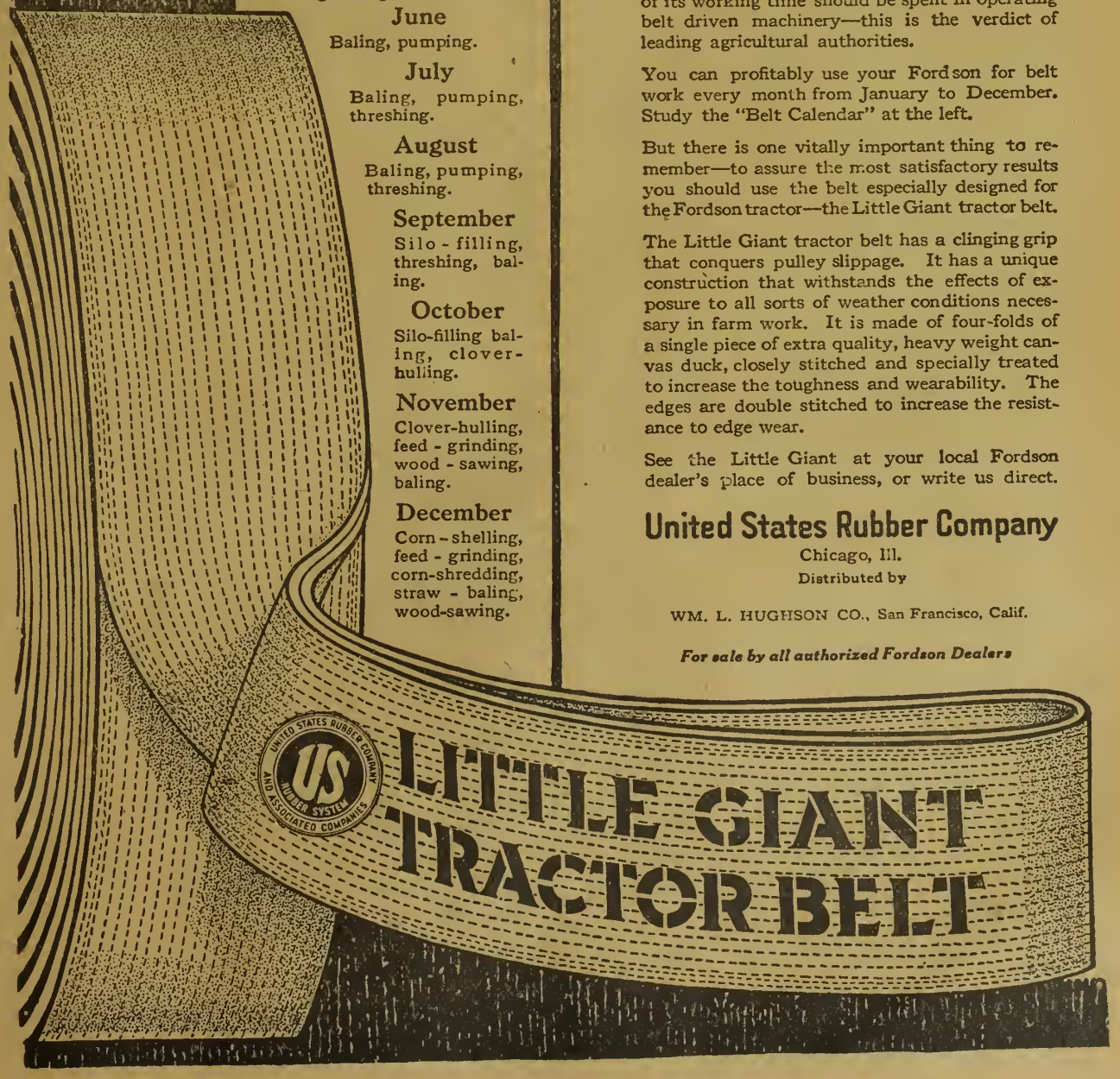

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POULTRY

SPECIAL EGG SALE.

For the balance of the season I will sell hatching eggs in settings only from my "ACTUALLY" trap-nested hens with records from 200 to 284 eggs pullet year laying at $5.00 per setting. May and June chicks if hatched by hens are the best chicks of all the year. Order now. Breeding stock for sale. Immediate shipment, as I will need the room for young stock very soon.

ENGLAND'S EGG RANCH.
Geo. C. England, Owner.
The home of "ACTUALLY" trap-nested S. C. White Leghorns every day in the year since 1912. P. O. Box B-337, Inglewood, California.

For Sale — White Muscovy Quackless Ducks; eggs 35c. White Wyandotte eggs $3 and $5 per setting, from prize stock. Goose eggs from the best stock in the West $1 each. A few breeders for sale. Turkey eggs from Chicago, Madison Square and several Coast show winners, 50c, $1, $2, $3 each. Guinea fowl $2 each; eggs $2 a setting. White King Pigeons $2 unmated pairs; mated working pairs $3. Special price in quantities of over 25 pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California

Plymouth Rock Chicks—Barred or White, Rhode Island Reds, Black Minorcas, Brown, Buff and White Leghorns, hatching weekly through May-June. Can book orders for prompt delivery. Prices range from $18 to $13 hundred. 500 lots cheaper—also ship 50 and 25 lots. Capacity 15,000 weekly, rightly hatched from first class breeding stock of good laying strains. Send for latest circular giving prepaid parcel post prices and particulars. Mission Hatchery, Campbell, California.

Thoroughbred Bar. P. Rocks, records 190, 210. Dec. pullets, laid in 4-2 days. Fertile eggs, $2.50, 15 eggs. Chicks 30c, hatched exclusively from stock in our yards. Cash with orders. Phone 5599, 36 Little Delmas Ave., San Jose, California. Warren Poultry Yards, mornings only.

Baby Chicks from my carefully selected, thoroughbred Breeding Pens of S. C. White Leghorns. Good, strong chicks at $15.00 per 100. Orders booked now for May, June and July delivery at reduced prices. Write for particulars. Every order receives my personal and most careful attention. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Thoroughbred S. C. White Leghorn Chicks, 100 or 1000 lots from Hoganized and Trapnested Stock. Inventors and Distributors of "Forbros" Poultry Separator and Trapnest (combined). Write for circular. Forster Brothers, 2918 Otis St., Berkeley, California.

Golden Rule Poultry Farm — Specialty breeders in profitable quality in Barred Ply. Rocks and White Leghorns. Remember the best is none too good for your foundation stock. Guaranteed hatching eggs. PENN & STAMELEN, Porterville, California.

Baby Chicks—Purebred S. C. White Leghorns, bred from our own stock. Best strain. Folder and price list mailed to you for the asking. Order now for May and June delivery. Buena Vista Poultry Yards, Sonoma, California.

If You Are After Good Layers, buy your Barred Rock, White Leghorns, Ancona, Rhode Island Red, Buff Leghorn and Black Minorca Baby Chicks from the STEVENSON HATCHERY, Watsonville, California

Baby Chicks—We guarantee full count of live chicks that will please you. Thoroughbred White Leghorns and Mottled Anconas. Eggs from carefully selected stock of high laying strains. The White Leghorn Hatchery Pomona, California.

White Leghorn Baby Chix. Heavy laying. Hoganized stock. May and June delivery. $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Cappel's White Plymouth Rocks—Highest exhibition quality. Unexcelled laying qualities, hatching eggs. Choice breeding cockerels for sale. Write for mating list. Shamrock Poultry Ranch, San Diego, California, 4015 Iowa St.

Chicks—Eggs—Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1 Box 246, San Jose, California.

Baby Chicks—Reduced prices for May and June. Expectionally fine White Leghorn stock. Also other varieties. Quick delivery. Safe arrival guaranteed. Write for circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

Model Poultry Farm — White Leghorn Specialists. Baby Chix and Hatching Eggs for May and June delivery. Our prices are right. W. C. Smith, Prop., Corning, California.

A Few Pens of Laying Pullets—Anconas, Black Minorcas, R. I. Reds, White and Brown Leghorns. State your wants and get prices. Rinconada Poultry Ranch, Campbell, California.

"Watch Us Grow" Baby Chicks. Booking orders now for Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Goldcroft Ranch—Buff Orpingtons, fine breeders and sturdy growing stock for sale. Eggs $3.00 per setting after April. Box 13, Los Altos, California.

Purebred Chicks from selected bred-to-lay White Leghorns, Barred Rocks, Rhode Island Reds. Price right. Maxwell Hatchery, Madera, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tunman Poultry Farm, Box 7-C, Ceres, California.

Gape Cure—Chicks, turkeys. Easily used. 25c. SOUTHERN REMEDY CO., Box 145, Kansas City, Missouri.

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We are offering to the California public the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

BABY CHICKS
FREE! FREE!
A Fireless Brooder with every order of one hundred chicks. We ship in the brooder, thus there is no chance of chilling in transit and you have an excellent way to raise them. We have the following varieties of thoroughbred chicks every week: Anconas, Barred Rocks and R. I. Reds, $20.00 hundred. Extra fancy dark R. I. Reds and White Rocks at $25.00 a hundred. White Leghorns $17.50. We guarantee safe delivery. Every one a strong, healthy chick. Orange County Hatchery, 403 E. Santa Clara, Santa Ana, California.

Spring Baby Chicks For Sale—400,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) Stock. Price during May and June, 25, $5.00; 50, $9.00; 100, $14.00. Special prices 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition; no money in advance, pay on delivery. Shipped safely anywhere west of the Rockies. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., PETALUMA, CALIF., 438 Seventh St.

Barred Plymouth Rocks—"Nothing Better in Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Vodden, Los Gatos, California.

Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY Electric), Box 122, Artesia, California.

White Leghorns—Chicks and hatching eggs from the home of heavy layers. Most modern methods and orchard range assure heavy producers with excellent vitality. Progressive poultrymen demand the best. Fall chicks pay big. Free folder tells why. Orders booked year round. Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, California.

Santa Cruz Chicks—We specialize on very best White Leghorns, hatching many thousands each week; also Brown and Buff Leghorns, Anconas, Minorcas, Wyandottes, Orpingtons, Barred Rocks and Rhode Island Reds. Write for folder. B. W. Archibald, Soquel, Santa Cruz County, California.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California. R. No. 1, Box 79-C.

For Sale—Baby chicks every week. Barred Rocks, Rhode Island Reds, Black Minorcas, Brown and White Leghorn Hoganized. Safe arrival guaranteed. Tohener Poultry Ranch, Route 2, 306, San Jose, California.

Day Old Baby Chix—From mature hen eggs. White Leghorns, $15.00; Barred Rocks, Black Minorcas, Rhode Island Reds, $20.00 per 100. Terms. One-third cash with order. T. C. Hawley, 504 E. Elm St., Lodi, California

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seahright, California.

Wanted—The addresses of parties sending to the Warren Poultry Yards, San Jose, Calif., for hatching eggs and chicks, Feb. 20 to April 10, 1920, inclusive and amount of remittance.

For Sale—Guaranteed Day Old Pullets, S. C. White Leghorns. March delivery. One ranch here buys 20,000 a year. Eureka Hatchery, Petaluma, California.

White Wyandottes — Prize winning and heavy laying stock; eggs $3.00 and $5.00 per 15. Baby Chix, Cockerels. R. W. Stawetski, Route B, San Jose, California.

Rhode Island Whites — Hatching Eggs, Chix from best matings possible. Free mating list. Phil. Lehrbach, 1608 N. Ave. 56, Los Angeles

White Minorca Baby Chicks and Hatching Eggs—Dark Cornish and Silver Campine Eggs. Folder. Leech Poultry Yards, Baldwin Park, California

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S Reservoir, Pomona, California

Baby Chicks, standard varieties, high quality, low price. Catalog now ready. Can fill large orders. Madera Hatchery, Madera, California

Single Comb Red Hatching eggs, $2.00 per 15. W. M. Marquam, Bishop, California

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For Sale—Seven registered Holstein Cows and a bull, 5 with official record up to 29.61 butter in seven days. All young splendid individuals. Tuberculin tested. Price $4,500.00. Address J. H. Posty, Atwater, Calif. R. F. D. 15.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome. Information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—Entire herd of A-1 Jersey dairy cows, about 33. Address Perry Dresser, Rt. C, Tulare, Cal.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Wineville, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

Reg. Shorthorns—Fair Oaks Ranch, Willits California

WANTED

I WANT A MAN

A REGULAR MAN!

I am tired trying to get along with inefficient labor. What I want now is a man ambitious, straight-shooting, who knows how to farm, who is honest and not afraid to work or use his head. If I can find such a man, married, of course, who is really capable and familiar with Island farming, I can make him an attractive offer. If you can't fill the bill don't bother to write—but if you can, write Box 913, Sacramento.

Herdsman or Foreman (married) with college training and lifetime experience handling purebred dairy cattle. Will consider change of position, lease or partnership. Familiar with all the fine points of breeding and general dairy farm management. Box 3, California Cultivator.

Wanted—Working Herdsman, single or married; must be a hustler of large experience and capable of taking full charge of 300 dairy cows. A man's job. Address Superintendent Arden Dairy, El Monte, California.

Wanted—To hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin.

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The Only Exclusive Rabbit and cavy magazine published in California. One year for 25 one cent stamps. Pacific Rabbit and Cavy Breeders, Eagle Rock, California, Dept. CC. "Tell them your troubles."

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beeching, 1578 W. 46th Street, Los Angeles.

New Zealand Reds—Young stock. Reasonable prices. Josephine Spencer, 1915 21st St., Sacramento.

TURKEYS

For Sale—Turkey Eggs, Mammoth Bronze and Wild Domestic, crosses; raise more poults. Introduce wild blood into your flock. Get hardy, vigorous poults. With each order we send you formula for raising close to 90% of those you hatch and special feeding instructions. Will be worth many dollars to all turkey raisers to know the real way. Pamphlet tells you all. The WILD & DOMESTIC Turkey Home, R. D. Box 26 A, Hemet, California.

Mammoth Bronze Turkey Eggs — "Gold Nugget" and other prize stock. Flock shows enough wild blood for vigor and fine breeding has added size. NO EGGS sold from other than our own stock. Hints given for feeding and care. Turkeys have range. Guarantee fertility. Prices reasonable. Carrie Andrews, BO-K-HAUNT, Hemet, California.

For Sale — Turkey eggs—Bronze, also Mammoth Bronze, also Thoroughbred Mammoth Bronze Toms. Robinson Turkey Ranch, San Dimas, California

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White Pekin Baby Ducks—White Pekin Duck Eggs for hatching. 152 East Spruce St., Inglewood.

White Muscovy (Quackless) Ducks—Eggs, Ducklings, Breeders. Free circulars. Caldwell Farm, Box 274-E, Los Angeles.

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CASTLEVIEW RANCH,

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A big, high, long, stretchy boar a year old, ready for service, from a full sister of the 1919 Reserve Grand Champion sow. This boar has world and national champion breeding on both sides. Several good judges have said that this boar would have a great chance for championship honors this year. The price is very reasonable. Sandercock Land Co., 7 Market St., San Francisco. In charge Natomas Land Sales.

Lark Meadow Ranch Berkshires. Choice gilts and sows safe with pig to noted boars. Priced for the rancher. Papers furnished promptly. Geo. A. Stingle, R. Monte, California.

Thoroughbred Berkshires—I have for sale one four year old Berkshire boar and one four year old Berkshire sow, both of choice thoroughbred stock. Address L. L. Miller, Bellota.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Cala Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California

DUROC-JERSEYS

Pathfinder Wonder—Is son of Great Wonder I Am, the largest boar that ever lived, out of a daughter of PATHFINDER. He is one year old and measures 66 inches from his eyes to the root of his tail. We have a fine bunch of yearling gilts of King's Col. and Model Col. breeding that we will breed to him and sell at reasonable prices. Derryfield Farm, Capital National Bank Bldg., Sacramento, California

Duroc-Jersey Swine for Sale — Anything you want. Spring boars and gilts from 800 pounds. O. C. K. breeding. Bred and open gilts, same blood lines, 12 great brood sows. The best breeders herd on the coast. Jersey Queen Farm, San Jose, California.

Big Type Durocs; herd headed Californi Orion King. Am offering excellen young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

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2.80 Acres—5 acres bud soft shell 13 yr. old; 3 acres common soft shell; 79 full bearing Navels; 79 full bearing Valencias; bout 3 acres 2 and 3 yr. old Valencias. No buildings on place. 10 shares Santa na Valley irrigation Water stock. Price 42,000. Income $5,000 per year and increasing; 3 crop payment per year. $20,000 down, balance 60 per cent. Write Sadie A. Skiles, 2701 N. Main, Santa Ana.

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Buy cheap, good alfalfa and fruit land in the easy lift water district near improved dairy and hog ranches. $50 to $75 an acre, one-fifth cash. Send for circulars. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California

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For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

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For Sale—Washington Navel, and Valencia late orange trees; Marsh Seedless grapefruit and Eureka lemons. Fine large trees, reasonable prices. H. H. Ford, Redlands, California.

For Sale — Valencia Orange and Eureka Lemons for fall and spring planting; all A-1 yearling buds selected from best bearing trees. Order early, good trees are scarce. A. R. Thurston, Montebello.

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Fine Stock Valencia Orange trees, budded Placentia and Eureka Walnuts on black root. A. R. Marshall, 1212 Ross St., Santa Ana, California.

Fine Straight Rooted Florida Sour Seed Bed Stock, 6 to 10 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

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2 Year Pedigreed Lemons, $1.35; Valencias, $1.50. Seed bed stock. L. A. Tuttle, R. 2, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale. Inspection invited

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Rhodes Grass—Is making Imperial Valley famous and will make any other section famous, if it is planted, especially if the soil is hard or alkali. Write Imperial Valley Seed House for Literature. El Centro, California.

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Millions Acres Free Land in U. S.—Full description and all the information as to how to find them contained in "The Homeseeker," a 100-page book. Send for particulars, or $2 for book direct. The Homeseeker, Dept. M. Los Angeles, California.

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Men With Spare Time—Ranchers especially, can find excellent renumerative proposition, salary guarantee, working for an old reliable California company. Turn your spare time into cash. Write J. H. Yetter, 115 North Broadway, Los Angeles.

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Large Bulldozer Pump, $135; No. 3 hor. centrifugal, $65; large hor. duplex boost pump, $49; No. 6 Gould centrifugal, $160; No. 3 double-acting AMES pump head, $350; rods and cylinder extra; many other snaps. Complete Pumping Plant, 15 h.p. Western engine with deep-well double acting AMES pump, pipe, rods, cylinder belt, complete $950, all guaranteed good shape. DEMMITT CO., upstairs, 120 N. Main, Los Angeles.

For Sale—Holt 75 H. P. tractor (Caterpillar) is absolutely in perfect condition. No reasonable offer refused. Apply Sam F. Scott, 354 Pine St., San Francisco, Cal. Phone Kearny 2556.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California

For Sale—No. 2 Ross Combined Alfalfa and Grain Cutter and Grinder. Used about six months. Requires not less than 6 horse power. H. R. Greene, Riverside, California.

For Sale—Bean Tools, Planters, 12-foot Hallock Weeders, Cutters, 2 and 4 row Cultivators, Farquhar Thresher, Fanning Mill, Bradford Bros., Placentia, California.

Agency Discontinued—New floor sample S 25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros Co., Carpinteria, California.

For Sale—Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

For Sale — Caterpillar "18," just overhauled, in A-1 shape. A. L. Stevens, San Dimas, California.

Mission Play

San Gabriel

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Seed Not True

In 1919 I ordered from a seed dealer Swedish clover seed. When it grew I found that it was bur clover and there was not a single Swedish clover plant in the whole field, two acres. I have been obliged to buy hay for my animals, as the clover being planted as an intercrop among young trees, it was impossible to turn the animals in and the clover did not grow high enough to cut with a scythe. What are my rights in the matter?—Subscriber, Placerville.

It is the generally accepted rule that on the sale of a seed as being of a particular kind or description stated as a fact, a contract is implied that the article sold is of that kind and description; substantially the description is warranted. To make this rule applicable the circumstances must be such as to amount to representation of fact on the part of the vendor that the article is of a particular kind or description. If the buyer in terms asks for a particular kind of seed and the seller purports to comply with his request, he would probably be held to warrant the article as being of that kind, although be may not have made any declaration in words to that effect. It has also been held that the measure of damages for the breach of warranty as to quality or variety of seed sold to plaintiff is the difference between the value of the crop produced and the crop that would have been produced had there been no breach. Your action, therefore, would be upon the warranty for the difference in value between the two crops

Farmers Retailing

What are the rights of a person in marketing stuff which he has grown on his own farm? Am I compelled to pay for a license or may I be prevented from selling my own products except through dealers?—Subscriber, Siskiyou.

There seems to be no state law governing such matters, although it is possible that there may be some county or other local ordinance. The only thing at all relative to the case is the act known as the state market commission act, which gives the state market commissioner various powers in very general language, but it would hardly seem that such is at all applicable to the case in hand.

Clearing Away Stones

When I cleared my land, the stone was placed on the line with the understanding with the adjoining owner that he would do the same, and together we would build a wall. The neighbor died and the land is unimproved. A new owner has come in and wishes to compel me to move the stone over on my side. I have disposed of my property. Can my neighbor compel either of us to move the stone?—Subscriber, Sunland.

If the agreement between you and your neighbor as to the deposit of the stone was oral, it is probably in no wise binding upon the new owner, as it is generally provided that an agreement for an interest in real property must be in writing and subscribed to by the parties sought to be charged. The above agreement would probably come under this head, as it would constitute an agreement for the use of a certain part of the real property of your neighbor. The agreement not being binding, the neighbor, therefore, has the right to consider this deposit of stones as an encroachment upon his property rights and thereby a nuisance which he may abate himself, if the encroachment is slight. Or he may bring action to compel your successor in interest to the property to remove this stone. As you have parted with the title to the property, it would hardly seem that you are in anywise legally concerned in such action.

GREATER EFFICIENCY

One of the first manufacturers of gas tractors was the C. L. Best Gas Traction Co. For many years they have been delivering to California ranchers Tracklayer tractors, but as long as they have been at the work there are occasionally found some of their very first models still doing effective work in orchard or on ranch. The company now finds it necessary to make extension and $125,000 worth of stock is being placed on the market. The sale of this will enable a greater extension of the business. The present plant covers nine acres of ground and is splendidly equipped, but with their increased capital their outputs can be practically doubled in a very short time. In fact, additional ground has already been secured and the work on additions to the present buildings is under way.

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is a healthy one

Because it receives the proper nourishment and tonic and is free from disease and ailment of the growing chick. Lactein Condensed Buttermilk furnishes the chick's system with LACTIC ACID developed to the correct proportion for its needs.

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The difference between the right food and tonic is just that difference between profit and loss. Lactein Condensed Buttermilk is the profitable food. It is the food that produces health —and a healthy chick is the one that makes the heavy egg producer. Lactein is a proven food —a food that is recognized by the largest poultry raisers as the most profitable.

Put the chicks on a Lactein Diet TODAY.

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Will demonstrate the superiority of LACTEIN — you'll notice the difference in your chicks and poultry.

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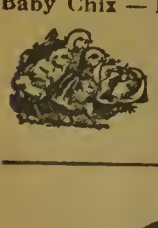

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When Writing Advertisers, Mention The Cultivator.

The Farm Woman's Hens

By Jean A. Koethen

THERE is a little woman up in Madera, a farmer's wife, I feel sure, though she has not said so in so many words, who is tremendously in earnest about this poultry game. She has started in this spring with 50 White Leghorn chicks and is planning for 100 hens and the right size of house to hold them properly. Now she comes with more questions, just the sort which I am sure must bother many beginners. I have not yet forgotten the thrills I felt when my first clutch of eggs began to pip, or how I rushed to my next door neighbor crying, "Oh, Mrs. D., my hen is hatching. What shall I do?" "Don't do anything," was her matter of fact reply. Just leave her alone and she'll hatch them herself."

These are the questions my friend, whom I will call Mrs. S., wishes to have answered:

1. I am wondering if the corn meal mentioned in so many rations is the same corn meal we use in cooking, and which is best, white or yellow.

2. Is dry buttermilk as satisfactory as the fresh? How do you prepare the dry buttermilk and in what proportion do you feed it?

3. Will you please recommend some poultry books and magazines which I would find helpful? I have "Poultry for Profit" and several others.

4. What do you consider a fair price for a good breeding male? Can you give me the names of reliable breeders of White Leghorns and Barred Rocks? I have a circular from a certain Barred Rock breeder who advertises "records up to 260 eggs per year." He charges $7.50 to $35 for males. I should think at those prices a person should be furnished a pedigreed record to show just what they were getting.

5. What age do you consider best for a rooster to mate with pullets?

6. I have one little cockerel that picks a fight with every other little cockerel he meets. I am almost tempted to keep him if I can find out he isn't a brother to the pullets.

7. Most of my chicks weigh one pound at a month old. Is that a decent weight?

8. In selecting a Barred Rock cockerel, which is preferred, the light or dark barred?

I have numbered these questions for convenience in answering them, and will go right down the list:

1. The corn meal used for chickens is coarser than that used for the table, and is generally known as feed meal. It is always yellow. Some poultry people believe that the use of yellow corn affects the whiteness of white chickens, but this would only matter in exhibition fowls. Most of the Leghorns in California have this feed meal as part of their ration, and they do not seem to have suffered.

2. I doubt if any preparation is as satisfactory as fresh buttermilk, but the dry buttermilk and some other preparations, such as Semi-Solid and Lactein, are widely used and very satisfactory. You can buy the dry buttermilk and mix it in the mash in the proportion of from 15 to 20 per cent of the whole (or less if a meat meal is used), or you can buy a buttermilk mash which is very satisfactory for little chicks.

3. I mailed the writer a list of books and magazines, and will just say here that if a comprehensive discussion of poultry husbandry is desired there is nothing better than Harry R. Lewis' "Productive Poultry Husbandry," published by J. B. Lippincott Co., Philadelphia, and Professor Dryden's "Poultry Breeding and Management," published by Orange Judd Co., New York. A good many helpful bulletins can be had free by writing the University of California at Berkeley.

4. This is a little hard to answer, especially as Mrs. S. seems to have utility and fancy mixed up together in her mind. It is a mistake we all make. I remember it took me years to get rid of it. You can get a fair breeding White Leghorn male for $5, and a better one for $10. If you want pedigreed stock from high egg records, you will have to pay as much as $25, and I doubt if there are many breeders who can furnish such a pedigree. Show stock comes $5 up, mostly up, but you do not want show stock if you are breeding for eggs. Hunt up the man who can show a guaranteed egg record and don't bother about feathers. I would rather pay $5 for a bird from any good, vigorous, heavy laying stock than pay $25 for a bird with blue ribbons and no egg record back of him.

5. Yearling roosters, or birds a little older than that, are better to mate with pullets. A fall hatched cockerel is a good mate for pullets of the next spring's hatch. Two year old cocks are all right if they are not too fat. Mating an old cock with about 20 pullets is said to be the secret of securing a preponderance of pullets in the chicks.

6. Keep that fighting cockerel. Chances are he is not full brother to the pullets. If he is it won't matter for once, but I would rather mate him to two year old hens, because they produce larger, stronger chicks.

7. A pound at a month old is just about the average for Leghorns, I think.

8. I think the light barring is more popular, at least most of the Barred Rock males one sees in the shows are light.

Don't Attempt Too Much

Now here is a bit of advice for this ambitious little lady. I hope she will paste it in her mirror or over the kitchen sink or wherever she will see it oftenest. She is treading the path we all have trod, and I would like to keep her from wasting strength and money. She is housewife as well as poultrywoman, with little children to care for, and if she raises 50 White Leghorn pullets this year and gives them the care they need for health and egg production during the coming winter, she will find she is quite busy enough. To undertake utility Leghorns and fancy Rocks both at once is far too much. Only a man who gives his whole time to it can succeed with two breeds. Many and many a novice has tried it and failed. If she prefers Rocks, let her give up the Leghorns, but as she has already quite a start with the Leghorns, it would seem wise to give them a good tryout at least. Feed is going to be dearer than ever this year, we are told, and we all want to travel light.

Feathers or Eggs

Another thing, she must choose between feathers and eggs. She cannot have both. I know there are some fanciers who claim to breed for eggs and some standard bred high producing flocks, and we have several skillful poultry breeders who do know how to breed for eggs and feathers at the same time—at least they say they do—but the novice does not know how, and the sooner she makes up her mind to work for eggs, and eggs alone, the better. Of course she will throw out of the breeding pen any birds that are greatly off color or of poor type, and she will study to find just what the best type of White Leghorn is. In this way, if she is careful about adding new blood, she will soon have a standard bred, heavy laying flock, and that is the best thing there is. The "coming" poultry business is the egg business. It is here now, in fact, and any woman or man may well be proud to help a little in the great movement for better hens and more eggs.

Mrs. S., you will forgive me, I know, for such a long sermon. I want to see you start right and not make the mistakes hundreds of other women have made, to their sorrow.

Poultry Queries

Conducted by J. A. Koethen

Sporadic Diseases

I should like to know more about the diseases which affect not the whole flock, but on occasional bird. In those I have examined I have not found liver or lung trouble. Sometimes the heart seemed small with much white membrane around it.—Mrs. E. W. D., Tancred.

Not much attention is paid to these sporadic diseases and deaths, because as a rule the trouble is discovered too

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Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

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C. HENRY SMITH, General Agent Pacific Coast and Hawaiian Islands 311 California St., San Francisco.

Sick Baby Chicks?

There is only one way to deal with baby chicks and that is to keep them well. Doctoring a hundred or more chicks is mighty discouraging work.

It's pure carelessness to lose more than 10 per cent of chicks, from hatching to full growth. Many lose 40 per cent to 60 per cent, and even more. No profit in that.

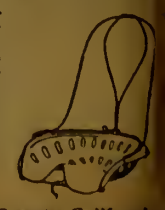
Our book, "Care of Baby Chicks" (free) and a package of Germozone is the best chick insurance. WITH BABY CHICKS YOU MUST PREVENT SICKNESS—NOT ATTEMPT TO CURE. "I never had a sick chick all last season"—C. O. Petrain, Moline, Ill. "Not a case of white diarrhoea in three years"—Ralph Wurst, Erie, Pa. "Have 800 chicks now 5 weeks old and not a single case of bowel trouble"—Mrs. Wm. Christiana, Olive Ridge, New York. "Two weeks after we started last spring we were a mighty discouraged pair. Every day from three to six chicks dead. A neighbor put us next to Germozone and we are now sure if we had had it at the start we would not have lost a single chick"—Wm. E. Shepherd, Scranton, Pa.

GERMOZONE is a wonder worker for chicks, chickens, pigeons, cats, dogs, rabbits or other pet or domestic stock. It is preventive as well as curative, which is ten times better. It is used most extensively for roup, bowel trouble, sniffles, gleet, canker, swelled head, sore head, sores, wounds, loss of fur or feathers. 25c, 75c, $1.50 pkgs. at dealers or postpaid.

GEO. H. LEE CO., Dept. F-30 Omaha, Neb.

Preserve Your Strength by Attaching NATIONAL BACK REST

To the seat of your tractor or farm machinery. It saves your back and you ride in comfort. The National Back Rest fits on nearly any seat no matter what style or shape. It can be quickly and easily attached without the use of tools. No screws or bolts. Will not slip off. Three dollars delivered. Some agency territory still open. Satisfaction guaranteed or money refunded.



CARL G. JORN

Jorn Bldg., 57 Plaza Square, Orange, California

late to be treated. Sometimes a hen falls dead from apoplexy or fatty degeneration of the heart or rupture. Now and then one in a flock may have pneumonia or bronchitis or roup, and not pass it on. Every large flock loses hens every year in this way and expects to. That small heart is probably due to fatty degeneration and is a direct result of overfeeding.

Feeding Ducklings

Please let us know how to feed ducklings. Last year we fed chick feed and lost nearly every one. This year have fed nothing but bread and water, wheat ground at home, and grass cut fine. Do they need grit?—H. J. B., Adams, Oregon.

Ducklings should be fed on a moist mash, and the mash should contain grit or sand as well as ground grain. On one of the big duck ranches near Los Angeles the ducklings are fed the first three days a mixture consisting of 20 pounds bran to 10 boiled eggs from the incubators. Bran and eggs are chopped together and an equal amount of clean sand is added. Then half a dozen heads of lettuce are chopped in, and the whole is made crumbly wet and kept before the birds in a trough all day. After the first week the egg is omitted and the mixture changed to one-third corn meal and two-thirds bran. The green feed is no longer mixed in the mash, but is thrown into the yard once or twice a day. If it is not convenient to feed eggs, you might use rolled oats the first week with the bran and greens and sand. Never omit the sand, Ducks must have it.

Constipated Sitter

A hen we set a week ago never eats or drinks unless we take her off the nest. There has been no bowel movement all this time, and now we notice a watery discharge from the vent. We have given her olive oil, but there is no improvement.—Subscriber, Long Beach.

Sitting hens should be taken from the nest every day if they do not come off themselves. The discharge you have noticed is no doubt the result of the hen's constipated condition. A good dose of Epsom salts is better than olive oil for removing the poison that is clogging her intestines. Give a level teaspoon, dissolved in water and thickened with bran into a crumbly mash. If she will not eat the mash give a tablespoon of castor oil. Epsom salts are not easily given except in mash. You may in this way be able to control the trouble and keep her on the eggs, but it would be better to put another hen in her place if possible.

POULTRY SUPPLIES FAT-SOLUBLE A

After working quietly for ten years Dr. McCollum has been telling the world much that has not been formerly known about fat-soluble A. This is a food factor which Dr. McCollum discovered, which has not yet been named, but which has been found to be absolutely essential in the diet of all animals and human beings.

It is found in leaves of plants so that well fed, mature animals usually secure it in sufficient abundance. Young animals and human beings do not eat a sufficient amount of plant leaves to take care of this dietary essential. They must rely upon some other source.

Dr. McCollum explains that fat-soluble A is found most abundantly in butterfat and egg yolk fat and he also explains that it is to be found around the hearts and livers of animals.

From this it seems that the cow and the hen are the great producers of fat-soluble A—the great essential to a satisfactory human diet.

As this fat-soluble A has been proved beyond dispute to be essential to health, physical and mental development and even to life itself, we are beginning to realize how vastly important the cow and the hen are to mankind.

In one of his lectures, Dr. McCollum gave the Chinese as an illustration of what would become of the human race if a deficiency of the fat-soluble A were permitted in the human diet.

It seems that the Chinese became afflicted with eye trouble. The tissues around the eyes swelled so the eyes could not be opened, the eyeballs became inflamed and later the unfortunate people that were thus afflicted became blind. Medical assistance proved inadequate to cope with the peculiar situation. There being no milk supply in the country, a wise man prescribed eggs and chicken livers. A liberal use of these promptly eliminated the trouble and as a result China became a great poultry and egg producing nation.

So great is the egg production of China that just before the war the many cargoes of eggs that reached this country from there became a worry to our egg industry because the Chinese were able to produce eggs, export them to this country, pay the duty on them and sell them at a lower price than the eggs in this country were bringing.

Dr. McCollum explains the smallness of stature, the lack of mentality and the expressionless faces of the Chinese by the fact that for so many years they failed to eat foods rich in fat-soluble A.

It is very evident from his investigations that the hen is to save the Chinese empire and to make of a people, small of stature and lacking in mental as well as physical ability, a nation of people large of stature and strong, both physically and mentally. That day would be hastened were they to permit the cow to aid the hen.

The lesson to be drawn from Dr. McCollum's investigations, so far as Americans are concerned, is that we should prize highly the cow and the hen, for, according to Dr. McCollum, they have played a large part in making the American people what they are; the strongest people mentally, physically and morally that are known on the face of the globe.

It is well for the cows and the hen to be recognized as the great, profitable and useful mainstays of the American farm.

No dairy farm is complete without a good sized flock of poultry; no poultry farm is complete without a good sized herd of cows and no farm is complete without both.

PARAGUAY TEA

This plant is called yerba mate (pronounced matay) in Spanish speaking countries and is Ilex Paraguayensis to the botanist, a member of the holly family. It may be purchased in any large grocery in California, for its use, while not common, is not confined to any section or any people. The writer has occasionally used it for several years. It is not unlike common tea, but is more stimulating, yet contains no poisonous properties. It is a heart tonic and an aid to digestion and is not astringent. It is pronounced by medical authorities as more stimulating than either tea or coffee, without harmful results unless taken in immoderate quantities, when, as in case of all stimulants, it leaves the drinker languid or tired. In Argentina alone 130 000 tons are consumed annually. The shrub or small tree is native to Paraguay and surrounding countries south and east and has been grown in California.—E. B.

CHINESE WALLS FALL

Vice-Consul Carl D. Meinhardt reports that the old city walls of Canton, China, are being razed, and that wide thoroughfares are to be built on their site, which will increase the demand for motor vehicles in that city. Canton now has only about a dozen automobiles and eight or ten motorcycles.

MUSHROOMS FROM POLAND

Before the war dried mushrooms to the value of $4,000,000 were annually shipped to the United States. The war stopped the output entirely and for the first time since peace was declared there is now an available shipping supply in Poland. The price f. o. b. at Krakow, Poland, is about 25 cents a pound.

GET MORE EGGS.

"Lady Victory"
1918 Champion laid 304 eggs in 365 days. Highest official record of any living hen. She laid 25 eggs in Jan., 27 in Feb., 29 in March.

Milkoline will help make your hens lay more eggs.

Feeding Milkoline will make you more money —reduce mortality of your flock— keep flock healthy and less liable to disease.

Increase Poultry Profits Any poultry raiser can easily double his profits by doubling his egg production. Feeding Milkoline with other feed greatly assists assimilation, keeps digestive organs vigorous and is a wonderful appetizer, tonic and bowel regulator. Milkoline contains nutritive elements vital to egg production and not found in grain rations.

13,000 More Eggs
Jas. E. Keyes, Petaluma, Calif., says: "After feeding Milkoline for eighteen months to 2,500 hens, I find that worms cannot exist in poultry where Milkoline is used. I reduced mortality with laying hens 10 per cent. I increased the egg production of my flock thirteen thousand eggs in one year. Feeding Milkoline to laying hens keeps them in splendid health thereby preventing disease and derangements of all kinds."

Lowers Feeding Cost
Many feeders say Milkoline lowers feeding cost one-third, because their hens assimilate all feed they eat. Our liberal Guaranteed 30 Day Trial Offer enables you to try Milkoline at our risk—to prove that it will make you mighty good money.

Milkoline
has a base of modified buttermilk with essential fats and acids added. Milkoline comes in condensed form. Will not mould, rot or sour. Keeps indefinitely in any climate. Milkoline is simply "Good Buttermilk Made Better for Feeding." Flies don't bother it.

Prevents Disease
Milkoline is not featured as a cure for anything or a preventative, but due to the acidity in the buttermilk it is a germ destroyer and helps keep poultry healthy, which is the best preventative against disease. Milkoline is invaluable as a life saver for baby chicks.

PRICES
These prices are F.O.B. Kansas City or the address of our nearest dealer. Dealers in all parts of the United States.
5 Gal. Keg - $7.50
10 Gal. Keg - 12.50
15 Gal. Keg - 16.50
32 Gal. Barrel 32.00
55 Gal. Barrel 49.50
Prices on smaller packages given in booklet. Buy in barrel lots—it saves you money.

Only 2c a Gallon
For feeding mix one part of Milkoline to 50 parts of water (small feeding 5 tablespoons to gallon of water). Feed either with water or mash feed. Milkoline keeps their appetite keen and its action is highly essential to normal egg production. When fed as directed Milkoline costs only 2c a gallon or less. Tranhaft & Newman, Lankershim, Calif., say: "We would not go back feeding straight buttermilk at any price."

Guaranteed Trial Offer
we will ship you 1 Gallon for $2.25, express prepaid. Take 30 days—feed half to your poultry. If not entirely satisfied simply return unused portion and we will refund every cent you paid us. No charge for portion you have used. Milkoline has been producing so many amazing results and we are so certain of what it will do for you that Milkoline is legally guaranteed to be satisfactory. You are always the judge. We suggest ordering larger quantity—you get the benefit of lower price—you risk nothing—you must be satisfied or we refund every cent you paid us. Make this test now. The sooner you begin using Milkoline the quicker you will be making money.

Send This Coupon

THE MILKOLINE MFG. CO.
675 Creamery Bldg., Kansas City, Mo.
In accordance with your guaranteed offer, please ship me .....Gallons of Milkoline for which I enclosed find $..... I agree to use half, but at the end of 30 days, if I am not satisfied, I will ship back unused portion, if any, at your expense, and you are to return my money.
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Big Book FREE!
A new 42-page book explaining fully how to make more money from Poultry and Hogs sent free on request.
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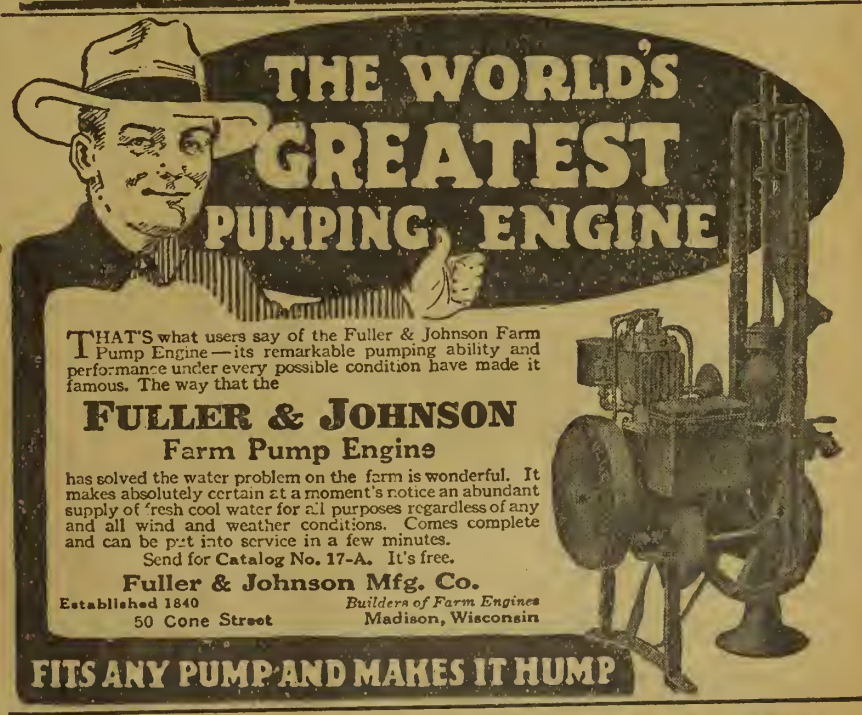

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has solved the water problem on the farm is wonderful. It makes absolutely certain at a moment's notice an abundant supply of fresh cool water for all purposes regardless of any and all wind and weather conditions. Comes complete and can be put into service in a few minutes.
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FITS ANY PUMP AND MAKES IT HUMP

GLOBE "A1" FEEDS
-Judge them on Business Principles!
FEED FOR SWINE, STOCK AND POULTRY
ASK YOUR DEALER

Los Angeles Markets

Los Angeles, May 5, 1920.

The chief topic of conversation in southern shipping circles is the car shortage. In Southern California alone there is immediate need of 3,000 more cars than are available. This shortage is most keenly felt in the Coachella and Imperial Valleys where the cantaloupe crop awaits transportation. The heaviest returns come, of course, from the earliest shipments. Later the Phoenix, Arizona, crop will compete, and still later that of the Turlock district of Central California. On the Los Angeles market the only newcomer of the week is the blackberry, of fine size and color, evidently a high grade product.

BUTTER

Butter, creamery extras, Produce Exchange price, 55 cents.

Dairy Exchange prices last week on extras:

April	28	29	30	May 1	3	4
'20 ...	55	55	55	55	55	55

CHEESE

Brokers' prices:
California flats, 27 per lb.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 44 per dozen; case count Produce Exchange closing price 43 per dozen; pullets, Produce Exchange closing price 40 per dozen; pewee pulletts, 29.

Dairy Exchange prices last week on extras:

April	28	29	30	May 1	3	4
'20 ...	43	43	43	44	44	44

POULTRY

Price to producers: Hens, lt., 29; heavy, 35@37; broilers, 26@30; fryers, 40; roasters, 38; old roosters, 14; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 17.

LIVE STOCK

Los Angeles, May 4 — Weighed and delivered off cars without food or water:

Hogs (hard-grain), 125 to 175 lbs., 15.50 175 to 225 lbs., 16.50.

Cattle (on foot, gross weight)—Steers, good, 12.00@12.50; medium, 11.50@12.00; cows, good, 10.00@10.50; medium, 9.50@10.00; bulls and stags, 7.00; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, May 4, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Market weaker, movement slow. Old stock: Stockton: Burbanks, fancy and special brands, 6.75@7.25. Idahos: Russets, fancy, mostly 7.50. New stock: market weak. Local Early and White Rose, No. 1's, 2.75@3.25, mostly 3.00; No. 2's, 1.10@1.60 lug; 8@9 per lb.

Onions: Demand and movement moderate; market weaker. Old Stock: Homegrown and Stockton: scarce; White Globes, per cwt., mostly 7.00@7.50. New Stock: Supplies liberal. Imperial Valley and Coachella Valley: Bermudas, 2.50@3.00 crate, mostly 3.00; lugs, mostly 1.75@2.00, mostly 2.00. Crystal White, crates, 3.00@3.25; lugs, mostly 2.00.

Garlic: lb., 40@50.

VEGETABLES

These are the actual prices obtained May 4, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk

Artichokes: Doz., best, 25@50.

Asparagus: Supplies moderate. Delta section: Best, 12@15; local, 18@20.

Beans: Wax, lb., 12@15; Ky. Wonder, 15@18.

Beets: Doz., 40@50; lb., 4@5; sk., 2.25@3.00.

Cabbage: Market unsettled, movement slow; wide range quality. Per lb., best, 2@3; some low as 1½; per crate, best, 1.75@2.25; others, 1.00@1.50. Red cabbage, 4@5 per lb.

Car lots: Demand moderate, movement limited, market weaker, little change in prices. Few sales: Cannonball 30.00@35.00, mostly 30.00; Winningstadt 35.00@40.00, mostly 35.00 per ton.

Carrots: Doz., 40@50; lb., 2; sk., 2.25@2.75.

Cucumbers: Illinois Hothouse, 2.00@2.50 per dozen, according to size.

Lettuce: Supplies heavy. Crates, best, mostly 50@75; few $1.00; others low as 35.

Car lots: Demand good, movement limited, market firm. California crates Iceberg, 2.00@2.50, mostly 2.00.

Parsley: Doz., 15@30.

Parsnips: Lugs, 1.00@1.50; sacks, 3.00@3.50; per dozen, 45@55.

Peas: Local and Imperial Valley: Market firm: lb., 7@10; poorer low as 5.

Rhubarb: Strawberry, bx., 1.60@1.75; Crimson Winter, 90@1.25.

Spinach: Doz., 20@30, lb., 2.

Squash: Imp. Valley, summer, cr., 1.35@1.60.

Tomatoes: Imp. cr., 3.00@3.50; Mex., lb., 14@15.

Turnips: Per dozen, 45@60; per sack, 2.00@2.50.

FRUITS

These are the actual prices obtained May 27, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk

Apples: Yellow Newtown Pippins, 4-tier, 2.00@2.75; 4@6 per lb.; Romes, 2.65@3.25; lb., 6@8.

Bananas, 8@10.

Strawberries: Local, per crate, 3.50@5.50; per tray, 1.75@2.50.

Grapefruit: per box, best, 4.00@4.50. Seedlings packed, 2.50@3.00; loose, 2.00@3.00. Arizona; per bushel baskets, 2.00@2.25.

Lemons: Market firm. Local Stock: packed, 3.25@3.75; loose, 2.00@2.25; 2@3 per lb., juice, 1.75@2.00.

Oranges: Market firm; Supplies liberal. Navels, packed, best brands, 80's to 100's, best, 4.50@5.25. Local Market: packed 3.75@5.00; large sizes low as 2.00. Valencias: packed, best brands, 5.50@6.00.

HONEY

Demand and movement slow, market dull, prices slightly lower. Carloads f. o. b. usual terms: per lb. White orange blossom, 18; White Sage, supplies practically exhausted, 19c; extra light amber sage, supplies very light, 16; light amber alfalfa, supplies light, 14c. Beeswax, demand and movement moderate, l. c. l. lots 40@42c.

BEANS

California Lima Bean Growers' Association fixed prices October 13, but market falling. Limas, 14½; baby, 13. Baby limas are moving well at a fair price, but there is still a heavy holdover of other varieties from 1918.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oats	27.00@30.00
Barley	22.00@25.00
Alfalfa	23.00@27.00
Barley Straw	16.00@18.00

Alfalfa Growers of California, f. o. b. Los Angeles: Choice alfalfa, 38.00@39.00 per ton; choice dairy alfalfa, 30.00@38.00; No. 1 dairy alfalfa, 33.00@36.00; No. 1 alfalfa, 34.00@36.00; standard alfalfa, 33.00@34.00; standard alfalfa, 30.00@33.00.

GRAIN AND FEEDS

Price bid local grain exchange, May 5:
Barley, 3.05@3.10.
Corn, yellow, sk., 3.70.
Milo: 3.27½@3.35; Eastern, 3.00.
Wheat: mixed feed, 5.40.

San Francisco Markets

San Francisco, May 4, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	56½
Prime Firsts	Nominal

Extras past wk. and year ago:

April	27	28	29	30	May 1	3
'20 ...	57½	57	57½	57	56	56½
'19		56	55½	56½	57	55½

Rcts. wk: ending May 4, 6,844 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	28½
Ore. Trips	30
Cal. Flats	23½@25½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	46
Extras, pullets	41½
Undersized	34

Extras past week and year ago:

April	27	28	29	30	May 1	3
'20 ...	47½	47	47	46½	45	46
'19		48½	48½	49½	49½	51

Rcts. wk. ending May 4, 504,470 doz.

POULTRY

Wholesale prices are:

Leghorn, 35@36; large, 42@43; roosters, young, 45@50; old, 18@20; broilers, 33@40; fryers, 45@50; turkeys, live, 37@40; dressed, 48@50.

Ducks, Indian Runner, 23@25; Pekin, 28@30. Squabs, 55@60; pigeons, doz, 2.85@3.50.

Belgian hares, live, 22@25; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle: Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 10½@11½; do, 1,200 to 1,400 lbs., 10¼@11; do, second quality, 8@9½; thin, 6¼@8.

Cows and Heifers: No. 1, 8¼@9; second quality, 7½@8; common to thin, 3@5.

Calves: Light weight, 12½@13; medium, 10@11; heavy, 8@10.

Lambs: Milk, 13@14; yearlings, 10@11.

Sheep: Wethers, 9@10; ewes, 8@8½.

Hogs—Weighing 100 to 150 lbs., 16¼; 150 to 225 lbs., 16¾; 225 to 300 lbs., 16¼; 300 to 400 lbs., 15¼.

Virden Packing Company quotes prices on livestock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle: Good steers, 1100 to 1200 lbs., 11½@12; top steers, 1100 to 1200 lbs., 11@11½; good heifers, 1200 lbs and over market price; good cows and heifers, 9@9½; No. 2 cows and heifers, 8@8½; canner cows, 5@6; good bulls, 6@6½.

Calves: Light, 13@14.

Hogs: Top packer, hard and well finished, 100 to 150 lbs., 16c; 150 to 225 lbs., 16¾; 225 to 300 lbs., 16; over 300 lbs., 15½; under 100 lbs., 14½.

Ewes: Full wool, 9@9½.

Wethers: Full wool, 11@12.

Yearlings: 12@12½.

Milk Lambs: 13@13½.

POTATOES

Wholesale selling price.

Rivers, fancy, lb., 5@6; Idaho Gems, lb., 7@7½; new, lb., 7@8½.

ONIONS

Wholesale selling price:

Fancy, brown, 6.00@6.25; Coachella Valley, 3.50@3.75. Green onions: River, 50@75; bay, 1.00@1.25 per box. Garlic, 35@40.

VEGETABLES

Wholesale selling price.

Artichokes, 1.00@5.00.

Asparagus: lb., wh., 6½@8; graded, 10@13; gr., 5@7.

Beans: lb, 12½@15.

Brussels Sprouts lb., 8@9¼.

Carrots: sk., 1.00@1.50; long, 40@50 per dozen.

Cauliflower, doz., 1.25@1.45.

Cabbage: lb., 2¼@2½.

Celery: cr., 2.00@2.50.

Cucumbers, Eng. doz., 2.00@2.25; hothouse, bx., 3.50@3.75.

Lettuce: L. A., 75@1.50 cr.; Imp., 1.25@1.75.

Peppers: Fla., 40@50 large; 10@15 small.

Peas: lb., Bay 6@7; So. 6@10.

Radish, 7@9 doz bunches.

Rhubarb: bx., 1.25@1.50.

Spinach: cr., 1.00@1.50.

DECIDUOUS FRUITS

Apples: Newtown Pippins, old stock, 2.90@3.00; Oregon, 2.90@3.25.

Bananas: lb., 12@13.

Loquats: lb., 5@8.

Pineapples: Doz., 4.00@5.00.

Strawberries: Peninsula dr., 75@1.10.

CITRUS

Box: Lemons, fancy, 4.50@5.00; choice, 3.00@3.75; standards, 2.50@3.00; lemonettes, fancy, 1.00@2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 3.00@7.00; limes, 4.00@4.50 per crate; tangerines, 1.50@3.25 crate.

DRIED FRUITS

Prunes:

Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.

For "practically peeled" add 1½c per pound (any grade).

Prices above are all bulk basis.

For packing in 50 pound or 25 kilo boxes add 1 cent per pound.

25 pound or 12½ kilo boxes, all 1¼c per pound.

10 pound boxes, add 2 c per pound.

Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.

Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.

Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:

Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:

White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:

Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

Raisins:

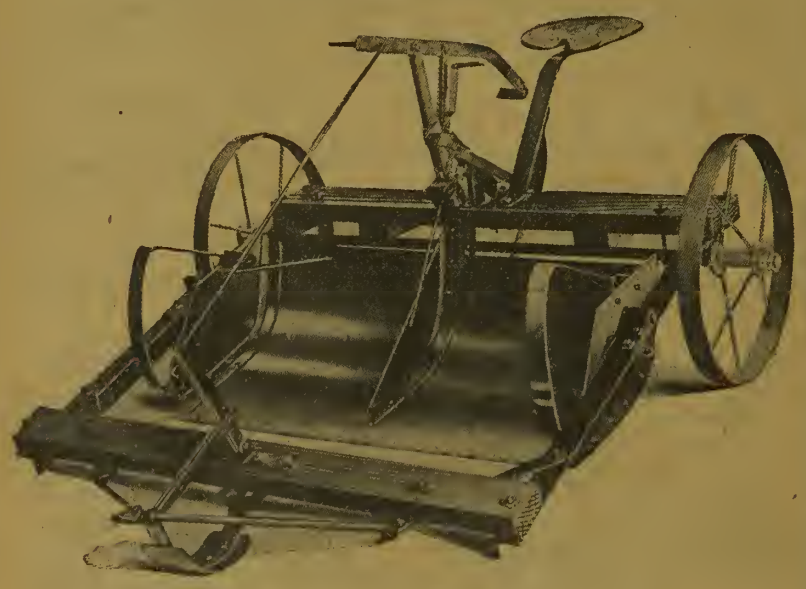
California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅜; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12½; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sul

The Miskin Scraper

IS

THE BEST SCRAPER ON EARTH

And we can prove it. Write for circulars



The above is a cut of the Famous Miskin Scraper, which in operation, easy draft, greater capacity, and better work has many advantages over the common Fresno and wheel scrapers now on the market.

Made in 2 horse, 3-horse and 4-horse sizes. The four horse size can be operatd by small tractors from the tractor seat, by the tractor driver.

Send for descriptive circulars, with prices. We pay the freight.

Miskin Scraper Works, Ucon, Idaho

Four Row Bean Cutter

This new invention of C. E. Bouton cuts four rows of beans and places the vines in one windrow; the cutter, running on wheels, is easily operated by two horses. It is a simple and inexpensive attachment for use on your cultivator. Save labor, time and horseflesh. Write or call at

C. E. Bouton Ranch

Cor. Saticoy and Veriel
half mile north of
Owensmouth - Cal.

fur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾; Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, $2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

RICE

Domestic market quiet: Prices firm. Fancy California Japan, May, 10.75; June, 10.85; choice, 25 less. New Orleans reports market inactive with prices slightly easier.

BEANS

Jobbing prices at San Francisco, per cental: Small white, 5.75@6.00; large white, 6.20@6.35; cranberry, 6.00@6.50; red Mexican, 8.50@8.75; pink, 6.40@6.50; California Bayo, 9.50@9.75; blackeye, 7.25@7.50; red kidney, 13.00@13.25; lima, 10.25@10.50; Garvanza, 9.00@9.50; Kotenashis (in bond), old crop, 5.25; new crop, 5.75.

Dried Peas: California, 5.25@5.50 cental.

HOPS

1919 crop, 1.00 per lb. Prices to growers for 1920 crop, 80 per lb.

HONEY

Extracted, jobbing price: Water white, 22 per lb., for sage and 20 for white clover; light amber, 18; amber, 16; comb, 28@30 for water white; light amber, 26@28; amber, 25.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

Hard White—	Per Bus.	Per Cen.
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.50
No 3	2.00	3.48½

The above are minimum prices.

For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.05@3.15.

Corn: California yellow 3.25@3.35 per cental; Egyptian white, 3.75@3.80; milo maize, 3.25@3.35.

Barley No. 1 Feed, 3.05@3.15.

HAY

Under date of May 5, Scott-Magner says:

Receipts past week 839 tons. Many cars are still at bay shore or on tracks where delivery cannot be obtained. Strike conditions with the railroads show little improvement. This is a severe handicap on all kinds of business. Sales cannot be made with any degree of certainty as to when deliveries can be affected. Stocks on hand in San Francisco are very low, still demand is very light and up to date all have been able to obtain their requirements. In the country districts, however, many points are suffering for lack of hay and orders placed several weeks ago have been canceled owing to railroad non-delivery. This has caused trouble and expense diverting cars shipped to fill them and held up by the railroads at various points.

A schooner load of first crop alfalfa from the river district arrived the latter part of the week and was of exceptional quality for first cutting hay, being practically free from foreign grasses. As no sales have been reported it is impossible to quote prices. The hay appears to be in very good condition and no doubt will bring a good figure.

The most of the arrivals during the week have been of cheat from Oregon and alfalfa from Nevada. We look for very little alfalfa to come in from Nevada in the future as the Ogden market is bidding strongly for what is left in that section owing to shortage and bad weather conditions.

New volunteer hay is being cut in various sections but in general is reported of very short growth with light yield. Prices have been well maintained throughout the week.

We quote today wholesale prices in carload lots as appear from dealer's transfers upon the hay market in San Francisco, for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat or Wheat and Oat hay	35.00@38.00
No. 2 Wheat or Wheat and Oat hay	22.00@35.00
Choice Tame Oat hay	37.00@40.00
Other Tame Oat hay	33.00@37.00
Wild Oat hay	Nominal
Barley hay	Nominal
Alfalfa hay	32.00@37.00
Stock hay	29.00@32.00
Oregon Cheat and Oat mixed	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, May 5, 1920.

Navels are closing their season with exceptional prices, and Valencias are coming in with higher prices than ever before at this season of the year. The strike is lifted but there is still a jumble of freight conditions, which prevents free shipping, and picking is still slow. The car shortage s also serious and cantaloupe shippers of Imperial are appealing for every available car.

Lemons are still low but the car shortage is preventing any great number of shipments from California. Imported stuff is meeting the need at all Atlantic coast points. There are now reported between 250,000 and 275,000 boxes in transit or on piers.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 16,292 cars; lemons, 3,165; total, 19,457. To same date last season: Oranges, 18,821; lemons, 4,473; total, 23,294. From Central California this season: Oranges, 4,570; lemons, 286; total, 4,856. To same date last season: Oranges, 2,538; lemons, 251; total, 2,789. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

April 28

Cleveland: 3 or., 1 lem. Nav. 9.75-10.45, Seed. 6.05, Bloods 7.60, lem. 3.95-4.85.

St. Louis: 7 or., 1 lem. Nav. 5.15-6.35, Val. 5.00-6.05, Sweets 5.35-6.35, Bloods 6.00, St. Mike's 5.95, lem. 4.20.

April 29

New York: 17 or., 3 lem. Nav. 6.00-10.70, Val. 7.90-8.85. Tang. halves 3.15-4.20, Bloods 5.05-9.45, Sweets, 7.55-9.55, St. Mikes 9.80-10.65, lem. 2.25-4.40.

April 30

New York: 8 or. Nav. 8.15-10.95, Val. 8.15-9.25, Tang. halves 4.25, Sweets 9.50, St. Mikes, halves 4.00-5.10, Bloods 5.05.

Boston: 3 or. Nav. 5.50-8.85.

St. Louis: 6 or. Nav. 5.55-5.70, Val. 5.50-6.60, Sweets 4.00-4.75, Seeds 4.00, Grapefruit 4.45.

May 4

New York: 20 or., 1 lem. Nav. 5.70-9.70, Val. 6.45-9.75, Bloods 5.90-6.90, St. Mikes 7.00-9.70, lem. 3.15-4.00.

Pittsburgh: 4 or. Nav. 5.40-8.05, Val. 5.80-6.80, Sweets 4.70-7.00, Seeds 7.65.

Philadelphia: 8 or. Nav. 6.10-8.80, Val. 7.85-8.90, St Mikes 8.35-9.90, Seeds 7.55-7.95, Sweets 3.80-8.20, Bloods 4.35-8.15.

WEATHER REPORT

San Francisco, California, May 1, 1920.

Stations	Wk.	Rainfall Season.	Norm.	Temp. Max.	Min.
Eureka	.00	21.92	42.55	60	42
Red Bluff	.00	10.58	23.31	88	46
Sacramento	.00	8.81	19.01	84	40
San Francisco	.00	10.42	21.33	79	45
San Jose	.00	8.58	10.06	84	40
Fresno	.00	8.20	8.98	98	49
San Luis Obispo	.00	14.77	19.60	80	38
Los Angeles	.00	12.41	15.12	82	48
San Diego	.00	8.45	9.60	74	52

Tuck Your Hay Into Tight Bales

STACKED hay or hay in the mow does not represent hay at its best. Tuck your hay into snug, tight bales with an INTERNATIONAL HAY PRESS and get all of it under cover. And, too, your livestock will appreciate INTERNATIONAL-BALED hay because of its clean freshness and unimpaired food content. You can ship these snug, tight bales to the outside markets and command top prices. You can bale for your neighbors and make from $15 to $30 a day clear profit. You can bale straw just as well as hay—keep the outfit busy during odd weeks between seasons.

Your light tractor will furnish ample power to operate an INTERNATIONAL POWER PRESS. If you do not have separate power, a 6 h. p. FRICTION CLUTCH INTERNATIONAL KEROSENE ENGINE can be mounted on the front end of the frame of the two smaller size presses and belted direct to the baler—always ready for immediate service. The extra large drive gears compound the engine's power enormously—and make the snug, tight bales of uniform weight that are so characteristically INTERNATIONAL.

INTERNATIONAL HAY PRESSES are made in three sizes—14 x 18, 16 x 18 and 17 x 22—horse and power styles. See your nearby International dealer about one—and meanwhile let us mail you a catalog. Just send us a post-card.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
(INCORPORATED)

Billings, Mont. Cheyenne, Wyo. Denver, Colo. Helena, Mon.
Los Angeles, Cal. Portland, Ore. Salt Lake City, Utah
San Francisco, Cal. Spokane, Wash.

Extra parts are always available without delay for standard advertised machinery. This class always found in the California Cultivator.

—"and from there we went to Japan"

Talk about adventures!

Men in the Navy come home with the kind of experiences that most chaps read of only in the books.

Here's your chance!

Uncle Sam has, as you know, a big Navy and gives red-blooded young fellows like you an opportunity to step aboard and "shove off".

What will you get out of it?

Just this:

A chance to rub elbows with foreign folks in strange parts of the world.

The chance for good honest work on shipboard—the kind of work that teaches you something real: the kind of work that puts beef on your shoulders and hair on your chest.

You will get 30 care-free vacation days a year, not counting shore leave in home or foreign ports.

You will have the kind of comradeship in travel that sailors know.

You will have regular pay, over and above your meals, lodging and your first uniform outfit—good stuff all of it.

You can join for two years. When you get through you'll be physically and mentally "tuned up" for the rest of your life. You'll be ready through and through for SUCCESS.

There's a Recruiting Station right near you. If you don't know where it is, your Postmaster will be glad to tell you.

To any Father and Mother:—
In the Navy your boy's food, health, work and play, and moral welfare are looked after by responsible experts.

Shove off!-Join the U.S.Navy

The LAUSON 15-30
DUST PROOF-ALL GEARS ENCLOSED

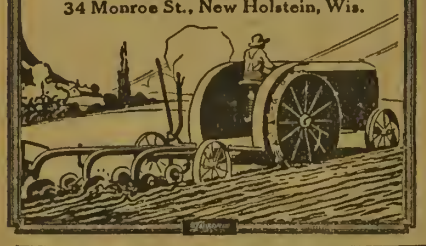
Sturdy construction, ample power, ease of operation and freedom from trouble make the Lauson 15-25 Tractor the logical power plant for your farm.

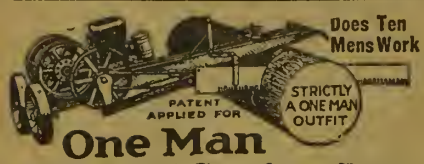
"The Pattern Tractor"

Built for over 5 years without a change in the basic design. Among tractor experts it is known as "The Pattern Tractor."

Write for Lauson booklet. It gives full details of the Lauson 15-25.

DE LAVAL DAIRY SUPPLY CO.
61 Beale St., San Francisco, Cal.
Distributors for Ore., Cal., Ariz., Nevada
The John Lauson Manufacturing Co.
34 Monroe St., New Holstein, Wis.





Does Ten Mens Work

One Man Saws 25 Cords a Day

The Ottawa Log Saw falls trees or cuts off stumps level with ground. Saws up logs, cuts up branches, ice cutter, runs pump jack and other belt machinery. Mounted on wheels. Easy to move anywhere. 10 Year Guarantee. 30 Days Trial. Write for Free Book and Cash or Easy Terms.
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When Writing Advertisers, Mention The Cultivator.

Denizens of the Desert

By Ernest Braunton

THERE have been three "cactus crazes" during the last century and 'tis said they occur with some regularity from 25 to 35 years apart. So take warning, for the last one waned and died more than a quarter century ago and there already is manifest a revival of interest in these curious and beautiful plants. To those who have never passed through one of these cactus waves it may seem odd that they are world wide. As Germany is the best market we shall have to wait until normal conditions prevail there.

In the craze of the '90's, toward the close of the last century, the writer filled, for a Los Angeles firm, one order for Erfurt, Germany, of more than 7,000 cactus, and this was but one of many shipments to the same firm. Los Angeles then had 20 retail establishments that sold cacti, San Francisco several, and every large city had one or more. It was at that time the cactus collection was placed in the A. S. White Park at Riverside and hundreds throughout California had good collections. The city of Los Angeles bought a glass house and its cactaceous contents and moved the whole to Lincoln Park. Though not as expensive as the tulip fads of Holland, there were many collections in the United States that ran into thousands of dollars. Of those owned by the public the most extensive was at Carroll Park, Baltimore, Maryland.

The Private Collection of Cacti

The Great Family

The Standard Cyclopedia of Horticulture states: "Scarcely any group in the whole vegetable kingdom is more remarkable for its strange and varied forms, the beauty of its flowers, and wonderful adaptation to desert life. The family is not confined to tropical or even semi-tropical regions. At least two species of opuntia extend northward into British Columbia and several genera and species are found in Colorado. To the southward the family extends to Chile and Argentina. Giant forms are scattered over the plains of Uruguay and some grow amid the snows of the lofty plateau of Bolivia. The tree like forms flourish in the southwestern United States, the Mexican plateau, the peninsula of Lower California, where there are great cactus forests, and the vicinity of Tehuacan, in the southern part of the Mexican state of Puebla, a region celebrated for its remarkable and gigantic tree like forms."

As a matter of fact a hardy species occurs in South Dakota and from there the family extends southwesterly through Mexico, Central and South America until extreme cold stops its journey toward the south pole. But they are all American. Wherever cacti may be found in other parts of the world they all came directly or indirectly from the Americas. Certain species have become a pest in Australia and other countries, while in Palestine and nearby countries, parts of Africa, the shores of the Mediterranean, Ceylon, Mauritius, and other isles, they have escaped from gardens and become naturalized. From snow to the torrid heat of the tropics, from seashore to mountain top and trackless desert, where no soil is in evidence, and even as parasites on lofty trees these curious plants range over a large part of the western hemisphere.

Their Uses

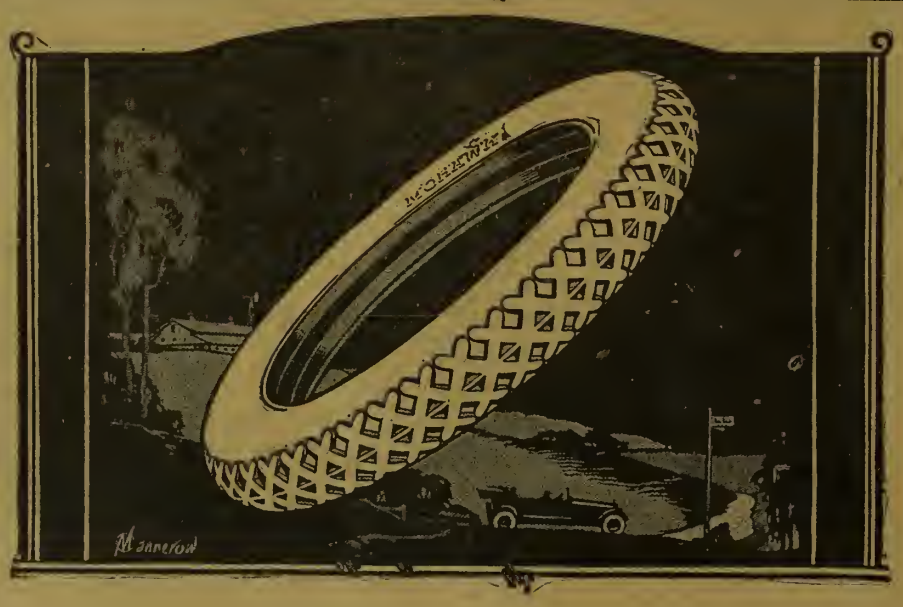
The giant tree like forms, when they die, split up into slats extending from end to end, like elongated battens, and are used for building and fuel. Many kinds are used for hedges, and the island of St. Christopher, owned by two European nations, is divided by a line of cactus sufficiently impenetrable to prevent free intercouse or violation of boundary rights. Certain species are like great barrels filled with watermelon like pulp which is made into conserves like citron, into candy, and put to other uses such as stock food. Some cylindrical forms are made into walking sticks, furniture, napkin rings and other useful or convenient articles. Some of the gigantic columnar species are used for building, even for timbering mines.

The fruits are variable in form, texture and flavor. The blad-apple or leaf apple of the Dutch colonies and the Barbados gooseberry of the British West Indies are one and the same fruit, much used in making tarts and sauce, as are real gooseberries. The triangular stemmed climbing species bear similar but larger fruits of delicious flavor, and other species are known to both Mexicans and Americans as strawberry cacti on account of the fine juicy pulp of the fruits. Some are called cactus limes on account of their acidity, and all are more or less famliar with the tuna fruits, Indian figs, or cactus pears grown on both spiny and spineless tunas or opuntias in California. The seeds of many species, known as "cardones" are used by the Mexican Indians as food. A valuable heart stimulant is made from the night blooming cereus, a deadly alkaloid poison from another species and others have medicinal and other practical and scientific uses.

As Ornamentals

From giants of 60 or more feet high the cacti range downward to buttons of less than an inch diameter. From spines several inches long they soften to downy pin cushions of snowy whiteness, covered with fibrous cotton. From growths as bald and smooth as a marble column they vary to those covered with long snowy hair, the latter species popularly known as "old man cactus."

In general outline or form they are the most curious and striking family in the vegetable kingdom, having a greater range in general appearance than any other group of plants. In flowers they surpass in atractiveness any except the orchids and in size any group other than the water lilies. In range of color they head the list, and nearly all cactus flowers, in addition to brilliancy of color, have their petals overlaid with a satiny sheen that is unequalled. While the greater number blossom by day a number of species burst into blossom only after darkness comes, and these species exhale a strong and delightful fragrance. So fascinating is this wonderful plant family that when a revival of possession of collections takes place it becomes a "craze" that is world wide.



Mohawks Treat You Squarely

The man who buys a Mohawk Tire is usually surprised and delighted at the mileage it gives him.

Experience with other tires has taught him to expect approximately a certain number of miles. When he finds that his Mohawk Tire is yielding from half again to double that amount—naturally, the next tire he buys is a Mohawk.

Then, doubly gratifying is the fact that this next Mohawk does as well—or even better.

In short, he finds that Mohawks give him the sort of treatment he likes from anyone with whom he does business—fair and square—never disappointing—honest and dependable.

And we can offer conclusive proof that this is not an exceptional case, but the universal experience of Mohawk users.

Records kept by our dealers show that 85 out of every 100 who buy their first Mohawk Tires become permanent users. Certainly this is as close to one hundred per cent re-sales as any product can show.

The explanation is simple: Mohawks always have been, and always will be, carefully made by hand, from the purest rubber and the strongest fabric produced.

Made in Cord and Fabric Types—Good Dealers Everywhere Handle Them

MOHAWK RUBBER COMPANY, AKRON, OHIO

New York Chicago Boston Atlanta
San Francisco Dallas Los Angeles Kansas City

MOHAWK "Quality" HAND MADE TIRES

Household Department

OUTING

me, let us camp in the open,
he marge of some deep wooded isle,
e care and convention are banished
all the great world seems to smile,

e the wild fowl wheel swiftly above
the furtive mink steals to the shore
drink in the secrets of nature.
grow wise in her wonderful lore.

he raven will wake us at daybreak
h his harsh and his far-reaching
ll,
the waters will lull us at evening,
en the shadows have crept over all.

we'll thrive 'mid the vigorous ac-
on
l bronze 'neath the warm summer's
n!
e mainland we'll swim every morn-
g,
en a new sparkling day has begun.

we'll troll down the shadowy lake-
hore
fish for the musky and pike.
t a thrilling sensation leaps through
ne,
the rush of the game-fish's strike!

we'll plunder the nest of the turtle
d bake luscious clams in the sand
arner our bounteous breakfast
om the fullness of nature's great-
and.

now let us range through the wood-
and,
angle for trout and for bass.
what comfort to loiter at noonday,
retched at length on the velvety
grass!

It's back to the camp fire at sun-
down,
bask in the embers' red glare,
ing our contentment and freedom
d mingle in rollicking air.

hum! Let us take to our blankets.
ginger, how drowsy I feel!
sure I shall sleep like a savage
d be up with the bugle's first peal.
ndsay Gordon Lucas in Boys' Life.

E BROILER OF THE TROPICS

J. Basil Keys in Agricultural Journal of Victoria

ROM Port Said to Yokohama the broiler is the main and very often the only form of fresh meat obtainable by the traveler or white resi-t. This also applies to most parts Africa and to many islands scat-ed about the Indian and Pacific eans; in fact, to all that part of world which lies within the region wn as the Tropics. Pork is usually ntiful, but is not considered whole-ae in hot countries. Beef is scarce l nasty; raising beef especially for d is practically unknown, and it is y when an occasional cart bullock mill bull has outlived his usefulness l threatens to become a dead loss its owner that beef is killed for d. So the resident in a tropical ntry has to depend almost entirely the broiler to supply his table, es-ially in emergencies.

The broiler in these countries is the delicate, milk fed article found Canada or America, but generally ong legged, very worldly wise mem-r of the chicken tribe, who has had wrestle hard for his living, with e eye constantly on the watch for ssible enemies and the other on e lookout for something to steal. hen wanted for the table he is ased by the entire family under ose protection he has been living, d is beaten to death with anything at comes handy.

Although there is always a large d ready sale for poultry and eggs the vicinity of the towns and sea-rts, very few whites seem to have ade any serious attempt at poultry ising as a business. This is mainly cause most of the white residents in ese countries are engaged in enter-ises which leave them very little ne or energy for other work, and if e care of the poultry is left to native rvants the result is almost always sappointing, owing to the natives' nbounded faith in Providence as a bor saving institution. The result that poultry raising is almost en-rely left in the hands of the natives, ho are generally too lazy to go in r it properly, each family keeping st enough hens to eat up their waste od.

Although lazy, the native is distinct-ingenious and his method of brood-g is worthy of notice. Where a num-r of hens are kept for raising broil-s, a few capons of a large breed are ways retained as well for brooding rposes. They are treated as pets the family, so that they become accustomed to being handled. When a hen hatches she is not allowed to waste her time brooding her own chicks. A few days before the chicks are hatched the capon is placed in a coop, and when the chicks are ready he is lifted up carefully at night and a quantity of strong tobacco smoke blown into his face, which for the time being seems to make him quite intoxicated and silly. The chicks are then placed under him. In the morning when he wakes and finds his new family, he seems to take them quite as a matter of course, and when let at large with them in the daytime he scratches and gives them as much, if not more, attention than the hen would. One of the advantages of this system is that chicks from various hens, and differing several days in age, can be placed in the care of one capon.

A big capon will brood as many as 50 chicks, and the hens are turned loose after a few days, to lay and set again. The tropical hen does not usually lay a great number of eggs. She nearly always lays away, and, if possible, hides her nest, setting as soon as she has sufficient eggs, thus clearly showing her near descent from some sort of wild fowl.

The writer has used capons as described above for brooding incubator chicks with marked success, and believes this system is worthy of more general adoption. The Chinese are said to use caponized geese for this purpose, and it is a well known fact that a female goose, if from any cause her own eggs have failed to hatch, will adopt a brood of newly hatched chicks or ducklings.

The great drawback to poultry raising in the Tropics is the abundance of pests. These vary in different countries but are always there in one form or another, the most general thing being hawks and other birds of prey which abound nearly everywhere.

In some of the islands of the Indian Ocean there is a creature known as the tang-rat. It looks like a cross between a rat and a hedgehog and smells like a skunk. This animal is very fond of eggs and the young chicks, but is more dangerous after death than in life. There seems to be an irresistible attraction about a dead tang to the fowl mind. They devour them greedily when rotted and invariably die within a few hours. Their death is said by the natives to be caused by swallowing the small spines which cover these animals.

The iguana is a confirmed poacher, and is found pretty generally all over the tropical parts of Asia. However, he is very easily trapped, as he always follows the same run.

In the Malay Peninsula the local pest is the python or boa constrictor, who takes a regular toll from any fowl house in his vicinity. These snakes are easily shot, as the fowls generally give the alarm when one is around at night. They are sometimes trapped by making the sides of the fowl house of wire netting. The snake enters easily enough through the mesh, but on attempting to escape after having had his feed, that part of his length which contains the swallowed fowls is unable to pass through the netting, and so prevents his escaping before the owner of the poultry arrives and despatches him.

In spite of many disadvantages, provided sufficient care is taken, there is good money to be made at poultry raising in most tropical countries. Land can be rented cheaply; poultry food, such as bananas, tapioca, yams, poonac, broken rice, etc., are easily grown or cheaply bought. Insect food, of course, exists in abundance.

Bananas form an excellent shade in a poultry run. They cost very little to plant and go on bearing for many years with little or no attention. The fruit can be picked in nine months from the time of planting and yields at the rate of about 20 tons per acre. The fruit can be dried in the sun and stored in a dry place for future use, and also makes an excellent flour. The breadfruit and jak fruit are also among the many trees bearing fruit suitable for poultry food. A large breadfruit tree bears from 1,000 to 2,000 fruits each season. The fruit is round and about the size of a Dutch cheese, weighing as a rule three

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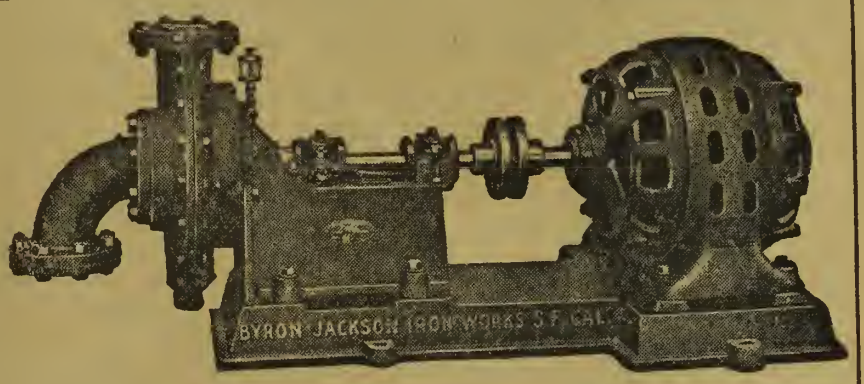

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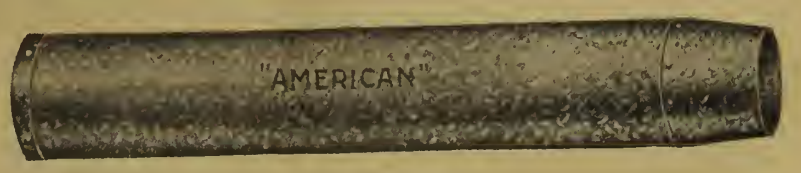

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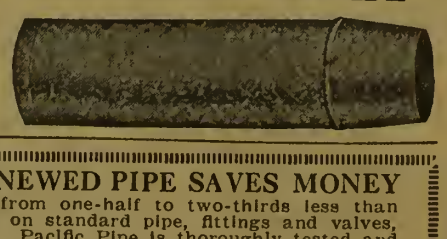

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To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

pounds.

There is plenty of scope for improving the present breed of tropical fowls by importing some heavy pure bred poultry. The local fowl is generally a sort of game and bears a strong resemblance to the wild or jungle fowl.

WHAT IS THE HOMIEST THING?

What is the homiest thing to you, the thing that makes your house a home? Of course you would say first of all: "It's my family that makes my home." But we are going to take for granted the family, the house, the needed furniture, the food — all the absolute essentials to living—and talk of the things that come after the necessities, the things that make life more comfortable and happy and beautiful.

I remember that to my childish mind the distinction between real folks and just people was marked by the presense or non-presence of a piano in the living room. Perhaps that was because of tbe impression of one June day when I was six. Mother called me in from the old live oak on the edge of the vineyard to "see what's in the living room." It was a new shiny, wonderful golden walnut piano! And it were to my little girl eyes a glorious halo of promise of things that were to be. What a joy that piano was to the orchard home miles from the nearest town and railroad!

I'm not sure that my feeling has changed much yet! Of course I have found that gardens and orchards and open fires are not to be taken for granted—as I then supposed—but still the piano seems a center of happy home gatherings, of school day parties, of the dreams and memories of the twilight hour, of all the priceless homey days of a happy childhood and older life.

But this subject is open for discussion. Is it the piano to you, the library, the fireplace, the easy chair, the phonograph, the table linen and silver, the auto, the telephone, the views from the windows, the reading lamps, the pictures, the electric labor savers, the bath room, the rose pergola, the grape arbor? What is it that you would choose to keep beyond the necessities, if you must forego all but one of the—not luxuries—but happy, comfortable things in your home?

Prize Offer

For best letter answer $2 cash; second best $1; for all published, one year's subscription to the California Cultivator.

With your letter be sure to send name and address of one to whom you wish subscription credited.

Please write on one side of paper only—the kind doesn't matter, wrapping paper does very well, but please, for the printer's sake, write on one side only.

Letters should reach this office, Household Department, California Cultivator, Los Angeles, by Monday, May 17. They will appear in the Cultivater of May 29.—R. P. D.

WAYS TO USE CHUCK

Chuck Steak With Onions

2 pounds chuck steak, 5 or 6 onions, salt, butter.

Slice onions in water. Drain thoroughly. Place onions in a shallow saucepan, cover closely and cook over a slow fire for 15 or 20 minutes till tender. Use no water or fat as the onions contain both moisture and richness. Heat a frying pan smoking hot, and brown the steak quickly on both sides; add onions, reduce the heat and turn the meat frequently until it is cooked through. Season the steak and salt the onions. Serve the meat on a platter with onions around it. Add butter.

Beefsteak Pie

Chuck steak, cut in narrow strips; sprig of parsley, 1 onion, 1 cup sliced carrots, 1 cup celery cut in strips, 4 halved potatoes.

Place steak in kettle with boiling water to cover and let it simmer for half an hour. Add vegetables together with salt to the meat and thicken the stock. Place the kettle on an asbestos mat to keep sauce from sticking. Some dried mushrooms soaked and drained improve the flavor. Simmer while making the pastry. Put all in a baking dish with a rolled crust over the top and sides. Brush with milk and bake 40 minutes, covering it with heavy paper as soon as it browns.

EIGHTY-SEVEN EARTHQUAKES 1919

Though the general public may be aware of the fact, the United St usually experiences from 100 to earthquakes each year. This is sh by reports sent to the weather bur United States department of agr ture, from the large number of tions which it maintains in var parts of the country and from its untary cooperators who send in tices of earthquakes observed in t respective localities. The numb disturbances last year was 87, and number reported the previous was 127. A very large proportio these, of course, are so slight as t entirely unnoticed by the public. the Pacific Coast slight earth trem are of sufficient frequency to ca no comment whatever. The majo of quakes reported are from that gion.

One surprising fact, however, sh by the summary of earthquake repo for 1919, which has recently been pared, is that more than a score these disturbances occurred in Mississippi Valley. The region c prising Southern Illinois, Southern diana, Western Kentucky and West Tennessee experienced 20 qua while one was recorded in Northe ern Missouri, two immediately so of Wichita, Kansas, and one in W ington, D. C. Many disturbances the total number reported would h wholly escaped attention but for seismographs, which are so delic that they usually will detect a viol shock, no matter in what part of world it occurs.

FARM HOME CONVENIENCES MEAN EFFICIENCY

The farmer is the only busin man who shelters, clothes and fe his working partners, his wife a children. They not only share in work on the farm but know the amo and kind of working capital and of share in the discussions as to best methods of making the most fr the capital employed, whether in form of livestock or crops.

To get the maximum effort fr these working partners with the m imum expenditure of time, health a energy, it is necessary that they h the greatest degree of comfort in t home. This is to be found in the m ern home where water, light and h lessen labor and add to comfort a restfulness which bring excellent turns in the form of energy and creased vigor—excellent assets in t business of farming.

CHOCOLATE COOKIES

Half cup butter substitute, one c sugar, one egg, two tablespoons mi one-fourth teaspoon salt, two ounc melted chocolate, two and one-h cups flour, one-half teaspoon soda.

Chocolate Coated Walnuts

Coating chocolate, walnut m halves.

Melt coating chocolate over water, being careful that not a drop water gets into chocolate; then b it until cool. Drop in a walnut m half, coat with chocolate, lift out w chocolate dipper or two-tined fo and drop on wax paper or marble s to harden. Continue until suffici walnuts are coated. Cost per pou 70 cents.

THE BLESSED MAN

Blessed is the man, if any, who c get as much satisfaction out of a $1 spading fork and a 79-cent hoe as could out of a $4500 touring car.—O State Journal.

It is beautiful thoughts, even m than beautiful surroundings, t make life what it should be.

Forgive and forget the little tbi that hurt today. An enlarged visi will help you see beyond them t morrow.

We may not be able to be as us or as helpful as we would like, bu fortunately, we are held to accoun for only those things we are able t do.

Buy soap by the box, or by the do lar's worth when it is a leader at special sale, then store it in such way that it will dry out. It will d the same good in washing and wi last considerably longer.

The Cultivator Patterns

BE SURE TO SEND SIZE

3203. **Girls' Dress.** Cut in 4 sizes: 8, 8, 10 nd 12 years. A 10 year size will require ⅞ yards of 27 inch material for the blouse and ⅝ yards for the skirt. Price, 10 cents.

3202-2909. **A Smart Costume.** Waist 3202 cut n 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 2909 cut in 7 sizes: 22, 24, 26, 8, 30, 32 and 34 inches waist measure. To make the entire costume of one material will equire 6⅝ yards of 27 inch material. The width of the skirt at lower edge is about 1⅝ ards. Two separate patterns, 10 cents for each attern. Send 20 cents for both.

3216. **Girls' Dress.** Cut in 4 sizes: 6, 8, 10, nd 12 years. A 10 year size will require 1⅞ ards of 36 inch material for the skirt and 2 ards of 27 inch material for the waist. Price, 0 cents.

3205-3189. **A Trim Business Costume.** Waist 3205 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3189 cut in 7 izes: 24, 26, 28, 30, 32, 34 and 36 inches waist measure. The width of the skirt at lower edge a about 1⅞ yards. It will require 3¾ yards of 38 inch material for the skirt and 4⅛ yards of 27 inch material for the waist. Two separate patterns, 10 cents for each pattern, 20 for both.

3211. **Child's Play Garment.** Cut in 4 sizes: 2, 3, and 4 years. A 4 year size will require 1½ yards of 36 inch material. Price, 10 cents.

3207. **One Piece House Dress.** Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 7½ yards of 27 inch material. The width of the skirt at its lower edge is 2 yards. Price, 10 cents.

2860. **Girl's Dress and Sun Bonnet.** Cut in 5 sizes: 2, 3, 4, 5 and 6 years. Size 4 requires 2½ yards of 36 inch material for the dress and ¾ yard for the bonnet. Price, 10 cents.

2785. **An "Easy to Make" Apron.** Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42 and Extra Large, 44-46 inches bust measure. Size Medium requires 3¾ yards of 38 inch material. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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PATTERN DEPARTMENT
California Cultivator
Los Angeles

THIS WEEK'S PATTERNS

Outdoor clothes for all the feminine portion of the family are shown in this week's patterns.

The little girl's dress 3216 with its round collar and tie, short sleeves and wide kilted skirt has an unmistakable air of class—which simply means that it is of good material, well made and suited to the use to which it is put.

3202-2909 is particularly graceful and becoming and would develop charmingly in any heavy sporting silk weave.

Small sister's gardening togs in 2860 will make her a quite irresistible "sunbonnet girl," and she and the small berompered chap beside her with cooky in hand make you think of the dear little garden beside the house which has a small individual plot for each of these two where they can plant their very own nasturtiums and beans and nice things like that, that will grow even if you do forget to water them just when they get thirsty.

By the way, it isn't too late to plant a little bean wigwam. Kentucky Wonders, with a few scarlet runners for decorations, planted in a circle, staked with poles caught together near the top, will make a darling playhouse in just a very short time.

Aprons, bags and baskets are three of my very special likes, and I never put in one of these pattern columns but I look first to the aprons at the bottom—and they're always worth that first look, and then a second. Note the little outline pattern of apron 2785. Could anything be simpler or more graceful? It hangs without bunchiness and covers the dress well. It shows another feature which is worth noting—the pockets set well forward so that they won't catch on door knobs or other projections as one whisks by.

Now that the house has been gone over and retouched with tint and paint and paper, the natural thing is to draw the sewing machine out before a big window or on the screened porch and make and remake the summer clothes. And here let us repeat a hint given a few weeks ago. If the old sewing machine is out of repair, find some one who can put it in perfect order or trade it in on a new one. Most houses that handle them make a practice of allowing a liberal amount for the old machine turned in on the purchase of the new.—R. P. D.

THE MENDING BASKET AND GOOD JUDGMENT

Classify, or grade, your mending. In the first group place the really good articles that require only a stitch or two or have met with some accidental injury. This shirt is perfectly good and strong except that the shoulder seam is pulled out. It is worth careful repairing. This petticoat with the torn lace should be darned carefully for it is as good as new.

In group two place articles that are beginning to show wear, but will still give considerable service. These are deserving of neat mending, though not such careful work as is desirable on group one.

In group three place such garments as this torn morning dress, the frayed work shirt, and these heavy heelless socks. They are all well worn and thin, yet are too good to be discarded. Run up the tear in the quickest way. Rip off the collar to the work shirt and stitch it back in place with the good side uppermost. Sew patches on the stockings and reserve them to be worn with heavy boots. Mend them the quickest way for their usefulness is limited at the best.

Then there is the question of making over. The advisability of doing this all depends upon the material. Good wool or silk is as worthy of careful making as new material.

This discarded gingham, now; 15 minutes will turn it into a morning petticoat that will wear for several months.

The secret of all successful and sensible mending lies in a wise judgment of your materials. It isn't sensible to spend valuable time mending a garment so thin it will scarcely hold the patches, whereas you are justified in spending a whole afternoon on one good garment that is thereby made as good as new.

Good judgment shows in the mending basket as quickly as anywhere in the house.—A. M. A.

NOTHING BETTER THAN RICE

Personally I think this is true if the rice is cooked thoroughly, otherwise decidedly not. The recipe so often given for boiling briskly in salted water 20 minutes, washing out starch and serving, doesn't appeal to me, for "the way mother used to make it" was this:

Pick over cupful of rice carefully, wash several times in cold water, put to soak at least one hour before cooking. Cook in double boiler in salted water at least one hour, then remove cover and dry out, pouring off a little liquor, if necessary—not washing. Then add milk or cream and a little butter and cook another 20 minutes or more. Serve in hot dish as you would mashed potatoes, with big lump of butter sunk in the middle. This is the old Southern way of using as a vegetable. We seldom saw potatoes on our table—not more than once a month, but we did have plenty of well cooked creamy rice.

The Cultivator gives here a number of combination dishes, using rice as foundation:

Although rice has remarkable food value, it has little individual flavor and so takes on the flavor of the dish with which it is combined. This quality makes rice an excellent foundation for milk and cheese dishes, or combination with meat, chicken and fish in stews. Rice can be combined with any vegetable, made into a variety of desserts, used to thicken soups or mixed with wheat flour or cornmeal in bread making. Even a spoonful left over can be stirred into bread, mixed in chicken or dropped in the soup pot. Left over rice may be browned in fat for breakfast or made into cakes by adding an egg, a little milk, flour to thicken and a teaspoon of baking powder. These rice cakes are delicious with syrup.

Rice Corn Bread

Cooked rice can be used in any corn bread dough. It adds lightness to the bread. From the rice growers of Louisiana comes this recipe for rice corn bread:

3 eggs, 1 pint milk, 1½ cups boiled rice, 1½ cups cornmeal, 2 tablespoons fat, 1 teaspoon salt, 1 teaspoon baking powder.

Beat eggs very light; add milk and other materials; beat hard and bake in shallow greased pan in hot oven.

Rice Hash

Put in pan one cup each of boiled rice, cooked meat cut fine, and hot water. Season with one teaspoon each of salt, Chile pepper and chopped onion. Boil 15 minutes.

Baked Hash or Rice and Meat

Put in a stew pan one cup each of chopped meat, cooked rice and milk; two tablespoons of fat, one teaspoon of salt, one-fourth of a teaspoon of pepper. Stir for one minute, then add one well beaten egg. Turn the hash into a baking dish and bake 20 minutes.

Roast Goose or Duck Stuffing

Four onions, four apples, four leaves each of sage and thyme; fry these in two tablespoons of fat till brown; add boiled rice until of a desired stiffness. Season with salt, pepper and cayenne.

Codfish Balls With Rice

One pint of codfish, two pints of potatoes, one cup of boiled rice, one tablespoon of fat, two beaten eggs, three teaspoons of milk. Mix together and make into balls and fry in deep fat. Serve hot.

Rice Stew

Boil together one can of English peas, one-half cup of rice, one teaspoon of salt, pepper to taste, one tablespoon of fat, and one cup of sweet milk. Thicken with flour. Serve very hot in a hot dish. Cover the top with grated cheese before sending to the table.

IN PRACTICE

The lady whose motor car had run down a man called to see the victim in the hospital.

"You know," she said, "you really must have been walking very carelessly. I am a good driver. I've been driving for seven years."

"You got nothing on me, ma'am,' retorted the man, "I've been walking for 59 years."

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Pat—Perspiration. Hard work will kill them.

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In the orchard, too, the Cletrac is at home. Low hung, with no projections, it weaves in and out among trees without injury to them. Use it to move your spray about.

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — May 15, 1920 — No. 20

A Dream—Yet True

By J. P. McCutcheon

NO strike seems to be the order of the times, the style or fashion, not from the shoulder, but from the brain, or perhaps more appropriately, nerve. Anyway, it seems that strikes are prevalent in nearly all classes of business or occupation, except among "hayseeds," or farmers. Many different classes of labor are on strike, from the railroad unions down to the chicken pickers union—this latter I believe is the latest and perhaps the least.

But just wait till we stock and agricultural farmers go out on strike!

There will be no chickens on the market to be picked, there will be no railroad men's strikes, as there will be no business for railroads—nothing to haul. The carpenters, the plumbers, machinists and clerks would have no occasion to strike as there would be little or no employment for them. The merchants would have nothing to do after disposing of their present stock of goods.

Bankers could do no business; they would be even worse off than the grocery man who could probably subsist for sometime on his stock by learning not to care for fresh eggs and butter, but the poor banker could hardly exist long on a diet of notes, mortgages and greenbacks, with a little gold for dessert.

It has occurred to me recently that in order to be in the swim and a live member of the striking world, we farmers should organize a mammoth farmers, stock-raisers, agricultural union, and then strike.

The towns will probably say: "How in the name of common sense, or nonsense, has the farmer got a strike coming? The old hayseeds ought to stay home and work." But it's like this: To be in the fashion we will want shorter hours, less work, a better time, and more pay, or else have the city fellow get less profit from our efforts, and get out and work.

You see we farmers work two or three years to raise, for example, a beef animal, and sell it in the town at about eight cents a pound, and the city man skins it, cuts it up and monkeys with it probably 24 hours and sells it again at about 32 cents a pound average.

Now allowing eight cents for cost and another eight for loss in dressing (which eight cents is too much), yet the city man gets twice the money for 24 hours work that the producer gets for his three years work. Could you blame us for striking?

We work with our corn a whole season and sell for about two and one-half cents a pound to the party in the city. He keeps it and abut seeding time sells it back to us at from five to eight cents. (But that of course is our fault.)

Shoes for instance. We of the hayseed class get for our beef hides about 25 cents a pound. I don't know how much the tanner gets, but anyway the leather costs the manufacturer from 90 cents to $1.25 a pound, ready for making into shoes. In a pair of ladies shoes there is not more than one pound of leather, which, with the other material of a pair of shoes would not cost to exceed $2.00, and the lady pays from $10 to $16 a pair, and then some. Somebody makes some money, but not the farmer.

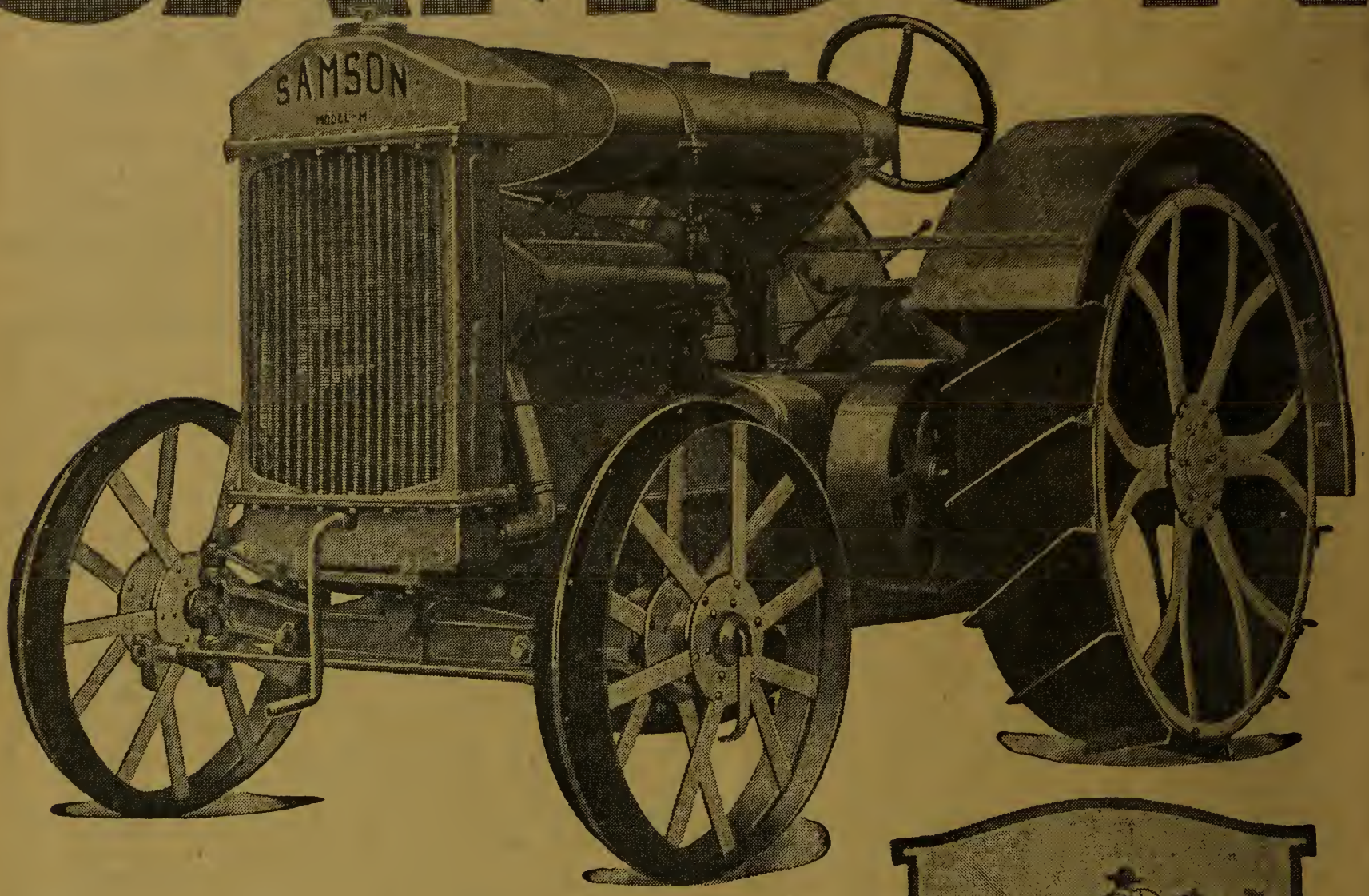
For the cotton in a suit of clothes, say five pounds, the farmer gets possibly $2 for the five pounds, works with it a whole season, and then pays from $20 to $30 for a five pound suit.

Manufacturing, of course, is expensive, but I think that all hands through which the raw material passes get many times more profit than does the farmer—hence our disposition to strike.

We may follow the six pounds of wool entering into a man's suit, from the producer to the wearer, and I think we will find that more money sticks to the fingers at each stage of its transition from the grower to the unlucky guy who pays from $50 to $75 for the suit, rather than dress as they say Adam did in his early days.

This six pounds of wool all cleaned and ready for the factory is worth probably six (Continued on Page 839.)

SAMSON



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California Cultivator

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Cantaloupe Crop in Western States

By F. W. Stillwell, Assistant Truck Crop Specialist, Bureau of Crop Estimates

THE 1920 cantaloupe deal in the Western States will start between May 20 and May 25, when the first carload is expected to roll from Imperial Valley. The principal areas in California, Arizona, New Mexico and Colorado follow one another in regular succession, supplying the United States with cantaloupes from the latter part of May until some time in October. This year the total acreage planted, or expected to be planted, in these four states exceeds the very large crop of 1919 by about 21 per cent. Conditions in the later sections have not developed to a point where it is possible to make definite statements as to the exact acreage planted, but it is believed that a brief review of the situation as it is at present will be of interest to both shippers and growers. The following figures show the relative acreages for 1919 and 1920 in the sections referred to. In each case the acreage of Honey Dews is included. There are very large increases in the acreage in the Imperial Valley and in New Mexico, and the Arizona acreage shows a distinct decrease. The prospective planting for Colorado also indicates an increase in acreage over last year's crop:

California's this year totals 31,350 acres as against 25,560 in 1919. Imperial Valley. 22,500, last year 14,000; Los Angeles and Riverside Counties, 400, last year 1,200; Tulare County, 750, last year 480; San Joaquin Valley (exclusive of Tulare County), 7,250, last year 9,880; Sutter Basin, 450 this year.

Arizona's planting is 2,760 acres, last year 4,600; New Mexico, 2,800, last year 1,330; Colorado, 8,000, last year 5,570; Rocky Ford district, 6,000, last year 4,070; Ordway district, 2,000, last year 1,500.

This makes a grand total for the three states of 44,910 acres as against 37,060 in 1919.

It seems almost certain at the present time that there will be a serious shortage at the time the Imperial Valley crop is moving, and it is not at all improbable that this situation will extend through the movement of the Arizona and Tulare County crops. It is believed that the car situation will be normal, or nearly so, by the time the acreages in the main deal in the San Joaquin Valley, centering at Turlock, and in the Sutter Basin come into bearing.

Briefly, present indications are that the largest total acreage on record will be planted in the Western states. The most serious deterrent factor at the present time is the practical certainty of a car shortage during the Imperial Valley deal and the possibility that this car shortage will continue into some of the deals immediately following. Weather conditions have favored the crop in some sections and injured it in others, but the average for the sections where the plants are above ground is probably about normal at this time. The following comments will serve to outline in more detail the conditions in the various sections:

Imperial Valley

Following is a detailed estimate by shipping points of the acreage of cantaloupes in the Imperial Valley in 1920 and 1919. There is a distinct increase in acreage in the southern portion of the valley, but Brawley still retains its place as the center of the largest growing area: Brawley, 7,185, 6,310; Calexico, 2,026, 482; El Centro, 1,300, —; Grape, 265, 416; Heber, 4,250, 2,055; Imperial, 1,400, 1,154; Kimura, 300, —; Poppy, 600, 843; Rockwood, 900, 631; Westmoreland, 3.850, 2,105, Wilsie Siding, 425, —; total for 1920, 22,500; for 1919, 14,000.

Up to March 1 growing conditions were almost ideal, the weather being slightly warmer than the average for that time of year, with an entire absence of frost. Between 10,000 and 12,000 acres were planted early and the plants covered with oiled paper as a protection against frost. Beginning in March, cold weather, heavy winds and rain combined to retard and injure the crop. There were especially heavy winds between April 5 and April 20. These winds burned the edges of leaves and in many cases shook off the young fruit of the crown set and tore off runners. Because of this damage the season will be delayed slightly and the yield from the crown set seriously reduced. The disturbance of the vines also is causing premature netting, and all factors agree that the crown set will produce a large per cent of "pony" size melons.

In normal seasons growers and shippers figure that the yield for the valley will average about one-half car of cantaloupes per acre. This year, however, because of the unfavorable factors already mentioned, and because growers are relatively or entirely inexperienced in raising cantaloupes, as well as the fact that considerable land not well suited to cantaloupes has been used, it is believed that the yield will be below the average, possibly not over 140 crates per acre. Figuring the average production at the figure named, however, means that 9,345 cars of 336 standard crates each will be produced. Because of strike conditions railroad officials cannot at this time figure at all accurately on the number of refrigerator cars which will be available to move the crop, but many people doubt if over 5,000 cars can be secured for this purpose. An idea of the effect of such a car shortage upon growers and shippers will perhaps be gained by stating that if a maximum of only five crates per day per acre is picked, the supply would fill over 300 cars daily for probably three weeks. Last year's shipments exceeded 300 cars on eight days, and on the peak day 349 cars moved.

The first car this year is expected to move between May 20 and May 25, as compared with May 26 last year. Last year over 100 cars were moving daily on the ninth day after carload shipments began, and during the ten peak days 3,168 cars were shipped out. This concentration of peak load is typical of the Imperial Valley deal, and during the past seven years, with the exception of the unusual season of 1915, approximately 40 per cent of the entire crop has moved out in the ten days of heaviest shipments. It is probable that this will not be true this season, because of the uncertainty of a steady car supply.

The only bright side to the probable car shortage is that with the curtailed shipments higher average prices per crate are expected to prevail throughout the season. There will be the usual cooperative arrangement between the federal bureau of markets and shippers for securing proper distribution of the crop.

Arizona

The usual uncertainties of weather confront the Arizona deal, but at the present time the crop is reported in very fine condition, fields showing about 90 per cent stand of good healthy plants. Some difficulty was encountered in obtaining this stand, as early plantings were injured by various insects, but later planting has brought desired results. The following figures show a division of the Arizona acreage by shipping points: Fair Grounds, 600 acres; Glendale, 565; Phoenix, 600; Gilbert, 380; Mesa, 540; Toltec, 75; total 2,760; for 1919, 4,600; decrease, 1,840 acres, or 40 per cent.

The first car is expected to move about July 1—possibly June 28. It is hoped that conditions on the railroads, in so far as they affect the supply of refrigerator cars, will be nearer normal by that time and shippers generally are not anticipating a severe car shortage for the movement of the Arizona crop. Average production over a series of years is about 180 standard crates per acre.

Tulare County

The 750 acres of cantaloupes planted in Tulare County will be shipped from the following four points, named in the order of their importance: Quail, Zante, Porterville and Lindsay. This is a new deal, but its sponsors are confidently predicting that about 500 cars will be shipped. The shipping season is expected to begin the last week in June, continuing through July. Thus it will be seen that the movement from this section will parallel that from Arizona. It seems probable that because of its geographical location a considerable proportion of this crop will move to the Northwest, but it is known that a portion of it, at least, will be shipped East. This portion will be in direct competition with late Imperial Valley shipments and those from Arizona. There were a few cars shipped from that section last year, and the quality of the fruit was reported as excellent.

San Joaquin Valley

The main deal in the San Joaquin Valley centers at Turlock and is sometimes known as the Turlock deal. There are scattering acreages planted from Madera to Manteca, but the bulk of the acreage is between Ceres and Livingston. It is estimated that in this entire section there will be about 7,250 acres, compared with 9,880 acres last year, a decrease of 23 per cent. There is some uncertainty as to the final acreage because it is not known whether all of the acreage destroyed by heavy winds during the week ending April 17 will be replanted. The destroyed acreage is estimated as approximately 35 per cent of the total planted. Seed is plentiful and local factors are of the opinion that most growers will replant, but it is probable there will be a slight reduction over the original acreage. Heavy frosts the mornings of April 21 and April 22 did some further damage. In general, cool weather has retarded the crop.

The carload shipping season ordinarily opens about July 15 and it is believed that it will open not far from that date this year, although it may be as late as July 25.

It is not possible at this time to make any predictions as to the output from the acreage named, but the average yield over a series of years usually is not far from 200 standard crates per acre. If average conditions prevail this year there should be produced a commercial crop equivalent to 4,315 cars of 336 standard crates each.

Sutter Basin

Cantaloupe growing in this section is a new departure, but those who are interested in the deal believe it will be a big success and that they will get a large yield from the acreage planted. Shipments are expected to start in late July, the movement paralleling that from the main San Joaquin Valley.

Los Angeles and Riverside Counties

Because of limited time it has not been possible for the writer to make a survey of these counties, but it is certain that the acreage will be very considerably reduced, and it is probable that there will not be any appreciable commercial surplus for shipment in carload lots. The acreage estimate for these counties, made earlier in this article, is a very rough approximation.

New Mexico

Encouraged by favorable returns last year, growers and shippers have combined to more than double the acreage planted in 1919. The following estimate shows the 1920 acreage by shipping points: Dona Ana, 630 acres; Las Cruces, 925; La Tuna (Texas), 275; Mesilla Park, 720; Vado, 250; total, 2,800; total 1919, 1,330; increase, 1,470 acres, or 110 per cent.

The writer has not personally visited the section in which this crop is grown, but it is reported that a considerable portion of early plantings was severely damaged or destroyed by a recent heavy frost. It is known that growers are replanting rapidly, and the figures given represent approximately the final expected acreage.

Colorado

Very little planting has been done in Colorado to date, and estimates given are based upon growers' ideas of planting and upon signed contracts between shippers and growers. It is estimated that 6,000 acres will be planted in the Rocky Ford district and 2,000 in the Ordway district, as compared with 4,070 and 1,500 acres, respectively, for 1919. Recently the sugar companies operating in the Rocky Ford and Ordway districts have paid to growers a bonus of $1 per ton upon the 1918-19 sugar beet crop, and it is understood that contracts for the 1920 crop are at advanced prices. It is probable that this action will result in some planting of sugar beets in place of cantaloupes and that the final acreage of the latter crop, therefore, will be slightly less than the figures given.

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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Saturday May 15, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

SAVE THE MOISTURE

The next two or three months are most trying ones on orchard and, in fact, all crops. Use the dust mulch and in every way take pains to conserve the moisture which mid-summer will demand.

THIN THE FRUIT

The big plums, peaches and apricots command the long prices. Big plums or other fruits cannot be made where the tree is overburdened with fruit and fruit pits. Fruits in some sections have been naturally thinned by frost or other unfortunate circumstance. Where they have not, the wise orchardist will do some patient hand work. It costs time, but it pays.

CITRUS INSTITUTE

June 24 and 25 have been chosen as the dates for the midsummer Citrus Institute. It may he recalled that this organization was perfected at the time of the last National Orange Show, with the announced purpose of holding two institutes annually, the midsummer one to be movable as to date and place, the other to be held at San Bernardino at the time of the National Orange Show. Dr. J. T. Barrett, director of the citrus experiment station at Riverside and president of the Institute, has announced the midsummer meeting to be held in Santa Ana on dates given.

COOPERATING IN WHEAT

Wheat growers of the country recognize that they are up against the would-be profiteer in marketing the coming season's crop. They recently met in Kansas City, at which time delegates from nearly all sections of the Union gathered and discussed marketing and labor conditions. They also protested the action of the United States shipping board in maintaining high and discriminatory rates. Definite steps were taken toward perfecting a permanent organization which it is hoped may be accomplished at a meeting to be held in Washington.

NEW DAM SITE

The northern papers chronicle the news that the reclamation engineers have located a hard rock foundation for masonry for a great dam in the Iron Canyon near the headwaters of the Sacramento. This project has been under way for several years and only last November engineers reported inability to find at reasonable depth a rock foundation. This caused severe disappointment to irrigators of the Sacramento Valley, in fact, to all well wishers of the state. The engineers had not given up, however.

The announcement comes from Secretary W. A. Beard of the Sacramento Valley Development Association, who says that a dam at the new site will impound 643,000 acre feet.

TRADE WHERE YOU LIVE

Trade where you live. The little gray home in the West has added value if it is on the outskirts or within trading distance of a live, attractive little town. A live and attractive little town can only be where there are live tradespeople; live tradespeople will not collect in a community which does the greater part of its trading through the mails with outside of the state concerns. Practically all of the standardized, nationally advertised implements, machines, farm power appliances or farm equipment generally are handled through regular trade channels and the local merchant.

Of course, all this presumes that the local merchant is alive and handling thoroughly dependable, up-to-date stuff. The merchants in some towns may be of the type which induces the farmer to order his implements from far-away centers. In such a case farmers should unite and secure local distribution of modern goods through local cooperative organization, and this in such a way that the profits may go to the upbuilding of the community.

Trade where you live.

ECONOMIZE

The Government Savings Organization of the Twelfth Federal Reserve District quotes the Supreme Council of the Peace Conference in a review of the economic situation as saying that "general wholesale prices have advanced since 1913 approximately: United States, 120 per cent Great Britain, 170; France, Italy and Belgium, each 300. Those, be it remembered, are wholesale prices; retail prices undoubtedly increased to an equal or greater extent." Then follows a most urgent appeal to the people to economize.

This appeal we fully endorse and at the same time feel that we are justified in making a similar appeal to the Government Savings Organization; in fact, to the whole government organization which exists in Washington. The press reports that thousands upon thousands of idle or half idle clerks are still "employed" in Washington. Again, the amount of white paper used np in appeals for economy and in various propaganda from Washington is simply appalling. Editors' waste baskets are filled every morning with appeals for economy and appeals for this, that and the other effort being made by the government.

Perhaps this "educational" material is necessary, but if some of the "overworked" clerks at Washington could be relieved—note we say "relieved"—economy would be really encouraged.

PRODUCTION UP, COSTS DOWN

We have complaint because of the fact that public administrations have not been specially forward in showing economy in the management of public affairs while they were urging greater personal economy. It is a delight to find a real example. Such a one is the farm belonging to Los Angeles County, which is made a home for indigents. This farm is under the direct superintendency of Mr. Harriman, who has been in charge since 1914. The year 1913-1914 showed net cost per capita per day of that institution to be 83.80 cents. The following five years were years of advancing cost, but here are figures of net cost per capita daily as shown by chart which has just been prepared by the administration of the county farm. The year 1914-1915 showed a cut of 59.90 cents per day; 1915-1916, 38.10; 1916-1917, 33.65. The sharp rise in cost prevented any further decline, in fact, compelled a slight rise, and in 1917-1918 showed a per capita cost of 37.03; 1918-1919, an even 43 cents.

Note another feature in the report of this same farm, and this feature causes a very attractive letter "X" on the chart of costs and returns: As noted, this institution is a genuine farm, comprising 400 acres, of which 80 is in river bed and 80 in drives, buildings, corrals, etc. The remainder of the farm brought in a return of $20,785 for 1913-1914; in 1914-1915, $23,246; 1915-1916, $59,261; 1916-1917, $92,072; 1917-1918, $115,567.94; while the gross revenue for last year was $131,700.25. Much of this time the farm has been without a farmer other than that Superintendent Harriman is some farmer himself, as is Mrs. Harriman.

This puts Los Angeles Connty Farm in a class with the most prosperous institutions maintained in California.

DOING CALIFORNIA

It is a genuine pleasure to pilot through the golden poppy fields of California and through its orange, lemon and olive orchards, a hunch of genuine tenderfeet. Three young men from back where they spend millions in hauling snow from the streets, even back beyond Hurricane Land, are now doing California. They are Joseph Payez of New York, Ned Costello and Frank Johns, both of Chicago. They belong on the Cultivator staff and are all engaged in showing to Eastern advertisers the great opportunities offered for the disposal of their wares in prosperous California. These young men are all thoroughly conversant with Eastern conditions, but while they have been busily engaged in securing a wide range of general information as to this state and its opportunities, they wanted that type of information which is more quickly available and gives more punch to their talk in their work of "selling" California. They first came to the Southland; they saw orange trees in bloom and the golden fruit alongside; lemons of all sizes from blossoms to mature fruit in boxes; the handling of walnuts, raisins, dried peaches, almonds and many other of California fruits which are being sent to Eastern consumers.

While they were met at the border with request for information as to how they liked the state, they have withheld the answer, which we will be glad to give later.

FILLING THE FARM LOAN

There seems to be concerted action on the part of powerful interests in a movement to destroy or at least greatly cripple the federal farm loan. The bonds of the federal land banks have been placed on the market and sold quickly. They were most attractive investments because of a fair rate of interest and because of their exemption from taxation. The mortgage companies which for years have had almost complete control of loans on land insist that this has been an unfair competition, hence have taken action to invalidate the federal farm loan enactment, or at least that portion of it pertaining to the bonds. Of course, if the bonds are invalidated or so affected by any supreme court decision that they can only be sold at a higher rate of interest, then the entire law will in effect be nullified.

The matter is on the way to the supreme court, but it is now feared that decision will not be rendered for a year, or at least nine months. Meantime no further applications for loans are being received by the various banks. The bank at Berkeley has made arrangements to borrow sufficient money to complete the loans for which application has been made and loans have been granted. Meantime borrowers will be compelled to look elsewhere unless they are able to await the decision of the supreme court.

The mortgage companies who are making the attack npon this method of securing more economical production frankly admit the competition is too great and they must make the federal farm loan less effective or their own business will suffer.

The federal farm loan has been of great value to many California farmers, though it has not been so popular in this as in other states. The total loans in this district—California, Utah and Nevada—aggregate less than $18 000,000, while loans closed in Texas alone totalled nearly $40,000,000. Those of the seventh and eighth districts—St. Paul and Omaha—aggregate about $47,000,000 each. California orchardists, especially those holding foothill orchards, the site value of which is a great consideration, have felt they were not justly treated in appraisers' valuations. In fact, it has been a rule of the banks to refuse to consider site or productive value when the productive value is so largely influenced by "improvements" or appurtenances such as bearing orchards. This has induced the bank management to refuse loans based on real producing value, and some of California's most highly improved property has been refused loans excepting upon a basis of about half its annual producing capacity. The most that has ever been loaned on any California ranch is $350 per acre, while there are orchards today which have produced several times that annually.

But notwithstanding the direct benefit to this state is not as great as to some others, there is the indirect benefit which comes from the ability of some farmers to secure these loans and pay them off, both principal and interest, at the rate of six per cent. Every farmer, whether borrower or not, should encourage the maintenance of federal land banks.

Bud Selectors Meet With Shippers, Growers and Canners

By M. C. Holman

A RECORD breaking assemblage of shippers of green fruit, canners and growers greeted George H. Hecke when he opened the third meeting of the Nurserymen's Bud Selection Association of California in the senate chamber of the state capitol at Sacramento on the morning of May 6.

In his opening remarks Mr. Hecke pointed to the fact that the Bud Selection Association has a three fold purpose to accomplish. First it is seeking to eliminate the non-commercial varieties of fruit; second, it desires to adopt for propagation only such varieties as have been found to have a commercial value; third, to develop acceptable varieties and to make the trees produce more and better fruit. Having discussed with the canners the selection of the best varieties for their use, and the Prune and Apricot Growers the varieties they wish to retain and improve, the association is now taking up a very important feature of California's fruit industry, that of drying and shipping to the eastern markets, and it is particularly essential, believes the association, that a careful study and analysis be made of present varieties so as to secure the best suited sorts for drying and shipping.

L. B. Scott, manager of the Bud Selection Association and an expert in all lines of the fruit industry, called attention to the main objects of the association. It is the aim of the association to furnish buds of all varieties found through experiments and practice to be commercially profitable. In this way the association renders a great public service. Nurserymen and orchardists can purchase bud wood at cost price and be very sure that they have selections from the best known trees of the varieties selected.

The purposes and ultimate value of the association to the state and the country at large are so fully recognized that it has received liberal support from the University of California and the federal government. There is need at the present time, Mr. Scott pointed out, for careful bud selection in deciduous fruit culture. While congress and the department of agriculture have assisted very materially there has not been sufficient money appropriated to carry on desired experiments, and the association has placed in federal hands the sum of $5,000 annually as a start to securing active government action. A report will be made as to how the money has been spent.

The association is a strictly non-profit corporation and its services are open to any legitimate nurseryman and grower in the state. Too many varieties have clogged the march of progress in horticultural advancement. They have been catalogued and propagated, but many of them were only semi-productive and some proved to be actual drones and totally non-productive.

The organization will aim to learn the locations of highly productive orchards and will study the performance of the orchards as a whole and of the separate trees as individuals. It will also aid in the discovery of the best strains and will from time to time make known its findings. There will be conducted a publicity campaign intended to encourage the individual fruit grower to make a careful study of his trees and help in producing a greater quantity of fruit. It is the aim of the association to keep track of trees and cut the bud wood from those that give a clean record of remarkable production over a period of from seven to 12 years.

J. E. Bergtholdt of Newcastle, vice president of the association, presided at the meeting in the absence of Wil-

(Continued on Page 818.)

Nurserymen's Bud Selection Association of California

By L. B. Scott, General Manager

THE main purpose of the association is to furnish all the buds of all the fruit varieties used by the different nursery firms who are members of the association. In addition buds will be sold to any fruit grower who desires to purchase them for top working. Thus the association operates in two distinct ways as a public service; first, by furnishing to the different nursery members just as superior a type of bud wood as our experts can secure, thus assuring the public a better type of nursery tree when they purchase trees from any firm which is a member of the association and also providing a channel through which reputable orchardists can purchase buds for top working.

Because of this public service idea the association has the hearty cooperation and approval of Mr. Hecke and the state department of agriculture, as is evidenced by this meeting today. It has the approval of the state university, the approval of practical fruit growers, and the cooperation of the federal department of agriculture. The state is releasing from its employ V. W. Hoffman, at present farm adviser of Sacramento County, who will act as assistant manager of the association. Millard Sharpe of Vacaville, recognized authority on deciduous fruit varieties, will have charge of much of our field work.

The association has placed at the disposal of the federal department of agriculture a sum of money to be expended annually in deciduous fruit bud selection investigations. This will make it possible for members of the fruit improvement investigational staff of the United States department of agriculture, who have been working under the direction of A. D. Shamel, in studying the question of bud variations in citrus fruits, to extend their work to other California fruits.

The Nurserymen's Bud Selection Association was conceived by William T. Kirkman, Jr. of Fresno, who is the president. Associated with him are J. E. Bergtholdt of Newcastle, vice-president, and Max Crow of Gilroy, secretary-treasurer. Other directors are George C. Roeding, Fresno; J. M. Barnicott, Newcastle; H. A. Hyde, Watsonville, and J. S. Armstrong, Ontario. The association is a non-profit organization, being operated at cost, and any legitimate nurseryman in the state is eligible for membership. The following leading nurseries constitute its membership: Kirkman Nurseries, Fancher Creek Nurseries, Fresno Nursery Company, McGhee Wholesale Nurseries, California Nursery Company, Silva-Bergtholdt Company, J. W. Barnicott Company, Armstrong Nurseries, Crow's Nurseries, H. A. Hyde Company, Elmer Bros., Ruehl-Wheeler Nursery, Stanislaus Nursery Company.

The commercial activities of the association will be directed (1) along the lines of securing information from the various fruit interests regarding the varieties and percentages of each variety which should be planted and the varieties which should be disregarded. If nothing more than this were accomplished we would feel our work was worth while, as I think we are all agreed that we are cataloging too many varieties of all our fruits; (2) information will be secured regarding the locating of high producing orchards in all the fruit varieties.

We can do very little this year in the actual cutting of bud wood, except to supervise the cutting in a general way. We can, however, sift out the information we obtained regarding the location of desirable orchards of each variety, narrow our selection down to the best trees in these orchards, secure actual records on those trees, and cut our buds from those trees for our own bud farm, so that next year the association can actually furnish all the members all the buds they use of each variety. This will be only a preliminary selection. Better records will be secured next year and a better selection of buds can be made. (3) As soon as the federal investigators determine whether there are distinct strains in each variety, such as has been found to be the case in citrus fruits, which are characterized by differences in the fruit, differences in the leaves or in habit of growth of the trees, we will secure this information from them and we will then secure our bud wood from the best trees in the best strain in each variety. (4) Growers will be urged to secure individual tree performance records so that their trees can be used as sources of bud wood. (5) An accurate track will be kept of the young trees propagated from our selected buds and eventually all our bud wood will come from these second generation selected trees.

The main problem confronting us at the present time is the securing from the various associations interested in California horticulture an expression regarding the varieties of fruits which ought to be developed as the leading sorts.

In April 16 a meeting was held with the representatives of the leading canners of the state, at which an expression was secured regarding the varieties and the percentage of each variety which they preferred for canning purposes. The list follows:

Cling Peaches for Canning

Tuscan 25 per cent, Pelora & Peak's 10 per cent, Albright 5 per cent, Sims & Libbee 10 per cent, Phillips 40 per cent, Levy 5 per cent, McDevitt 5 per cent.

Freestone Canning Peaches

Muir 10 per cent, Lovell 70 per cent, Elberta 10 per cent, Salway 10 per cent.

It was further recommended that the clings should constitute 85 per cent of the peaches canned.

Apricot Varieties

Coast Section: Blenheim 100 per cent.

San Joaquin Valley: Blenheim 100 per cent.

Sacramento Valley: Blenheim 50 per cent, Tilton 50 per cent.

Cherry Varieties

Sweet Varieties: Royal Ann 60 per cent, Gov. Wood & Rockport 20 per cent, Assorted Black 20 per cent.

It was recommended that a small proportion of sour cherries be planted.

At the suggestion of Mr. Eustace of the Curtis Publishing Company, who was present at the meeting and who is familiar with varieties of cherries grown in the eastern states, it was suggested that the Montmorency would be the best sour variety to plant.

Pear Varieties

It was recommended that only the Bartlett be planted for canning.

Plum Varieties

Washington 25 per cent, Yellow Egg 40 per cent, Jefferson 25 per cent, Bavey's Green Gage ten per cent.

It was recommended that not over one twentieth canning plums should be planted as compared with clingstone peaches.

On the 24th of April through the courtesy of the officials of the California Prune and Apricot Growers Association a meeting was held of representative prune and apricot growers. After due discussion they recommended that the following prune varieties be planted:

French 85 per cent, Robe de Sargent five per cent, Imperial five per cent, Sugar five per cent.

The plantings of the last three varieties should be largely in some of the interior valleys, in which they seem to be more profitable than the French.

The apricot varieties recommended were practically the same as those mentioned by the canners, with the exception that in addition to the Blenheim for the coast section it was specified there should be a small planting of Moorpark.

It was brought out in the discussion that the so-called Royal variety is practically identical with the Blenheim, and it was suggested that in future propagation the Royal be discontinued and selected Blenheims be substituted.

We hope at this meeting to get an expression from you regarding the fruit varieties you are interested in.

In conclusion may I say that we appreciate the help we are receiving from the state department of agriculture, from the university, from the federal department, and from the growers, and the word I wish to leave with you is that the Nurserymen's Bud Selection Association is essentially a public service.

Agricultural News Notes of the Pacific Coast

Northern California

Shipments of Black Tartarian cherries began the last of April.

The California Development Board has issued its report for 1919.

Summer session at the university farm, Davis, June 21 to July 31.

The University of California held commencement exercises on May 12.

The Sutter County farm bureau held a picnic on May day in the Sutter Buttes.

Twenty-seven irrigation districts were represented at a meeting held in Oroville May 8.

The Mount Pleasant community of Placer County, held its annual picnic on last Saturday.

Rice growers under the Sutter-Butte Canal Company will now have to pay $20 an acre for ditches.

The dairy department of the Sonoma County farm bureau is considering the advisability of holding hog auctions.

The Sutter County farm bureau holds a big picnic and field meet today. Picnic will be held at Yuba City.

The Weimar and Applegate farm centers of Placer County will hold community picnic at Wolley Flat on May 16.

California rice prices went down approximately two dollars on the hundred last week and heavy sales were reported.

Supervisors of Contra Costa County have awarded contracts for five miles of highway between San Pablo and Richmond.

The heaviest exportation of hops ever made from California was this year's record. Most of these go to European countries.

The San Francisco Produce Exchange has voted to increase its margin on butter two per cent, raising it from six to eight cents.

Cloverdale, Mendocino County, and Santa Rosa, Sonoma County, both made a gala day of May Day with picnics, orations and open air pageants.

At a recent meeting of grape growers at Cloverdale, Sonoma County, 1,200 tons of wine grapes were signed up in the California Grape Growers Exchange.

Horticultural Commissioner Bremner is warning fruit growers of Sonoma County that they must spray in order to prevent serious damage by tent caterpillar.

The wool market is strong and the state farm bureau federation is organizing a cooperative wool selling pool which will enable wool growers to secure fair returns.

Berry growers of Paradise Ridge, Butt County, have formed a berry growers department of the local farm center. They expect soon to form a cooperative marketing association.

At a recent meeting of the Sonoma men's Association at Livermore the subject discussed was fire prevention on range lands of Alameda, San Joaquin, Stanislaus and Santa Clara Counties. Mounted fire patrolmen were appointed.

At a recent meeting of the Sonoma County wool pool committee it was decided to visit growers who wished to pool their wool and decide on a date when the clips should be assembled into carload lots. Each grower's wool will be graded separately and returns made on the basis of quality.

Central California

A new dehydrator is being built at Reedley, Fresno County.

Stevinson, Merced County, is petitioning for an irrigation district.

The Raisin Day celebration at Fresno was the biggest ever held.

Five whales were caught last week at Moss Landing, Monterey County.

The Raisin Day observation was by far the most successful day yet held.

Cotton growers in the vicinity of Bakersfield report some damage from frost.

Sheep shearing sheds at Firebaugh, Fresno County, are a busy place this season.

Official estimate of the attendance at the Raisin Day pageant at Fresno is 150,000.

Six airplanes will be used in making daily fire patrol from Fresno to Bakersfield.

Thomas H. Means has been named chief engineer of the Madera irrigation district.

Plans are being made for increasing the hotel and camping facilities in the Sequoia national park.

Some authorities report that the grain crop of the San Joaquin Valley will be short this season.

One of the hens in the California egg laying contest at Santa Cruz has a record of 30 eggs in 30 days.

The Monterey County horticultural commission now has poisoned barley which it can distribute to growers.

At the recent meeting of the Hillmar farm center hog feeding and milk production were topics of discussion.

Farmers of Gonzales, Monterey County, have formed a cow testing association as a department of the farm bureau.

Selma, Fresno County, is making emphatic protest against speeding, and many an auto driver has been pinched.

At the recent quarterly convention of the Stanislaus County Farmers Union 75 delegates were present from 17 different locals.

Pure bred breeders of Merced County have formed an association to consist of breeders of pure bred animals in all branches of stock raising.

Merced chamber of commerce will make an educational exhibit of its products at the permanent state exposition building in Los Angeles.

The railroad commission has denied application of Kern County farm bureau and board of supervisors of the county for rehearing of the application of power corporation for rate increase.

The Carmel Valley Fruit Growers Association of Monterey County has been incorporated. It will market the fruit crops of members and also act as a buying concern.

The Stanislaus County Farmers Union at its recent quarterly convention at Turlock adopted a resolution urging a boycott against Japanese products in California.

Olive growers in the Lindsay district who are members of the California Olive Growers Association have named A. M. Moss of Lindsay as chairman of the committee to solicit from members funds for a campaign of education to combat the effect of the recent olive scare in the East.

Southern California

Citrus institute will be held at Santa Ana June 24-25.

The hay harvest is proceeding much earlier than usual.

A new cotton gin is being erected at Ripley, Riverside County.

J. G. France is the new county farm adviser of San Diego County.

Apple orchards at Banning, Riverside County, are showing a good setting.

A price of 77 cents per pound for Pale Verde cotton is reported as the record.

The cattle growers of Santa Barbara County held a meeting at Los Alamos on May Day.

Olive growers of Hemet Valley met April 3 to discuss the present marketing situation.

Prof. J. W. Nelson will demonstrate handling of soils at local meetings of the Ventura County farm bureau.

The drainage district at Talbert, Orange County, is to be materially extended or a new district organized.

A bill has been passed by the senate providing for a survey of a general irrigation project in the Imperial Valley.

The Yucaipa apple growers association has paid out to members this week $12,000 as second payment on the Fancy 1 pack.

Fruit growers of Banning, Riverside County, are seriously considering building a cooperative cannery to handle their own fruit.

Oxnard is raising a fund for financing the Ventura County fair. The meeting for making general arrangements will be held May 22.

At a recent meeting of fruit growers of Victor Valley a committee was appointed to draw up some form of organization for a fruit growers association.

There will be 60 per cent of a normal apricot crop this year in the Hemet Valley, according to survey made by Manager Raynor of the California Growers Association cannery.

Coachella Valley announced her first ripe apricots of the season as picked on April 15. The fruit ripened on trees in the government date gardens, in charge of Bruce Drummond. These are said to be the earliest apricots ever ripened in California.

Long staple cotton growers are hoping for a price of at least 60 cents a pound. Sales now being made exceed that figure, but it is thought a materially smaller price will be received for the bulk of the coming crop, though some growers are hoping for $1 per pound.

Dean Hunt, Dr. Harring and Dr. Mead of the state college of agriculture are visiting the citrus experiment station at Riverside. Dr. Harring is to succeed Dr. Webber as director of the agricultural experiment station at Berkeley. He will take up the work on July 1.

Owners of lands about Owens Lake have begun suit against the city of Los Angeles to compel it to cease from diverting waters from the Owens River, maintaining that the diverting of the flow causes Owens Lake to remain at a lower level than it maintained prior to the construction of the aqueduct.

The Coast and General

A Jersey jubilee will be held in Willamette Valley, Oregon.

Colorado reports greater supply of irrigation water than last year same date.

Oregon Cattle and Horse Raisers Association will meet at Burns, Oregon, May 24 and 25.

The department of justice is making investigation of high prices being charged for beet sugar in Utah.

The seasonal flow of the Colorado River will be at least 30 per cent greater this season than normal.

The Mexican cotton boll weevil infested additional acres to the extent of 34,500 in the United States during 1919.

The Philippine Islands report immense sugar output probable for 1920. Estimates are for 225,000 tons for export and 100,000 tons for home use.

The board of commissioners of agriculture and forestry of the Hawaiian Islands have adopted rulings intended to prevent spread of bovine tuberculosis.

Wheat growers of Douglas and Grant Counties, Washington, have been holding a series of meetings in various communities through the first week of May.

The Washington Farmer says: "The real red blooded farmer has his eight hour day, but it is more like eight hours in the forenoon and eight hours in the afternoon."

Dairymen about Seattle called for strike of milk producers, which was averted by distributors agreeing to pay an advance of 44 cents per hundred. The dairymen are now receiving $3.30 per hundred.

Cooperative marketing of the entire cotton crop of the United States is contemplated in a plan being devised by the American Cotton Association which recently met in convention at Montgomery, Alabama.

The sugar beet factory at Fallon, Nevada, will be operated this year. Growers will be paid $15 per ton with an additional $1 for each one cent per pound advance in the price of sugar over 12 cents per pound for refined.

Prof. Robert Stewart of the University of Illinois has been appointed dean of the college of agriculture of the University of Nevada, succeeding C. S. Knight who has become secretary of the Reno Chamber of Commerce.

Washington and Oregon apple growers have investigated as to reasons for not securing larger returns for early winter shipments of apples and find rate of exchange with European countries, especially England, cause for slackening in demand.

Every agricultural organization in the state of Kansas was represented at a farm labor convention held at Hutchinson, May 3. Last year the standard wage was 50 cents an hour for a ten hour day. One community is reported as paying as high as $15 per day with board.

The capitalization of the Southwest Cotton Company, which owns the largest farms of any in Arizona, has been increased to $15,000,000. More land has been purchased and there will be further development. They will soon have 30,000 acres under cultivation and in addition will help to finance about 75,000 acres more

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GOODYEAR
CORD TIRES

Spraying Walnut Aphis

By Ernest Braunton

FARM Adviser Hodgson of Los Angeles County says: "I consider control of the walnut aphis through dry spraying one of the greatest advance steps of recent years in the battle against insect pests. It has opened the way to experiments for control of insects heretofore most baffling and with which we could do little. Among these are the green apple aphis, melon aphis, peach thrip, onion thrips, etc., on all of which dust spray has, during 1919, proved quite effective. We are now looking to its use for the corn ear worm which also injures tomatoes."

These remarks were made at a dust spray demonstration on May 6 in the orchard of B. F. Maxon at West Covina. About 100 walnut growers were present to watch the operations which were declared by those present to be in every way satisfactory. The morning was ideal and at the time dusting commenced, about 9:45, not a zephyr was stirring the leaves.

Ralph E. Smith, formerly for many years with the state college of agriculture, spoke as follows:

Equipment Necessary

"The machine and equipment you see here is the latest and best, differing slightly in some of the equipment from that heretofore used. The machine is of eastern manufacture but the belt, hose and long spout are extras made for this especial purpose and must be purchased separately. The three inch hose, eight feet long, terminates in a long four foot iron sleeve or spout like a three inch stovepipe. Down in Orange County some orchardists are using one eight or ten feet long so it may be thrust up among the higher branches.

"But the only purpose is to cover the tree thoroughly so all the aphis will be killed, the last an easy matter for they quickly succumb to dust sprays and a light dusting only is needed if it be well distributed to all parts of the tree. As the dust is so light that it readily rises special attention should be paid to covering the lower branches and if but one side of the tree is sprayed, be sure it is the windward side. It is best to do this work early in the season for the aphis multiply fast and as they are born alive, not hatched from eggs at this time of the year, they are easy to control if work is thorough. I consider aphis inflict the most serious loss to the walnut grower of any of several troubles that beset him.

Action in Walnut Orchard With Dusting Machine

Note drifting dust fills in background. Spraying is usually done in the morning before the wind comes up, and a large portion of the orchard becomes filled with drifting dust. Photo taken by Cultivator on ranch of T. H. Lambert, El Monte.

Damage Done

"Aphis suck the sap, resulting in reduced vitality of the tree just at the time of greatest development. They make smaller crops, smaller nuts and lighter nuts, less number one's and more culls and these conditions grow worse every year if we have continuous years when aphis are plentiful. It may be necessary to spray but once, but aphis come and go with the weather and in some seasons more than one spraying may be necessary. Do not wait until leaves get yellow and smutty; it is then too late. It is good practice to spray early when aphis are few, so they will not further multiply; so dust in May if season is a normal one. Keep trees free to July and the pest can do no further harm as growth and crops have matured and hot dry weather also retards the activities and increase of aphis. Begin work at daylight and continue until wind interferes."

It appears from consultation with orchard owners that 20 acres is a good day's work, though 35 acres have been covered. The cost is 25 cents a tree for large trees and as there are about 17 trees to the acre this totals $4.25. As a most conservative estimate of average damage each year to the orchard is 100 pounds of nuts, at 25 cents a pound, the investment in spraying is a very profitable one.

For the Worm

As to the dusting for the walnut worm, Prof. Quayle's article in the February "Diamond Brand News" showed the results of last season's work. "The highest percentage found when dust was applied was 10 per cent. Most of the dusted groves were much lower than this, averaging four or five per cent, while some went as low as one or two per cent. The highest percentage found where no dust was applied was 21.9 per cent."

It is also fair to add that the dusted groves were in most cases those that were worst infested with worms, and that, as it was the first season's work, the growers had no definite information as to the best time or methods for applying the dust. With much better knowledge now available, on account of Prof. Quayle's work, it seems only reasonable to expect better results than those of last season, and by using a different form of arsenate this year this dust will not burn tree leaves.

J. E. Lauderdale who has been assistant state entomologist of Arizona with office at Yuma, has been made cotton entomologist for Arizona. His work will be to safeguard the cotton industry of Arizona from boll weevil and boll worm. He will also be expected to devise measures for combating the corn ear worm which attacks cotton.

BOSCH

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San Diego—Young & Chamberlain, 1310 Fifth Street.
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San Jose—Auto Electric Service Co., 471-5 South First Street.
San Luis Obispo—California Garage, 879 Higuera Street.
San Bernardino—Snyder & Bell, 337-9 F Street.
Santa Ana—Orange County Ignition Works, 302 E. Fifth Street.
Santa Barbara—Western Mach. & Fdry. Co., Cota and Anacapa Sts.
Santa Cruz—Jensen Bros. Auto Co., Front and Cooper Streets.
Santa Rosa—L. & T. Co., 300 4th Street.
Stockton—W. S. Maxwell Co., 207-9 N. Eldorado Street.
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Displays of fruits, vegetables and cereals were made at the Tracy Land and Auto Show.

GAS TRACTOR SHORT COURSE

If you are an owner, operator, or interested in tractors, you are eligible for enrollment in the gas tractor short course which will be held at the university farm, Davis, from June 1 to 11. This is a practical course designed to give eight hours of information and practice daily to those men who wish to know more about the operation and repair of tractors, or are considering the purchase of a tractor. At least 15 of the more prominent makes of tractors sold in California will be available for instruction. Each tractor will be in charge of a factory representative.

Schedule

Tuesday morning, June 1, will be devoted to enrollment, getting rooms, etc. Lodging and meals may be secured in the University Farm Dormitories and dining hall. The regular instruction work begins at 1:00 p. m. Beginning with June 2, the daily schedule is: 8:00-9:30 lecture demonstration, 9:30-12:00 practice work, 1:00-2:30 lecture demonstration, 2:30-5:00 practice work.

Students are divided into sections of from 12 to 15 upon enrollment. The various sections are then scheduled daily for practice work at definite places, thus preventing congestion and lost time.

Lecture Demonstration Subjects

Gas engine construction, gas engine principles and types, fuels, carburetion, carburetors, ignition, battery and magnetos, governors, cooling systems, lubrication, transmission, clutches, tractor construction, operation, management, tractor plows and hitches, charts, models and tractor parts will be extensively used in these lectures.

Practice Work

Magneto timing, ignition trouble finding, carburetor adjustment, valve timing, babbitting and scraping bearings, soldering, forge practice, motor repairing, inspection and operation of the 15 or more tractors which will be used in connection with the course.

The only charge for the course is a registration fee of $1.00. If you are interested, write to the dean of the university farm school, Davis, California. The course is limited to 180.

BRANCH INSECTARIES

So important has become the necessity for l cal propagation and distribution of beneficial parasitic insects that the state insectary has established branches in several leading counties where, as a rule, they are cared for by the several horticultural commissioners for a small monthly salary. One such insectary is located at Santa Paula, Ventura County, in charge of Commissioner Brock. There is produced the most liberal supply of mealy bugs to feed the parasites that the writer has seen. This is considerably more of a problem than raising the parasites. The latter are Cryptolaemus Montrouzieri, Hyperaspis lateralis and Tanaomastix abnormis, all parasites of the citrus mealy bug. These are liberated only in the worst affected districts and in large numbers, the object being to eliminate the mealy bug by overwhelmingly superior numbers. This gives splendid results in the very orchards where the pest has been the greatest menace, and from these the parasites may easily spread and overcome it in orchards surrounding that are less infested.

STATE SCHOOL LANDS

The state surveyor general at Sacramento informs us that auction sales of state school lands will be held this week and next as follows: Courthouse, Marysville, Yuba County, May 14; Courthouse, Auburn, Placer County, 17; Courthouse, Willows, Glenn County, 24; Courthouse, Colusa, Colusa County, 25; Courthouse, Lakeport, Lake County, May 27. Sales begin at ten o'clock.

You will find it is less easy to uproot faults than to choke them by gaining virtues. Do not think of your faults; still less of other people's faults; in every person that comes near you look for what is good and strong; honor that, imitate it; and your faults will drop off like dead leaves when their time comes.—John Ruskin.

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We can still supply Valencia Late Oranges, Eureka, Villa Franca and Lisbon Lemons for commercial planting.

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Grafted from the best large fruiting varieties.

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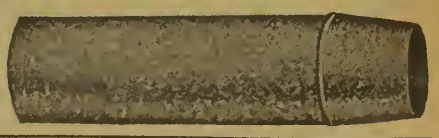

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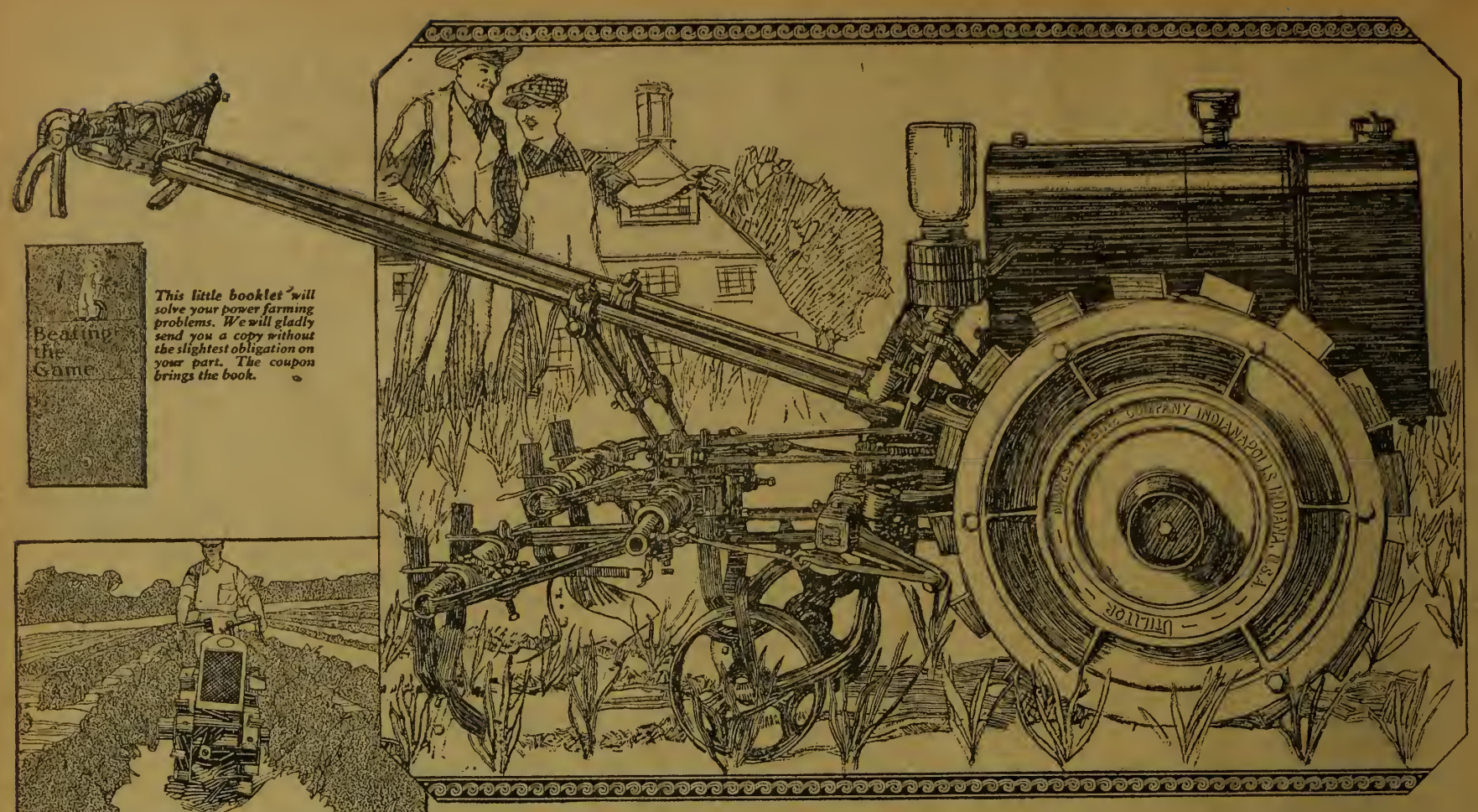

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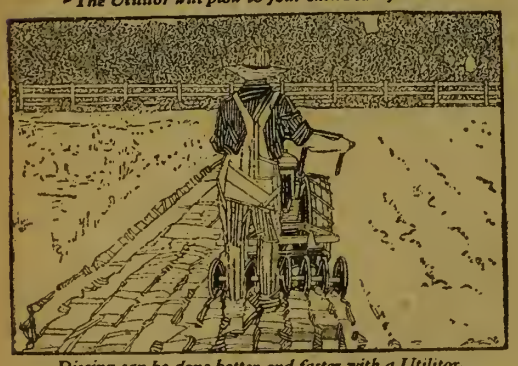

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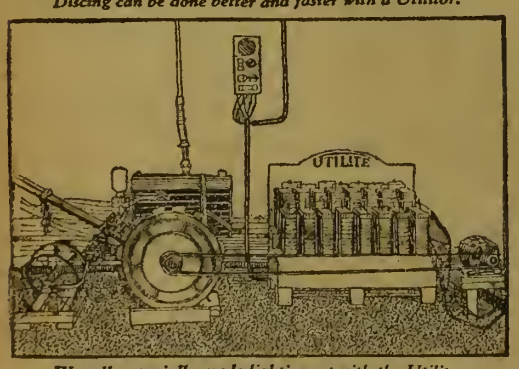

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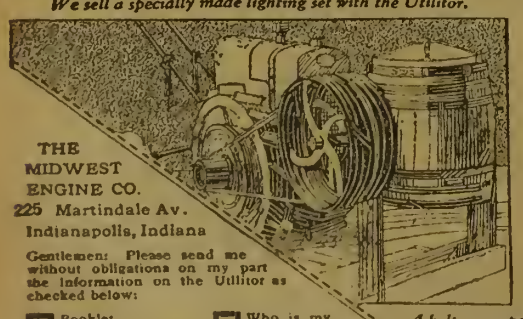

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Book Review

PRODUCTIVE SMALL FRUIT CULTURE

"Productive Small Fruit Culture," by F. C. Sears, M. S. Published by J. B. Lippincott, Philadelphia, Pennsylvania.

This book is a discussion of the growing, harvesting and marketing of strawberries, blackberries, currants and grapes. Prof. Sears is professor of pomology, Massachusetts agricultural college, formerly with the Kansas state agricultural college.

From the preface:—"The following discussions on small fruit culture have been drawn from many sources. They have grown in part out of my experience in the department of pomology of the Massachusetts agricultural college and in various other institutions where I have had plantations in charge; they have come partly from work with college classes where such subjects have been under consideration; another and very important part has been drawn from association with the practical fruit growers of the country, than whom there are no better instructors to be found in the world; and a relatively small but very important part has been drawn from personal experience in growing these fruits in my own garden and on my own farm."

The book is made up of 36 chapters touching upon sites, implements, fertilizers, companion crops, cover crops, spraying, soil, harvesting, marketing and many other of the problems confronting the small fruit grower. It is a book invaluable for producer and also of value in school room and laboratory. The end of each chapter usually has ten or a dozen review questions which aid in fixing points made in the preceding chapter.

POISONOUS PLANTS

The jimson weed (properly Jamestown) is a large, coarse, ill scented weed known to nearly every person, east and west, by its large cornucopia or megaphone shaped whitish or purplish flowers. The seeds are very poisonous and often prove fatal when eaten. The species most common in California is not Datura stramonium, but D. meteloides, with a whiter flower, but seeds equally poisonous. Two large shrubby species, D. suaveolens and D. arborea, both known as angels trumpet, are likewise to be avoided.

Even the common poinsettia must not be trifled with, for children have died from sucking the freshly cut stems and gardeners have suffered from getting the juice into cuts on the hands. The well known oleander is poisonous in all its parts. Stock of all kinds have been killed through eating the leaves. They stimulate heart action as does digitalis and have its poisonous qualities. A number of deaths have been recorded in California from eating seeds of the castor oil plant, three seeds having caused the death of a man. Recently in Honolulu a soldier died after eating six seeds. Berries of the black nightshade are made into pies, but eaten when unripe, have caused death. All mentioned are plants common in California.—E. B.

TEN CENT WHEAT

In parts of China wheat is selling today for ten cents a bushel. Transportation is as much a problem in economics as it is in production. For example, in Szechuan, China's great western province, which is larger and more populous than Germany was before the war, many farmers, dependent entirely upon animal or human transport, must put their wheat on purely local markets, where it brings ten cents at a time the world is paying two dollars.

Of course there is no place in this country where conditions are nearly so bad. Nevertheless, we have a very real transportation problem. Ours is a problem resulting from the overworking of one agency of transportation—the railroads—by depending upon that agency to take care of our short as well as our long hauls. And it is a problem that is costly to the consumer, if not to the producer. We must learn that if our power to produce is to grow and benefit both producer and consumer, to any perceptible degree, we must get full value out of all our transportation agencies. In other words we must coordinate the facilities afforded by our railways, our waterways and our highways.

CHINESE SOILS AND CROPS

Most of the soil in the Mukden district is a loose clay loam of brownish color and very deep and fertile. Sandy loams are found in a few places, and on some of the lower levels there is considerable alluvial soil, almost black from the decayed vegetation which evidently thrived in former ages when the land was wholly or partially covered with water. While a good deal of land in the north and northwest is suitable only for grazing, there is very little waste land in other parts of the district.

One authority has stated that no large soil areas of the world contain more potential wealth than those of Manchuria. During most of the year the climate is dry, and while there are extremes in temperature, from about 25 degrees below zero to nearly 100 degrees above, the effect is not as noticeable as it would be in a more humid atmosphere. The rainfall, including snow, is 33 inches, and covers a period of about 70 days, the heaviest rains occurring in July and August. The snowfall is seldom heavy. The rapidity with which crops develop is extraordinary. Spring wheat, for instance, matures in about 100 days, whereas in the same latitude in the United States it requires from 120 to 130 days.

LETTING THE MEN WORK TOGETHER

I never put one man in the field by himself. It's lonesome and he'll either overwork himself or won't do enough. A lonesome man is never satisfied and an overworked man will peg out on you sooner or later. When a man is lonely, it sets him to meditating, and I think that makes him more likely to drag his work than talking to a fellow worker.

I never put two lazy men at work together. I pair them off with good workers and the lazy man will have to come up with his end. Then, too, it shames even the laziest of them to see his partner getting so much more done than he day after day. Last year I had a boy inclined to be lazy. You can't get all industrious ones these days, because there aren't many to select from, but if you use your head you can get work even from some men inclined to loaf. I put this lazy man—he isn't with me now—opposite good men on jobs that required him to keep up or drop out. In plowing corn or turning sod I'd give him the fastest walking team and that helped quite a bit.

There are lots of ways I can get more work out of men when I just keep my eyes open and figure ahead of each job.—System on the Farm.

OUR CHEMICAL INDEPENDENCE

One of the little known by-products of the war has been the advance in the United States of the manufacture of medicines. Once we were obliged to buy most of these supplies abroad, from Germany usually, and, since we had to have them at any price, the Germans charged us outrageously. Some of these chemicals used to cost $70 an ounce, so that a single dose might cost $10. When the supply ceased at the beginning of the war our own chemists set to work to discover the secrets. Years of work followed, but today there is scarcely a chemical product we cannot manufacture for ourselves, and usually at a low price. The medicine which used to cost $10 a dose now costs one dollar.—Boys' Life.

AUTOMOBILE IS KING

America makes nine-tenths of all the automobiles used in the world today. It is only a few years since the best cars were made in Europe but now we send our cars to 183 different countries, including Iceland. It is no wonder that you can scarcely cross a street or road in the country without dodging an automobile, for last year nearly 2,000,000 cars were turned out in the United States, which makes about 7,000,000 cars regularly registered in the country. In a few years it is believed there will be nearly twice as many. There are more cars to the population in Nebraska and Iowa than any other place in the world, or one for every six and a half persons.—Boys' Life.

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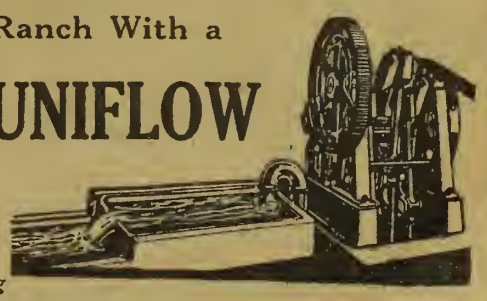

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The 1920 Avocado Convention

By Ernest Braunton

THE fifth annual convention of the California Avocado Association on May 7-8 was carried out as per program printed in last week's Cultivator. The attendance was much larger and more enthusiastic than anticipated and the accretions in membership most gratifying. From the 200 of a year ago the list has grown to more than 300 with new members joining en masse during the convention.

The exhibition was the finest ever shown, not only in number of fruits, but in number of varieties, there being 29 named sorts and many bearing registry numbers or placarded "Unnamed Seedling." The range in size and weight was considerable, from unknown seedlings of six ounces up to the Linda of four pounds. While those of green color predominated, many purples were shown, with every shade and hue intervening. Enthusiasm was at high pitch throughout the convention and among the more than 200 attendants at the annual dinner. In fact, the interest shown by the general public was a most gratifying surprise to all and places the avocado industry nearer its proper plane earlier than hoped for by its most enthusiastic supporters. Great things are expected (and assured) for the coming year. The most important paper read to the general public was the report of the committee on registration and classification of varieties, which follows:

Many new varieties, both from seedlings and imported buds, have come into bearing in California during the past year. The committee, since the last annual meeting of the association, has been active every month, and usually many times in the month, in visiting all such trees of which we could learn and sampling the fruit when it was in season and available; and also in striving to obtain the latest information and knowledge of the older kinds which have been recommended by the association for commercial planting.

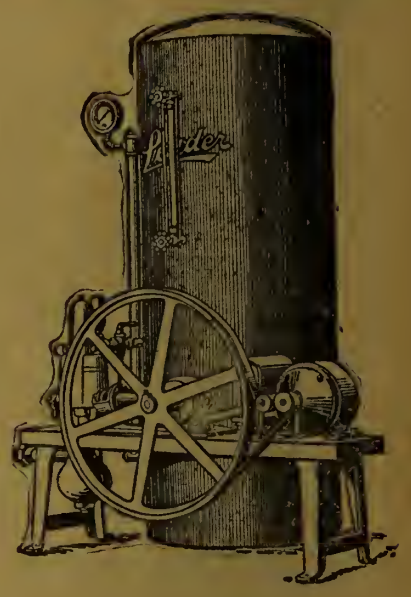
Of the 24 best varieties from the highlands of Guatemala, selected and introduced into the United States by Wilson Popenoe, agricultural explorer of the United States department of agriculture, two have during the past year come into bearing in Florida with a few fruit, the Nimlioh and the Panchoy, enough to prove their identity with the parent tree, hardly more, but enough to permit the department to release the buds for general distribution, which they do not as yet permit except for these two varieties. All are being tested experimentally in California; among them we expect to find some of great value to us here and a number of them are setting fruit to mature during the coming season.

The list of eight varieties recommended for commercial planting, issued October 25, 1917 as Circular No. 1 of the California Avocado Association, embodied the results and conclusions reached after a careful study of the different avocado varieties fruiting in California, made by the committee and by the board of directors of the association.

In a new industry and with our rapidly extending knowledge and experience a critical examination of the list must be made at intervals. Most of our members feel that the time has come to utilize the knowledge and experience which has been obtained during the past three years, and to bring the recommendations of the association into accord with the most advanced knowledge.

The Good Varieties

This association occupies the position of guide and adviser to the men who come into our young industry and plant avocado orchards. With few or no exceptions they will want rapid returns on their investments with as little hindrance and unexpected expense as possible while awaiting crops. We must consider their interests, and as a matter of justice to them we find the Taft, the Lyon and the Blakeman varieties should be dropped from the list of varieties recommended for commercial planting—which we do with regret because the Taft fruit is very fine, one of the very best, and the tree itself beautiful, and one that when it finally does come into bearing will compensate those willing to wait a long time for returns; but it is longer in coming into bearing than the others that have been recommended and more susceptible to frost injury. It is no longer commercially planted. The Lyon is also a good fruit, and the tree remarkably precocious and prolific and best adapted for interplanting, by reason of its slender shape, but it has proved too generally weak and hard



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to raise. Many trees in many plantlings have died and a decay has developed in some of the fruit while still on the tree. We find this has occurred even in the parent tree. Fortunately these defects do not interfere with the continuance of good prices for the sound fruit from the good crops being given by the good trees nor do they interfere with planting of the trees by those willing to take the risks involved.

The Blakeman is one of the hardier varieties with fruit of desirable size and quality, weight about one pound and seed comparatively small. Some three year old trees are bearing well, and the parent tree is a good and regular bearer. The growth of the tree is too spreading and needs pruning when young to produce a compact, desirable shape in the older tree. Our experience with young budded trees of this variety is limited—too limited, it is felt, to justify its present continuance on the list.

The Races

Of the three races of avocado we know the West Indian to be the most tropical, too tender for California and generally inferior in quality to the Guatemalan which comes from high altitudes in Guatemala and Mexico and finds itself at home in our orchards wherever lemons will do well and be safe to plant. The fruits of the Guatemalan race so surpass the third race, the Mexican, in size, beauty, thickness of skin, freedom from fiber, and shipping qualities, that we have been led, as we suppose, to recommend them alone for commercial planting to the exclusion of the Mexican type which has a distinctive flavor of its own and is more hardy, standing with very many kinds as much cold as an orange and with some seedlings even more. The usual faults with the Mexican type, beside thin skin and very small size, are presence of fiber, anise taste and loose seed in the cavity.

It has been well understood that it was only a question of time before we would find examples of the Mexican type worthy to be recommended for planting, and now we discover we have already in the Puebla, a very high grade Mexican which Wilson Popenoe, after a careful study of the original tree, states positively to be a true Mexican and not a cross or hybrid as we supposed. If we will accept his classification, and he is the one best qualified to know, we have already an excellent variety, with its fine distinctive flavor, in our recommended table, to which we will from time to time find others to add. The Fuerte, also, while predominantly Guatemalan, shows evidence of some Mexican blood.

In the table which follows the names are placed, not according to merit, but in the order in which the fruit begins to ripen, following the calendar year and using Los Angeles as a center. The ripening period varies in different years and in different localities. In San Diego and vicinity they are earlier than those given in the table. Last season in that district Pueblas matured from October 7 to December 24; Dickinsons from March 28 to June 7.

The Fuerte is one of the hardier varieties on the list, one of the most vigorous growing trees, an early and productive bearer, with fruit of the highest quality ripening at a very desirable period, with a greater variation in size and shape of fruit than is usual on the same tree, and with some coming too small.

The Spinks is also a strong growing tree. The large fruit is noted for its handsome appearance and has a long ripening period, lasting from early in the year until October. Some fruit tested in October by Wilson Popenoe was pronounced in a letter written by him, equal in flavor to the best he had found in Guatemala. The committee was also greatly pleased with fruit tested that month, finding it of the highest character; but some tested early in the season, though well colored and of good flavor, proved far from equal to the late fruit. The seed of this variety averages rather large in proportion to the flesh.

The budded trees of the Dickinson are proving better than the parent, both in tree and fruit. An outstanding feature of this fruit is its notably rough, warty skin, which becomes a glossy, handsome purple and identifies the variety. The quality is good and it comes in a period of its own—in the summer.

The Sharpless is well known for its handsome large fruit, comparatively small sced, high quality and very desirable ripening period of fall and early winter. It requires about a year and a half from blossom to maturity.

RECOMMENDED VARIETIES

Varieties	Season Dates	Weight of Fruit in oz.	Weight of Seed	Shape of Fruit	Color of Mature Fruits
Fuerte	Dec. to Apr.	11-16	1.50 to 3.00	Pyriform	Green
Spinks	Mar. to Oct.	16-20	2.00 to 3.50	Obovate to Pyriform	Purplish Black
Dickinson	May to Sept.	14-20	1.50 to 2.50	Pyriform	Dark Purple
Sharpless	Sept. to Jan.	16-20	2.00 to 3.00	Pyriform	Dark Purple
Puebla	Nov. to Jan.	6-14	1.50 to 2.50	Pyriform	Dark Purple

The Puebla tree is one of the best types of the avocado—sturdy, hardy, compact, precocious and productive. The glossy, handsome, pear shaped purple fruit matures at a good season, but is smaller and with thinner skin than the others on the recommended list. The period required from the blossom to the maturity of the fruit is the shortest of any kind on the list, requiring about eight months, and the seed is of medium size.

New Varieties

The Queen and Habersham (Dickey A) are the leaders among the new varieties. But we have only one season's fruit from which to test the first, and a limited experience with young budded trees of each kind.

The Queen is rich in flavor, excellent in quality, and notable in beauty of appearance of the flesh when cut. The tree is of a somewhat spreading growth. The ripening period is early summer; the seed, medium to small for the large fruit; color dark red to dark purple; shape pyriform; a slightly corrugated skin, thick granular and brittle; flesh rich clear yellow changing to beautiful deep green next to skin and with no fiber.

The Habersham or Dickey A: In view of the interest this variety is attracting and the fact that it will be referred to and discussed extensively for the next few years it was thought by the committee that it should have a distinctive name applied to it to avoid confusion. After careful consideration, it was decided to recommend the name "Habersham," and the use of this name for the variety has been approved by the board of directors of the association. The name was selected in honor of Frederick A. Habersham, who planted the seed that produced the variety. According to information secured through John Murrieta of Los Angeles, the seed from which this variety grew was presented to Mr. Habersham by Mr. Murrieta and was planted in 1905 in the location where the original seedling now stands on the place of E. W. Dickey at the head of La Brea Avenue, Hollywood, which was then owned by Mr. Habersham. The variety is hardy, promises well in prolificness and quality of the fruit is extremely good. The weight, 12 to 18 ounces; seed very small, 1½ to 2 ounces; color, red to maroon.

There are also a number of varieties of merit among those tested since our last annual meeting. The notes taken about them have been filed with the secretary and are open for inspection.

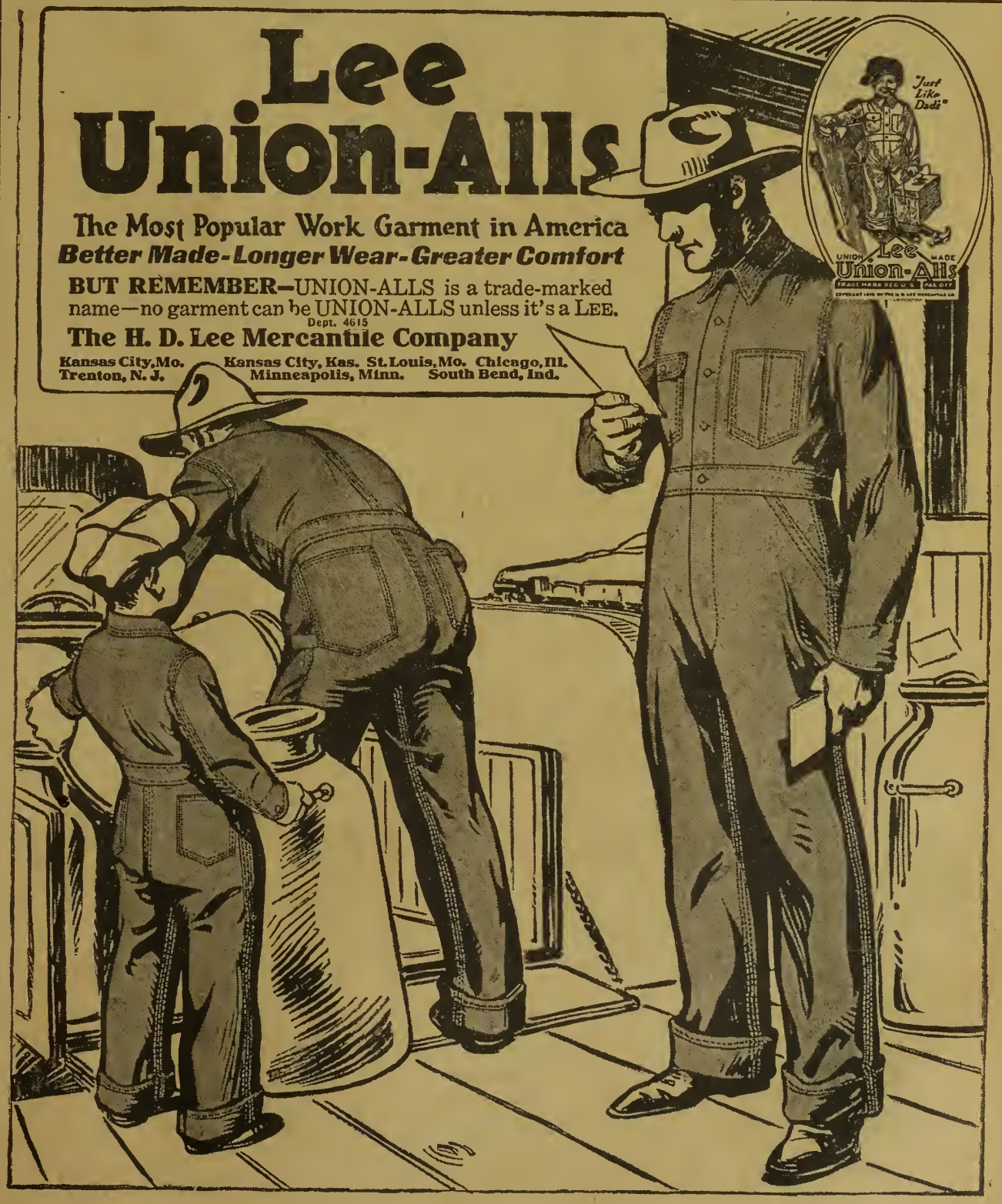
Future letters for the committee, or samples by parcels post of fruit for testing should be sent to the Chairman at Upland.—The committee: Chas. D. Adams, chairman, C. F. Kinman, T. U. Barber, Wm. Hertrich.

DECIDUOUS TREE PROBLEMS

Dr. J. C. Whitten will demonstrate pruning and deciduous fruit tree problems for the Los Angeles County farm bureau during the last week of May, at seven ranches in widely separated districts. He will take up summer pruning, thinning and the results of the long system of pruning.

The ranch locations have not all been decided upon yet but will be known next week. On May 24 he will be at Downey; on May 25 at Little Rock and Valyermo; on May 26 at Del Sur and Roosevelt; on May 27, at places of C. B. Sexsmith and J. C. Craig, Owensmouth, in forenoon and at ranches of W. F. Clarke and H. L. Spennett, Van Nuys, in the afternoon.

The United States consul at Nueva Gerona, Isle of Pines, lying about 50 miles south of western Cuba, writes that among the exports during the first quarter of 1920 were 11,698 crates of pomelos, valued at $39,743.; and 529 crates of oranges, valued at $2,101. In addition there were vegetables sent to us valued at more than $12,000. This was a slight increase over our imports from Nueva Gerona of corresponding months in 1919.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Splitting Hairs

A "hair's-breadth" is the ordinary idea of the extreme in fine measurements. But Holt inspectors must literally split hairs, for the rigid Holt standards of accuracy demand exactness to the fractional part of a hair's-breadth.

The story of what Holt standards are, how they are enforced, and what they mean to the purchaser of a "Caterpillar" Tractor, is told in full in a booklet entitled "Accuracy," sent on request to anyone interested in Tractors.

The Holt Manufacturing Company
Stockton, Calif., Peoria, Ill., Los Angeles, Calif., Spokane, Wash., San Francisco, Calif.

CATERPILLAR
Reg. U.S. Pat. Off.

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

BUD SELECTORS MEET

(Continued from Page 809.)

liam T. Kirkman of Fresno, to whom belongs the honor of originating the idea of carefui bud selection. Mr. Bergthoidt invited attention to the great need for assistance by the grower in the present confusion of types. Many growers, he claimed, selected impossible varieties and those that are totaliy unsuited to the iocalities in which they are to be grown. Many will order dupiicates which bear different names, and some will order second rate varieties when first rate kinds could be had for the same price. Aii of this, being the resuit of ignorance on the part of the purchaser, ieads to dissatisfaction and ioss of both time and money.

In order to get an expression of opinion from the shippers as to what varieties they desired for the eastern market, a questionnaire was sent to all prominent shippers throughout the state, with the request that they rate the vaiue for shipping purposes of the several varieties given. The returns were then tabuiated and presented to those present for their consideration.

Cherries

The first consideration was given to the cherry. The marked similarity between Abundance, Bing and Nonpareil caused the first and last to be eliminated and the three will hereafter be known as the Bing. Early Purpie Guigne, being a poor producer, was unanimously voted eliminated, while Chapman and Burbank were selected as the best early varieties. General Wood is a good cherry for polienization purposes, but not a good shipper, although a fairly good canning variety. Giant was held to be good for the home orchard, but quite unsuited to commercial demands. Black Tartarian was voted a good commercial variety, while Centennial should be planted in the home orchard oniy. Knight's Early Black and Rockport Bigareau were eiiminated as being commerciaiiy unprofitable, while Royal Ann received universal approbation. Montmorency, a sour cherry, was recommended for canning only. Of the 16 varieties formerly catalogued six were eliminated entirely and two were held suitable for the home orchard only.

Shipping Peaches

Mayflower may be pianted as the earliest shipping peach. It has done weii in most plantings, but only a few trees have been set out. It ripens so eariy as often to be ready to ship with Lambert Cherry. Alexander is aiso an eariy variety but does not do weii in aii sections. Hale's Early fiiis the gap between the early and iater peaches and is considered a suitabie commercial variety. Early Crawford and Foster are so nearly alike that the name Foster was ordered eiiminated and hereafter peaches of that variety will be known as Early Crawford. But Foster is a particuiarly good peach and should be cultivated for Eariy Crawford, thus taking a more popular name. Early Eiberta and Elberta were recommended as good shippers. J. H. Hale will prove a good bearer, while Late Crawford will not prove as good a bearer, but is a better peach. It was, however, eliminated from the commercial standpoint. Hale has been a heavy bearer in Glenn and Piacer Counties and ripens with Elberta, which it very closeiy resembies. Decker has proven a good shipper and may be sold in England and France. Morris White may be retained for the home orchard but it has been found to be a poor shipper. Triumph is an early commercial variety which has strong shipping quaiities. Salway received recommendation for continuation as a late freestone and Strawberry Freestone was recommended for the home orchard. What was known formerly as Yeiiow Saint John will hereafter be known as Saint John, the yellow having been ordered eliminated. Of the 33 varieties formerly cataiogued and causing great confusion, 20 were ordered eliminated and two were found suitable for the home orchard oniy. Where two varieties showed a strong similarity they were combined, thus eiiminating one variety. Only those of known value were retained.

Drying and Canning Freestones

The recommendations of the canners were adopted as foiiows: Lovell 70 per cent, Muir, Elberta and Salway, ten per cent. This gives these peaches a similar shipping value. Of the former nine varieties of drying and canning peaches oniy the four above named will be recommended as good shipping varieties, the other five having been eliminated. For drying, the Loveil was given a 25 per cent rating and the Muir 75 per cent.

Canning Clingstone Peaches

In the estimation of the canners 85 per cent of the peaches grown for canning should be clings and 15 per cent freestones. The recommendation of the canners as to varieties was adopted by the shippers, giving the selections as follows: Tuscan 25 per cent, Pelora and Peak's ten per cent, Albright five per cent, Sims and Libbee ten per cent, Phiiiips 40 per cent, Levi five per cent for Placer County, McDevitt five per cent. Of the 16 varieties formerly cataiogued seven were eliminated. While the Phillips received the largest percentage value it was held that this peach could be improved by proper selection. The Peak's and Pelora are very similar to the House and Johnson, but better shippers. The House and Johnson were formerly eliminated except for Sutter County.

Nectarines

The nectarine is a much neglected fruit. America does not appreciate its value, while it is much prized in Belgium and Engiand where it brings fancy prices. It can be grown better in California than eisewhere and a general effort shouid be made to establish its popularity. The shippers are now calling for a good red variety in limited quantity.

Stanwick is the largest of the nectarines and thrives splendidly in Fresno County. It has proven to be the best shipping and drying variety. High prices are paid for the red variety, whiie the white and yeiiow go to the cheaper trade. Gower is particulariy good for shipping. It is an oid Engiish variety and is a heavy bearer Humboldt was advocated for the home orchard and is a good bearer. Of the former nine varieties aii were eliminated except Stanwick and the Gower for commerciai purposes and Humboidt and New White for the home orchard.

Shipping Plums

Anita bids fair to become one of the best of the iate summer varieties While it is new to Caiifornia it has shown itseif ahead of Wickson and is a heavy bearer. It can be dried as a prune.

Beauty is a big favorite with the shippers, but the grower must use care in the selection of his trees. California Biue is a good shipper and a strong seiier. It comes at a season when a biue pium is desirabie and

CHAMPION TRADE MARK

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WORKING under full load ten to twelve hours at a stretch, the tractor gives spark plugs their most severe test. It means sustained power and terrific engine heat.

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There is a Champion Spark Plug for every type of motor car, truck, tractor, motorcycle and stationary engine. Order a set from your dealer today.

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Champion Spark Plug Company
Toledo, Ohio

finds a ready market. Gaviota makes a good pitted plum and is inclined to be a good bearer. Dawson is a good preserving variety, but small and does not show a big commercial demand. It is well suited to the home orchard.

Giant has not enjoyed much favor in the eastern market, although it is a heavy producer. On the other hand Hungarian is a much better plum, although a much poorer producer. Satsuma may find a suitable berth in the home orchard, but it lacks as a shipping favorite. Duarte is a plum of pleasing appearance and a good bearer, making it one of the favorites with the canner and shipper. Becky Smith, practically new, has been found to be a good bearer and a suitable shipper. It bids fair to become one of California's leading varieties. Of the other varieties that were advocated to be retained were Burbank, Climax, Diamond, Grand Duke. Kelsey, President, Santa Rosa, Tragedy and Wickson. Of the 28 original varieties nine were eliminated and three were recommended for the home orchard.

Canning Plums

Of the canning plums the shippers adopted the recommendations of the canners, as follows: Washington 25 per cent, Yellow Egg 40 per cent, Jefferson 25 per cent, and Bavey's Greengage ten per cent. Of the canning plums suitable for shipping only the Imperial Gage was eliminated.

Apricots

The shippers also found it desirable to recommend the same as did the canners with the addition of a few Moorpark, which were suggested for drying. The apricot recommendations were as follows: For the coast, Blenheim 100 per cent, for the interior San Joaquin Valley, Tilton 100 per cent, for the interior, Sacramento Valley 50 per cent Blenheim and 50 per cent Tilton. Routier's Peach was eliminated except for the home orchard. Of the nine varieties of apricots heretofore listed, five were eliminated. Royal was advocated for small plantings.

Drying Prunes

French prune received a 70 per cent recommendation, while the Imperial, Robe de Sergeant and Sugar received ten per cent. Standard, Conquest and Silver were recommended to be eliminated.

Pears

A large proportion of the varieties of pears was found to be desirable commercial varieties on account of their shipping qualities and the general demand in the eastern markets. Bartlett is always a strong favorite and should be liberally planted. Beurre Hardy is a prolific bearer and a splendid shipper. Comice is recommended only as a home orchard pear as it is a shy bearer. Its quality is good and it would be one of the strong favorites if it could be made a greater producer. Eastern Beurre differs as to localities, sometimes being a heavy bearer while in other localities it will be a very light bearer. Forelle has generally produced good results and brings high prices in the Northwest. It has splendid keeping qualities and is a good canner. Glout Morceau is strongly advocated for coast planting as it has shown well in that locality.

On account of the fact that it comes into competition with the eastern pear of the same name Howell is not recommended as a shipping pear, although it is of pleasing quality and a prolific bearer. Winter Seckel is a good bearer, especially in Santa Clara Valley. It keeps well in storage, but is subject to blight. This pear would stand development, but was eliminated for the present except for the home orchard.

Of the 19 varieties formerly catalogued seven were eliminated.

Persimmons

There is much confusion as to this fruit. There are six varieties generally grown, but they may be planted according to the time of ripening. The three recommended varieties are Tane-Nashi, Hachiya and Hyakume. These ripen in the order named.

Quinces

Of the quinces all were eliminated except Pineapple and Van Deman as commercial varieties. Smyrna may be retained for the home orchard but lacks in desirable shipping qualities. Of the six varieties heretofore enumerated only the above two for commercial growing and the one for the home orchard were recommended.

That the Bud Selection Association is meeting with success needs no affirmation. Each meeting has been better attended than the former one. A future meeting will be held with the Apple Growers' Association and the Almond Growers. Dates will be announced later.

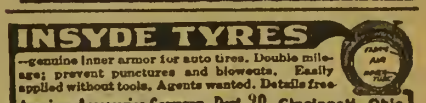
The association is desirous of enlisting the cooperation of growers throughout California and asks information as to the orchards that are producing well. The names and locations of such orchards should be sent to L. B. Scott, Theatre Building, San Jose, headquarters of the association. A careful study will be begun upon the selected orchards with a view to securing bud wood from the best producing trees.

Members of the farm bureaus of Stanislaus, Merced, and Madera Counties met recently at Merced to discuss the organization of a tri-county marketing association to be connected with the state farm bureau marketing association.

INFLUENCE OF CITRUS STOCKS

Tests were made by Dr. H J. Weber at the Riverside citrus station of large, intermediate and small sized nursery trees upon which were budded Navel and Valencia oranges and the Marsh Seedless grapefruit. At the time the buds were 4.5 years old and the trees had been planted 2.5 years in the orchard the differences in size of the stocks were of the same nature as when the trees were dug from the nursery. The large trees remained large and the small trees remained small. A study of the reasons for this condition indicates that it is caused by the different character of the seedlings on which the trees are budded. Many widely different types of seedlings were observed, and it was found that some are much more vigorous growers than others. It is pointed out that promiscuous budding on stocks of such variable type is responsible for much of the variability in size and production of trees in California groves.

Nevada County held its annual farm bureau picnic at Grass Valley on May 7.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—genuine inner armor for auto tires. Double mileage; prevent punctures and blowouts. Easily applied without tools. Agents wanted. Details free.
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HUDSON SUPER SIX

Hudson is Best Known For Its Super-Six Motor

Official Proofs Established Its Supremacy; Thus Hudson Became the Largest Selling Fine Car

Few of the 90,000 Super-Six owners have ever tried the limit of Hudson speed or power. They realize they have a vast reservoir of ability that is never called on.

Yet no one mistakes it for mere idle surplus simply because it is beyond his ordinary requirements.

For that latent capacity is Hudson's greatest value. It is the life of a car. Because of it, thousands are now getting the fullest satisfaction and service from Super-Sixes nearly five years old. They know the durability it gives. They know what it means in smooth operation. Their cars have required neither costly replacements nor constant attention to minor disorders.

Moreover, it is good to know that you have at instant call greater speed, acceleration and hill-climbing ability than any other stock car has ever shown.

80% More Efficient— Within 10% of Perfect

Many have called the Super-Six "the perfect motor." That, of course, is not accurate. Perfection would mean utter freedom from friction and vibration. No machine can ever be that. But the Super-Six comes within 10% of it. Could another type approach that close Hudson's records might be matched. But for nearly five years they have stood. None has equalled them. The possibility of their being rivalled seemed never more remote than now. Certainly the type to do it has not yet appeared.

And mark this important fact. Hudson's supremacy means no added complications, weight or size. The patented Super-Six principle applied to a standard type of motor added 72% to power. Motor efficiency is increased 80%. Endurance thus has been increased to limits yet unknown.

Note These Tests Made To Prove Its Endurance

Think that a Super-Six stock chassis set the speed record at the rate of 102.53 miles per hour. A stock Super-Six holds the acceleration record. And Hudson made the fastest time for the famous Pike's Peak hill climb. The Super-Six principle in speedway-racing won more points than any racing team ever took, in a single year. And think of Hudson's double trans-continental run of 7,000 miles in 10 days 21 hours. No other car ever equalled its time in either direction.

Those tests speak for Hudson endurance —the real reason for its appeal to you today. There can be no question regarding its beauty, its completeness, its fineness—advantages patent to any observer.

You will best assure delivery when you want it by speaking for your Hudson now.

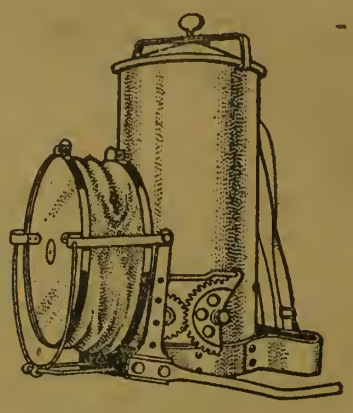
Hudson Motor Car Company, Detroit, Michigan

(3074)

APHIS vs. WALNUTS

Does your grove produce WALNUTS or APHIS?

SWAT the APHIS, save the NUTS



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NICOTINE DUST
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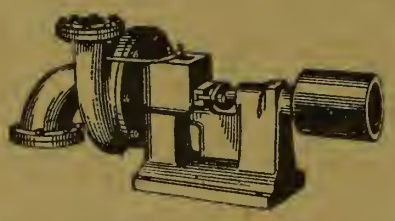
End Pump Troubles



—See how this Pump does it.

THE "Bean" Universal Pump—belt driven—eliminates pump troubles. It's a twenty-year development, the ultimate in centrifugal design.

Stuffing box troubles are minimized by a perfect water seal. The shaft where it enters the case is ever completely surrounded by a water bath.

The danger of loss of priming is minimized. And you don't have to cinch the packing down so tight that you cut the shaft.

We designed this pump especially to overcome these trouble sources.

Then we added all the other advantages in pumps that our experience of 20 years evolved.

The result is the perfect pump. Don't overlook it in making your selection.

Hundreds of men who have examined all kinds are putting in the "Bean." Let their decision guide you.

(Clip Out and Mail)

Distance to water below surface of ground.....
Probable distance to water when pumping.....
If water is to be raised above surface of ground, how high? (Length and size of pipe line).....
Volume of wster desired (Oals. per min.).....
(Inches).....
If you have pit, give width..... length.....
depth.....
H. P. of motor or engine if you have that equipment.....
Give total depth of well.....
Inside diameter of well.....
Is well straight and true?.....
Is electric power available?.....
Name.....
Address.....
Rural Route No.....
821 Box.....

Automatic Water Balance

The "Bean" is provided with automatic water balance and an extra heavy outboard bearing which is oversize. It gives insurance against vibration. Belt changes are easily and quickly made.

It is strongly braced. An extra web of metal between sealing bowl and outboard bearing protects against excessive strain.

In fact, if you want the best pump of this type you have little choice, for that pump is the "Bean."

"Bean" Universal Pump—Belted

Send coupon for all the facts about this modern pump. Don't buy a pump until you know all the points wherein the "Bean" excels. That is the way to insure satisfaction when you buy a pump.

Bean Spray Pump Co.
821 Julian St., San Jose, Calif.
Branches. Fresno, Los Angeles

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway. Los Angeles.

Damage from Trees

Is there any fixed distance that trees must be planted from the line fence or property boundary? Can a land owner request the removal of a hedge 25 feet high and only two or three feet from his neighbor's land line?—Subscriber, Solvang.

There is no fixed rule with respect to the distance at which trees must be planted from a line, nor to actions to remove such trees. The principle at the basis of cases involving removal of trees is that trees constitute a nuisance, and it is necessary to show that the parties seeking removal of such trees have in some wise been caused actual injury by intrusion of the roots or branches.

Water Right

A stream runs through our ranch and onto a neighbor's The neighbor goes onto our property, builds a dam and takes out the water to irrigate his property. This has continued for some three years last past. If we permit him to continue so to take this water will he acquire a right thereto? Is it necessary that we put in a pump and take the water out of his dam in order to prevent him from acquiring such right? There are times when we need every drop of water in the creek for ourselves.—Subscriber, Paicines.

It is probable that if the party builds a dam and takes water from your premises for a period of five years he would acquire a prescriptive title or easement upon this property, entitling him so to do forever. If you should pump the water out of his dam that might cause trouble. You can, however, prevent him from trespassing upon your property and cut off his irrigation works which have been placed upon your property. It is necessary in order that such person should not acquire title by prescription that the owner of the land assert his right in the matter. You can do this either by barring him from your land or bringing action for the trespass.

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Cutworms

Let me know what is needed for cut worms.—Subscriber, St. Helena.

The best answer to the above question is to reprint from the California Cultivator of May 24, 1919, from the item written hy Mr. de Ong, the following:

Poisoned bran bait is most effective when they are abundant. For small areas mix four pounds of wheat hran, three ounces of white arsenic, one pint of strong molasses and about three quarts of water or enough to form a crumbly mass. This bait may he scattered around the plants where the cutworms have been feeding or, hetter still, hroadcasted over the plot before planting. Dried lumps of the bait should he gathered and destroyed as this is dangerous to poultry and other animals. Fresh, green alfalfa dipped in a solution of arsenic, one ounce to five gallons of water, has given good results when scattered about the garden after night. Finely sliced raw potato dipped in the powdered arsenic is also of value.

Lice or Aphis on Kale

What kind of spray can be used on kale plants to kill lice and not be poisonous for chickens?—Subscriber, Marysville.

Lice or aphis are comparatively easily controlled with a mixture of kaolin, hydrated lime and nicotine sulphate. This mixture is now supplied as a regular commercial mixture. It would probably be best to secure only a small quantity if you do not have a large garden. We douht not that simply dusting tobacco dust over the plants would he sufficient.

Ants

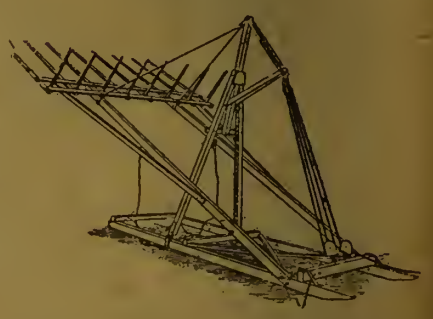
Would like information on how to rid my apricot trees of tiny black ants?—Subscriber, Mountain View.

The best control of ants is to follow the trail to their home and pour in boiling water, gasoline, carbon bisulphide, or a solution of cyanide of sodium. The California Cultivator of August 9, 1919, shows method of placing poison in small containers on trunk of tree in which ant syrup made according to the formula of Prof. R. S. Woglum, was placed. This formula is now generally recognized as a standard for this pest, and is made as follows: Prepare a syrup of granulated sugar, 15 pounds, water seven pints. tartaric acid (crystalized) one-fourth ounce, boil for 30 minutes. Allow to cool. Dissolve sodium arsenite (chemically pure) three-fourths ounce in one pint hot water. Cool. Add poison solution to syrup and stir well. Add to poison syrup, honey, one and one-half pounds, then mix thoroughly. Distribute as suggested above or in any container which will admit the ants and at same time not endanger children or pet stock.

Stack Your Hay
Bale It Later

The Davenport Triumph Stacker

will solve
your hayfield labor
problems



Get the latest and most modern Hay Stacker—The Davenport Triumph. If balers and wire continue scarce, this implement, and the Davenport Triumph Buck Rake will save your hay crop.

A full line of California Hay Tools of known dependability.

Davenport Implement Co.
Manufacturers and Dealers in
Farm Implements for
California Conditions
110-112 North Los Angeles St.
Los Angeles, Cal.

Green Feed for Livestock

ONE of most important factors in the production of livestock is an abundance of green feed. The livestock producer's idea of paradise is a country where he can have the advantage of green feed the year around—and yet in California, where it is more nearly possible to produce green feed 12 months in the year than any other section, hundreds of men are failing to take advantage of that possibility.

The writer is quite aware that, speaking in a large way, it is neither practical nor advisable to attempt to produce green feed on the major portion of the California ranges, and it is not his intention to suggest as much. But each year about this time he is impressed with the lack of effort on the part of hundreds of livestock men who are so situated that they could, with little effort escape the nightmare of dry feed, to provide green pastures for their stock.

The entire problem of green crops is one of water. With water and proper crops it is possible to have green forage every month in the year. There are men in this state, operating irrigated farms and who are engaged in livestock production who are attempting to raise cattle and hogs in dry lots.

It is perfectly possible to grow livestock in dry lots, but it is impossible to grow as good cattle and hogs under such conditions as where green feed is provided.

One of the first expressions of wonder heard from visiting livestock men of the East is: "But why in the name of heaven don't you people have green pastures? You have the soil, the climate and with water can grow the best forage in the world, alfalfa."

What is the answer? There are not many sensible answers.

Some men feel that they cannot afford to utilize high priced land for pasture. They believe it more profitable to keep their stock in lots and cut hay for the cattle and buy grain and mill feeds for the hogs. Under some conditions such may be the case, but in the majority of cases it is more economical to use pasture. With properly arranged fields, under irrigation and producing alfalfa it is astonishing how many head of stock can be carried. The saving of labor in cutting, hauling and feeding hay, together with the loss in feeding as compared to a system based on pasture is in favor of the latter practice. Properly managed, there is little or no loss of feed when pastured, besides it is a fact that livestock thrives better on green and succulent forage than on cured fodder. Young things in particular do better on pasture. They get vastly more exercise and soon grow away from dry lot stock.

Since the beginning of time, those sections of abundant green forage have been responsible for the highest quality of livestock. That fact is too generally admitted to require further proof. It has been true in the past. It is true at present and will continue to hold true in the future. We have been told time and again, that this state has a brilliant future as a source of the highest type of livestock. We are beginning to believe it, indeed some of us are getting a bit chesty and cocky over the proposition, but we might just as well realize now as later that if we are to become really great as a livestock center, we can not ignore the fundamental principles that govern livestock production—one of the most important of which is the need of green forage.—R. P. R.

Well Equipped Stock Ranch

When the Diamond Bar Ranch at Spadra determined upon launching the big livestock breeding enterprise, which they now have so thoroughly well in hand, it was the high purpose of the management to make the enterprise one whose magnitude and high character should be in keeping with the splendid environment.

The breeding of high class registered Duroc-Jersey swine was settled upon as one feature of the Diamond Bar livestock breeding activities, and it is of this alone that we make mention at this time.

Labor Saving in Hog Feeding
Self feeder cafeteria style on Diamond Bar Ranch.

An outstanding feature of last year's achievements at the ranch was the securing of the great show boar and sire, the Ace of Pathfinders, whose record as a sire of show ring animals constitutes one of the leading triumphs of modern show yard history. As running mates for so eminent a sire there have been secured such great sows as Queen of Pathfinders, Model M. and Lucy Pathfinder and many others of grand champion and first prize show yard caliber, as demonstrated in the most hotly contested shows open to the breed. Likewise, every noted family of the breed is represented at Diamond Bar. The 1920 spring litters are the get of such popular sires as Great Orion Sensation, Great I Am, Royal Pathfinder, High Pathfinder, Uneeda Great Sensation, Top Orion, Mammoth Sensation, Jr., Great Pathfinder, Great Sensation 2nd and California Great Wonder.

A visit to Diamond Bar ranch should be at once an inspiration and revelation for any progressive hog breeder of whatever persuasion—and the latchstring is always out.

BOYS AG. CLUB HOG SALE

The Kern County High School Ag. Club holds on Saturday of this week a pure bred hog sale which will doubtless establish a record in agricultural club activities. There will be mature brood sows, young boars, open gilts and weaned pigs. The boys are to give free lunch at 11:30, followed immediately by the sale, which will be on the Kern County fair grounds at Bakersfield. As an advertisement for this event the boys have issued a magnificent 76 page booklet, "The Cost of Raising a Pig to Weaning," which contains information written by the boys and by experts in swine breeding. The figures which go to make the most interesting contents of the book show the result of some 30 different litters' records. The three breeds used by the boys are: Poland China, Duroc and Berkshire.

Suit to dissolve the Northern California Milk Producers Association is now being tried before Judge Shields at Sacramento.

The state highway between Chico and San Francisco will be open for use July 1.

Turn Low Priced

Agri GYPSUM

Into High Priced Alfalfa

Bigger yields and better crops follow applications containing high sulphur content

Turning grass, hay or other feed into beef is a process known to all stockmen. The process of feeding elements that contain sulphur to a sulphur consuming plant like alfalfa, should be familiar to every grower.

The Oregon Experiment Station, and many others, have conducted tests proving that Gypsum is highly beneficial to alfalfa and the splendid results showing increases in production, in Bulletin No. 163, are among the best evidences ever authentically made public, proving what Gypsum will do.

Alfalfa requires a high percentage of sulphur to develop luxuriant growth that grades high and feeds well. AGRI GYPSUM contains sulphur, in the form of sulphates, which is the form directly available for crops, and not only supplies the element needed most, but it releases bound up elements in the soil, making them available as plant foods.

A maximum crop of alfalfa requires 45.9 pounds of sulphur per acre per year which gypsum supplies.

Give your alfalfa AGRI GYPSUM. You can reasonably expect a return much greater than the investment, and the application will be beneficial to the soil for more than one season.

Other crops greatly benefited by an application of AGRI GYPSUM include beets, beans, peas, potatoes, cotton, cabbage, cauliflower, cantaloupes, vetch, melilotus, barley, citrus, deciduous fruits and milo.

Be sure and ask for AGRI GYPSUM, which is ground fine to do the most good. If your dealer cannot supply you, write,

UNITED STATES GYPSUM COMPANY (Sole Producers of AGRI GYPSUM) 902 Citizens National Bank Bldg. LOS ANGELES, CAL.

Riveted Well Casing Corrugated and Plain Tanks
Riveted Water Pipe Galvanized Surface Pipe

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Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

BURR FARM

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The De Laval Milker

—it pleases the cow

Used on Breidablik Farm, Wilmington, Delaware

The De Laval Milker is in constant use on Breidablik Farm, milking sixty high-grade Guernsey cows daily.

Naturally a farm with high-producing cows (ten of them average over 10,000 pounds of milk a year) would be very careful in the selection of a milker. Prospective owners of a De Laval Milker should note that the Breidablik Farm is maintaining high yearly records from its cows, and that the De Laval Milker helps produce milk so clean that it commands more than market price.

The Briedablik Farm manager reported recently:

"The De Laval Milker has proved very satisfactory. It saves from two to four men and about an hour and a half at every milking. It is very simple to operate and to keep clean. In fact, so much so that a green man can do the work as efficiently as an old hand. It pleases the cows, as can be seen by our high records. We have never missed a milking since we have had the De Laval Milker."

The De Laval Milker is a distinctly different type of machine. The Master Control of pulsation speed insures that every cow in the stable is milked in just the same way every day.

Write to nearest De Laval office for Milker Catalog, mentioning number of cows milked

De Laval Dairy Supply Co.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

61 Beale Street San Francisco, Cal.

A Cat Will Sit on a Hot Stove

By Geo. W. Fry

A CAT will sit on a hot stove until his feet begin to scorch—then watch him scat. The California dairyman has stood first on one foot, then the other, until he has scorched the soles of both feet. High cost of feeds and labor, combined with a never ceasing propaganda for the lowering of the prices of dairy products, has made a fire which is getting where he will have to jump and run.

Less than nine per cent of the boys drafted from the farms have returned to their original occupations. The others are either loitering about the larger cities or have taken employment in other lines. It is not because living conditions on the farm are uninviting, because these things have changed on the average farm in the last few years. The motor bus lines, the trolleys and automobiles have put the farm within a few minutes ride of the moving picture shows, the dances and other town amusements. The boys are not returning to the soil because of the long hours which are necessary to carry on a farm enterprise and the comparatively low rate of pay the farmer is able to offer. The country reared boy has, perhaps, always feared cutting loose from home ties, but after a year in the army he finds himself a man among men, able to care for himself, and he has naturally gone where he can obtain high pay for short hours of labor.

There is at present a great movement citywards from the farms. A recent survey in New York state showed 54,000 empty farm houses. What does this mean? What does this portend? Frankly, we, not being seers, cannot attempt to foretell. There is one thing sure, and that is that it means distress and misery for the family which deserts the soil for the rock bound streets of the city. As time goes on every one of these "immigrants" will wish himself back on the old farm, but can be get there, will be the problem. Some of them will gravitate back, but the larger majority will not be able to do so.

This treking citywards not only means distress and misery for the transplanted farmer, but if the process goes on much longer without a compensating movement farmward, it is going to mean distress in a greater measure for those who live in town and who must have the products of the land in order to survive. The soil is the foundation of all life and while it is vitaliy necessary that there shall be factories, stores and offices, it is more necessary that the supply of food be kept at normal.

The farmer the last few years has been like a man trapped in a house whose walls threaten to coliapse on him at any moment. As fast as he shores up one wall another begins to totter and away rushes the farmer to prop up that. No sooner does the farmer adopt scientific fertilization of the soil to bring up its waning power of production than he must adopt tractors and other labor saving devices to cut costs; when he has done this he must take up the newest theories in feeding livestock in order to combat the rising cost of feeds.

We hear a lot nowadays about collective bargaining, and there are those who think that Utopia will have been discovered when this is accomplished in the manner desired by them. It will help some, no doubt, in that it will put the farmer on a level with labor, who have been carrying on collective bargaining for a long time. But will this make more money for the farmer? We do not think so, for as soon as the farmer puts his goods on the market at a price making a decent profit possible the laboring man will decide that too much of his income is going out for necessaries and he will boost the price of labor and the manufacturer will pass it along to the farmer, who will be left at the post again.

Would a uniform reduction of everything restore things to normal? This has been advocated, but we do not see that much can be accomplished in this manner. A uniform lowering of wages and the price of products might do, but we are not economists enough to understand just how. In order to benefit the producer we have to change the ratio between costs and selling price, and this is the question we submit to theorists to solve for us.

Looking Ahead

By J. P. Iverson, Chief, Division of Animal Industry, State Department of Agriculture.

THREE years have elapsed since Governor Stephens affixed his signature to the hide and brand bill. In this brief time important events, far reaching in character to the cattle industry, have occurred, principal of which are the actual enforcement of the brand law and the welding of the cattlemen of California into a state wide, powerful and effective organizatioon, the California Cattlemen's Association. In addition, many smaller local associations, to support and locally extend the influence of the parent state organization, have been organized.

This means much to the cattleman. It will enable him through cooperation to solve many of the problems which have beset him in the past; for example, afford an improved system of marketing, provide better means of securing feed and transportation in short years, and, most desirable of all, place his interests in an influential situation with reference to legislation at the state capitol.

This act, while approved some three years ago, did not become effective until the following August. Necessarily, therefore, an interval of some time elapsed before the members of the board were appointed by the governor and before its preliminary organization was effected. It was not until October, 1917, that the actual administration of the brand law began.

A chaotic condition presented itself to the board and those in charge of the work of administration. The board came into existence without a cent of money, merely as an effort by the cattlemen of the state to protect themselves against theft and with no appropriation or state aid. Consequently, it was necessary to accumulate revenue with which to operate. Efforts were therefore directed through publicity toward acquainting the cattlemen of the state with the necessity of at once applying for brand recordation, and as time passed our efforts were fairly successful. It was recognized, however, that the recording and classifying of brands in a just manner was not only the preliminary undertaking, but that it was also the foundation upon which the future structure would depend. Further, it was at once apparent that classification could not begin until a considerable number of brands had been recorded; as a minimum, it was believed 10,000 were necessary, and this number was not received until early in 1918. The board then inserted notices throughout the press of California to the effect that all brands not received before a certain date would be given secondary consideration. This had the effect of bringing in a large additional number. Immediately after this the work of classification began, and as there were hundreds of duplications of brands then in use, several weeks were required to complete this work.

Plans were then laid for the compilation of a brand book, which was issued some time later and has been well received by our cattlemen.

By the summer of 1918 these and other preliminary organization matters were fairly well shaped, and plans were laid for proceeding with the actual inspection of cattle offered for shipment. This work was instituted progressively, beginning in the extreme southern part of the state and gradually continuing throughout the entire state until completion.

As we all know, considerable diffi-

The Santa Anita Studs

have been faithfully maintained to measure up to the high standards which marked their foundations, sustained by a firm confidence in the permanent place and usefulness of the draft horse in American agriculture and commerce.

The Percheron Stud

Our breeding Percherons represent the foremost blood lines of the breed, composed of individuals that have won high honors in the show ring under the decisions of some of the world's recognized authorities.

Included in our Percherons is Manon, in the first prize class at the great Percheron Show at Le Ferte, France, grand champion at Minnesota State, 1914, grand champion at Civic League Horse Show, 1915, and at the P. P. I. E. won first as three year old, also senior and reserve grand champion.

Another, an all-American product, is Oaklawn Queen, one of the champion stud of stallion and three mares at P. P. I. E.; also reserve grand champion American bred mare at that show.

Our Percheron mares have size, finish and bone and the fast, free action that is an important inheritance in the draft horse that is called upon to move heavy loads quickly.

To mate with these high class mares we have spared no trouble or expense in the selection of stallions, and the exceptional quality of their offspring indicates that our selections have been successful.

We offer at the present time six three year old registered Percheron stallions of our own breeding. They are first class in every respect, sold under our well known guarantee of satisfaction, and priced well within their value.

The Arabian-Thoroughbred Stud

Our Thoroughbred mares are from some of the world famous families, families and individuals whose past performances are too well known to the horse loving public to need repetition here.

With these mares we have mated our imported Arabian stallion Ibn Mahruss, and from these matings have secured a splendid lot of individuals that combine a maximum of beauty with a full measure of strength and stamina.

The Jacks and Jennets

We have one of the largest groups of registered breeding jennets on the coast, selected with careful regard to size and ruggedness.

To head them we secured the famous King Bersheba, recognized as one of the greatest show and breeding jacks in America. As a two year old King Bersheba won the championship at the Blue Grass State Fair, Lexington, 1914; also won honors in sweepstakes classes jacks of all ages.

We are now able to offer several three year old jacks with big bone and good heads, by King Bersheba and out of some of our best jennets. If you want a jack we are sure you will be well satisfied to see these before you buy, and remember that mules are selling at the best prices in years.

Registered Holstein-Friesian Cattle

Our herd of Holsteins offers an excellent selection to intending purchasers. The females of the herd include a large number of daughters of Prince Gelsche Walker out of high record dams which are headed by PRINCE WALKER CORNUCOPIA, by Prince Gelsche and out of Alba Sadie Cornucopia Creetia.

Registered Big Type Poland China Hogs

Our registered Poland China females include daughters of such high class big type boars as **Mac's Big Price, Big Bone Jumbo,** and **Superba**, the world's champion boar, and are headed by QUALITY BOB, grand champion at Wisconsin State Fair and rated by many judges as one of the outstanding boars of the breed.

Visitors Welcome at the Rancho **Correspondence Solicited**

Santa Anita Rancho

Anita M. Baldwin, Owner **Santa Anita, Cal.**

CATTLE FOR SALE

95% Whitefaces

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Heavy Boned Hereford Steers
Mountain Raised—Healthy

100 Cows and Calves

100 Heifers and Cows

Inspect Cattle at Howard Ranch
12 miles Southwest of Chowchilla,
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SICK ANIMALS

BOOK about Sick Horses, Cattle, Sheep, Dogs and Poultry, mailed free. Address Dr. Humphreys' Veterinary Medicines, 156 William St., New York.

culty was experienced in securing proper local inspectors on account of the small fees paid. We are, however, constantly strengthening this branch of the service.

There are approximately 1,000 slaughterers licensed under the provisions of the law, each of whom has filed a bond with the state in the sum of $1,000 to guarantee cattle owners against loss of any cattle that may be illegally slaughtered. Reports of all cattle slaughtered are made to the office each month, and these may be inspected at any time by persons interested. Many arrests have been made of persons who slaughter cattle illegally, and these arrests have resulted in eliminating a number of migrating "oak tree" and "auto truck" slaughterers.

To date, over 60,000 head of cattle have been inspected for marks and brands at loading corrals and slaughtering establishments by inspectors employed by this department.

There are at the present time nearly 200 authorized inspectors stationed throughout the state. Special agents are also employed to investigate reported losses of cattle and assist in securing evidence against persons accused of cattle stealing. The results of these investigations have been furnished officers charged with the duties of prosecuting cases of cattle stealing, and the services of the attorney for the department are available to assist the district attorney. This service has been greatly appreciated and has been of further assistance in checking the loss of cattle by theft.

In order to strengthen the law and provide for a more rigid enforcement, some further legislation will be necessary, and this legislation is now receiving the attention of interested cattlemen.

California Wonder

Kings County Jack Ranch

Breeders and dealers in American Jacks and Jennets

Jacks and Jennets for sale at all times. Come and see them.

JOHN BURRELL
R.F.D.B. Box 74
Hanford, Kings County, Cal.

Higdon Holsteins Set New Mark

No more satisfactory public sale of pure bred livestock was ever held in the West than the dispersal of the W. J. Higdon herd at Tulare, May 5. The sale was at once a tribute to successful efforts directed along sane and constructive lines, and an opportunity of great importance to many men either now or about to be engaged in the production of registered Holsteins. The sale was an emphatic demonstration of the profitableness of the livestock business and the fact that there exists in this state a wide and sustained demand for the better kind of breeding stock at prices the equal of what can be expected in other states. It furnished abundant grounds for encouragement to younger breeders and marks a new step in the livestock history of this state.

Forty-seven head, consisting of seven bulls and 40 females, sold for a total of $46,760, making the splendid average of but a few dollars under the thousand dollar mark.

The sensation of the sale was the record established when the great young bull, King Korndyke Pontiac 20th, fell to the bid of Burr Farms, Los Angeles, for $12,000, the highest price ever paid for a bull of any breed at public sale on the Pacific Coast. And yet there is no question but that he is a cheap bull. It will be recalled that as a calf he was purchased in the guaranty sale of 1917 for the then record price of $6,500. That price remained the record until he again established a new one. King Korndyke Pontiac 20th is a son of King Korndyke Pontiac, the bull owned by Fred W. Kiesel of Sacramento. His dam is Miss Valley Mead De Kol Walker that has a three year old record of 36.81 pounds of butter in seven days and 1,113.58 pounds in 342 days. She is the highest record daughter of Prince Gelsche Walker. King Korndyke Pontiac 20th, while only a young bull, has demonstrated his ability as a sire of the first water. Burr Farm can count itself lucky in securing this bull and his going to Southern California means much to that rapidly developing Holstein center. It is of interest to know that already no less than 50 services have been booked at a price that will make him a great investment to the buyers. There were many bidders up to the $5,000 mark, where competition narrowed to Brown & Holmes. His sale marked the transfer of a great bull at a great price.

King Korndyke Pontiac 20th
$12,000 bull at the Higdon sale bought by Burr Farm, Los Angeles.

Mona Fobes, a 30.11 daughter of Mutual Fobes Longfield De Kol, and out of a daughter of Sir Ormsby Burke Segis, was the top female. She was taken by R. L. Holmes of Modesto at $2,100. During the past few months the critical buying of Mr. Holmes has been a feature of the better auctions He has secured the tops in five of the best sales and was the runner up on the record bull. With such material as Holmes has been selecting there is no questioon but that he is building a herd that will be one of the strong collections of the breed. Holmes also got the good cow, Winifred Hoataling 3d at $1,325, as well as a number of other of the better things.

One of the heaviest buyers at the sale was Santa Anita Rancho, which, by the way, sold King Korndyke Pontiac 20th for $6,500. They selected Blanche Nudine Clothilde Walker at $1,350 and seven other of the good buys.

The Stockton state hospital got five of the good females and made a particularly fortunate buy in the young son of the top bull, King Korndyke Pontiac Leda. His dam, Leda Henger veld De Kol Korndyke, is a 31 pound daughter of Korndye Queen De Kol's Prince.

F. F. Pellisier of Whittier bought the second high cow, Hollywood Lilith Pontiac, with a 36.20 pound record for $1,900.

Robt. Curtis and Son, Exeter, paid $1,750 for the 34.72 pound Coloma Butter Maid, rated by many as the outstanding female bargain of the sale.

E. D. Barry Jr., Daggett; D. D. Elmore of the same place; H. J. Angell. Los Angeles; H. V. Greenwood, Vallejo; Donolon Bros., Oxnard; A. W Schultz, Burrell; George Height. Compton; C. W. Gates, Corcoran; E Swift Train, San Francisco; A. R. Buttles, Wasco; Frampton Bros., Artesia; Harry L. Redd, Daggett; Allison Storm. Tulare; and H. E. Cornwell.

35 Bred and Registered Berkshire Sows and Gilts. 5 Service Boars
AT PUBLIC SALE

University Farm, Davis Thursday, May 20

A wonderful opportunity to secure animals to farrow late summer or early fall litters. Popular bloodlines. Good individuals.

Berkshires Pay a Big Profit. This will be the big sale of the year.

Western Berkshire Congress

H. C. Muddux, Pres. Sacramento, Cal.
J. Francis O'Connor, Sec'y Santa Rosa, Cal.
Bruce S. Bennett, Field Sec'y Sacramento, Cal.

EL PROFITO The Big Grand Champion Boar at Los Angeles Livestock Show

El Profito is at head of our well known big type Poland China brood sows at Santa Barbara.

For the next 30 days we will offer for sale a few outstanding good sows with litters by El Profito; also a fine granddaughter of Big Timm, with a great March futurity litter prospect by The Diplomat, best son of Liberty Bond.

Our foundation blood is all direct from the most popular big type herds in the corn belt. Every breeding animal in herd is recorded, and papers go with every sale. For want of help we are compelled to reduce our herd in numbers —first come, first served. Your letter will be promptly answered.

Viola L. Renwick Santa Barbara, Cal.

A Letter Addressed: W. H. ROUGH
Arlington, Cal.

Gets quick information to you on our big type Poland Chinas. We breed them to sell and we have what you want. Write today.

Yearling Daughters of Superba, Grand Champion Boar at P. P. I. E.

Our Poland Chinas are the genuine big type in blood and in reality—the offspring of the great Superba—the king of the big type Polands on the Pacific Coast. They also carry the close-up blood lines of such noted sires as Big Bob, Big Orange and A Wonder. It is the real pork type, the prolific type, the feeders' type. They make the ideal mothers, and they tip the scales at any age, six months and up.

Our herd is absolutely clean—never a case of abortion in the herd.

Our aim is to please buyers, so we will permit them to select from anything in the herd.

With a few exceptions our big young sows will be sold open, or they will be bred to order. Can show you sows with fine litters or sows carrying litters. Every animal in herd (except spring pigs) is recorded and papers go with every animal sold. Herd is open to inspection any day and every day. Write for particular information. Letters promptly answered.

Modesto, were other buyers at the sale.

This successful event was managed by C. L. Hughes of the California Breeders Sales and Pedigree Company, who has been such a factor in the Holstein development of this state. Ben A. Rhoades of Los Angeles was on the block and was assisted in the ring by George W. Bell of Tulare. The same team put across the last guaranty sale at Sacramento.

FEMALES

2, Hollywood Lilth Pontiac, May, 1916, 32.20 pounds; F. F. Pelissier, Whittier, $1,900.
3, Coloma Beauty Butter Maid, Feb. 1915, 34.72 pounds; Robt. T. Curtis & Son, Exeter, $1,750.
4, Winifred Hotaling 3d, Oct., 1911, 32.19 pounds; R. L. Holmes, Modesto, $1,325.
5, Thelma Hartog De Kol, Nov., 1911, 31.13 pounds; H. V. Greenwood, Vallejo, $500.
6, Thelma Pontiac Hartog De Kol, Mar., 1916; Stockton State Hospital, Stockton, $375.
7, Thelma Riverside Walker, Feb., 1918; Santa Anita Rancho, Santa Anita, $600.
8, Mona Fobes, Nov., 1913, 30.11 pounds; R. L. Holmes, $2,100.
9, Fay Tritoma Hengerveld, May, 1913, 30.42 pounds; D. D. Elmore, Daggett, $1,350.
10, Miss Fobes Starin, Aug., 1916, 21.46 pounds; Stockton State Hospital, $625.
12, Wayne of Rock Martha, Feb., 1916, 830 pounds; R. L. Holmes, $900.
13, Hertinga Willis, Oct., 1910, 1,003.38 pounds; Chas. Herrington, Compton, $825.
14, Blanche Nudine Clothilde Walker, Dec., 1917, 22.41 pounds; Santa Anita Rancho, $1,375.
17, Miss Tulare Champion, March, 1918; Santa Anita Rancho, $875.
18, Queen Pontiac Burke Wayne, May, 1916; Stockton State Hospital, $760.
19, Model Bonnie Echo, Aug., 1911, 23.32 pounds; R. L. Holmes, $550.
20, Meadmore Prilly Queen, March, 1916, 16.46 pounds; Harry L. Redd, Daggett, $750.
21, Lady Pontiac Holingen Jewel, Mar., 1917, 21.93 pounds; E. D. Barry, Daggett, $1,650.
22, Hengerveld De Kol Segis Cornucopia 2nd, April, 1918; Stockton State Hospital, $975.
23, Ellen Hartog Walker, July, 1917, 17.35 pounds; D. D. Elmore, $800.
24, Miss Riverside Walker Wase, June, 1918; Santa Anita Rancho, $425.
25, Countess Walker Segis, December, 1917, 14.00 pounds;
26, Miss Riverside Thelma Walker, April, 1919; Stockton, $350.
27, Eloise Ormsby Walker, January, 1919; E. D. Barry, $700.
28, Lady Lilith De Kol Walker, August, 1917; Santa Anita Rancho, $650.
29, Stanislaus Queen Segis Inka De Kol, October, 1916; H. E. Cornwell, Modesto, $500.
30, Ellen Walker Hartog, October, 1918; Santa Anita Rancho, $650.
32, Pearl Pet Walker, October, 1917; A. R. Buttles, Wasco, $375.
33) October, 1919, daughter of Prince Riverside Walker; Santa Anita $525.
34, Daisy McKean Walker, May, 1918; Chas. Herrington, $700.
35, Riverside Ollie Segis Beets, February, 1918; D. D. Elmore, $800.
36, Colantha Mink Walker, April, 1918; Santa Anita Rancho, $750.
37, Leda Pietertje Spofford Walker, September, 1917; Chas. Herrington, $525.
38, April, 1918, daughter Prince Riverside Walker; Geo. Hight, $500.
39, Countess Segis Pietertje, June, 1915; C. W. Gates, Corcoran, $400.
40, October, 1919, daughter Prince Riverside Walker; E. Swift Train, San Francisco, $350.
41, March, 1919, daughter Prince Riverside Walker; H. J. Angell, Los Angeles, $275.
42, Daisy McKean Beryl, September, 1915; R. L. Holmes, $675.
43, Rosina Creamcup Mead, May, 1915; H. H. Angell, $275.
44, Topsy Korndyke Mead, April, 1919; Frampton Bros., Artesia, $285.
45, Juliana Pietertje Mead, June, 1917; Burr Farm, $725.

BULLS

1, King Korndyke Pontiac 20th, May, 1916, Burr Farm, $12,000.
47, King Korndyke Paula Segis, May, 1919; Allison Bros., Tulare, $1,125.
48, King Korndyke Pontiac Leda, February, 1919; Stockton State Hospital, $800.
49, King Korndyke Senorita, September, 1919; A. W. Schultz, Burrell, $500.
50, King Korndyke Pontiac 23rd, April, 1917; H. H. Greenwood, $925.
51, Prince Jewel Riverside Walker, April, 1919; Donlon Bros., Oxnard, $210.

DAIRY SHORTHORNS AVERAGE $600

By J. P. Bennett

An important event in the pure br d livestock development of this state was recorded when Thos. Harrison of Santa Rosa sold the first offering of Milking Shorthorns ever offered at auction on the Pacific Coast. The precedent was established with an average of $600 on the entire lot. The cattle were an attractive lot and drew breeders from a territory covering many states.

The top of the sale was the grand champion bull, Foothills Corporal, purchased by J. E. Mason of Center Point, Oregon, for $2,000. The top female was No. 28, the good cow, Betty Lee, purchased by the Oakleigh Stock Farm, Medford, Oregon, at $1,750. Dick Doddington of Willoughby, Ohio, secured the undefeated show heifer, Welfare's Belle at $1,700. Stanley Jones, Geyserville, California, took Ramona Lee at $1,000.

Oakleigh Stock Farm, J. E. Mason, Cunningham Brothers, all of Oregon, Dick Doddington of Ohio, C. H. Hinmann of Colorado, M. C. Bohlman, Placerville, California, and E. D. Connolley of San Francisco, were among the heaviest buyers.

The evening preceding the sale the visiting breeders and members of the press were entertained at a banquet given by Mr. Harrison, who is to be commended on the capable manner in which the sale was conducted. The sale ring and the seating arrangements were all that could be asked for.

Col. Harry Cranke of Idaho was on the block and was assisted in the ring by Cols. Leachman and Snook of Sacramento.

Following is a representative list of sales:

BULLS

1, Foothills Corporal, March, 1916, J. E. Mason, Center Point, Ore., $2,000.
2, Lord Wapsie 2nd, August, 1919, M. C. Bohlman, Placerville, $275.
4, Lord Oxford, April, 1919, A. E. Franklin, Grafton, Idaho, $200.
5, Circe's Favorite, October, 1918, C. H. Hinman, Denver, Colo., $200.
6, Grand Wapsie 2nd, April, 1919, C. H. Hinman, $200.
7, Duke of Brighton, February, 1919, John J. Hanson, Metropolitan, $310.
8, Major Wapsie, February, 1919, C. H. Hinman. $200.
9, Rosebud's Prince, September, 1919, Geo. H. Brundidge, Bakersfield, $275.

FEMALES

10, Foothills Trixie, May, 1918, E. H. Day, Gazelle, $500.
11, Martha L, February, 1914, E. H. Day, $550.
12, Diamond Matrix, May, 1917, Cunningham Bros, Glendale, Ore., $525.
13, Gloster's Maid, September, 1914, Cunningham Bros, $450.
14, Bessborough Lady 28th, February, 1914, E. D. Connolley, San Francisco, $850.
15, Countess Jr., July, 1914, Dick Doddington, Willoughby, Ohio, $450.
16, Alctha L, September, 1919, E. H. Day, $175.
17, Buttercup, March, 1915, E. D. Connolley, $700.
19, Foothills Poppy, August, 1917, E. H. Day, $500.
20, Foothills Lavender, March, 1918, M. C. Bohlman, $375.
21, Vocalist, March, 1917, Dick Doddington, $1,000.
22, Duchess Knight, August, 1914, Cunningham Bros., $725.
23, Clover Type, January, 1918, M. C. Bohlman, $350.
24, Ramona Lee, August, 1916, Stanley Jones, Geyserville, $1,000.
25, Bethsinda, July, 1915, Cunningham Bros., $400.
26, Foothills Wild Rose, October, 1916, E. H. Day, $700.
27, Welfares Belle, August, 1917, Dick Doddington, $1,700.
28, Betty Lee, August, 1914, Oakleigh Stock Farm, Medford, Ore., $1,750.
29, Solona Filipail 2nd, May, 1918, John Lynch Ranch, Petaluma, $325.
30, Rosebud 16th, January, 1919, E. D. Connolley, $500.
31, Naomi 2nd, February, 1911, E. D. Connolley, $900.
35, Shastina, September, 1917, Oakleigh Stock Farm, $800.
36, Hilarita Lee, November, 1918, Dick Doddington, $500.
38, Cherry Lee, February, 1918, Oakleigh Stock Farm, $426.
39, Juanita Lee, November, 1914, R. Hackley, Santa Rosa, $325.
40, Wild Eyes Princess 4th, October, 1918, Geo. H. Brundidge, $375.
41, Marsh Fern, March, 1918, E. H. Day, $425.
42, Frantic Girl, February, 1919, Dick Doddington, $700.
44, Virginia Lee, August, 1917, Oakleigh Stock Farm, $1,000.
45, Foothills Mary, May, 1916, E. D. Connolley, $650.
46, Yolande Lee, December, 1918, R. Hackley, $325.
47, Milkmaid, June, 1914, E. H. Murphy, Perkins, $400.
48, Volanthe Lee, May, 1919, Stanley Jones. $275.
49, Sequel's Milkmaid, October, 1919, Chas. L. Weaver, Tulare, $275.
51, Idlewood Maid 2nd, May, 1919, Oakleigh Stock Farm, $400.
52, Imp. Lady Christiania 9th, August, 1911, Oakleigh Stock Farm, $525.

Registered Hereford Bulls

We have a few choice bulls from one to three years old for sale.
Our Breeding Herd was purchased from the most noted breeders of the Middle West, and are of Anxiety Breeding.

E. A. Noyes & Son, Sutter, Cal.

An Important Livestock Event

First Public Sale
Caledonia Farms' Shorthorns
West Sacramento, Cal.
Thursday, May 27

70--Scotch and Scotch Topped Females--70

Imp. Caledonia

Gainford Matchless

Now is the Time---This is the Sale

There never was a better time to enter the Shorthorn business than now. Modern conditions are creating a wide demand for better bulls. California does not begin to produce enough bulls to supply our own needs. There must be more herds. The demand will absorb the surplus at profitable prices. Plan for the future. Those who enter the business now on a sound basis will be among the leaders a few years hence.

There has never been a better opportunity to secure Shorthorn females, in every way satisfactory foundation material on which to build a herd, than is afforded in the first sale from Caledonia Farms. The Caledonia herd is rated as one of the largest and choicest collections of the breed owned in America.

Every female in the sale will sell with a calf at foot or is heavy to the service of one or the other of the great Caledonia herd bulls: Imp. Caledonia, Gainford Matchless and Pine Grove King—three bulls of faultless breeding and outstanding excellence. Many of the cows with calves will be rebred—thus making a three-in-one combination. They include daughters of Glennbrook's Marquis, Fond Lavender, Pine Grove King, Whitehall King, Whitehall of Orange; Lavender Diamond; Bapton Pride; Champion of Scotland, Spicy Prince, Butterfly Viscount and other well known sires.

A goodly number of Scotch cows will be listed but the majority are of exceptionally strong American blood lines.

Those interested in Shorthorns should not fail to attend this sale—it represents a real opportunity.
(Signed) R. P. Royce, Livestock Editor, California Cultivator.

40 Top Young Bulls at Private Sale—Send for Special Bull List

Every Animal Guaranteed a Breeder
All Over Six Months Old Sell Tuberculin Tested
Write Sales Manager for Catalog

Auctioneer,
Col. Ben A. Rhoades,
Los Angeles, Calif.

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Manager, Sacramento, Calif.

LARGE TYPE POLAND CHINAS

SIZE QUALITY

A few outstanding fall boars for sale. We are booking orders for spring pigs of either sex.

PROLIFIC PROFITABLE

Write us your wants

Geo. V. Beckman & Sons Lodi, Cal.

BERMA RANCH

Size and quality predominate in our big type Poland Chinas. No better big type sows are found in the state. Buy Berma Poland Chinas and you buy wisely.

C. E. DACK R. H. Box 196 Fresno, Cal.

TWO PREMIER SIRES

are found at the head of our herd. Caesar's Buster and Rosebud's Jumbo are siring the type of Poland Chinas you want. Get them early.

THOS. CAESAR & SON, Reedley, Calif.

BERNSTEIN'S RANCH

Home of King's Big Ben, where he is siring those early developing big type Poland Chinas that are ready for the market at 6 mo. They have size, bone, quality and are from the easy feeding families.

W. Bernstein Hanford, Cal.

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows.

HARVEY'S CHOICE
Grand Champion Boar
at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair

SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

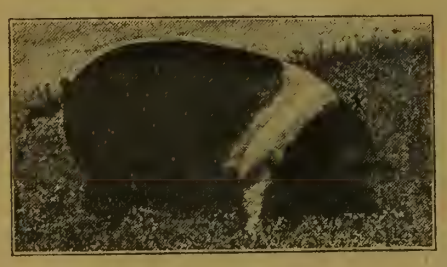
A. E. Harvey, Manager Redlands, Cal.

O.U.R. Hampshire Swine

Ortega-Underhill-Rancho

Thos. T. Dinsmore, Mgr., Santa Barbara, Cal.

LLANO VISTA RANCH



Noted as California's pioneer, Hampshire breeding headquarters. All leading families of the breed represented. As Goldmine, Sioux Queen, Gen. Tipton Again, Hawkeye Lad and Director.

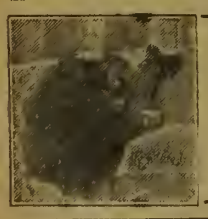
Our 150 spring pigs are mostly the get of Sasin, a son of old Director.

Toppy, big, young boars ready for service now.

We breed the milking strain of

Shorthorn Cattle

F. A. Langdon, Mgr., Perris, Cal.



They Top The Market

Weekly reports received from three of the leading beef markets show that Shorthorns sell at the top more frequently than any other breed.

It pays to grow Shorthorn beef. You get weight and quality both.

Ask for literature.

AMERICAN SHORTHORN BREEDERS' ASSOCIATION
13 Dexter Park Ave. Chicago, Illinois

Hauser's Digester Tankage

Gives Greatest Value for Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

Initial Sale of Caledonia Shorthorns

The largest sale of Shorthorn females ever held in this state has been announced by Edward Cebrian, owner of the Caledonia herd maintained at Caledonia Farms, West Sacramento. Seventy head of cows, most of them with calves at foot or due to calve to the service of the celebrated Caledonia bulls, have been catalogued. This offering comes from one of the largest herds in America and a herd that is generally recognized as among the top herds of the country, and for those reasons the forthcoming sale is being regarded as one of the most important events of the year.

In planning the sale Mr. Cebrian said: "The Caledonia herd, as it stands at present, is too large for my present equipment. We have a large number of calves coming on and more room is imperative. In selecting the offering, I have had in mind furnishing an opportunity for as many beginners as possible to select a quality of foundation stock that will prove attractive. I have the utmost faith in the future of the Shorthorn industry in this state, but it seems to me that in order for the industry to expand as it should, that there must be a way found to help men not now in the business to get started. I am hoping the method I have adopted that of selling cattle at auction, will prove the means of establishing many new breeders. From my own experience I know that there is almost an unlimited demand for better bulls on the part of range operators, and this demand is certain to increase. That means that in order to fill the need many more females will be required. With that idea in mind, I have decided to offer only cows, either with calves at foot or bred. In the offering will be a number of Scotch cows, but the major portion will be Scotch topped cattle."

The sale will be managed by the California Breeders Sales and Pedigree Company of Sacramento.

Plain Talk

Here is some plain talk in Kimball's Dairy Farmer that provides food for thought:

It may occur to some readers that we are saying much about milk and its virtues, for which there is no substitute. It may seem to them that information of this sort should be told to consumers rather than producers of dairy products.

The knowledge is available, however, that farmers are among the largest users of so-called butter substitutes and many of them are really stingy with the use of milk; they skimp themselves and their children to sell every possible drop of milk they can for cash.

We can conceive of illiterate folks, underblessed with purchasing media, driven by necessity to economize by using margarines and feeding babies and children coffee and tea in place of milk in abundance. We can conceive of a rural family, the head of which does not know the invaluable properties of milk and its products, trying to economize and grow rich by following the same procedure. We do not believe, however, that there is a farmer so niggardly, so miserly, so stingy that he would stint his own table, starve his own children, shorten his own and his wife's lives just to sell a few more pounds of milk and cream if he really knew the true value of dairy products.

We do not think there lives a man on a farm who would sell butterfat and with a portion of the money buy margarines, if he knew that by so doing he is not only a traitor to his own business but is robbing himself and his own family of the one great source of health, growth, development, and life.

We know that a surprisingly large percentage of margarines are being sold to farmers for money they have received for milk and cream. We prefer to believe the reason for that is that they do not know the importance of what they are really doing rather than to believe that they are a stingy, greedy lot of fellows trying to save pennies at the expense of their home welfare.

We wish to believe that if we teach the value of milk and its products, show that there are no substitutes for them, demonstrate that even at retail prices they are the cheapest of foods—to say nothing of the prices farmers receive for milk and cream—our readers will not be numbered among those who are looked upon either with pity or condemnation as a lot who rob their own tables to save a few pennies and expect others to supply their tables at a cost of dollars.

Our secondary object in telling the story of milk and its products to readers is with the hope that they will aid in spreading the gospel so that in due time it will be well known around the table of every home in America that our nation may continue to stand out as the home of the world's strongest, most vigorous, most intelligent people in the future, even as it has in the past.

Milk has aided much in the past; it must be permitted to do much in the future.

A third reason we have in mind; skimmilk has ever been recognized as an excellent food for all young, growing animals. The farmer, and not the scientist, was the first one to say, "There is no substitute for milk in growing pigs."

The scientist has now proven the farmer right. Let the value of skimmilk be well considered before wasting or selling it at a price less than it is worth for feeding calves, pigs, chickens and children.

Beware of False Teachings

We have been told that the domestic science departments in some of our state educational institutions are teaching girls the doctrine that margarines containing animal fats other than butter fats are excellent substitutes for butter and that their use should be encouraged because of the body building elements which they contain. It is claimed by one of the institutions that the growth promoting element fat-soluble A is found in all animal fats.

We have read this pernicious doctrine in advertising literature designed to deceive the public, but we have never heard of the scientist who has discovered the existence of fat-soluble A in other places than those designated by Dr. McCollum. He says on page 89 of his book—"The Newer Knowledge of Nutrition"—"The vegetable fats and oils, such as olive oil, cottonseed oil, peanut and cocoanut oils, although good energy yielding foods, do not furnish this dietary essential," meaning the fat-soluble A.

"The body fats of animals, such as lard, beef fat, etc., are not important sources of the fat-soluble A."

Fat-soluble A is found in greatest abundance in milk, in eggs, in the livers and kidneys of animals. Margarines do not contain the growth-promoting element of fat-soluble A.

It is unfortunate that the margarine products do not contain virtues of their own that will permit them to be sold without claiming merits which they do not possess.

When agricultural colleges will permit domestic science teachers to give out this kind of information, then it is time for a change in the teaching force.

Such teachings are not only untrue but the effects are far reaching, and more than that, they are detrimental to human welfare.

There are millions of people who get the fat-soluble A element in the butter they eat. If they are told by people who ought to know better that margarine can take the place of butter in their diet, and an appeal is made that in this way the high cost of living can be reduced, then they are deceived to the extent that they starve their bodies.

The teaching force of our public schools is supplied, in a large measure from the young women who are trained in the state institutions where domestic science is taught.

It is difficult to conceive of the irreparable injury that would be inflicted upon the children of this nation should such teaching be carried into the pub

Warranted to Give Satisfaction

Gombault's

Caustic Balsam

Has Imitators But No Competitors

A Safe, Speedy, Positive Remedy for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs and Lameness from Spavin, Ringbone and other bony tumors. Cures skin diseases or Parasites, Thrush, Diptheria. Removes Bunches from Horses or Cattle.

As a Human Liniment and Antiseptic for external use it is invaluable.

Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price $1.75 per bottle. Sold by druggists, or sent by parcel post, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

CONTINENTAL GERM FREE BLACKLEG FILTRATE

PRODUCES LIFETIME IMMUNITY

With one dose.

It is GERM FREE

Neither gives nor spreads disease.

We CHALLENGE any and all BLACKLEG PRODUCTS to a TEST

$5000 REWARD to any one

Who Can Prove

That We Do Not Do All That We Advertise

The only FILTRATE GUARANTEED Just as EFFICIENT without GUARANTEE as with it.

Without Guarantee 20 Cents Per Dose

With Guarantee 40 Cents Per Dose

administered.

Hemorrhagic Septicemia

Cattle, Sheep and Swine.

Write for Information.

Distributors Wanted.

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MUSCATINE, IOWA

PREVENT

BLACKLEG

VACCINATE WITH

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(BLACKLEGOIDS)

BLACKLEG AGGRESSIN

(GERM-FREE BLACKLEG VACCINE)

BLACKLEG FILTRATE

(GERM-FREE BLACKLEG VACCINE)

WRITE FOR FREE BOOKLETS.

ANIMAL INDUSTRY DEPARTMENT OF

PARKE, DAVIS & COMPANY

DETROIT, MICH.

JERSEYS

Venadera Herd

Register of Merit Jerseys

Senior herd sire Altama Interest sire of 12 cows in Register of Merit. Junior herd sire Jap's Perfection Owl, a line bred Spermfield Owl bull.

Guy H. Miller, Modesto, Cal.

Young Jersey Bulls

For Sale

One at the head of your herd will pay big dividends on his cost. Write to

W. J. Hackett

Modesto Cal.

Jersey Bull

FOR SALE

A fine straight one, bred right, priced right.

S. F. Williams

Chico, Cal.

Member Orland Jersey Cattle Club

lic and high schools of the land, just because a few women have failed to keep pace with modern science and its discoveries.

NOTES ON BUTTER AND OLEOMARGARINE

It is not surprising that so valuable and universal a food as butter should be particularly liable to adulteration and imitation. The usual sophistication is to manipulate these cheaper fats so as to make a compound resembling butter. The state dairy laws and the United States revenue laws provide that any artificial or imitation butter or substitute for butter composed wholly or in part of fat other than butter fat must be branded oleomargarine.

It is the common practice to include in all such spurious articles as oleomargarine butter, milk, or other dairy product in order to develop a flavor resembling that of butter. This is accomplished by ripening the milk to be added, which may be skimmed or whole in different proportions, and getting the proper degree of acidity, by adding what is known as "starter" or lactic acid bacteria. This ripened milk is added to the fat mixture, which is then agitated to bring all into one body. This is then chilled suddenly with a spray of cold water, after which it is tempered by holding in a room from 12 to 15 hours at a temperature of 70 degrees Fahrenheit. The sole purpose of this tempering is to bring out the flavor, and a decided change in flavor can be noted from the initial flat grease like taste to the final butter like flavor, which is due entirely to the action of the lactic acid bacteria in the milk.

Tests for Oleomargarine

There are several simple tests that can be used to distinguish between oleomargarine and butter. These tests are naturally of a preliminary nature, but serve very well for a rough determination.

The spoon test, also known as the boiling or foam test—Place about three grams (or a piece the size of a small chestnut) of the sample to be tested in an ordinary tablespoon and hold over a flame. As it melts stir with a splinter of wood. Bring to a brisk boil. Oleomargarine will boil noisily, sputtering like a mixture of grease and water, and will produce but little or no foam. Butter will boil with very little noise and will produce an abundance of foam. Renovated butter will act very much as does oleomargarine except that it produces usually a very small amount of foam.

The waterhouse or milk test—Heat a small amount (about 100 cubic centimeters) of sweet skim milk nearly to boiling and add five to ten grams of the sample to be tested. Stir with a wooden stick until the fat is melted, then place in a pan of ice water and continue to stir until the temperature falls sufficiently for the fat to congeal. At this point, the fat, if oleomargarine, can easily be collected into one lump by means of the rod, while if butter, it will granulate and cannot be so collected.

CURE FOR SWEENY

Writing to one of our Eastern exchanges, a horse owner gives the following remedy, consisting of good old home made soft soap, as a preventive or cure for sweeny. He says:

"For sweeny use the old fashioned soft soap, the kind our mothers and grandmothers used to make. The soap is made out of lye from wood ashes, old bacon or other fat. It is liver brown in color and one quart will cure a sweeny and it won't blister. Two years ago I started to plow and when I hitched up my mule team I saw the leader lame and I looked him over and saw he had sweeny. That evening I rubbed soft soap on with my hands in a round circle till the whole shoulder was saturated and frothy, and in the morning it was dry and I curried it off and plowed him all day and in evening I gave him another application. Did this for ten evenings. In two days' time the lameness left him and he filled up well in shoulder and never lost an hour's work. I have a 1,300-pound mule now that has sweeny in the right hind hip. He got hurt out in the yard playing. He either got kicked or fell on it, and the soft soap is curing him. It will cure horses and it won't take the hair off, either."

TESTIMONIALS

"Cows increased in one week 3 per cent in milk."
A. L. McCULLOCH, Alpaugh, Cal.

"I never saw hogs do so well or grow so fast as on this molasses ration." C. H. HARTWIG, Yuba City, Cal.

"It has enabled me to keep my stock in better condition at less expense." J. M. HENDERSON, JR., Sacramento, Cal.

"Have one calf that refuses to drink new milk—prefers skimmilk with molasses. What do you know about that?"
R. HECKLEY, Santa Rosa, Cal.

"It has been a great advantage in getting the stock to clean up the roughage." H. H. AMES, Chowchilla, Cal.

"One cow will turn down the choicest handfuls of alfalfa hay unless it has been 'Molassed'."
REDWOOD AYRSHIRE FARM, La Honda, Cal.

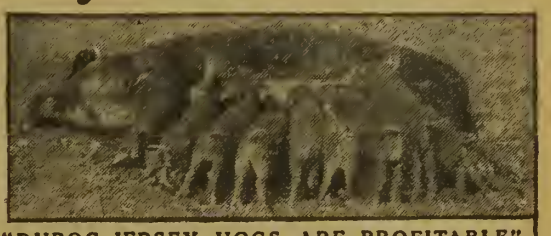
MOLASSES

cheaper than hay, but has same feeding value as corn or barley.

W. H. YOUNG COMPANY

58 Sutter Street San Francisco, Cal.

Duroc-Jerseys Are Prolific and Profitable



They raise *big* families. Hardy, easy-feeding, quick maturing. That is why Duroc-Jerseys today outnumber any other breed in the United States. Out of *all* the hogs marketed in 1918, 51 per cent were Durco-Jerseys.

WRITE FOR BOOKLET—"DUROC-JERSEY HOGS ARE PROFITABLE" published and mailed free by the largest swine record association in the world (over 10,000 members) for the benefit of hog raisers everywhere.

THE NATIONAL DUROC-JERSEY RECORD ASSOCIATION

Dept. 130—PEORIA, ILLINOIS

A-1 Duroc Ranch

Where one of the state's greatest herds of Duroc-Jerseys is maintained. For years our Durocs have proven profitable to farmer and breeder alike. Better place your order now for spring pigs as what we will be able to spare will go quickly. Remember, this is the home of the state's highest priced ($1500) and most valuable Duroc-Jersey sow.

J. P. Walker, RFD 1, Box 40½, Visalia, Cal.

THE VICTORY HERD——Holsteins and Duroc-Jerseys

Holsteins of known value, headed by Sir Plebe De Kol Segis Pontiac, a son of King Segis Pontiac Count, acknowledged one of the breed's greatest sires. A young bull from this herd is bound to prove a profitable investment.

HILLCREST FARM, H. E. Spires, Mgr., Caruthers, Cal.
Duroc-Jersey Swine of Highest Quality

Lamb's Complete Duroc Dispersion Sale
Wednesday, July 21st, 1920

Principal blood lines, Pathfinder, Orion Cherry King and Golden Model. Write for catalog and information. A few weanling pigs, both sexes, at private treaty prior to sale day.

ELMER LAMB, Ceres, Cal.

Sows and Gilts---GET ONE

Bred to farrow next two months. We are making an extremely low price on these to reduce our herd. At the price we won't keep them long. Write today. Quick, before they are all gone.

H. P. Slocum, Willows, Cal.

The Greatest Duroc Boar of His Age!
Choice Wonder 3d

a winner at the 1919 Iowa State fair, sired by the great boar, Mahaska Wonder, and a litter mate to the first prize junior boar of Iowa, heads our herd. He is the largest, heaviest boned, best footed boar in the state and he is being mated to the sows that have made this herd famous for futurity winners. Get your order in early for his pigs. Prices are most moderate. Satisfaction guaranteed.

JUNE ACRES STOCK FARM V. F. Dolcini, Davis, Cal.

Mayflower Thoroughbred Stock Farm

The big yearling Orion's Cherry King J. K. heads our herd. Some of our brood sows, Greenwood Queen of Orion's, Jane You'll Do, Miss Orion's King Gano, California's Orion's Queen, Lady Orion, Lancaster Beauty. Our litters run strong in numbers, pigs are doing fine and blood lines not excelled in the United States. Write for further information.

JOHN KINCAID E. Bakersfield, Cal.

Livestock Auctioneers—Hammond and Bradley

Our dairy cattle sales are coming bigger and faster, and more of them; and likewise our big general farm sales. Our customers continually get the high dollar at the minimum of expense.

Try us out on the "live-and-let-live" plan of conducting business.
Write or wire for dates, terms, etc.

Office 1053-55 South Main St., Los Angeles Phone 63545

In This Column Every Issue

HEALTH
FAMILY A Square Deal in Holsteins QUALITY
PRODUCTION

Here Is Your Chance

For SALE at

Private Treaty

We have listed and priced for immediate sale a number of choice animals of both sexes from our

Los Altos and Brentwood Herds

In building up these herds during the past five years we have adhered rigidly to a high standard of

Health, Type and Breeding

We now offer you selections from these exceptional herds. Animals of both sexes in lots of one to fifty. Many in calf to our phenomenal yearly record bulls.

Ideal For Foundation Herds

START RIGHT BUY THEM HEALTHY

We are not offering cheap cattle, BUT OUR PRICES ARE REASONABLE AND STRICTLY CONSISTENT WITH QUALITY AND HEALTH. Remember a

Federal Health Certificate

with every animal. If this means anything to you

BUY FROM

Toyon Farm Association

Mills Bldg. San Francisco

Farms at
Brentwood and Los Altos

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
May 29, Henderson Co., Sacramento.
June 17, C. W. Anderson, Burbank. Dispersal.

Shorthorns
May 27, Caledonia Farms, West Sacramento.

Duroc-Jerseys
July 21, Elmer Lamb, Ceres.

The Renwick herd of big type Polands at Santa Barbara enjoyed an exceptionally good mail order trade the past season and to the perfect satisfaction of all customers at that. A half dozen gilts and one brood sow were sold to Frank R. Morgan, Yuma, Arizona. Mr. Morgan visited the Renwick herd, making his own selections. One litter of pigs, that of the noted sow, Big Helen, sold for $1100, with an exceptionally fine young sow of the litter left on the ranch. The fine brood sow, Big Model 3d, granddaughter of Big Timm, has a very toppy litter of six big stretchy pigs, March 28 farrow, got by The Diplomat, best son of Liberty Bond. The big grand champion boar, El Profito, is still doing the honors of the herd. He has proved an A-1 sire of fine litters and would be guaranteed as such to any reputable breeder who is looking for a strictly up-to-date herd boar.

At the Underhill Hampshire breeding ranch at Santa Barbara things have been going smoothly and satisfactorily the present farrowing season. Seven and eight or more pigs saved to the sow is the rule, and they are evenly and beautifully belted and now enjoying the finest kind of thrift. A fine string of litters is accredited the great herd sire, Gen. Tipton's Masterpiece, and the old fellow more than ever looks the part of the splendid sire that he is. Another outstanding sire here is Exalted Ruler, with plenty of his fine pigs in sight. He is of mammoth size and proportions and is of correct conformation. Other families of great excellence are represented at the Underhill ranch by such sires as Blythedale Jim, The Cornhusker and others. The ranch management has the big annual midsummer public sale proposition now under advisement, with prospects for a fine array of breeding animals to be catalogued. The fact is, Mr. Underhill will permit many of his best young brood sows to go with this offering, he to retain a fair part of the offspring in the home herd.

Pathfinder's Perfection, the fine sow that cost Fred G. Ellis of Lindsay $1025 in the Diamond Bar sale, has paid off all incumbrances. She has farrowed 13 fine pigs by the Ace of Pathfinders.

R. K. Walker of the Winsor Ranch, Bonita, is off on a three weeks' jaunt among the big Duroc herds of the corn belt.

A sale of 60 saddle horses at Pasadena on May 25 will be made by R. L. English from his well known stables at Chino.

The top price in the Hartsook sale of Poland China brood sows at Lankershim, May 6, was $300.

Geo. M. Young of Ojai recently bought 12 young Duroc sows of Falfadale Farm, all bred to Great Orion Sensation, Jr.

W. H. Rough at Arlington, Riverside County, is known as a leading big-type Poland China fancier, and the herd today is in pink of condition and in the very prime of its usefulness. This is the home of the grand champion boar, Superba, of P.-P. I. E. show yard fame, and whose sweeping victories in the corn belt states are matters of history. The sons and daughters of Superba evidence today the high standard of excellence attained. The great boar, Supremis, by Superba, has proved himself a wonderful sire.

Bert Wilkinson, manager of Falfadale Farm Durocs at Perris, is lining up some real "toppers" as future public sale prospects. It is no secret that Falfadale will be able to wield the big stick on Winsor's Giant Orion blood. There are to be seen here 23 daughters of the big boar that will be mated to the big young boar, Great Orion Sensation, Jr., who is setting a fast pace for development. He now weighs 650 pounds and is keeping his every line intact.

Harvey M. Berglund of Dixon is having a brisk demand for Durocs at present and reports a number of good sales. His futurity pigs are coming in nice form and in addition to showing at Sacramento, Mr. Berglund is thinking of holding a sale in September.

Mrs. Ruth Mardy, manager of the Anchorage Farms Berkshires, never lets an opportunity pass to encourage pig club work, and has recently donated a boar pig, sired by Natomas Baron Duke, to the winner of the pig club contest at Geyserville.

Thursday, May 20, the Western Berkshire Congress will hold a sale of 35 registered Berkshires at the university farm, Davis. According to Bruce S. Bennett, field secretary of the congress, the offering has been selected from the leading herds in the state and will include bred sows, open gilts and a few boars of service age. It is said that the demand for Berkshires is the greatest in recent years and it is expected that the coming sale will result in establishing a number of new herds.

E. Lovell, manager of the Blackhawk Ranch, Diablo, left May 12 for Scotland for the purpose of selecting an importation of Shorthorns for the Blackhawk herd. This is one of the newer herds of California, but it is the intention of the owners, Messrs. Easton and Ward, to build one of the top herds of the country.

J. M. Henderson Jr., banker-dairyman of Sacramento, has recently furnished 22 young pure-bred Holstein heifers to the calf club organized at Live Oak. The calves average about nine months old.

Sierra Vista Ranch, Kyne & Nash, owners, at Perris, is now a well established Duroc-Jersey breeding headquarters. At head of the herd is the big boar, King Orion, Jr., a prize boar at the National Swine Show and grand champion at San Francisco. They also own California Great Sensation by Great Sensation. The spring litters include a few by Western Pathfinder, son of old Pathfinder. A bred sow sale is contemplated for January next.

A. L. Paddleford, manager for the Dos Pueblos Rancho at Goleta, reports the fine herd of Jerseys in A-1 working condition. The ranch management contemplates putting in a foundation herd of pure-bred Herefords.

E. R. Stalder has sold his ranch at Nuevo and is now located at Wineville. Mr. Stalder retains his herd of Holsteins intact. The herd bull, Rosamaines Pontiac Ormsby, is showing up some fine calves. One of these young bulls is out of a two-year-old heifer with a record of 20.69 pounds butter fat in seven days, a daughter of King Pontiac Netherland Segis 3rd. There are 16 registered cows now in herd, all bred to the herd bull. The Stalder herd is to be represented at the 1920 shows, Riverside and Los Angeles.

Robert N. Clapp is the new owner of the well known E. R. Stalder Holstein breeding ranch at Nuevo. Mr. Clapp has been a buyer of high class Holsteins at some of the recent sales. He likewise purposes importing others from the Middle West at an early day. Purchases of foundation Hampshires have also been made from the Underhill and Llano Vista Ranch herds. Such enterprise marks a real accession to the ranks of Riverside County livestock interests.

Among recent sales reported from the Llano Vista Ranch (Hampshires) at Perris is that of the fine brood sow, Nuevo Queen, to Robert N. Clapp at Nuevo. She is by Goldmine and out of Sioux Tipton, grand champion blood on both sides, and she has now farrowed 15 fine pigs sired by Sasin, a son of old Director. Another sale is that of five sows to Mrs. Beatrice Gantz at Fullerton. Seven gilts and one boar have gone to Thomas Childs, Ajo, Arizona. One hundred and fifty spring pigs are just now a chief attraction.

AUCTION

60 Head of Saddle Horses 60

Complete Dispersal Sale
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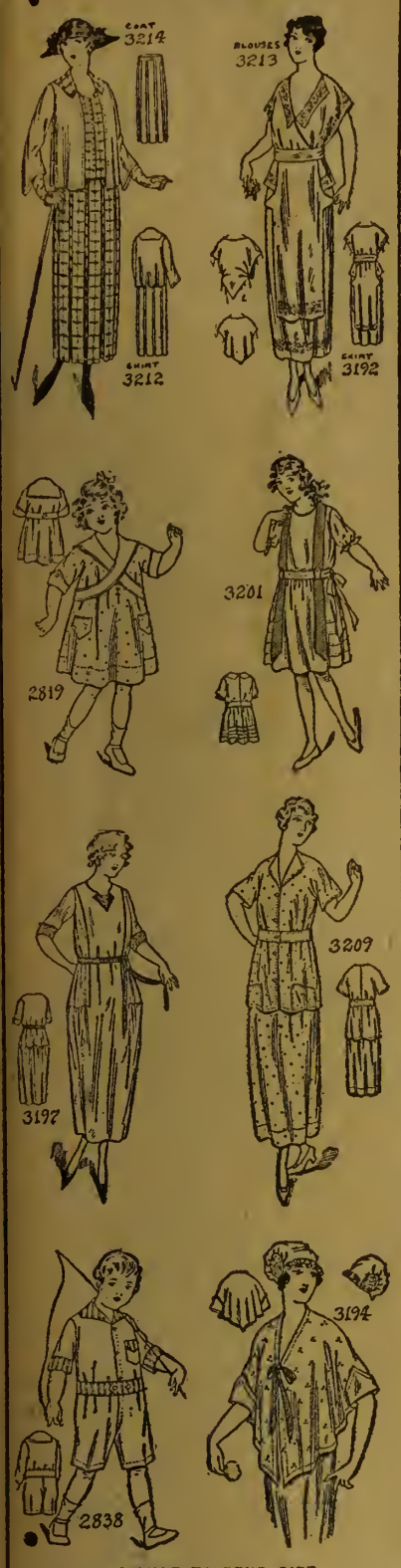

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Household Department

MY PHILOSOPHY

By James Whitcomb Riley

I allus argy that a man
Who does about the best he can
Is plenty good enough to suit
This lower mundane institute,
No matter ef his daily walk
Is subject for his neighbor's talk,
And critic minds of ev'ry whim
Jest all get up and go for him.

It's natchural enough, I guess,
When some gits more and some gits less,
For them-uns on the slimmest side
To claim it ain't a fair divide;
And I've knowed some to lay and wait,
And git up soon and set up late,
To ketch some felier they could hate
Fer goin' at a faster gait.

The signs is bad when folks commence
A-findin' fault with Providence,
And balkin' 'cause the earth don't shake
At every prancin' step they take.
No man is great till he can see
How less than little he would be
Ef, stripped to self, and stark and bare,
He hung his sign out anywhere.

My doctern is to lay aside
Contentions, and be satisfied.
Jest do yer best, and praise or blame
That follows that counts jest the same.
I've allus noticed great success
Is mixed with troubles, more or less,
And it's the man who does the best
That gits more kicks than all the rest.

ROYAL'S FAMILY

By Mary M. Parks in Youth's Companion

MRS. Royal Waldron, junior, becomingly clad in what she called her uniform—a kimono apron of lavender-checked gingham with white facings, and a mob cap to match—proudly piloted a tall, keen-faced girl about her tiny flower garden.

She led her visitor through the crowded flowers to a row of nasturtiums, parted the shining leaves, and tenderly lifted the fragrant blossoms. "This is the Empress of India, Joyce, and this yellow one is Golden King; the white is Princess Pearl, and the spotted cream, Prince Henry. Aren't they regal?"

The tall girl laughed and curtsied. "I'm pleased to meet their majesties," she said. Then, half enviously, "How you do love them, Helen! You belong over there." She nodded toward the splendid grounds on the other side of the low hedge.

Helen sprang up, and her lips parted; then she closed them again with a short laugh. She could not, even to her best friend, say anything that might seem a reflection on Royal's family; so she could not tell her how oppressive that immense garden, with its wealth of showy bloom and its stately gardener, was to her.

"It's a lovely background for my wee garden," she answered. "At this distance, framed as it is by the dark evergreens, it's like a beautiful picture."

She gathered two or three flowers of each color and handed them to Joyce. "I wish I could give you more to brighten up your schoolroom, but I can't spare many flowers, because we are to give a grand tea party tomorrow for all the in-laws—that is, the older ones. We want to make it something like the old time housewarming, but our resources are so limited that we have to take them in sections. The young folks will come next week."

"You shouldn't have given me these."

"Oh, there will be plenty, Joyce. I know how to make the most of them. Royal's family would give me some flowers, I think, although sometimes the gardener objects to cutting them, but we don't want them. Royal and I have everything planned. We know where every vase and bowl and dish is to stand. If we had anything more we shouldn't know what to do with it."

"Does Roy like all this contriving?"

"He seems to. Why shouldn't he?"

"Oh, I always thought that business men didn't like to be bothered with domestic affairs."

Before Helen could reply, a handsome, elderly woman stepped out on the veranda of the big house, and seeing the girls, waved her hand in friendly greeting.

"Was that Roy's mother?" asked Joyce, with interest.

"Yes," Helen replied, shyly. Her eyes were very sweet.

"She's a rather awe inspiring person, isn't she?"

"Not when you know her" Helen exclaimed. "She's really very simple and kind.

"I've heard that she can't cook the plainest fare," commented Joyce, curiously.

"She has never had to," Helen answered, a little defiantly.

"At any rate, Roy can't make disparaging comparisons," Joyce said, with a laugh, as she started to go.

Helen stood looking after her friend with a glimmer of mirth in her eyes. She had no fear of comparisons, for she was a housekeeper born and bred; and for her training she had only herself to thank. Her mother had been a capable, stirring, impatient woman who would rather do things herself than teach her daughter how to do them; but Helen, the only girl in a large family, had always haunted the kitchen. From the time when her eyes were on a level with the top of the table she had watched operations, asked questions and boldly tried her own hand whenever she found an opportunity.

Now she went into the house, and humming joyously, began preparations for the morrow. She was tired that night, but she had the satisfaction of knowing that everything was ready. The next morning she was out at dawn picking flowers with the dew still on them.

When breakfast was over the house in perfect order, she carried various receptacles to the cool back porch, and passed a happy hour in arranging the flowers to her entire satisfaction. There were golden nasturtiums for the dark hall, scarlet ones for the north lighted den, a bowl of pansies for the table, and so on throughout the house.

She was putting the last loving touches on her pansy centerpiece when the door bell clanged, and a moment later swift footsteps swept through the house. It was Royal's sister Maud, followed by a man bearing two large baskets. The girl's cheeks were glowing and her eyes sparkling with mischief.

"We have had to use so many flowers lately that we didn't dare ask the gardener for so much as a leaf. But luckily he went to town, and I stole these.

"Won't he froth when he misses these hollyhocks?" she chuckled, as she thrust the huge bunch of flowers that she carried in her arms into the umbrella stand. "These will do nicely here, and I brought things to hold the rest. I will arrange the flowers for you, dear; I always do it at home."

She went through the house like a whirlwind, scattering flowers in her wake. When she had finished and departed, the small dwelling was a suffocating tangle of ill assorted blossoms—ill assorted because they were too crowded. The vast spaces and dim nooks of the big Waldron house would have subdued both the color and the odor of the flowers. The crowning glory of Maud's scheme of decoration was a tall, flaring arrangement in the center of the little dining table!

Before Helen could get her breath and collect her scattered wits, the bell rang again, and a messenger left a package containing a gorgeous luncheon cloth loaned for the occasion by Aunt Jane. The rich material was heavily embroidered in tints. On Helen's little table the magnificent cloth seemed wholly out of place.

That was only the beginning. For several hours there was an intermittent flow of rich dishes for the table and handsome table accessories. Last of all, Royal's mother arrived, followed by a man carrying a huge cake.

"Hilda was once a confectioner's assistant," she explained, "and her icing is wonderful. Young housekeepers need a helping hand at a time like this; and besides, this is Roy's favorite cake." She looked round vaguely. "It's all very nice, of course," she sighed, "but I do regret that you undertook housekeeping: we all hope you will soon tire of it. It would be so pleasant to have you in the house with us, and so much better for Roy. The Waldron men are not at all domestic. Household matters bore them unspeakably. I must hurry on now, dear; I am giving a little talk at the Iris Club. You will understand, I know, if I cannot get here before six."

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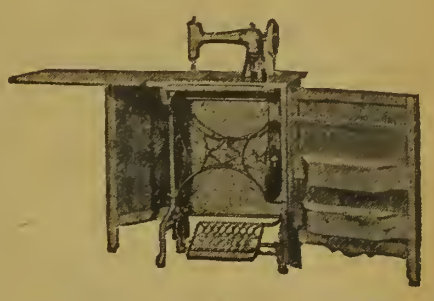

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As Mrs. Waldron, glowing with the consciousness of having performed a kindly act, glided down the tiny walk, like a stately ship down a narrow canal, Helen turned back and ruefully surveyed the towering cake. It was the most ornate she had ever seen. Her wedding cake had not been half so elaborate. "It looks anything but festive to me," she thought. "It suggests tombstones and monuments."

She chuckled at the thought, but the smile soon faded. Mrs. Waldron's words kept running through her mind, awakening doubts and fears that, since Joyce's call the day before, she had been trying to lull to sleep.

Roy's favorite cake, indeed She herself had baked a cake of the kind that Roy liked best, unless— She sank into a chair, staring hopelessly at the confusion round her, and trying in vain to repress the thought that forced itself upon her. What if Roy's apparent love of simplicity were only a kindly pretense; what if he were really bored by their simple life, and in his heart missed the luxuries and convenlences to which he had always been accustomed.

Helen sat very still; there was a dull little pain in her heart. Had he really been shamming to please her? If so, their happiness was built on sand. Now she remembered that at first he had taken it for granted that they should live, temporarily at least, in the big Waldron mansion. She had begged for a house of her own—a little house with a garden—a rented one, if need be, but a place where she could make a home for them. Royal came round to her way of thinking immediately, and he had never seemed to regret it. He consulted her wishes in every particular. He seemed proud of the little home and his clever homemaker. Was it all sham? Was he really yearning for the ease and luxury to which he had always been accustomed?

A familiar step sounded on the walk; Royal was coming, two hours before his usual time. Helen sprang up, started to the door, and then stopped short. She must banish all signs of her agitation before she met his sharp eyes. The door opened and shut, and after a long moment, Royal's head appeared between the portieres. His face wore a puzzled look.

"Why hollyhocks?" he asked, tentatively.

Helen eyed him keenly. Then a smile stole over her face. "Why not? Aren't they beautiful?" she asked.

"M-m-well, pretty enough; but I'd advise you to put a warning sign on the door. ''Ware hollyhocks,' or something like that. If a nervous person like that teacher chum of yours should drop in on her way home, and they jumped at her as they did at me, she'd fall over in a faint."

Helen's spirits rose with a bound. How cleverly he had described it! Those big, gaudy flowers in that tiny hall did seem to jump at you.

"Where did you get them, dear?" Royal asked.

"Your sister Maud very kindly brought them over," she replied.

"I thought I discerned my family's heavy hand in this," he said, grimly. He whirled, and strode back into the hall. There was a sound of bumping and thumping, and he reappeared presently, bearing the hollyhocks, umbrella stand and all, toward the kitchen. Helen followed in his wake.

"Royal Waldron, what are you doing?"

Royal put the umbrella stand in the farthest corner of the latticed porch.

"Just keep your eye on me, little girl," he said. He gave the umbrella stand a vicious kick. "I never did like that thing, anyway."

"Most of our wedding presents were so suitable," said Helen.

"That list of wedding presents was subjected to a rigid censorship, my dear girl," said Royal, wiping his brow.

"Censorship! What do you mean, Roy?"

"Just what I say. Aunt Jane, for example, intended to give us an immense cut-glass punch bowl. I told her that we might find stable room for it. In fact, I threatened to set it under the stable hydrant for Lady bird to drink out of."

"Do you mean that you asked her what she intended to give?" cried Helen, horrified.

"How else could I find out? I happened to know the make of kitchen cabinet you coveted. I told her, and—behold the cabinet. Dad meant to give us a European tour, but I mildly insinuated that a deed to this house would be more acceptable, and would cost him nothing, since he owned it."

"I never heard of anything like it," said Helen, feebly.

They returned to the dining room, where the immense cake at once caught Royal's eye; he stopped short, gasping.

"Your mother," Helen murmured Then, as her husband seized the mammoth cake, she added, "O Royal, her feelings will be hurt!"

"My family is not thin-skinned, Helen. On the contrary, it has a skin like a rhinoceros."

Along the entire length of the kitchen porch was a broad shelf, and on it Royal put the cake. "The thoughtful carpenter who built this house must have had some such occasion in mind," he mused. "My people, Helen,' he went on, "are admirable people—the dearest in the world to me—but to put it mildly, they are not adaptable."

Then he went through the house, gathering up his family's contributions to the tea party; he carried them all except the luncheon cloth, which Helen stealthily hid in a drawer, out on the porch, and put them on the shelf beside the cake.

"Like the hollyhocks, they require a large and rich environment," he remarked. "Among rank outsiders in the humbler walks of life, like you and me, they lose their sense of proportion—Gulliver among the Lilliputians. In the vernacular, they are not good mixers."

"Roy," Helen exclaimed, turning to him impulsively, "do you really and truly like being 'a rank outsider in the humbler walks of life'?"

Royal laughed uproariously. "Of course I do," he said. "I'm not a suffering martyr."

"But, Roy," Helen said, earnestly, "your mother says the Waldron men are not domestic. She says household matters bore them."

A strange look crossed Royal's face "Then I am not a Waldron man, Helen," he said, quietly.

"What do you mean?"

"Just what I say. I'm not like father and Henry. The Waldrons are born financiers; but I am like my Uncle Dan Emory. He failed in business again and again, and finally lost all he had and died poor—and broken hearted, I'm afraid. You see, dear, he hadn't my luck. He didn't marry a home-loving Helen. I am his living image, and though I'm Waldron enough to make a good living and to take care of what I have, I lack big business ability just as he did. Perhaps I ought to have told you before, but it has always been rather a sore point with me—and dad; and somehow I knew you wouldn't mind."

A look of relief came into Helen's face. "Mind! O Royal! I understand now, and I am so thankful. We shall have all we need."

"Now," cried Royal, flinging off his coat and rolling up his sleeves, "we will proceed to run this event according to the original plans and specifications."

That afternoon the family assumed the condescending manner of grown ups at a doll's tea party; but nevertheless, they seemed to enjoy themselves.

"I do hope they didn't feel hurt,' Helen said, remorsefully, after they had gone. "They were very sweet about it. Maud must have missed her flowers the moment she entered the house, but she didn't say a word."

"Hurt!" chuckled Royal. "You don't know them, Helen. If you could have seen as I did through that mask of polite unconsciousness they all wore, you would have discovered that they were not only highly amused, but pleased. My family like to manage other people's affairs, and yet there is nothing they admire more than sturdy independence. It was best for us to make our position clear, once for all They won't try to manage us any more."

As Royal had said, the family went home in a high good humor. "Wasn't that like Roy?" was the most severe comment they made. A little later, his mother expressed the changed attitude of the whole family when she said, "I am glad Roy married that sweet, sensible, unassuming girl. He is different, like poor Dan, and she seems to be a born manager. She is just the wife for him, I think."

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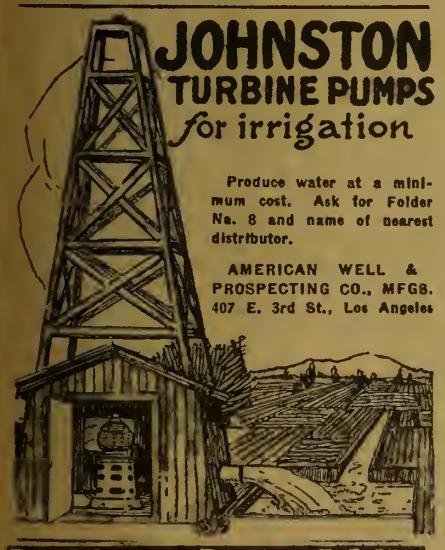

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Domestic beans are an excellent substitute for potatoes and meat, and with the warm weather coming on, being rich in protein, the importance of their food value and low cost should be more fully realized by the average housewife. This is especially important when the housewife is having great difficulty in trying to keep the grocery and meat bill within the limits of the family income. Another advantage that beans have over the ordinary edible is that they can be purchased in quantity and put away in the pantry without any possibility of deterioration. Every housewife should avail herself of the present low price and put in a supply against a rise in price later in the season.

The average housewife thinks of beans only as something to be boiled or baked. This is a wrong idea. Beans may be prepared in many different and palatable ways. They are also one of the few foods that may be cooked, set aside and afterwards reheated and served. In fact, the second cooking improves them wonderfully.

One of the most economical ways to prepare beans is to cook them at the same time the Saturday or Sunday roast is being prepared, or when baking bread, cake or pastry, making the same heat do double duty. Beans do not necessarily have to be eaten the same day, but can be put away in the ice chest or cooler and served either as the main dish or with the "leftovers" from the preceding day. Those housewives who have a fireless cooker will find it a very simple and convenient matter to prepare beans with practically no trouble or fuss.

The high cost of potatoes and other starchy foods, so necessary to human consumption, can be met by substituting more domestic beans, thereby keeping the grocery bill within the limit allowed by the family income. Eat beans.

The following recipes have been tested and found excellent:

Beans (Old Style)

1 quart large or small white beans, 1/3 pound fat salt pork, 1/4 cup New Orleans molasses.

Parboil beans until the skins slip; drain off the water, then cut the salt pork in small pieces, adding the molasses. Mix well, adding salt to suit taste; cover all with water about two inches and bake in slow oven. The bean pot must have a tight cover. Do not take cover off until the beans are done.

Spanish Beans

2 cups Mexican Red beans, 2 small onions, 7 small peppers, 2 tablespoons olive oil.

Soak beans over night and in the morning drain, cover with cold water and set on stove to simmer until tender. Chop onions and peppers very fine; season with salt and cook onions and peppers for five minutes in two tablespoons of olive oil. Add to the beans and let simmer for at least another hour.

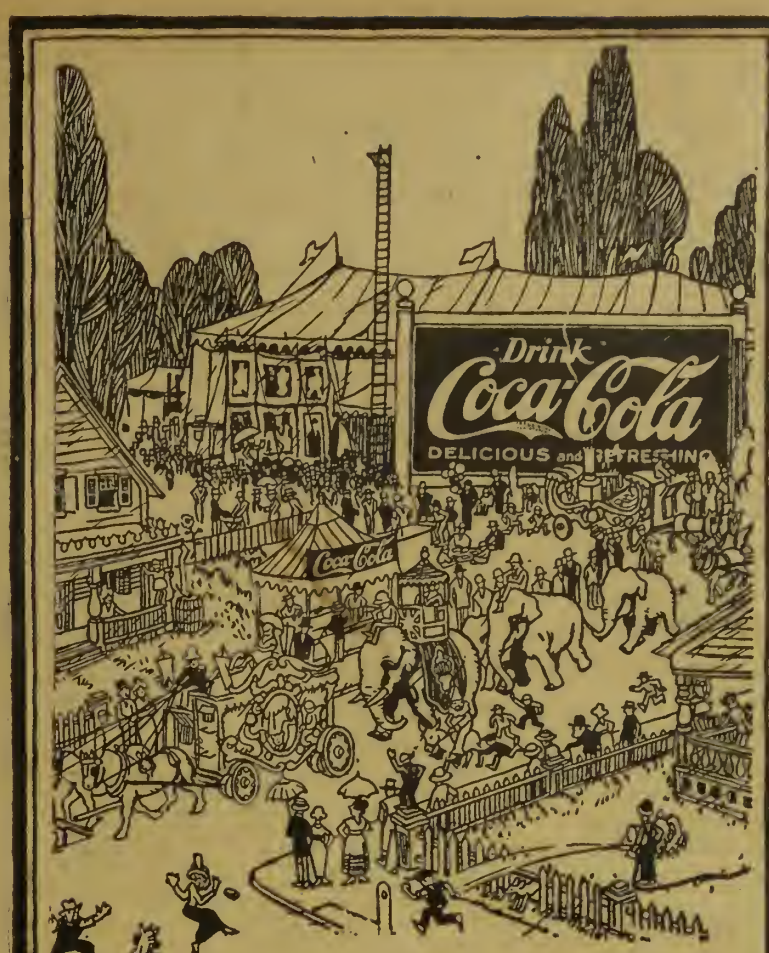
This dish is sufficient for six persons if served as a principal dish. If served with a meat course it will be sufficient for ten persons. It is especially convenient for a Sunday menu, as it may be cooked Saturday and heated again for the Sunday meal. It gains in flavor by the double cooking.

Boston Roast

2 cups cooked beans, large or small whites; 2 cups grated cheese, 1 cup crumbs, 1½ tablespoons salt, ¼ teaspoon pepper, 1 pimento.

Put beans through a meat grinder. Add cheese, crumbs and seasoning—the pimento may be omitted. Add sufficient water to form into a stiff roll. Shape and bake in a moderate oven, basting occasionally with fat and water.

(More bean recipes next week.)



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For Sale—S. C. White Leghorn Breeding Yards (15 hens, 1 cockerel each yard). Hens selected for high egg production. Cockercls sired by our grand cock, the sire of all our winning pullets of the 1919 shows. Eggs from these yards sold for $4.00 per 15 this season. Eggs and stock half price May and June. ALLES SAN DRO POULTRY YARDS, 523-D Rosemont Ave., Los Angeles. Tel. 53511.

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Near RR town, fine markets; productive soil, 200 bearing orange and grapefruit trees, lots peaches, pears, plums, pomegranates, figs, bananas, guavas, grapes; 6-room cottage, barn, packing-house, poultry house; owner closing out, throws in horse, wagon, buggy, harness, plows, harrows, farm tools, complete house furnishings, $2800, easy terms. Details page 58 Strout's Catalog Farm Bargains 33 States, copy free. STROUT FARM AGENCY, 503 E J, 405 S. Hill Street, Los Angeles, California.

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10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.

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If interested in securing farm lands or have same for sale write me. John G. Mee St. Helena California

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

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Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Next sale all breeds, second week in August at ranch. W. P. Dwyer and W. S. Gulford, Box C, Butte City, Glenn County, California.

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Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J Prendergast, Redlands.

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1000 Acres Arizona Land

Have state lease, 5 years, renewable 20 years, in part or whole; if sold, improvements paid for. Fine Yuma Mesa Soil, on R. R., level, adjacent land made $50.00 first year. Water developed by tenant, lift about 40 feet. Whenever sold, long term to pay. Lease better than ownership. Alfalfa, Citrus, Table Grapes, Cotton. Immediate possession, $15.00 per acre cash for 5 years. Write J. R. McKee, 414 Laughlin Bldg., Los Angeles, California.

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For Sale—Washington Navel, and Valencia late orange trees; Marsh Seedless grapefruit and Eureka lemons. Fine large trees, reasonable prices. H. H. Ford, Redlands, California.

For Sale — Valencia Orange and Eureka Lemons for fall and spring planting; all A-1 yearling buds selected from best bearing trees. Order early, good trees are scarce. A. R. Thurston, Montebello.

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For Sale—1000 performance record Eureka Lemon Trees, two year buds. Nursery Colorado and Huntington Drive, Lamanda Park. Paul B. Magee, R. D. 2, Pasadena.

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Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: Inspection invited.

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For Sale — Several hundred Washington Navels, Valencia and Eureka Lemon trees. B. L. Byer, Upland, California.

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Rhodes Grass—Is making Imperial Valley famous and will make any other section famous, if it is planted, especially if the soil is hard or alkali. Write Imperial Valley Seed House for Literature. El Centro, California.

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For Sale—Choice Dwarf Milo Maize seed, sack lots 54c lb., 500 lbs. or more 44c lb. This seed is part of 35 acre crop averaging 2.7 tons per acre. E. W. HOTCHKISS, EARLIMART, California.

All Kinds Seeds — Plants and Nursery stock. No. 1 Alfalfa 35c. Sudan 8c and up. Dwarf Milo Maize, Honey Sorghum, Amber Cane. Box 501, Fowler, California.

R*O*S*E*S—$1.50 per doz. Fruit and Ornamental trees, plants, vines, etc. Write for special price list. Kavan Bros. & Currier, San Bernardino, California.

Napier Grass—Strong roots, 25 one dollar; hundred $2.50; thousand $20.00. W. Rubell, 221 N. Catalina Ave., Redondo Beach.

Sweet Potato Plants—Yellow Jersey. V. Imbert, Norwalk, Cal. Tel. Downey 1186.

Stock Beet Seed—Any variety. Write for prices. Aurora Seed Mill, grower, Stockton, California.

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Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale—Sacks and Burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

If You Want to sell or exchange your property write me. John J. Black, 116th St., Chippewa Falls, Wisconsin

Leaf Mold, any quantity. A. H. Tyrer, Calabasas, California.

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FOR SALE—USED RANCH MATERIAL WE SELL FOR LESS. SEE US.
WHY PAY MORE?
REBUILT WINDMILLS.
8, 10, 12-ft. sizes, with or without towers. Used Redwood TANKS; 2000-gal., $38; 5000, $68; 6000, $78; 30,000, $245. Many others. New, used GALV. TANKS; used 5000-gal. with top, $100; 3000, with top $75; 2000, with top, $52.50; 1500, with top, $38; new 1000 gal., $43.75; 2000 gal., $59.75.
PUMPS
Large Buildozer, $135; No. 3 horizontal centrifgual, $65; No. 6 Gould hor. cent., $160; duplex boost pump, $49; No. 3 double-acting AMES, $375; rods, cylinders extra; many other snaps. Complete PUMPING PLANT, 15 h.p. Western gas engine with deep well double-acting AMES pump, rods, pipe, cylinder, belt, complete, $950; guaranteed good shape.
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Mower, $58; 4-gang Stockton plow, $28; potato planter, $65; 4-row beet planter, $25; 2-row bean cultivator, $35; 3 four-gang disc plows, $85 to $140. WHY PAY MORE?
IRRIGATING PIPE.
400 ft. 9-in., 55c; 300 ft. 8-in., 45c; 3-in., 16½c; new light weight, 4-in., 17c; 170 ft. 8-in., steel riveted with flanges, 50c. We don't keep material; we SELL IT. Material guaranteed as represented or money refunded. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

For Sale—Holt 75 H. P. tractor (Caterpillar) is absolutely in perfect condition. No reasonable offer refused. Apply Sam F. Scott, 354 Pine St., San Francisco, Cal. Phone Kearny 2556.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California

For Sale—Bean Tools, Planters, 12-foot Hallock Weeders, Cutters, 2 and 4 row Cultivators, Farquhar Thresher, Fanning Mill. Bradford Bros., Placentia, California.

Agency Discontinued—New floor sample S 25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros Co., Carpinteria, California.

For Sale—Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

The Double Catch Gopher Trap

catches large or small rodent. Has been under severe tests. One farmer has used it continuously for 14 months without a failure. Will return money if not satisfied. Price, postpaid $1.00. Circular free.
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Dept. A., 731 Market St., San Francisco, Cal.

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C. L. Hughes, Sales Manager.
Sacramento Cal.

SOIL MOISTURE DEMONSTRATIONS IN LOS ANGELES COUNTY

Professor J. W. Nelson of the college of agriculture will be with the Los Angeles County farm bureau to give a series of soil moisture demonstrations in various parts of the county.

The past two years of rainfall shortage has resulted in deficient water storage in soil and in mountain streams. Although the rainfall has been practically normal this season, the soils have not taken the moisture as they should. There is dry soil at four feet in many orchards. Unless properly irrigated and cultivated there is great danger that the trees will be seriously injured. For these reasons it has been thought advisable to stage demonstrations on the proper method of handling this serious problem. Professor Nelson is an expert on soils.

Demonstrations will be held: May 15th, Owensmouth-Chatsworth, place of Thad Harvey 15th, 2:30 p. m., Covina, ranch of W. P. Watts; 17th, 10 a. m., Pasadena, place of C. Stone; 17th, 2 p. m., Alhambra-San Gabriel, place of Frank Hoffman; 17th, 8 p. m., La Verne-Claremont-San Dimas, at Moneta high school; 18th, 10 a. m., Monrovia-Duarte, place of Rupert Turnbull; 18th, 8 p. m., Los Angeles City Center, at chamber of commerce; 19th, 10 a. m., Whittier, Leffingwell Ranch; 19th, 2 p. m., Downey, place of H. Koopmann.

CONTROL THE COYOTE

The coyote is not necessarily a bad citizen. At least this is a statement made in "Control of the Coyote in California," by Joseph Dixon and published by the experiment station of the college of agriculture as bulletin number 320.

"On the sheep range he is a menace; in a squirrel-infested country he is a benefit. If we kill off all the coyotes we must face the problem of ourselves accounting for the thousands of ground squirrels and jack rabbits which the coyote now destroys annually. The coyote stands second among the fur bearers of California. Certain prime pelts have recently brought up to date trappers $20 apiece. In order to bring such a price the pelts must be prime and properly prepared. Control rather than extermination should be our aim in most places. In certain sections actual extermination may be justifiably striven for.

The following methods of control have proved most successful: trapping; poisoning with strychnine in suet pellets; digging out dens containing young.

Coyotes have been successfully fenced out of certain sheep ranges in Mendocino County.

The bounty system is vastly expensive, productive of endless fraud, and does not give general or permanent relief.

Where coyote control is needed, continued, cooperative efforts between the interested counties and the federal government should be encouraged.

The coyote is the most widely distributed as well as the most destructive carnivorous animal now existing in California. Although known by sight to nearly everyone, the coyote is sometimes mistaken for the true gray or timber wolf, a much larger animal believed to be extinct now in this state. Coyotes occur in greater or less numbers in practically every county in the state.

Preparation and Care of Coyote Pelts

To be of greatest value in the fur market coyote pelts should be prime (taken between December 1 and February 15) and prepared as follows:

1. The skin should be cased, not flat; that is, in skinning, the opening cut should be made from the sole of the foot, down the back of each hind leg to the base of the tail; also the tail should be split its whole length and the bone removed.

2. All dirt, grease, cockle burs, blood clots and other foreign substances should be washed or combed out of the fur.

3. All pelts should be thoroughly fleshed; that is, all fat and adhering pieces of meat scraped from the flesh side of the skin.

4. Each ear should be skinned out so as to turn inside out clear to the tip, in order to prevent "slipping" of the hair on the ears. The cartilage should preferably be left in, attached at the rim.

5. The pelt should be dried, flesh side out, on a stretching board, in an airy, shady place. Before it becomes entirely dry it should be turned fur side out and thenceforth kept that way.

6. If coyote pelts are to be kept for several months they should not be left hanging over a beam in a shed or building to be ruined by moths and dermestes. They should be fumigated by placing them in a tight box together with a saucer nearly full of carbon bisulphide. Care should be taken to keep all exposed lights away from the explosive carbon bisulphide fumes. The pelts will then be safe from insect pests for months if left in the box.

TRUTHFUL

A young foreigner was being tried in court and the questioning by the lawyer on the opposite side began.

"Now, Laszky, what do you do?"

"Ven?" asked Laszky.

"When you work, of course," said the lawyer.

"Vy, work—"

"I know," said the lawyer, "but what at?"

"At a bench."

"Oh!" groaned the lawyer. "Where do you work at a bench?"

"In a factory."

"What kind of a factory?"

"Brick."

"You make bricks?"

"No; de factory is made of bricks."

"Now, Laszky, what do you make in that factory?"

"Eight dollars a week."

"No, no! What does the factory make?"

"I dunno; a lot of money, I think."

"Now, listen! What kind of goods does the factory produce?"

"Oh," said Laszky, "good goods."

"I know; but what kind of good goods?"

"The best."

"The best of what?"

"The best there is."

"Of what?"

"Of dose goods."

"Your honor," said the lawyer, "I give up."

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Use it on your lousy hens and chicks—your lousy colts, horses and cattle. You'll get better chicks—bigger, better fowls—more eggs—better contented stock.

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We authorize dealers to return your money if it does not do as claimed.

1 lb. 30c, 2½ lbs. 60c (*except in Canada*)

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Write for particulars

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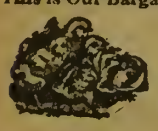

B. P. Rox, R. I. Reds, $18 per 100. Mottled Anconas, $17; W. Leghorns, $15. These chicks are from our very best Hoganized bred-to-lay stock. They are as good as the best, regardless of the price. Order direct from this ad and save disappointment.

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Banish the Fowl Tick

THE fowl tick—sometimes called "blue bug"—and probably the worst chicken parasite known to the Southwest—centralizes its activities in western Texas, southern New Mexico, Arizona, southwestern Oklahoma, southwestern California, and portions of Florida. It is a blood-sucking insect which does not establish or maintain itself readily in the humid and cooler sections of the country or in the higher mountain regions. The fowl tick concentrates on chickens although it will also attack turkeys, geese, ducks, pigeons, ostriches and guineas, the turkey ranking next to the chicken as a popular host. The fowl tick wreaks destruction by reducing the vitality and condition of the birds as well as minimizing egg production. Fowls raised where ticks are numerous are often stunted in growth. Another source of loss is desertion of the nests by sitting hens, caused by annoyance from the ticks. Death often results in the case of heavy infestation, the parasites draining the fowls of blood and also poisoning them with certain secretions.

In some instances the ticks are so hungry and so plentiful that they swarm over the fowls by the thousands. The symptons are usually weakness in the legs and droopiness of the wings, the chickens being unable to walk or even get up on the roost. The feathers appear ruffled and there is usually a loss of appetite. The comb may or may not appear pale. Sometimes death occurs a day or so later. Chickens, soon after hatching, are often killed by becoming infested with ticks.

The chicken tick or "blue bug" is the bedbug of the fowl family. Usually its presence can be determined by examining the ends of the roosts or pulling up loose pieces of bark or boards about the roosts rather than by examining the fowls themselves. Ordinarily during warm weather the eggs hatch in from 10 to 15 days, while in cool weather the hatching period sometimes exceeds three months. The young ticks have six legs and are grayish in color; they usually prowl about the roosts, searching for fowl upon which to prey during the night. They crawl upon the legs of the fowls and attach themselves on various parts of the body, especially where the feathers are not very dense. The ticks attach themselves in bunches on the host and usually are concentrated on the breast, under the wings and on the thighs and neck. They attach themselves very firmly by their spiny mouth parts and suck blood, usually continuing their blood feast for about a week or 10 days. Then, blood-gorged, they drop from the fowl and seek a secret hiding place. Four to nine days thereafter the seed ticks shed their skins and acquire an additional pair of legs as well as more size. Henceforward, they work entirely at night, biding in crannies and crevices during the day time. Following each of the first three meals of blood the skin is shed and at the time of the last molt the adult males and females appear. After partaking of another meal of blood the females are ready to lay eggs, the average production being 500 to 900 eggs a female.

Pests Live for Years

The longevity of the fowl tick is remarkable as some of them have been known to live over two and one-half years without any food, and unquestionably, in infested chicken houses many of them survive longer than this, even when all poultry is excluded.

The rapidity of breeding depends largely upon the temperature. Hot, dry weather apparently does not interfere with the development of the chicken tick; in fact it appears to be at home under such conditions.

It is difficult to control fowl ticks by the use of chemicals, although two satisfactory solutions, carbolineum and petroleum, have been found to be effective. Carbolineum is more destructive to ticks than is petroleum. It persists longer and possesses the advantage of drying into the wood so as not to soil the fowls. Anthracene, which is the principal constituent of carbolineum, has been found to be about as effective as the latter material. The limiting factor here, however, is the difficulty of obtaining this material on the market. Creosote oil, containing eight to 20 per cent tar acids, is also very destructive to fowl ticks but is difficult to use in a spray owing to its caustic effects on the operator. When applied to the roosts and crevices with a brush it destroys all ticks touched and persists well.

In eradicating ticks it is essential to destroy by fire all the infested material and other equipment which is not valuable. When either crude petroleum or carbolineum is used it is necessary to spray the entire interior of the chicken house by thinning the oil with one part of kerosene to two parts of carbolineum or crude oil Where these materials are used in a tight house it is advisable to keep the chickens out of doors for one night in order that the material may dry in thoroughly over the wooden surface. Ordinarily one general treatment is sufficient, although if the ticks still persist, subsequent treatments with a brush about once a month for two or three months are ultimately effectual in banishing ticks.

The natural tendency of the tick in all stages is to crawl upward and not on the ground, and hence it has been ascertained that a roost supported from the floor of the house and kept entirely free from the walls is by far the most satisfactory. It is also necessary to have the roost fitted together in such a way that it can be examined or knocked down with ease. This can be accomplished by using two by four's as roosts which fit in notched end supports that in turn rest in notched uprights. The nests should be simple in construction so as to facilitate prompt and complete removal and treatment.

Clean-Up Not Expensive

The cost of the fowl tick clean-up is not prohibitive. Carbolineum costs from $1 to $1.50 a gallon, while crude petroleum costs from five to fifty cents a gallon, according to the distance from supply. A chicken house 12 feet square of the frame type which is common in the Southwest requires about four gallons of carbolineum or five gallons of crude oil when thinned with kerosene at the rate of two gallons with carbolineum or one gallon with crude petroleum. That would make the cost of one treatment with carbolineum about $4.50, while where large supplies of crude petroleum are available spraying with it would cost about 70 cents.

It is much easier to exclude fowl ticks from clean premises than to destroy them after they are once established. On this account persons beginning the chicken business should practice every precaution against the tick. Select a site well apart from other premises where ticks are known to be, and in constructing poultry houses and arranging other equipment, follow all tick controlling management. Start out with chickens hatched from incubators on the premises or secure day old chicks from hatcheries known to be tick free. Where, for any reason, chickens are imported to the place, they should be placed in temporary coops in small yards for ten days and held in quarantine, as during this period the seed ticks, if there are any present, will become engorged and desert the fowl. A chicken may then be treated with sodium fluoride or any good lice powder for lice and liberated. Quarantine coops should then be burned or sprayed with carbolineum or crude oil.

An all-metal chicken house is the best armored shelter to prohibit the entrance of ticks. However, such a building is expensive and also excessively hot during the summer. It is important in this case to provide hinged panels on all sides of the building to facilitate ventilation during hot weather. By the use of metal roosts and tick-safe nests, it is possible wholly to exclude all ticks from such a house.

Not only will the control measures outlined above eliminate fowl ticks but they also will accomplish complete destruction of the common chicken mite should it be present. In fact this method is the best means of destroying the chicken mite. Carbolineum is effective in controlling chicken lice, but since lice remain on the fowls constantly and do not get upon

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Eighteen thousand people attended the picnic at the university farm at Davis.

the roosts, the spraying of the building will not accomplish their complete destruction. They should be dusted for lice, also. Proprietary remedies which are sold commercially and advertised as sure killers of ticks are usually more expensive and probably not as satisfactory as the remedies recommended in the foregoing paragraphs. Other "cure-alls" which are sold commercially and which are to be rubbed on the fowls or else fed to them are, as a rule, very unsatisfactory, as it is preposterous to suggest that any material sufficiently strong to kill a tick may not also kill the fowls when fed to them before accomplishing the eradication of the ticks. It should be remembered that the ticks may be hidden away in the cracks and may not visit the fowls for a month or even a year. In nearly every case such remedies are prepared and sold by men who are not familiar with the essential facts regarding the life history and habits of the ticks or "blue bugs," and too often by those who are ready to take advantage of poultry raisers seeking relief from the ravages of the pests. Complete information regarding the fowl tick is contained in Farmers' Bulletin 1070 which has just been published by the United States department of agriculture.

Poultry Queries

Conducted by J. A. Koethen

Rhode Island Red Eggs

I am writing to ask what color S. C. R. I. Red eggs should be. A five dollar setting from a breeder contained all shades from white to brown, a second was no better. Now I take as much pride in the appearance of my eggs as in the birds and think they should be uniform in color to look well. I would be ashamed to ship eggs like those if I cared anything for my reputation. Please tell me where I can get pure bred R. I. eggs that I can depend on.—Subscriber, Galt.

I do not know of any breeder who pays much attention to the tint of his eggs, though there must be some who do. As a rule, I fear breeders breed for points rather than for tint of eggs, and any shade of egg goes. It is a pity it is so, for the eggs from every flock should be uniform in tint. Here is one point of difference between the fancier and the commercial poultryman. The poultryman must ship eggs of unfform tint. The fancier is not concerned about production. He looks at feathers and type only.

Swelled Head

I have just lost a Barred Rock hen from swelled head. It began with the dropping of the feathers on her head, then the head became so swollen that it stretched her eyes out of shape. She was fat and apparently in good condition till I found her dead under the roost.—Subscriber, Auburn.

What made those feathers drop? Was it a belated molt or too much attention from the male bird or had depluming mites been at work? If there were mites the stubs of the feathers would have remained. Possibly the feathers dropped because she was trying to molt and then took cold. If there was any stickiness about the eyes it would certainly indicate the roupy condition we commonly call swellhead. If there was no stickiness I should suspect some external injury such as pecking by other birds.

NEW ASSOCIATION

Covina poultry breeders, both professional and amateur, have formed an association. At a meeting week before last at the home of Edward Insley in Covina, poultrymen of the distrtiot of Los Angelees County between LaVerne and Baldwin Park, elected Smith Elston secretary and arranged for another meeting in Baldwin Park to complete the organization. This is a splendid move and completes the organization of all the territory from San Gabriel to Ontario. When the whole country is organized, poultrymen will find it easy to secure their rights.

A. P. A. CONVENTION

Notice has been received of the annual meeting of the American Poultry Association at Kansas City the second week in August. The convention committee, which consists of T. E. Quisenberry and ten other prominent Kansas City poultry people, promises "a real revival convention that will be interesting, instructive and that will really legislate along progressive, constructive lines."

JAZZ

Mr. Hopper (rising from table)—Shall we dance this fox trot, Miss Flopper?

Miss Flopper—That wasn't the orchestra starting up. One of the waiters just dropped a tray of dishes.—Life.

—no plungers
—no pit
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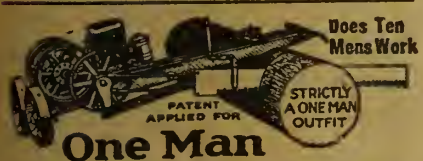

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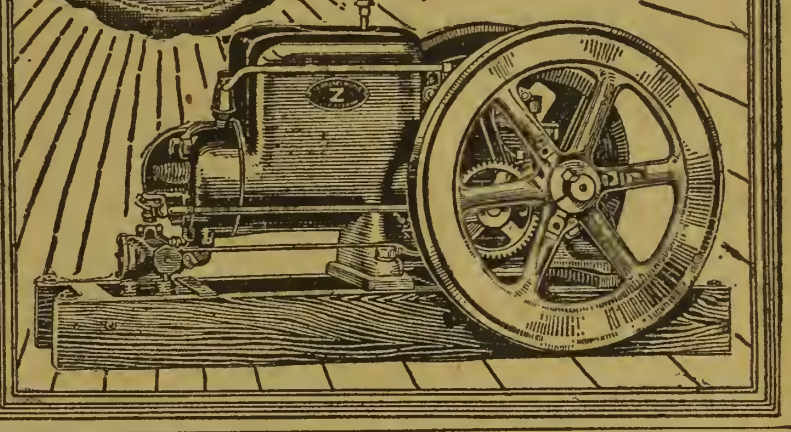

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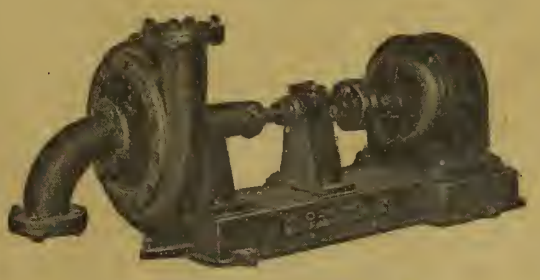
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Butter, creamery extras, Produce Exchange price, 55 cents.

Dairy Exchange prices last week on extras:

May	5	6	7	8	10	11
'20 ...	53	51	51	53	53	53

CHEESE

Brokers' prices:
California flats, 27 per lb.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 44 per dozen; case count Produce Exchange closing price 43 per dozen; pullets, Produce Exchange closing price 41 per dozen; pewee pullets, 29.

Dairy Exchange prices last week on extras:

May	5	6	7	8	10	11
'20 ...	44	44	44	44	44	44

POULTRY

Price to producers: Hens, lt., 29; heavy, 35@37; broilers, 26@30; fryers, 40; roasters, 38; old roosters, 18; ducks, old, 23; ducklings, 30; ducklings, Pekin, 3½ up, 33; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 17.

LIVE STOCK

Los Angeles, May 11 — Weighed and delivered off cars without food or water: Hogs (hard-grain), 125 to 175 lbs., 15.50 175 to 225 lbs., 16.50.

Cattle (on foot, gross weight)—Steers, good, 11.00@11.50; medium, 10.50@11.00; cows, good, 9.00@9.50; medium, 8.50@9.00; bulls and stags, 7.00; calvese, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, May 11, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Old stock: Stockton: Burbanks, fancy and special brands, 6.75@7.00. Idahos: Russets, fancy, 7.00@7.50. New Stock: Market strong. Local Early and White Rose, No. 1's, 3.25@3.75, mostly 3.50; No. 2's, 1.75@2.75 lug.

Onions: Demand and movement slow; market unsettled. Old Stock: Homegrown and Stockton: Scarce. White Globes, per cwt., mostly 6.00@7.00. New Stock: Supplies heavy. Imperial Valley and Coachella Valley: Bermudas, 2.25@2.50 crate; lugs, 1.25@1.50. Crystal White, crate, 2.50@2.75; lugs, mostly, 1.25@1.50.

Garlic: lb., 40@50.

VEGETABLES

These are the actual prices obtained May 11, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., best, 50@75.

Asparagus: Supplies moderate. Delta section: Best, 10@12; local, 16@18.

Beans: Wax, lb., 8@10; Ky. Wonder, 11@13.

Beets: Doz., 40@50; lb., 4@5; sk., 2.50@3.00.

Cabbage: Market unsettled, movement slow; wide range in quality; best, ½ per lb.; per crate, best, 1.25@1.75; others, low as 75. Red cabbage, 3@4 per lb.

Carrots: Doz., 40@50; lb., 2; sk., 2.25@2.75.

Cucumbers: Market weaker. Local Stock: 1.25@1.50 per dozen; 2.75@3.00 per box.

Lettuce: Supplies heavy. Crates, best, mostly 50@75; others low as 35.

Car lots: Demand good, movement limited, market firm. California crates Iceberg, 2.00@2.50, mostly 2.00.

Parsley. Doz., 15@30.

Parsnips: Lugs, 1.00@1.50; sacks, 3.00@3.50; per dozen, 45@55.

Peas: Local and Imperial Valley: Market firm: lb., 5@7; poorer low as 3.

Rhubarb: Strawberry, bx., 1.25@1.50; Crimson Winter, 75@1.00.

Spinach: Doz., 20@30; lb., 2.

Squash: Imp. Valley, summer, cr., 1.10@1.30.

Tomatoes: Imperial Valley Stock: Supplies liberal; market steady; per crate, best, 2.65@3.00; Mexican best, 12@14 per lb.

Turnips: Per dozen, 45@60; per sack, 2.00@2.50.

FRUITS

These are the actual prices obtained May 11, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtown Pippins, 4-tier, 2.00@2.75; 4@6 per lb.; Romes, 2,65@3.25; lb., 6@8.

Bananas, 8@9; Red, 10.

Cherries: Black Knight and Black Tartarian, best, 20@30 per lb., poorer, 18@20 per lb.

Loquats: Best, mostly 10@12 per lb.

Strawberries: No arrivals. Local: Market firm. Per crate, 4.50@5.75; best, mostly 5.00@5.50; per tray, 2.25@3.00.

Grapefruit: per box, best, 4.00@4.50. Seedlings packed, 2.50@3.00; loose, 2.00@3.00. Arizona; per bushel baskets, 1.85@2.10.

Lemons: Market firm. Local Stock: packer, 3.50@4.25; loose, 2.00@2.25; 2@3 per lb., juice, 1.75@2.00.

Oranges: Market firm; Supplies liberal. Navels, packed, best brands, 80's to 100's, best, 5.00@5.25. Local Market; packed 3.75@5.00; large sizes low as 2.00. Valencias: packed, best brands, 5.50@6.00.

Tangerines: Mostly 9@12 lb.

HONEY

Demand and movement slow, market dull, prices slightly lower. Carloads f. o. b. usual terms: per lb. White orange blossom, 18; White Sage, supplies practically exhausted, 19c; extra light amber sage, supplies very light, 16; light amber alfalfa, supplies light, 14c. Beeswax, demand and movement moderate, l. c. l. lots 40@42c.

BEANS

California Lima Bean Growers' Association fixed prices October 13, but market failing. Limas, 14½; baby, 13. Baby limas are moving well at a fair price, but there is still a heavy holdover of other varieties from 1918.

F. o. b. L. A., carload lots. Market sluggish, outlook hopeful. Limas, 13.25@13.50; Baby Limas, 13.00; Blackeyes, 7.25; Small Whites, 6.30@6.50; Large Whites, 6.50@6.75; Pinks, 6.90@7.00.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

HAY

From Weekly Market Letter of Alfalfa Growers of California.

Arrivals of new alfalfa hay, show some increase as expected at this time but the better grades were still in light supply and were eagerly picked up by buyers at about last week's prices, and the current demand for first class hay still exceeds the supply. The demand for Foxtail mixed alfalfa hay, fit for feeding, was also stimulated and new arrivals of it found a ready market at a discount from standard grades, varying according to quality.

It looks now as if the first cutting were going into immediate consumption to a greater extent than in former years, leaving a relatively small surplus for future marketing. This would also lead to the current consumption of the second cutting to a greater extent than usual.

The second and third cuttings furnish the bulk of the surplus needed for winter consumption and prices during the next few months depend therefore, largely on the rapidity with which growers market the hay from these two cuttings.

It is too early in the season to make it possible for the association to gather sufficient definite data for estimating the size of the total crop of the year and the amount of the marketing tonnage available for shipment to central markets, but the indications so far would seem to be that the total of the state will be rather light again.

The tendency among our growers is to market their hay gradually as far as possible, at the rate at which it is called for throughout the year. In this connection, arrangements for pooling and carrying the hay have already been made by our growers in several districts. The object of this is to stabilize the market by preventing the usual midsummer glut in excess of demand, which results in demoralization of prices below cost of production.

For future delivery from later cuttings, bids of equal to about $30.00 delivered Los Angeles, continue to be made by larger consumers for their winter supply, but so far our growers are not disposed to commit themselves to that extent, considering the uncertainties of alfalfa farming.

Present prices f. o. b. Los Angeles are as follows: Choice alfalfa, 37.00; No. 1 dairy alfalfa, 34.00; standard dairy, 32.00; Stock alfalfa, 28.00.

GRAIN AND FEEDS

Price bid local grain exchange, May 5:
Barley, 3.05@3.10.
Corn, yellow, sk., 3.70.
Milo: 3.27½@3.35; Eastern, 3.00.
Wheat: mixed feed, 5.40.

San Francisco Markets

San Francisco, May 11, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	55½
Prime Firsts	Nominal

Extras past wk. and year ago:

May	4	5	6	7	8	10
'20 ...	55	55	55	56	55½	55½
'19 ...	55½	..	56½	57	57½	58½

Rcts. wk: ending May 11, 5,674 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	29½
Ore. Trips	30
Cal. Flats	23@26

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	46½
Extras, pullets	41
Undersized	35½

Extras past week and year ago:

May	4	5	6	7	8	10
'20 ...	46½	46½	46½	45½	46½	46½
'19 ...	51½	..	50½	50	50	52½

Rcts. wk. ending May 11, 517,382 doz.

POULTRY

Wholesale prices are:

Leghorn, 33@35; large, 38@40; roosters, young, 45@50; old, 18@20; broilers, 28@35; fryers, 45@50; turkeys, live, 37@40; dressed, 48@50.

Ducks, Indian Runner, 23@25; Pekin, 28@30. Squabs, 55@60; pigeons, doz., 2.35@2.50.

Belgian hares, live, 22@25; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle: Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 10½@11½; do, 1,200 to 1,400 lbs., 10¼@11; do, second quality, 8@9½; thin, 6½@8.

Cows and Heifers: No. 1, 8½@9; second quality, 7½@8; common to thin, 3@5.

Calves: Light weight, 12½@13; medium, 10@11; heavy, 8@10.

Lambs: Milk, 13@14; yearlings, 10@11.

Sheep: Wethers, 9@10; ewes, 7½@8.

Hogs: Weighing 100 to 150 lbs., 16¼; 150 to 225 lbs., 15¾; 225 to 300 lbs., 14¾; 300 to 400 lbs., 15½.

Virden Packing Company quotes prices on live stock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle: Good steers, 1000 to 1100 lbs., 10@10½; top steers, 1100 to 1200 lbs., 9@9½; good heifers, 1200 lbs. and over, market price; good cows and heifers, 7½@8; No. 2 cows and heifers, 6½@7; canner cows, 3½@4; good bulls, 4½@5.

Calves: Light, 13@14.

Hogs: Top packer, hard and well finished; 100 to 150 lbs, 15½; 150 to 225 lbs., 16½; 225 to 300 lbs., 15½; over 300 lbs., 15; under 100 lbs., 14.

Ewes: Full wool, 7@8.

Wethers: Full wool, 9½@10.

Yearlings: 10½@11.

Milk lambs: 11½@12.

POTATOES

Wholesale selling price:

Rivers, fancy, lb., 5@6; Idaho Gems, 6.50@7.00; new, lb., 6@8.

ONIONS

Wholesale selling price:

Fancy, brown, 6.00@6.25; Coachella Valley, 3.50@3.75. Green onions: River, 50@75; bay, 1.00@1.25 per box. Garlic, 35@40.

VEGETABLES

Wholesale selling price:

Artichokes, 1.00@5.00.

Asparagus: lb., wh., 6½@8; graded, 10@13; gr., 5@7.

Beans: lb., string, 10@15; wax, 10@12½.

Brussels Sprouts. lb., 8@9.

Carrots: sk., 1.00@1.50; long, 40@50 per dozen.

Cauliflower, doz., 1.25@1.45.

Cabbage: lb., 2¼@2½.

Celery: cr., 2.00@4.00.

Cucumbers: Eng. doz., 2.00@2.25; hothouse, bx., 3.25@4.00.

Lettuce: L. A., 75@1.25 cr.

Peppers: Fla., 40@50 large; 10@15 small.

Peas: lb., green, 3½@5.

Radish, 7@9 doz. bunches.

Rhubarb: bx., 1.25@1.50.

Spinach: cr., 1.00@1.50.

DECIDUOUS FRUITS

Apples: Newtown Pippins, old stock, 2.85@3.15; Oregon, 3.00@3.50.

Apricots: Imperial Valley, 3.00@3.50 crate of 4 baskets.

Bananas: lb., 9@13.

Cherries: Purple Guigue, 2.25@2.50 per box: loose, 10@22½ lb., according to quality.

Dates: Dromedary Golden, 7.00@7.25 case.

Pineapples. Doz., 3.00@4.75.

Strawberries: Peninsula dr., 55@1.00.

CITRUS

Box: Lemons, fancy, 4.50@5.00; choice, 3.00@3.75; standards, 2.50@3.00; lemonettes, fancy, 1.00@2.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 3.00@3.25; limes, 4.00@4.50 per crate; tangerines, 1.50@3.25 crate.

DRIED FRUITS

Prunes:

Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On smallsized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.
For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¾c per pound.
10 pound boxes, add 2 c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:

Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:

White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:

Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

Raisins:

California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅜; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12½; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾; Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, $2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

RICE

Domestic market quiet: Prices firm. Fancy California Japan, May, 10.75; June, 10.85; choice, 25 less. New Orleans reports market inactive with prices slightly easier.

BEANS

Jobbing prices at San Francisco, per cental: Small white, 5.75@6.00; large white, 6.20@6.35; cranberry, 6.00@6.50; red Mexican, 8.50@8.75; pink, 6.40@6.50; California Bayo, 9.50@9.75; blackeye, 7.25@7.50; red kidney, 13.00@13.25; lima, 10.25@10.50; Garvanza, 9.00@9.50; Kotenashis (in bond), old crop, 5.25; new crop, 5.75.

Dried Peas: California, 5.25@5.50 cental.

HOPS

1919 crop, 1.00 per lb. Prices to growers for 1920 crop, 80 per lb.

HONEY

Extracted, jobbing price: Water white, 22 per lb., for sage and 20 for white clover; light amber, 18; amber, 16; comb, 28@30 for water white; light amber, 26@28; amber, 25.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

Hard White—	Per Bus.	Per Cen.
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51⅓
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.58
No. 3	2.00	3.48 1-3

The above are minimum prices.

For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.15@3.30.

Corn: California yellow, 3.50@3.65 per cental; Egyptian white, 3.80@4.00; milo maize, 3.35@3.45.

Barley: No. 1 feed, 3.30@3.40.

HAY

Under date of May 8 Scott-Magner says:

Receipts past week 960 tons. Strike conditions of the railroads seem to be far from being in satisfactory shape. Most of the receipts in the past week have been from California points which shows quite a change from the last two months when most of the hay has been arriving from Oregon and Nevada. Very little hay is offered on the market, and our prices this week are more or less nominal. New alfalfa is being baled in many districts and volunteer, as well as some barley hay, is being cut in other sections. It seems to be a general desire to get hay into market as fast as possible in order to obtain the high range of prices or as near it as possible of the old crop. Several sales of first cutting alfalfa have been reported in the country some being as high as $25 for clean first cutting containing no foxtail or needle grass. These are extreme prices for choice quality, however, and only obtained where immediate pressing local demand has created abnormal conditions. The car situation is a serious proposition and the great rush of new hay coming will certainly not improve it.

We quote today wholesale prices in carload lots (old crop) as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:)

Fancy Wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat or Wheat and Oat hay	35.00@38.00
No. 2 Wheat or Wheat and Oat hay	32.00@35.00
Choice Tame Oat hay	37.00@40.00
Other Tame Oat hay	33.00@37.00
Wild Oat hay	Nominal
Barley hay	Nominal
Alfalfa hay	30.00@32.00
Stock hay	29.00@32.00
Oregon Cheat and Oat mixed	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, May 12, 1920.

Unloading of refrigerator cars which had become piled up in the recent rail strike has been the feature of the last week's citrus market. New York auction handled 60 cars in one day, yet this resulted in no serious slump and $8.00 and even $10.00 prices are still named on occasional fancy lots. Picking has been resumed and shipments are again at normal. F. o. b. prices are ranging between $5.00 and $6.00 according to size and quality. Large offs are proving specially unattractive. Lemons are still quiet induced by the enormous number from Mediterranean.

Shipments

Shipments of citrus fruit to date from Southern California since November 1, 1919: Oranges, 17,312 cars; lemons, 3,440 total, 20,752. To same date last season, Oranges, 19,844; lemons, 4,804; total, 24,-

648. From Central California this season: Oranges, 4,858; lemons, 286; total, 5,144. To same date last season: Oranges, 2,722; lemons, 251; total, 2,973. From Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

May 5

New York: 9 or., 1 lem. Nav. 7.10-9.10, Val. 6.90-9.20, Sweets 7.35, St. Mlkes 9.25, Tang. (halves) 4.45-4.90, Grapefruit halves 4.15.

Cleveland: 12 or., 3 lem. Nav. 4.40-7.85, Val. 6.30-7.75, Seeds 5.20-6.70, Sweets 6.10-7.20, St. Mlkes 5.40-6.70, Lugs 4.90-5.90, Lem. 3.20-5.15.

Boston: 3 or., 1 lem. Nav. 7.45-8.50, Val. 7.65, Lem. 2.05-2.45.

May 6

New York: 6 or., 2 lem. Nav. 7.00-9.40, Val. 6.60-9.70, Grapefruit, halves 2.85, lem. 1.95-4.35.

Philadelphia: 9 or. Nav. 6.50-7.70. Val. 4.75-8.00, Sweets 4.65-5.65.

May 7

New York: 60 or., and lem., sharp decline because of over supply. Nav. 4.60-8.00, Val. 6.65-10.85, Bloods 2.60-4.30, St. Mike's 8.00, Seeds 6.10-6.70, Tang. (halves) 3.90, lem. 2.40-2.90.

Boston: 3 or., 1 lem. Nav. 8.20-10.05, lem. 3.15, St. Mikes, 8.55-8.75.

May 10

New York: 39 or. and lem. Nav. 2.75-7.80, Val. 5.00-10.70, Seeds 2.85-6.45, Sweets 4.25-5.95, St. Mlkes 5.90-7.75, Bloods 5.00-7.15.

St. Louis: 5 or., 1 lem. Nav. 4.55-6.35, Seeds 4.80-5.80, St. Mikes, halves 3.75.

Boston: 22 or., 1 lem. Nav. 5.65-8.60, Val. 6.50-7.45, Sweets 4.45-6.85, St. Mlkes 3.75-4.00, Bloods 7.25-8.40, Grapefruit 3.30.

Pittsburg: 12 or., 2 lem. Nav. 3.70-7.30, Val. .5.60-6.55, Bloods 3.80-4.45, lem. 3.60-3.90.

May 11

New York: 26 or. Nav. 5.60-7.90, Val. 5.20-7.75, Sweets 5.00-6.30, Bloods, 4.30-7.00, Seeds 4.25-5.80, St. Mlkes 7.35.

Boston: 21 or., 2 lem. Nav. 3.95-8.40, Val. 5.05-6.00, Bloods 5.35-6.65, St. Mlkes, halves 3.65, lem. 3.20-3.85.

Saving Labor in Sugar Beets

MANY farmers are solving the the labor problem by using larger implements and more horses. Such practices have enabled sugar beet growers greatly to reduce their expenses for man labor and increase their operations. The normal man labor required in growing sugar beets will vary from 80 to 135 hours or more an acre, say specialists of the United States department of agriculture in Farmers' Bulletin No. 1042. Under average conditions, where more horses and larger implements are used, they add, the man labor on machine operations will be reduced approximately 25 per cent.

A direct comparison of plowing crews in Michigan and Ohio, where conditions under which the work is done are uniform, shows that approximately one hour an acre less of man labor is necessary to operate a plow drawn by three horses than by two. With the larger outfit, as also when a tractor is used, a float or plank can be attached to the plow, and thus the breaking of a cloddy surface can be done with little additional effort or cost. In disking in the Michigan and Ohio districts it was found that a four horse outfit saves one-quarter of an hour of man labor an hour over the two-horse equipment.

Saving In Sugar Beets

Cultivation of sugar beets furnishes a striking contrast in crew efficiency. In Michigan and Ohio it was found that 1.9 man-hours an acre were required to cultivate once over with a one-row implement, 1.6 man-hours with a two-row cultivator, and only 0.9 of a man-hour for a four-row cultivator—a distinct saving in man labor by using the four-row machine. As many fields require attention before it is possible for the grower to get the work accomplished, any saving of labor and time is an advantage to the growing crop and affords more man labor for crops competing with the sugar beet in the distribution of labor.

Under average conditions a crew of one man and two horses working continuously will lift approximately 1½ acres of beets a day. A crew of one man and four horses will probably increase this area to two acres, or possibly 2½ acres a day under favorable conditions. The performance of the lifting implement can be improved still further with the addition of more horse power. If, by using an extra horse on the lifter, this work can be performed in a shorter period, more time will be available for hauling the beets to the factory or loading station.

Harvesters Mean Further Economy

An appreciable saving in farm labor will undoubtedly be accomplished through the development of mechanical harvesters. The hand labor on sugar beets, comprising such operations as blocking, thinning, hoeing, pulling, topping and loading, constitutes from 52 to 75 per cent of the total man labor required in growing the crop. The pulling, topping and loading, when combined, makes up 24 to 42 per cent of the work. Estimates made hy several growers show a variation of 24 to 30 hours in the labor requirement for the hand work in harvesting. It is very apparent, says the bulletin, that this amount can be reduced to a few hours an acre with the introduction of the mechanical harvester. This will in turn release man labor for other important work during the fall months.

In hauling sugar heets to the factory crews usually range from two to eight horses driven by one man. The load consists of approximately one ton for each horse. In California, a crew of one man and eight horses is sometimes employed. Such a crew frequently handles two loads, each weighing about four tons, which in many sugar beet sections would be divided into four loads, and three additional men would be required to drive the wagons. By using more horses and hauling more beets to the load, thereby reducing the number of trips to the factory, not only is less labor required but the hauling is finished before unfavorable fall weather.

SPARROWS DESTROYED IN UTAH

Several hundred thousand English sparrows, each eating six quarts of wheat a year, would mean a feed bill of more than $131,000. Therefore the killing of English sparrows means that amount of money saved for the farmers concerned. And nearly 700,000 sparrows were killed in a state wide campaign in which 783 Utah farmers joined forces to get rid of the pests during the winter months.

County agents helped in the campaign, which used 5,243 pounds of poisoned bait. In most cases the bait was made of wheat, poisoned with strychnine in accordance with a recipe sent out by the biological survey of the United States department of agriculture. It was put up in one-quarter pound paper bags in the county agent's office. Full instructions were printed on the bags for the use of the poison. Each cooperator receiving the bait agreed to report on the results. Usually the sparrows were enticed for a few days by putting unpoisoned bait in places not frequented by other birds and also inaccessible to the poultry of the farm. Then a few grains of poisoned wheat were put out each day. The dead sparrows were gathered up, counted, and either burned or buried every few days to prevent the sparrow population from becoming suspicious. The number of sparrows counted by each farmer was reported to the committeemen or the county agent at the end of the season's work.

As many as 240 dead sparrows were gathered up as the result of a single package of poisoned wheat. It is believed that where care was used in placing the poisoned bait an average of 75 sparrows was killed with each one-quarter pound package. In each of several counties, 50,000 to 100,000 sparrows were destroyed.

PAINT THE BUILDINGS

Paint is high—no question about that—but lumber is high, too, and it does not pay to allow the lumber in your buildings to decay from lack of paint. And it is not only the life of the building that is assured with paint, but the appearance is greatly improved. No wooden building looks completed until it has a good coating of paint.

A mistake is made in leaving a new building stand without paint because the article is so high at present. New lumber takes paint much better and while the surface is smooth it does not require as much paint as when the surface has become rough and cracked. Cheap paint is better than none, but it is only cheap at first cost, for in the end it becomes more costly than the higher priced paint. Cheap paint will not stay and soon the building is in need of attention.

Paint should not be applied to a building until the weather is warm enough that the oil will penetrate the wood. Boards to be painted should be smooth, clean and free from frost or grease. Oil will not penetrate where there is moisture or grease. And not only should buildings he painted, hut the wooden parts of all farm machinery should be protected by a good coat of paint.

It has been estimated that one gallon of good paint will cover 250 square feet in two coats, or almost 500 square feet with one coat.—Farmer's Guide.

SHE WANTED PROGRESS

"No, sar, Ah doan't neber ride on dem things," said an old colored lady, looking in on the merry-go-round. "Why, de other day I seen dat Rastus Johnson git on an' ride as much as a dollah's worth an' git off at the very same place he got on at, an' I sez to him, 'Rastus,' I sez, 'yo' spent yo' money, but whah yo' been?'"—Boston Transcript.

GYPSUM AND ALKALI

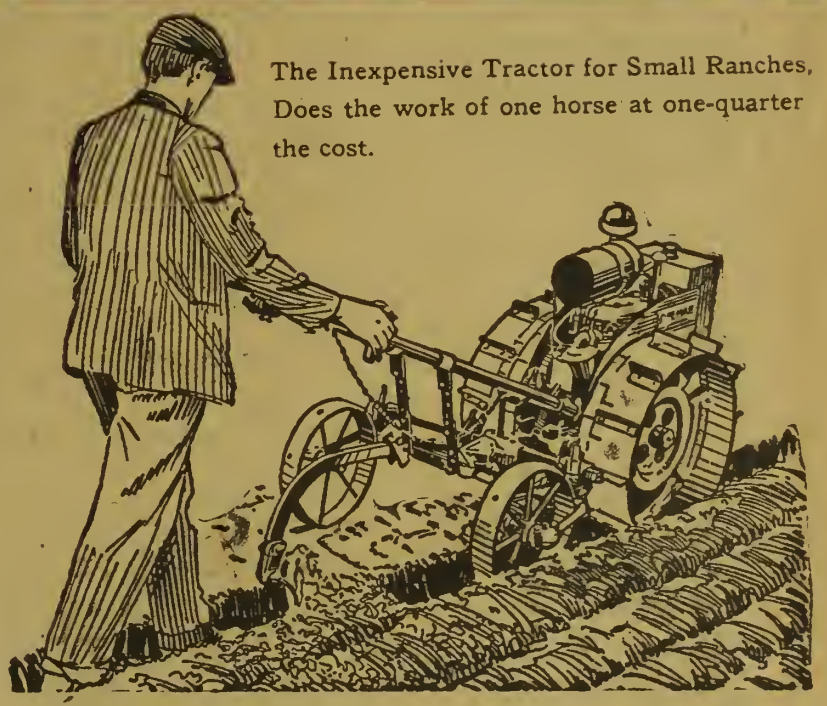
Extensive experiments at a government station in Italy have proven that the action of gypsum in improving alkaline soils is not a simple neutralization of the sodium carbonate, but rather a coagulation of the colloids and transformation into ahsorption compounds of calcium. This action is favored by the calcium sulphate of the gypsum, which is made more active by the presence of neutral sodium salts. In this connection it is the opinion that neutral salts themselves can indirectly hring about the same effect. Therefore, irrigation with salty waters is considered dangerous to the soil, hecause they will act on compounds containing absorption compounds of sodium. It is considered necessary to accompany such irrigation hy gypsum treatment.

WEATHER REPORT

San Francisco, California, May 8, 1920.

Stations	Wk.	—Rainfall— Season.	Norm.	Temp. Max	Min.
Eureka	.00	21.99	43.23	54	46
Red Bluff	.06	10.60	23.73	58	46
Sacramento	.00	8.85	19.49	84	42
San Francisco	.00	10.42	21.58	62	47
San Jose	.00	8.63	16.24	78	36
Fresno	.00	8.21	9.19	86	42
San Luis Obispo	.00	14.81	19.87	66	42
Los Angeles	.00	12.42	15.32	70	46
San Diego	.00	8.47	9.73	64	50

BEEMAN



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Peanuts as a Farm Crop

By H. F. Grinstead in Farm and Ranch

THE soil and climatic requirements of the peanut are similar to those of the sweet potato, and, like it, they do best in a warm sandy loam that is well drained.

The peanut belongs to the same botanical family as the pea and bean, and, in common with the other leguminous plants, has the power of collecting free nitrogen from the air. For this reason it is one of the most desirable of our soil improving plants when grown in rotation with other crops. The tops when cured are about equal to clover hay in feeding value, and it has been commonly estimated that the hay will usually pay the expense of cultivating a crop of peanuts, the yield being in the neighborhood of a ton to the acre.

Extremely fertile soil is not necessary, the mechanical condition of the soil being of more importance. Fresh manure should never be used, since it is likely to cause an abnormal growth of foliage. Soil that has been fairly well manured the previous season will be found suitable. The peanut will respond readily to commercial fertilizer. An application of 400 to 600 pounds of complete fertilizer to the acre will produce desirable results. Wood ashes is also one of the most desirable fertilizers when applied at the rate of half a ton to the acre. Land that is extremely wet or inclined to be sour will not grow peanuts unless treated liberally with lime. Almost any soil will be benefited by an application of 500 pounds of quicklime to the acre.

The preparation of the soil for peanuts should be thorough. If the land is flat it should be "bedded" by throwing up ridges and partially dragging them off, planting the seed on the flat ridge.

The seed should be planted when the ground is warm, which will usually follow corn planting from two to three weeks. The rows should be from 30 to 36 inches apart, depending on whether the small bunch varieties like the Spanish or the large Virginia are to be grown. Two seeds in a hill 12 to 16 inches apart will be the right distance in the row. There is little to be gained by shelling the seed, though the shelled seed may germinate two or three days earlier. It will be best to break the hull in two with the larger varieties, but with the Spanish this will not be necessary. It will hasten germination if the unshelled seed are soaked over night in warm water before planting. The seed should not be planted more than an inch deep on heavy soil, while on loose, sandy soil they may be covered to a depth of two inches. The method of planting will depend on the size of the patch, a one horse shovel plow and a hoe being the implements formerly used.

The cultivation of the peanut will be about the same as for corn, beans or potatoes, a small shoveled cultivator being used frequently to keep the soil loose and the weeds down. Some hoeing will usually be necessary. The old idea that the blossom must be covered with soil is not reliable, though the soil that falls over them at the last cultivation will do no harm. After the peanuts begin to "peg," or form pods, they should not be disturbed by further cultivation. A slight ridge around the plants will result if they have been properly cultivated.

The proper time to harvest peanuts is at a time when the vines have the greatest number of mature nuts on them. The peanut is a continuous bearer, like the cotton and tomato plants, and may have mature peas and new "pegs" on the same vine.

In the Southwest the earlier pods may begin to decay or sprout before the later ones are mature, but usually the best plan is to harvest the crop just before the first frost in the fall. Small crops will be harvested by loosening the soil with a fork and lifting the vine out with the pods adhering to the root. Larger areas can be loosenind with a plow or a potato digger. After the vines have been loosened from the ground they should be allowed to lie for a few hours till the leaves have wilted, then placed in small stacks around a central stake to cure. The essentials in curing are to put in small stacks and give free circulation of air. On account of the fleshy nature of the stem, the vines cure slowly and will mildew if in large stacks. A barn floor is not a suitable place for curing unless the crop is very small and can be spread out thinly.

The stakes around which the vines are to be stacked should be six or seven feet long, driven securely in the ground. Before the stack is started two pieces of lath or light lumber should be nailed at right angles to the stake six or eight inches from the ground, in order to keep the peanuts from coming in contact with the soil In building the stack, the pods are kept to the center and the tops outside, with sufficient slope to shed water. A few vines should be hung round the stake to tie the stack, and when the desired height is reached a cap of dry grass should be put on top. (In California staking or covering has never been practiced. Small "cocks" or piles have sufficed.)

The vines should remain stacked three or four weeks before picking. Like corn fodder, much strength will go from the vine into the nuts during the process of curing. If the picking is done by hand only the well filled and mature nuts should be picked off, the immature ones being left on the vines for stock feed. The work of picking may be done in the open or the vines can be hauled to the barn when cured and the picking done at any time that is convenient. Peanuts are easily discolored by mildew and should be kept dry at all times. There is now machinery for picking or threshing.

The vines, after the nut pods have been picked off, may be baled, stacked or put in the barn. The immature nuts and cured vines make excellent forage for stock, especially for milk cows, being the equal of clover or alfalfa.

The Spanish peanut has gained in favor of Southwestern farmers during recent years as a money crop. But the greatest usefulness of this crop is for livestock, especially for hogs. Farmers who have thin sandy land find the peanut almost indispensable as a crop on which to raise pigs and fatten porkers. An acre of peanuts on such land will produce more pork than an acre of any other crop on the same kind of land.

There are other soils than that described adapted to peanuts for pork In fact, most any soil is suitable if it has reasonable fertility, fair depth and does not bake or pack after every rain.

The advantages of growing a peanut crop to be grazed by hogs are many The peanuts are rich in feeding constituents, notably protein, the most essential feeding nutrient for pigs. Hogs will also eat the vines greedily as well as the nuts. They will feed themselves when they are turned on a peanut field, saving the farmer's labor and making rapid gains. With a little

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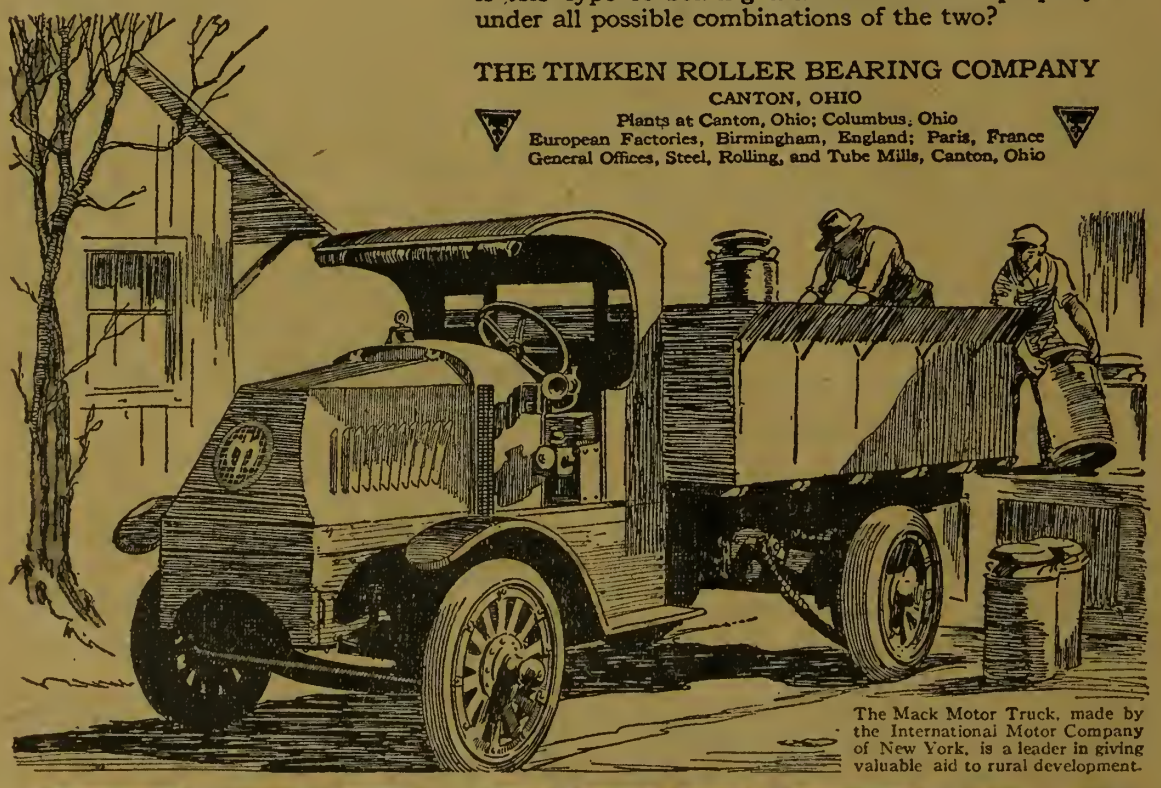

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TIMKEN BEARINGS

grain to finish porkers, the pork will harden and the animals will dress firm and prime.

It is an excellent plan to plant several small fields in peanuts at different times so the hogs may have grazing for as much of the time as possible. Planting may be done now in most localities of the Southwest. The season for the peanut extends to July or even a little later in some localities. Horses, cattle and sheep are also fond of peanuts. For work teams, few crops suitable to thin sandy land are equal to this legume. The vines are sometimes cut with mower and baled.

Experience With Grasshoppers

The North Platte Valley reclamation project had an experience with grasshoppers last year which may prove of value to grasshopper infested sections of this state. The Reclamation Record gives a most graphic story of their methods of work last year, from which we quote:

Investigations made early in the spring of the present year by Project Agricultural Agent Sheldon showed that millions of grasshopper eggs had been laid, and the indications were that they had come through the winter in good shape. Through the medium of the newspapers of the valley, posters mailed to farmers and schoolhouse meetings over the county, farmers were urged to cultivate or disk lateral and ditch banks, roadways and fields where grasshopper eggs were in evidence. All egg pods that were turned to the surface of the ground froze and dried up. A good many farmers responded and with good results which became evident as the season advanced, as those who did no cultivating had many more grasshoppers than those who cultivated.

In May young grasshoppers began to appear in such numbers that it was realized that some plan must be devised whereby the grasshoppers could be destroyed on a larger scale than had ever been done before. Fortunately the state legislature, through the efforts of Project Agent Sheldon, passed a pest law early in the spring and the counties of Scotts Bluff, Sioux and Morrill were formed into pest districts with pest inspectors in each district. It was the duty of the pest inspectors to see that poisoned bran was used where needed and in such quantities as would destroy the grasshoppers. With the machinery at hand for the enforcing of the poisoning of the grasshoppers it became necessary to devise some means of manufacturing the poisoned bran in large quantities. The counties had no funds for this purpose and it remained for the farmers irrigation district to take the initiative in the matter. The district accordingly proposed to the North Platte Valley Water Users Association to go in fifty-fifty on materials and cost of labor and put in five mixing plants, at Morrill, Mitchell, Scottsbluff, Minatare and Bayard. A contract was made between these two organizations. A large building was secured in each of the above named towns, and each plant was equipped with a concrete mixer run with a gasoline engine, a hot water heater, boiler and tank, etc. Each plant was in charge of a manager with as many helpers as were needed to mix the poison required from day to day. Arsenic was put in solution by boiling with sodium, and this liquid was put in a tank and crude molasses and anise oil added. Dry bran was placed in the mixer and enough poisoned liquid added to make it moist, and the ingredients were then thoroughly mixed and placed in sacks, 100 pounds to the sack.

The mixture was sold to farmers under the farmers irrigation district and water users association for $1.85 per hundred and to all others at $3.10 per hundred. The farmers irrigation district purchased three trucks and delivered the mixed poison to its water users. The demand soon became so great that the five plants were mixing an average of 50,000 pounds a day, and during the latter part of June some of the plants had to be kept running all night in order to keep up with the demand. Approximately 1,500,000 pounds of poison were mixed and used by the farmers. Twenty-five cars of bran were used, nearly two cars of arsenic, one and one-half cars of sal soda, $2,000 worth of anise oil, and $5,000 worth of low grade molasses. The total cost of materials and labor was approximately $60,000.

Nearly all farmers whose lands were infested with grasshoppers used the poison. Only one farmer was arrested and fined for not using poison when notified to do so by the pest inspector. Splendid results were obtained where the poisoned bran was used systematically and in quantity sufficient to cover areas affected. One farmer used a ton of the poisoned bran where the hoppers were so numerous that they threatened the loss of a large field of wheat. He estimates that he lost three bushels per acre of wheat that he could have saved if he had started earlier to spread the poison. A number of farmers saved fields of young alfalfa by using plenty of poisoned bran during the season.

CHILEAN WINE PALM

No doubt the hardiest palm we have in California is Jubaea spectabilis, the wine or honey palm of Chile, for it grows nearer the South Pole than any other species. It endures many degrees below the frost point and is splendidly drouth resistant. In California it makes rapid growth to majestic size as may be seen in our illustration. Though large specimens are yet rare, many hundreds of younger plants will soon make the honey palm a familiar sight in our landscape.

The trunk is the largest of any palm found in California and in its native land a full grown specimen will yield nearly 100 gallons of sugary sap, the tree being destroyed in the harvesting process. The sap is boiled by the Chileans into a thick syrup known to them as "Miel de Palma" or palm honey. From the sap is also fermented an intoxicating drink called palm wine. Both are common on the west coast of Chile and the honey is served in all hotels. The tree belongs to the coconut group, the nuts look like small coconuts and in the trade are called "coquitos," or "monkey's coconuts." The plant is of fine ornamental value and with age assumes a grandeur of appearance not equalled by any other palm known in California.—E. B.

Chilean Honey Palm

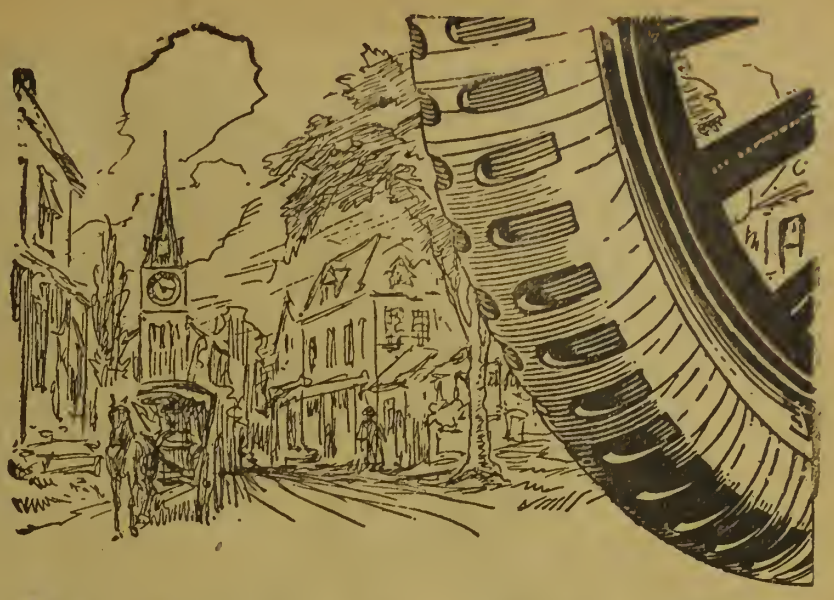
A DREAM—YET TRUE

(Continued from Cover Page.)

or eight dollars, and the price of the suit to the wearer is from $60 to $75. Who makes the money? Not the producer—really, it nearly all lodges between the sheep and the goat who wears the suit.

From one shearing of one sheep comes the wool to make a $50 suit, man's or woman's. Now the difference between $8 and $50 is scientifically, mathematically and exactly $42, and no joking, for figures will not lie, and the sheep raiser who has 1,000 sheep perhaps does not realize that his herd carries 2,000 suits of clothes a year on their backs at $50 to $75 a suit, as the sheep are sheared twice a year.

I would suggest that Mr. Sheepraiser effect a partnership with the manufacturer or the retailer, or both, as such a combination should make his sheep worth $100 a head, more or less.



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Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — May 22, 1920 — No. 21

Animals Destructive to Agriculture

By W. C. Jacobsen

ANIMALS destructive to agricultural interests must be placed in two classes; rodents and predatory animals. In the first class we must place house, meadow and field mice, house and kangaroo rats, ground squirrels, pocket gophers, jack and brush rabbits. In the latter class are coyotes, wild cats, and mountain lions.

The first class, of smaller animals, is, because of greater numbers, nearly a hundred times as destructive to agriculture as the second. A conservative estimate would place present losses to the farmers of California at $45,000,000. From the most reliable figures obtainable this would be divided as follows: Ground squirrels, $20,000,000; pocket gophers, $15,000,000; rabbits, $5,000,000; lesser rodents, $5,000,000; total for 1920 about $45,000,000.

Of losses from predatory animals actual figures are hard to obtain. The United States biological survey reported a few years ago that after a careful canvass of the state the loss in livestock, including poultry, was found to be about five per cent. But owing to systematic control through hunting, trapping and poisoning the loss has been reduced in Utah, Nevada and California to about 1.5 per cent. Figures for Utah, which are complete, show the loss of sheep alone to have been 500,000 head in 1915, while in 1919 it was but 75,000 head, the total saving in livestock and poultry amounting to more than $1,000,000 annually, in addition to the thousands of game animals, principally deer, that were saved from destruction. It is thought losses in California will compare favorably with those of Utah.

Methods of Control

Poisoning is not considered with favor in many localities because of loss of bounties. Bounty hunters will not think of using poison and it is without question one of the greatest means whereby the coyote and the bobcat can be thinned out. Every stock grower and most agriculturists should be interested in this manner of procedure. It would mean that hunters and trappers would be placed in the field and paid so that they could work the year round. Let us say that the following plan could be pursued:

Poisoning with the various approved baits at a time of the year when the normal food supply is scarce, and I might say that rodent control operations are depriving the coyotes and bobcats of normal food such as rabbits, squirrels, etc., so that they are looking for larger victims.

Den hunting at the time of the year when pups are coming on. It is not long before an experienced man becomes very proficient at this phase of predatory animal control.

During the balance of the year intensive hunting and trapping could be pushed. While it is true that a man must have had some experience to trap predatory aniamls successfully, nevertheless every one must have a start and with the improved methods that have been arrived at by years of successful work along this line by the federal government through their bureau of biological survey it is not a serious task to teach new men this work. The paid hunter and trapper can be stationed in a locality and carry the work far beyond the point that a bounty hunter would for he is being remunerated for his efforts. The biggest thing to look forward to in the systematic work is to have absolute cooperation of all the landowners in the region, and where funds are being expended in systematic control work there is no reason why the hunter should not have the unqualified support of all concerned and in most instances this has been readily granted.

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THE new Overland with the wonderful *Triplex* Springs is an ideal car for any up-to-date farmer to own.

It is a handsome car in which you and your family will take pride. Its black enamel finish is baked on. You can drive the car through the mud and when you wash it off, your car looks like new.

The Overland is built for all roads—for all kinds of driving, in any weather.

The radical new *Triplex* Springs cushion the road shocks and the bumps, protecting not only the driver but the mechanism of the car as well.

* * *

ALTHOUGH the protection of *Triplex* Springs made it possible to build this car light in weight, the quality of material is so high, and every part is so properly harmonized and so exactly balanced, that the Overland has exceptional stamina.

Its low upkeep cost not only includes high mileage per gallon of gasoline, but an almost negligible expense for mechanical upkeep.

You will find this car, with only 100-inch wheelbase, handy for driving anywhere. You can turn it in a narrow road or park it, when you go to town, in a very small space. Yet because of the *Triplex* Springs it has 130-inch springbase, which gives it the riding comfort of a big, heavy, expensive car.

* * *

BESIDES these great advantages, the Overland has many advantages of convenience, many little things which make it an exceptionally good car for all-around use.

The upholstery, for example, is removable, either in the front or rear section of the car. Thus you can use the car also for other purposes than passenger use.

The equipment is complete from Auto-Lite starting and lighting, to the rain-vision windshield. It is a car you ought to own. Go and take a ride in it.

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California Cultivator

Vol. LIV, No. 21 | Los Angeles, May 22, 1920 | One Dollar Yearly

Sulphur as a Fertilizer

By D. A. Brodie

WHAT should be of special interest to alfalfa growers generally is the recently acquired knowledge of the use of sulphur as a fertilizer.

It has long been known that sulphur is a constituent part of all protein matter, but the amount of sulphur required by plants has been greatly underestimated until a very few years ago. This was due to the method used in determining the chemical constituents of plants. When we were in college we were taught that the first step in the analysis of a plant was to burn it and analyze the ashes, the assumption being that the mineral elements remained in the ashes. As a result there was only a very small amount of sulphur found, and it was therefore classed with iron, calcium, magnesium, sodium, chlorine and silicon as being essential to life of the plant, and thought there was an inexhaustible amount in the soil to meet this need, and that therefore it was not necessary to supply these materials as in the case of nitrogen phosphorus and potash. However, in 1902 Dr. G. S. Trapps, now of the Texas experiment station, but formery with the North Carolina experiment station, made the discovery that oats, cowpeas, corn and peanuts contained more sulphur than could be recovered in the ashes of these plants. These results have been amply verified since that time by other investigators. It is now known that the legumes such as alfalfa, clover, beans, etc., as well as cabbage, kale, turnips and kindred crops are particularly rich in sulphur. In short, in the old burning process, most of the sulphur that was in the tissues of the plant was driven off in the form of gas. This loss has been found to be as high as 90 per cent of the sulphur in the plant. Prof. O. M. Shedd of Kentucky experiment station, Bulletin No. 74, page 244, makes the following statements after a careful analysis of the principal soils of that state:

"A large majority of soils contains much less sulphur than phosphorus. Some crops contain considerably larger amounts of sulphur than phosphorus.

"The amounts of sulphur removed from the soil by the average crop, although in some cases somewhat less, still compare very favorably with the phosphorus.

"If the above is true, then we must admit that sulphur should be ranked along with phosphorus, potassium and nitrogen as one of the chief or limiting elements, etc."

More recent work in other states has strengthened these statements. In fact, it has been fully demonstrated that sulphur is the limiting element in some soils. The most conspicuous example of this is found in the recent work of Dr. F. C. Reimer, published in Bulletin No. 163 of the Oregon experiment station. In summarizing the results of his work Dr. Reimer says in part:

"In general fertilizer experiments conducted by the Southern Oregon branch experiment station during 1912-13 superphosphate (about 16 per cent sulphur) and gypsum (about 18 per cent sulphur) produced a marked increase in the yield of alfalfa, and a much darker color, while rock phosphate had no effect whatever.

"In an experiment during 1914 flowers of sulphur (pure sulphur), iron sulphate (21 per cent sulphur), and superphosphate (16 per cent sulphur) each produced an increase of fully 100 per cent in yield of alfalfa, and greatly improved the color of the plants. Rock phosphate in the same field had no influence.

"Experiments conducted in 1915 to 1918 inclusive on various types of soils showed that the alfalfa and clover crop can be increased from 50 to 1,000 per cent on many soils by the use of various fertilizers containing sulphur. These soils include very diverse types ranging from the coarse granite soils to the heaviest adobes.

"On these soils applications of nitrate of soda, moncalcic phosphate, muriate of potash and lime have had little or no effect on alfalfa. It is apparent from this that the beneficial results obtained from the various sulphur fertilizers cannot be attributed to any extent to any effect such fertilizers may have in liberating phosphorus, potassium or lime in the soil, or to nitrification.

"None of these soils are acid, and none contain noticeable amounts of alkali.

"Analyses made of the alfalfa plant grown under local conditions from fertilized and unfertilized plots show that the fertilized plants contain more sulphur, more protein and more nitrogen than the unfertilized plants. The amount of sulphur in alfalfa hay from fertilized vigorous plants varied from 3.34 to 4.54 pounds of sulphur per ton, while the amount from the unfertilized plots varied from 2.36 to 2.54 pounds of sulphur per ton."

However, it is not to be expected that the results obtained in Southern Oregon can be obtained everywhere. In fact, some actual tests have been made in which sulphur had no effect, which is simply evidence that in one case sulphur is the limiting element while in the other case it is not. On the other hand it is not likely that the Southern Oregon soils are the only soils in which sulphur is the limiting element.

In this we may be guided to some extent by a comparison of the sulphur content of the Southern Oregon soils with that of others, for example:

Table I

Shows the percentage of lime, phosphorus and sulphur in Southern Oregon soils as compared with the same elements in certain other soils.

Locality	Lime	Phos phorus	Sulphur	Result of Experiments With Sulphur	Authority
Southern Oregon...	2.23	.058	.028	Increase 50 to 1,000 per cent	Oregon Bul., 163, page 38
Southern Idaho ...	4.53	.170	.023	Improved with Gypsum	Idaho Bul. 114, page 11
Palouse soils.....	2.32	.265	Trace	Yields doubled by using Gypsum	H. H. Curtis Farm, Pullman Wash.
Arlington, Cal.....	1.57	.170	.010	No data	Hilgard
Riverside Co.,					

At the outset it should be borne in mind that chemical analyses of soils are at best only indicative of the actual conditions. However, these figures represent averages of a considerable number of analyses from each locality, and are worthy of consideration. Furthermore, they are all we have to guide us in the matter of soil improvement along lines as yet untried.

According to Table I, the Southern Oregon soils already contain a greater percentage of sulphur than either of the others, especially the Palouse soils which show only a trace. Logically, it might be inferred that the other soils were each in greater need of sulphur than the Oregon soils are, and judging from the data now available there is no good reason to conclude that sulphur in some form would not be beneficial in the localities mentioned.

On the other hand, a comparison of the phosphorus content of the soils shown in Table I shows that the Oregon soils have less phosphorus than either of the others, yet the addition of phosphorus, without sulphur, had no apparent effect. This would indicate that the available phosphorus already in the Oregon soil is sufficient for present needs. Presumably this is true of the others with their greater total phosphorus content.

Since Oregon Bulletin 163 appeared equally promising, reports have been secured from a number of other sections; among these are:

The county agriculturist of Union County, Oregon, reports gains in yields of alfalfa of two tons per acre at a cost of less than a dollar per ton.

The county agriculturist of Lake County, Oregon, reports that during the past five years sulphur trials on alfalfa have doubled the yields in the Goose Lake Valley.

The county agriculturist from Klamath County reports increased yields of alfalfa averaging two tons per acre by the use of sulphur.

In California the county farm adviser of Mendocino County is reported to have secured increased yields of alfalfa ranging from 11 to 60 per cent.

In the Palouse hills of Eastern Washington H. H. Curtis, who owns a large dairy farm near Pullman, has more than doubled the total yield of alfalfa on his farm by the use of gypsum.

All of these examples are in the drier portions of the states mentioned, and represent both irrigated and non-irrigated sections. The experiments described in Oregon Bulletin 163 were conducted on non-irrigated land, and where the rainfall averages about 16 inches annually. These soils are all apparently well supplied with lime, which is a very important matter where sulphur is concerned. The reason for this is that when sulphur in the pure state is applied to the soil it must be converted into a soluble form before the plants can use it. In the same way that nitrogen is not available as plant food until it is converted into nitrates, so sulphur is not available until it is converted into sulphates. In going through this process of oxidation, as it is called, it tends to make the soil acid, unless there is sufficient lime in the soil to keep it neutral. A good illustration of this is found in the Willamette Valley in Oregon. There the rainfall is comparatively heavy and soil analyses show that the lime content is low because as the lime in the soil becomes soluble it gradually disappears either by being taken off in the harvested crops or by leaching. Hilgard offers the following comparison between Western and Eastern Oregon soils:

TABLE II

Locality	Lime	Phosphorus	Sulphur
West of Cascades.	.83	.23	.16
East of Cascades..	1.23	.11	Trace

Experiments made with pure sulphur in the Willamette Valley have not given satisfactory results, and the low lime content may be in a large measure responsible for it. In other words, the soil is already inclined to be acid and the addition of more acid forming material, such as sulphur, tends to render it still more acid. On the other hand, gypsum has long been known to have beneficial effects on some Willamette Valley soils, but for some reason its good effect seemed to disappear after a few applications. This may be explained, in part at least, by the fact that gypsum carries about 23 per cent of lime. This amount of lime in a slightly acid soil will neutralize some of the acid, but the amount is too small, i. e., the quantity applied with gypsum is not sufficient to keep on neutralizing the increasing acidity which the 19 per cent of sulphur also carried by the gypsum tends to make more acute. Under such conditions the apparent remedy is to apply more lime. In fact, we have some evidence where elemental sulphur applied to acid soils, with an excess of quicklime or air slaked lime, has given highly satisfactory results.

Insofar as it has been used sulphur in any of the elemental forms is used at the rate of 100 pounds per acre. This, Dr. Reimer believes, is the optimum amount for the first application. The effect lasts about three years when another application should be made; this time using about 50 pounds per acre.

It is applied in the same way that lime is applied by scattering broadcast on the surface, either by hand or with a land plaster sower.

The sulphur may also be mixed with an equal amount of damp sand, which tends to hold the particles together and prevents their being blown away, and it also makes it less disagreeable to handle.

Sulphur has been applied immediately after the first cutting in the irrigated sections with immediate effect. In non-irrigated sections this may not be advisable unless there is sufficient moisture in the soil to aid oxidation.

After reviewing the consistently good results obtained from the use of sulphur as a direct fertilizer in all parts of Oregon, it would seem to be worth while to give the matter careful consideration and trial in other alfalfa growing sections. It is not quite reasonable to conclude that Oregon soils and conditions are different from those of other sections. Certainly there is not likely to be as great difference in the conditions existing between the north and south side of the Oregon-California line in the vicinity of Goose Lake, as between the conditions of the Rogue River Valley in Southern Oregon and the Grand Ronde Valley in the northeastern corner of the state. In other words, it's a pretty safe bet that what has brought the alfalfa growers of Oregon hundreds of thousands of dollars in increased revenue will do the same thing for other sections, if an open-minded attitude is adopted until sulphur is given a fair and impartial trial in each locality.

Agricultural News Notes of the Pacific Coast

Northern California

The Glenn County farm bureau is erecting a saw miil on Elk Creek.

Trinity, Lassen and Shasta national forests were open for grazing on May 1.

Sutter basin expects to ship 400 carloads of watermeions and cantaloupes this season.

The Ehmann Olive Company has set out 500 young oiive trees at Olinda, Shasta County.

Petaluma, "the worlds' egg basket," is now excited over discovery of oil in the hills near the town.

The cattle experiment range in El Dorado County is aiready being put in shape by the state university.

Placer County farm bureau has organized wool growers and will ship through the state wool growers association.

The Eidorado farm bureau auction committee has postponed the livestock auction, scheduled for May 5, until early June.

Farmers of the Sutter Basin district, comprising some 50,000 acres, have decided to dispense entirely with Orientai labor.

The California Oriental Exclusion League is taking steps to bring about legislation prohibiting the leasing of lands to Orientals.

Last season's hops are now being cleaned up at $1.00 per pound with 75 to 80 cents being offered for the crop now starting to grow.

Almond growers of Butte County met at Chico recently and were addressed by President George Pierce and Manager Tucker.

Coiusa reports its first full carlot shipment of peas, to Eastern markets. It is expected that there will soon be shipped one car every day.

The Tehama County Fair Association has been organized with the object of holding two annual events, a fair in the fall and a rodeo in the spring.

Farm Adviser Hoffman has been appointed assistant to Manager Scott of the California Nurserymen's Bud Selection Association. Mr. Hoffman begins his new work on July 1.

The recent good news from Iron Canyon dam site is renewing hopes that the $20,000,000 expenditure will soon be made by government and state to impound a great body of water.

The malarial situation in Shasta County has been taken in hand by the farm bureau and some most effective work in drainage and oiling has greatly reduced the mosquito pest.

Placer County farm bureau meetings: Mt. Vernon Center, May 22; Roseville, 24; Colfax, 26; Forest Hill and Butcher Ranch, 28; Allen, at Excelsior School House, 21; all meetings at 8 P. M.

It is now anticipated that the 1920 almond crop will bring a much higher price than last year. There is a materlal shortage because of drouth and frost which affected many of the best almond producing sections.

The Califonia state board of forestry is appealing for protection of water sheds and greater care in fire protection. Elghty-two per cent of last season's $300,000 hay and grain ioss occurred in May, June and July.

Central California

A farm bureau center was organized at Terra Belia, Tulare County.

There are 600 cows, members of cow testing associations of Monterey County.

San Luis Obispo County has planted thls season over 800,000 almond trees.

The farm bureau of Clovis, Fresno County, is discussing the formation of an irrigation district.

The Modesto County cow testing department of the farm bureau wants 500 more cows on its list.

The Santa Cruz County farm bureau holds its annual picnic Saturday, May 29, at New Brighton Beach.

The California Prune and Apricot Growers have commenced construction of a new packing plant at Reedley.

Tracy, San Joaquin County, is developing into a large shipper of lettuce to the San Francisco market.

The Stanislaus County Farmers Union held a big picnic iast week at the Shruder Young grove west of Modesto.

Tulare is maintaining a free employment bureau through which men are supplied to fruit growers and ranchers.

County Horticultural Commissioner Hickman of Monterey is recommending the use of a weak Bordeaux for apricot blight.

Five cars of fat hogs were sold at auction by the California farm bureau marketing association, $15.85 being top price and $12.90, low price.

A pure bred hog auction was heid in Bakersfield on May 15 when the Kern County union high school boys agricultural club offered 60 head.

Farm center meetings will be held in Kern County, Mountain View May 17, Old River 18, Pond 19, Rosedale 21, Inyokern 24. Shafter 26, Arvin 28.

The Stanislaus County Farmers Union has appointed a committee to draft a pure seed iaw to be presented at the next session of the legislature.

The Tulare Cooperative Poultry Association paid to members 38 cents for No. 1 and 35 cents for No. 2 eggs April delivery. These were higher than prices for March.

The California farm bureau marketing association announces auction sales in Kern County: Wasco June 5, McFarland 12, Bakersfield 19, Wasco July 3, McFarland 10, Bakersfieid 17.

Farmers and fruit growers and members of the chamber of commerce of San Jose are uniting in planning out and financing some system of conservation of the waters of the mountain streams.

The Valley Growers Association with headquarters at Fresno is using every effort to secure sufficient help. It is now thought that there will be no difficulty in having sufficient supply before harvesting time.

Recent seizure in San Francisco of berries shipped by the Central California Berry Growers Association are said by President Eaton of the association to be due to the fact that the standard box for berries was chosen late in the season when the sugar content was high and that now a full box of berries can be brought up to required weight only by using very small berries.

Southern California

Imperial Valley has a five headed barley.

The lima bean planting season is well advanced.

The harvesting of Washington Navels is practically over.

A large acreage of beets has been planted at Hansen, Orange County.

Orange County expects to have little more than a 60 per cent apricot crop.

The Alfaifa Growers of California will build a warehouse at Los Angeles.

Pomona reports exceptionally heavy setting of Navel oranges for 1921 crop.

Cotton growers of Coachella Valley are meeting and planning for supply of labor.

Several thousand acres of land in the Chino hills is to be divided into small farms.

Horticulturai Commissioner Coy of Orange County, estimates a 100 per cent crop this year.

Owing to closing the border at Calexico cotton growers are concerned as to securing labor.

The Southwest Cotton Company promises to build new gins at Brawley, Imperial and Calexico.

Imperial Valley is now discussing advisability of cutting the one great irrigation district into two.

Riverside County cow testing association reports 25 cows better than 50 pounds during April testing.

Riverside County beekeepers are protesting importation into their county from disease infected sections.

The Goodyear Tire and Rubber Company is establishing a $50,000 cotton gin at Calexico, Imperiai County.

Several plantings of Durango cotton have been made in the Perris and Elsinore districts of Riverside County.

Prof. Nelson of the state university is holding soil demonstrations in conjunction with various county farm bureaus.

The National Milk Goat Association proposes to make a large exhibit of milk goats and products at the Riverside fair.

County Horticultural Commissioner Coy of Orange County, says an unusually large planting is being made of deciduous fruits.

Experimentai planting of an acre of dates has been made at Blythe by Bruce Drummond of the government experiment station.

Lima bean growers are pleased over present situation, and it is now hoped the local warehouses will soon be cleared of holdover stock.

Fruit Growers Supply Company has asked permission to increase its capitalization in order to purchase large timber section in Lassen County.

The Caiifornia Lima Bean Growers Association is making a survey in Ventura and Orange Counties to ascertain the exact acreage planted to limas.

"How to keep the boy on the farm" was the theme of most of the addresses at the annual picnic of the Orange County farm bureau at County Park.

The Santa Paula Chronicle says that many Ventura County growers and housewives will dry their fruit this year instead of canning because of the prohibitive price of sugar.

The Coast and General

Union livestock show at Union, Oregon, June 2-4.

Three men in Chicago factory have died of anthrax.

Arizona cotton fields are reported to be infested with "sore shin."

Yakima Valley, Washington, now has over 2,000,000 apple trees.

Roseburg, Oregon, will hold its annual strawberry festival May 27-28.

Washington state federation of farm bureaus met at Ellensburg on May 7.

Arizona farm bureaus held 162 farm demonstrations during the past year.

Yakima, Washington, is using its state fair grounds for a tourist camp site.

Oregon has a state fish hatchery just building on Stout Creek near Mohama.

The cannery at Ashland, Oregon had a total pack last year valued at $40,000.

Dairymen at Tucson, Arizona, have formed a cooperative milk producers association.

Walla Walla, Washington, observes an entire week as Blossom Week early in May.

Whatcom County Beekeepers Association will meet at Ferndale, Washington, June 8.

The first carload of rhubarb from Walla Walla, Washington, was shipped on April 11.

The Whatcom County, Washington Beekeepers Association will meet at Ferndale, June 8.

Texas is shipping heavily of Crystal Wax onions to Chicago. They are jobbing around $3.40.

Clarke County, Washington, is organizing cooperative buying and selling agencies for farmers.

Sale was recentiy made of 300 tons of number one potatoes at Yakima, Washington, at $125 per ton.

Ten community branches of the Walla Walla, Washington, farm bureau have been organized this spring.

The Wenatchee fruit growing district of Washington will pay out over $4,000,000 for boxes, paper and nails.

The Skagit County, Washington dairymen's association is erecting a $300,000 utility plant at Burlington.

Farm bureaus of the state of Washington are holding demonstrations in sheep shearing and the care of lambs.

Twenty thousand acres of cotton will be planted in the Cibola Valley on Arizona side near Blythe, California.

The biggest deal yet reported in Arizona Pima cotton is the sale of a pool of 1,252 bales consigned by the cotton exchange at Tempe.

The convention of the National Wheat Growers, which met at Kansas City, April 21-23, adopted a comprehensive cooperative marketing scheme.

Increased cost of fruit boxes this year will force fruit growers of the Yakima Valley of Washington, to pay at least $1,000,000 more for boxes this season than last.

A meeting of farmers at Chicago recently recommended the formation of an internationai farmers board in large part to secure better cooperation of American and Canadian farmers.

"Hog Wallows"

By Gordon Surr

CERTAIN areas of California and elsewhere have a pronounced so-called "hog wallow" topography, with symmetrical mounds up to three feet in height and from ten to 20 or more feet in diameter. Pronounced hog wallows are found only on the older soils and are therefore apparently evidences of age, as are true hardpans and relatively heavy subsoils. Naturally these mounds excite interest, and all sorts of ideas, fantastic and otherwise, have been advanced to account for their formation.

Apparently neither hogs, ground hogs, hedge hogs nor road hogs have had a thing to do with these hog wallows, nor are they the work of mound builders, for, as far as I know, human skeletons or antiquities of any kind have never been found in the mounds.

Some have thought that the mounds were formed by water in some mysterious fashion, but as a matter of fact strata laid down under water commonly have very even surfaces, as shales, sandstones and other stratified rocks plainly show. Further, the dry lake basins of the desert regions of California and the shores of the present Salton Sea are good evidences that receding waters are not apt to leave mounds like these in their wake. Torrential rains may cut deep gullies but do not give rise to this kind of a surface.

Contraction and expansion have been suggested as the causes of hog wallows. Compression of the crust of the earth results in such things as folds, arches and troughs in the strata, also ridges, mountain ranges, structural valleys and thrust faults, while the tension due to expansion is relieved by normal faults. Moreover, some hog wallow land adjoins ground with a smooth surface, yet presumably both have been exposed to the same forces and to the same degree of heat and cold. This idea seems akin to the notion of the school boy who stated that the days are longer in summer than in winter because heat expands and cold contracts. It is true that in some cases low mounds and ridges are formed owing to the filling of cracks in dry ground with soil, through the agencies of showers and winds, and when heavy rains later soak the land some upward bulging may occur in places. This, however, is on a very small scale compared to the typical hog wallows, the bulging amounting at most to but a few inches above the surface.

Then the expansion due to the hydration and crystallization of salts beneath the surface has been advanced to account for the forcing up of the mounds. This explanation may apply in part to certain large salt and gypsum domes, which are thought to have been supplied with salts brought up in solution through fractures in the crust of the earth. The famous "Spindletop" oil well at Beaumont, Texas, was put down, by the way, in one of these domes. But it is very difficult to understand how concentrations of salts got located in the first place under each one of the thousands of hog wallow mounds, being much harder to explain than the mounds themselves. This theory will here be left severely alone until a satisfactory explanation is forthcoming from its advocates for such a truly remarkable state of affairs.

Explanation due to the freezing of water in the soil has also been suggested as a possible cause, in spite of the fact that certain mounds are in districts said to be entirely frostless by some individuals with land for sale. Here again it is pertinent to inquire why ground with a smooth surface, in colder locations and adjoining hog wallows, is not likewise affected by the frost.

Holes, due to the work of animals, are common in many mounds and it has even been suggested that the mounds have been bulged up by gas which later made holes in escaping.

Certain termites, or "white ants," build high mounds, such insects, however, being unknown in the United States.

It is a common sight in arid regions to see mounds of soil and sand heaped up against bushes or other obstructions by the winds, to say nothing of sand dunes on the coast and elsewhere, which are also evidently due to wind action. Furthermore, in many localities bushes and plants may be seen growing naturally, which are quite as evenly spaced as are these hog wallow mounds. In the first place, even a small bush would serve to hold a little pile of soil blown against it by wind. Then with the coming of rain the soil would be moistened and vegetation might spring up under suitable conditions and thus assist in holding the mound together. The wind would move chiefly the finer or richer particles, for the smaller the grains of a soil the more available is the plant food in general. Such a process might be repeated year after year, the mounds thereby gradually growing in size. Another factor comes into play, beside moisture and vegetation, in holding together and slowing down the wind action. The feldspars and certain other soil minerals form clays in weathering, the soil therefore becoming heavier until finally the wind has little further effect. In one locality in Southern California nearly all the soil is in the mounds, bedrock being within a few inches of the surface in the depressions. Here the mounds evidently kept growing until the supply of soil practically ran out, and in other cases the quantity of soil which the wind can move has been exhausted and not the total amount. In short, a small plant or bush, or a little pile of earth thrown up by a squirrel or gopher, may serve to start a mound, which is held in place by later vegetation or by the binding action of moistened clayey or other cementing materials, or by both, the mound gradually growing, season by season, until growth ceases from lack of movable material. Furthermore, in certain cases the mounds may be to some extent residual, the soil, where not held by the roots of bushes, having been blown away. Thus a bush would tend not only to collect soil but also to hold what was around it in the first place.

Typical Hog Wallow Land

Wallows near Lindcove, Tulare County. Photo taken one week after rain.—Photo by Cole.

When the mounds have stopped growing, the tendency is for them literally to go down hill, as the weathering agencies ever at work make for the gradual leveling of the earth's surface. In the process a rounding, smoothing action takes place, both on mounds and on mountains, which doubtless accounts in part for the symmetry of many hog wallow mounds. The rains beat upon the mounds and carry the finer particles into the depressions, and water may likewise lie in the hollows and still further puddle the soil (see photo), so that it is now common to find the heavier, more clayey soil in the depressions and the lighter, more open soil in the mounds. Squirrels and other animals generally select the mounds for their habitations, possibly on account of easier digging, the danger of being drowned out in the hollows, and a better view of approaching enemies, rather than of scenery in general. In some cases the soil brought to the surface by animals keeps the mounds more or less up to size, and in other cases the mounds themselves are apparently very largely the work of animals. In one such instance of the last kind the mounds all fell in after a very wet winter, but this is decidedly unusual, as a good grading outfit is generally required to get rid of them.

Large stones are not moved by wind and most mounds are free from stones of any size, but not only do animals bring stones to the surface, but stones in mounds may also be those which were originally present in the soil around the bushes where the soil not held by the roots of the bushes has been blown away. Hence stony mounds would be residual rather than mounds which have been built up, the winds being responsible in either case for their formation.

Sand dunes are continually on the move because little or no vegetation grows upon them to hold them in place and there is no binding action from the presence of cementing materials, including clay, which last also holds moisture and thus promotes the growth of vegetation. Probably for the same reasons pronounced hog wallows are not seen on very sandy soils. Many fields, although worked up into excellent tilth, bake hard on the surface after wetting and drying, and rather a nice balance seems to be required for the formation of pronounced hog wallows. Apparently enough cementing and clayey material should be present to hold moisture, promote the growth of vegetation and exert a binding action, but not sufficient clay to make the soil so stiff and hard when dry that the wind has no effect. The significant features here are that hog wallows belong essentially to the older soils and that the proportions of clay and substances of like nature in a soil tend to increase with its age, owing to the breaking down of various minerals. The necessity for a nice balance is shown in many other cases. Take, for instance, this old world upon which we move and have our being. Were the earth somewhat smaller it would not hold much of an atmosphere, and even now hydrogen is probably escaping into space from the upper air.

Those who doubt the power of wind to move soil particles need not go far to have their doubts completely removed. For example, near Palm Springs Station on the Southern Pacific Railway, close to the western rim of the Colorado Desert, boulders of solid granite may be seen with grooved surfaces and a sort of worm eaten appearance on the exposed portions, due to the action of the sand blasts, while the telegraph poles look as though animals had gnawed them. Chamberlain and Salisbury, in their fine work on geology, remark: "It would perhaps be an exaggeration to say that every square mile of land surface contains particles of dust brought to it by the wind from every other square mile, but such a statement would probably involve much less exaggeration than might at first be supposed."

Suffice it to say in closing that far fetched, fantastic, outlandish explanations should be considered only when all the possible simple causes have been carefully weighed and found wanting. This is particularly true in the study of geology, where little everyday occurrences count far more than upheavals, blowouts and terrific convulsions of nature, commonly associated with the science in the popular mind.

Horticultural and Agricultural Legislation

LAWS of California affecting horticulture and agriculture have been more or less at cross purposes. Every session of the state legislature has seen their betterment in some way. Amendments and amendments to amendments have been made until there is more or less of confusion, still not the effectiveness desired. At the convention of farmers and fruit growers held at Chico in November it was suggested that there be a revision of the horticultural laws. The suggestion was soon amended so as to cover agricultural laws as well. That the revision might be as complete and result in the greatest encouragement to agriculture, it was decided that a large representative committee should be formed with delegates or rather a membership from every branch of productive industry.

Instead of naming this committee from the floor of the convention or making it of representative individuals from various parts of the state it was deemed wiser to appeal to various representative cooperative market-

(Continued on Page 848.)

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We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

OUR DAILY BREAD

"Give us this day our daily bread." We, the people of the United States, are most devoutly uttering "Give us this day our daily bread." Not only this day, but we are getting somewhat concerned about tomorrow. Department crop estimates indicate a fearful shrinkage in production. The Labor Union has been exceedingly successful in boosting wages and in not boosting hours of service. This has been so alluring a program that when the boys came home they failed to see the attractiveness of the old farm. They are now engaged in building ships, tending lathes, selling satins or drawing soda water, and at a wage beyond dad's capacity to give. Why should they return to the farm? Which compels the farmer to say: "Why should I try to produce increasing quantities of food?"

BE IT RESOLVED

"We, the consumers," can, however, very nicely arrange the whole matter. For instance, here is a suggestion from one who apparently has had his entire farming experience from car window observation: "There are thousands of acres of the finest land on which the California sun shines that fairly yawn to be possessed by men and women with only courage enough to try."

Yet there have been women and men who have tried California farming with no knowledge whatever of farming, but a courage which was simply sublime. The wreckage left by this type of farmer litters the sides of the foothills and valleys of the state.

Again: "There is today need for a strong urge behind this necessity for attracting the dependable farmer to the farm. Where is our modern Moses?"

The answer is almost deafening, for there are thousands anxious to play Moses. Unfortunately the Joshuas are not so numerous. Leadership which means wandering in the wilderness for another 40 years falls short of present day needs. In fact, the advice, the comfort and even the leadership which the non-producer is anxious to give to the producer today is not being received with very good grace. The farmer knows that the "strong urge behind" is simply the suggestion of selfishness of the consumer or, worse, of the handler of the produce of the farm, who would, in a few hours, make more from the products of the land than does the farmer who toils months, or perhaps years, to produce his crop.

The farmer recalls how during the war he was appealed to to produce to the limit. He responded with patriotism surpassed by none. The price which should be paid to him was named, at least on some of his products, by the government, and this price was little better—in the case of wheat at least—than 50 per cent of that which prevailed before the price was named. Yet he did not grumble, but produced to the limit. But when action was taken which did favor the shipbuilder, the steel manufacturer, and more particularly the laboring classes, this often to the detriment of the farmer, he felt there was discrimination most unjust.

CAN'T EVEN COOPERATE

Does the farmer cooperate to in a measure overcome the advantage which the middleman has over him? Then he is haled to Washington and compelled to give reason why he should not be punished for organizing a farmers' trust.

WHAT DOES FARMER WANT?

The farmer does not ask, nor want, any favors. If he has a bushel of wheat, a pound of walnuts or a quart of milk, he would like the privilege of making sale without discrimination and without working under an enactment of state and federal legislation which forces him to accept dictation. In other words, the farmer wants a fair show and not a "strong urge behind."

WONDERFUL RICHES

We write this week's editorials in the midst of confusion, for the bands are playing, automobiles and tractors are honking, electric bells are ringing, and the populace is shouting—the parade is passing. It began at one; it is now nearly three, and the end is not in sight. The Queen of the Angels is decked in her prettiest and is saying to the world: "Look at me and at my wares." It is Industrial Day, in fact, Industrial Week, in Los Angeles. The hundreds, we may even—and more correctly—say thousands of factories of a great city have put their wares on tractor propelled trailers, on great trucks, and even on tiny floats, and are making a wonderful showing. There are exhibits of all kinds of foodstuffs, seeds and plants, genuine Pacific Coast made furniture, including mattresses, rugs, curtains and shades, everything that goes to make the home homey. There are even piled high on trucks a complete residence, ready cut, which may be put up in a very few days by the ingenious saw and hammer carpenter. There are great ingots and steel shaftings requiring two trailers to carry, the like of which it was thought could hardly be produced this side of Pittsburg. There are automobiles, trucks, tractors, plows, harrows, spray pumps, orchard heaters, all imaginable appliances for orchards or for farms.

The merest list of the things which are passing along the streets of Los Angeles today would fill this entire page. Possibly the city is boasting a bit. If it is, it is justified, for it is so short a time since it was said that it was a city of climate and horned toads. The discovery of oil within its very borders and the use of it and the combination of it with labor, capital and brains is the reason for this great city becoming such a great factor in the upbuilding of the Pacific Coast. This wonderful growth is to the advantage of every producer of fruits, vegetables, staple foods or livestock on the Pacific Coast, and it gives to the onlooker an idea of the wonderful market at the California farmer's own door.

HOMER HAMLIN

The reclamation service has had many critics, but it has not today by any means as many as it had a few years ago. It is making good, and thousands of acres of desert are fruitful acres today because of the movement made possible by Theodore Roosevelt. Its success has been because of the work of such men as Homer Hamlin, who died in Washington a few days ago in the service of the farmers.

Mr. Hamlin directed the laying of the foundations of the great Laguna diversion dam which has made possible reclaiming several thousand acres of the Colorado Desert on the California side and of an even greater number of acres on the Arizona side of the Colorado River near Yuma. After years of service on that great dam he took up work with the city of Los Angeles as its engineer. This work he held many years, and more recently has returned to the greater work of reclaiming the desert. At the time of his death he was acting with the Salt River Valley Water Users Association in the endeavor to secure beneficial legislation at Washington Mr. Hamlin's friends, those who knew him intimately, realized his high character and true worth. A group of Californians who were in Washington at the time of his death paid tribute to Mr. Hamlin in a wire to Mrs. Hamlin:

"A group of sincere California friends who have known your husband for from 20 to 30 years and who were his intimate associates in engineering work and in the Engineers and Architects Association of Southern California desire to extend to you in your bereavement their deepest sympathy in the loss of one whose character and accomplishments endear his memory to the hearts of all."

This was signed by Congressman H. Z. Osborne; Gen. Amos A. Fries, chief gas defense, war department; Arthur P. Davis, chief reclamation service; Edgar L. Swaine, superintendent army engineers' transport service, war department; Frank Van Vleck, United States war department.

FIRE FIGHTING HINTS

All matches are dangerous from a fire standpoint.

Smoking or striking matches in barns or stables should never be allowed.

Pouring gasoline or kerosene on a smoldering fire endangers life, limb and property.

Open Flame lights should not be used in a garage or building containing a gasoline engine or gasoline in storage.

Never test for gas leaks with a burning match.

Every open fire should be watched until it is out.

Fire attracts children; children cause many fires.

All oily rags should be kept in a metal container with an air tight metal cover.

The floor beneath stoves should have metal covering.

Fire hazard should be considered in locating new buildings.

Woodwork should not come in contact with any chimneys.

Responsibility for fires rests on individuals.

DOES COW TESTING PAY?

The Los Angeles County farm bureau, like some of the other farm bureaus of the state, is doing some real and progressive work. One of the most progressive of its latest activities is that of the county cow testing association—rather associations, for there are three cow testers employed to test the 3,500 cows who are members of the association.

To make emphatic the advantages in this cow testing work. Adviser Scribner took the dairymen who attended the recent dairymen's institute at Los Angeles County Farm into the corrals and visualized a story of production. We do not recall the exact figures of the production of two cows which were taken for examples, but so vivid was one feature of the demonstration that we pass it on to our readers.

One cow was brought into the circle of farm bureau folk and her production, which was really wonderful, was marked down to her credit. Another cow, destined soon to go to the block because of her underproduction, was brought in. Up to the present she has been maintained as a dairy cow, and if the entire dairy had been made up of cows of the same capacity it would have required 165 cows to produce the same profit as was given by the other one cow. And they didn't look it, that is, the eye of the most experienced of dairyman would not be sufficiently discriminating to determine the real worth of these cows. The scales and the Babcock test were necessary—which is possible in most dairies only through the cow testing association.

VIRGINIA PURE SEED LAW

The Virginia state pure seed law provides for "an analysis tag" giving kind of seed, percentage pure seed, percentage weed seeds, percentage and name of noxious weed seeds per ounce, percentage germination, with month and year of test.

The farmer buys his seed based on what the tag tells him. If he is dissatisfied all he has to do is to forward the "Analysis Tag" with a sample to the department of agriculture at Richmond, where the seeds will be tested and a report made. The Virginia law is especially hard on offenders.

Best Fruit for Planting

THE article appearing in the last California Cultivator written by L. B. Scott touching upon the work already accomplished by the Nurserymen's Bud Selection Association of California, gives to Cultivator readers an idea as to one of the most important events in the history of California fruit growing. The association is now squaring away for work which will wonderfully increase the profit in this industry, providing recommendations of the Sacramento meeting are followed. At this meeting there were in attendance over 50 fruit growers, shippers and nurserymen. A very extensive discussion of the varieties named was had, and it was the unanimous opinion that the list as finally made out was very satisfactory and that it contained those varieties which should be propagated and eliminated those which were not worthy of further commercial plantings. The outline of the meeting as given by Mr. Holman contained very complete information as to the desired varieties, but we have just received from R. H. Taylor, assistant to the chief division of plant industry, a copy of the ballot which was submitted to fruit growers, nurserymen and canners for the purpose of registering the opinion of the various experts who were invited to attend the meeting at Sacramento. The acceptances and indorsement by the conference resulted as follows:

Cherries

Adopted: Bing, Black Tartarian, Burbank, Chapman, Lambert, Black Oregon, Royal Ann.

Home Orchard only: Centennial, Giant.

For Canning: Montmorency (sour), Gov. Wood.

Eliminated: Abundance, Early Purple Guigne, Nonpareil, Knight's Early Black, Rockport Bigareau, Llewelling, Black Republican.

Peaches

Adopted for Shipping: Alexander, Decker, Early Crawford, St. John, Elberta, Hale's Early, Early Elberta, J. H. Hale, Mayflower, Triumph, Wheatland, Salway (limited planting recommended).

Home Orchard: Morris White, Strawberry Free.

Eliminated: Admiral Dewey, Belveu's Late, Briggs Red May, Crumbles October, Early Imperial, Foster, June Elberta, Late Crawford, Madera Early, Old Wickson Free, Harrol's October Opulent, Oklahoma Queen, Oklahoma Beauty, Picquet's Late, Red Bird Cling, Sneed, Susquehanna.

Drying Freestone Peaches

Adopted: Lovell (recommended 25 per cent), Muir (recommended 75 per cent).

The recommendation of the canners is that for canning freestones there be planted 74 per cent Lovell, 10 per cent Muir, 10 per cent Elberta, 10 per cent Salway, and that for canning freestones all other varieties be eliminated. The Hauss was recommended as a good variety for Sutter County.

Eliminated: Early Crawford, Elberta, Foster, J. H. Hale, Late Crawford, Susquehanna, Salway.

Canning Clingstone Peaches

Adopted: Albright, Libbee, Levi, McDevitt, Pelora, Peak's, Phillips, Sims, Tuscan.

The canners recommended the planting of clingstone peaches for canning: 40 per cent, Levy five per cent (for Tuscan 25 per cent, Pelora and Peak's 10 per cent, Albright five per cent, Sims and Libbee 10 per cent, Phillips 40 per cent, Levy five per cent (for Placer County), McDevitt five per cent. Hauss recommended for Sutter County.

Eliminated: Chinese, George's Late, Lemon, McDevitt, Runyon's Orange, Seller's Orange, Selma, White Heath.

Nectarines

Adopted: Gower (shipping), Stanwick (drying).

Home Orchard: Humbolt, New White.

Eliminated: Advance, Boston, Hardwick, Victoria, Napier.

Shipping Plums

Adopted: Anita, Beauty, Cal Blue (Vacaville), Burbank, Climax, Diamond, Gaviota, Giant, Grand Duke, Duarte, Hungarian, Kelsey, President, Santa Rosa, Tragedy, Wickson.

Home Orchard: Apex Plumcot, Damson, Satsuma.

New: Becky Smith (for trial).

Eliminated: Clyman, Coe's Golden Drop, Abundance, Botan, Fellenburg, Formosa, German, Paragon, Red June, Standard, Sugar.

Canning Plums

Adopted: The canners recommended the planting of 25 per cent Washington, 40 per cent Yellow Egg, 25 per cent Jefferson, ten per cent Bavey's Green Gage.

Eliminated: Imperial Gage.

Apricots

Adopted: Blenheim, Royal, Tilton.

Home Orchard: Hemskirk, Routier's Peach.

Canning and Drying: Moorpark (drying).

The canners recommended that for the coast 100 per cent Blenheim be planted, interior San Joaquin Valley conditions 100 per cent Tilton, interior Sacramento Valley conditions 50 per cent Blenheim, 50 per cent Tilton.

Eliminated: Large Early Montgammet, Newcastle Early, Pringle.

Drying Prunes

Adopted: French, 70 per cent; Imperial, ten per cent; Robe de Sergeant, ten per cent; Sugar, ten per cent.

The Prune & Apricot Growers Association recommended that 85 per cent of prune planting should constitute French, on account of their regular and heavy productiveness over a wide scope, but on those locations and in those localities where the local conditions are better adapted to Imperial, Robe de Sergeant and Sugar the following was recommended: Imperial, ten per cent; French, 70 per cent; Robe de Sergeant, ten per cent, and Sugar, ten per cent.

Eliminated: Conquest, Silver, Standard.

Pears

Adopted: Bartlett, Beurre Bosc, Beurre Clairgeau, Beurre d'Anjou, Beurre Hardy, Comet, Easter Beurre, Forelle, Glout Morceau, Wilder, Winter Nelis, Comice.

Home Orchard: Winter Seckel.

Eliminated: Flemish Beauty, Howell, Madeline, P. Barry, Winter Bartlett.

Quinces

Adopted: Pineapple, Van Deman.

Home Orchard: Smyrna Quince.

Eliminated: Apple (Orange), Champion, Rae's Mammoth.

Persimmons

Adopted: Hachiya, Hyakume, Tane-Nashi.

Eliminated: Dai Dai Maru, Mammoth Goshio, Yemon.

Apples

We are not mentioning apple varieties for the reason that these will be passed upon at a meeting to be held later with the apple growers associations of California.

PRICKLY LETTUCE OIL

In a recent Egyptian bulletin analyses are given of several samples of Egyptian lettuce oil obtained by expression from the seeds of Lactuca scariola oleifera, a variety of prickly lettuce, a weed common in California. It is said that considerable quantities of this oil are consumed annually in Egypt, and the possibility is suggested of its being sent to other countries, either as an adulterant of other oils or as a constituent of vegetable margarins.

The oil when filtered and dried is of a clear golden color, a characteristic and rather pleasant taste, and a slight odor.

Work is progressing in the organization of the State Grape Growers Exchange.

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EASY PAYMENTS

"What's all that noise and dem gwines on ovah at you' house last night?" asked an old colored woman of another. Sounded like a lot of catamounts done broke loose."

"Dat? Why, dat was nothin' only de gemman from de furniture store collectin' his easy payments."

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When Writing Advertisers, Mention The Cultivator.

Crop Reports

Continuing Reports from the Orchards Begun in Cultivator of April 24

G. R. Gorton, Horticultural Commissioner, San Diego County

The crop conditions in this county, so far as we can tell at this date, are as follows:

Almonds: 90 per cent.
Apples: 90 per cent.
Apricots: 100 per cent.
Cherries, 15 per cent.
Peaches, 100 per cent.
Pears, 100 per cent.
Prunes, 90 per cent.

Moisture conditions have been exceptionally favorable this year. We have not suffered from drouth by reason of the fact that we received considerable benefit from what we term "Mexican storms" which come up from the south but do not reach a point very much farther north than San Diego.

We have had no damaging frost on citrus and very slight damage on cherries in the mountains, which I have estimated at possibly 15 per cent. We are pretty sure of the pear and apple crop in the mountain sections, and I do not think that any great revision of figures will be necessary.

Fred P. Roullard, Horticultural Commissioner, Fresno County

Almonds: Good, but small area planted.
Apricots: Good condition.
Cherries: No cherries.
Peaches: Look very well; a number of doubles and a little curl leaf, but looks like a normal crop.

J. W. Mills, Farm Adviser Solano County

Almonds: 15 to 20 per cent.
Apples: No apples grown here.
Apricots: 50 per cent.
Cherries: 100 per cent.
Peaches: 75 per cent.
Pears: 40 per cent.
Prunes: 50 per cent.

E. B. Beeton, Beaumont, Riverside County

Some three weeks ago the report went out from Beaumont that a normal set of fruit was then in progress, basing the opinion on the fullness of bloom then in development. Later conditions prove that those who made the 100 per cent estimate shot wide of the mark. At the present writing, May 10, without taking into consideration the June drop, the indications point to the following conclusion: Apples, 50 per cent; cherries, 70 per cent; pears, 80 per cent.

Winters Dried Fruit Company, Yolo County

The crop prospects in this section for the coming season are as follows:

Apricots: About 50 per cent of last season, or about 5,000 green tons. A larger per cent will be dried on account of shot-hole fungus.

Almonds: Hatch varieties will be light, especially the IXL's and Neplus, which were damaged by early frost. Nonpareils about 65 per cent of crop, balance of varieties will probably average about 75 per cent. Some new acreage coming into bearing.

Peaches: All varieties about 60 per cent of last season, caused by trees affected with borers, necessitating heavy cutting when pruning, reducing the bearing wood.

Prunes: Looking fair, about 75 per cent of crop.

Pears: Good prospect.

Our rainfall for the season was only ten inches, or about one-half of normal. Irrigating water scarce, future does not look promising. Indications all fruit will be under sized.

Your Rail-less Railroad

YOUR live stock and the produce from your fields, carried in freight trains to the cities, thunder past countless danger-signs with the warning, "Look Out for the Cars!" Each one of these marks the crossing-place of a country road—a road without rails, leading to railroad and town. Each one marks a farmer's right-of-way.

Since your farm is a 1920 enterprise, probably it is fitted with most of the following modern equipment—the telephone, good lighting and heating, a silo, a manure spreader, a cream separator, an automobile, an engine, a tractor.

But have your hauling problems found their proper solution? Are the time-losses and difficulties of a decade ago still impeding your endless carrying of farm loads?

Government statistics show that in 1918 alone, 350,000,000 tons of farm produce were transported to local shipping centers in motor trucks. The same national figures prove also that American farmers are the greatest users of motor trucks—among all industries. No progressive farmer can afford to overlook impressive *facts* like these.

Your name and address mailed to our office at Chicago will bring you descriptive folders that will prove interesting and instructive. Put an ***International Motor Truck*** at work on your farm and on the roads which are your right-of-way. Handle all your miscellaneous farm hauling with railway efficiency. The nine ***International Motor Truck*** sizes range from ¾ ton to 3½ ton. Keep in mind that these trucks have been made for years by the makers of good and trusted farm machines.

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HORTICULTURAL AND AGRICULTURAL LEGISLATION

(Continued from Page 845.)

ing or other organizations to name the delegates. It required some weeks and even months to get action from these various associations but the organizing committee which was named at the convention has succeeded in securing from practically every large interest in the state a representative.

The roll call now shows the following regularly elected delegates representing associations:

J. L. Nagle, Cal. Fruit Exc.; H. C. Malone, Cal. Pear Growers Assn.; F. M. Wit, Central Cal. Berry Growers Assn.; Geo. W. Ashley, San Joaquin Table Grape Growers Assn.; E. C. Merritt, Sebastopol Apple Growers Assn.; J. M. Henderson, Jr., Associated Dairymen of Cal.; F. B. McKevitt, Cal. Fruit Distributors; J. H. Barber, Poultry Producers of Cen. Cal. and Poultry Producers of So. Cal.; L. A. Nares, Cal. Cattlemen's Assn.; Geo. W. Pierce, Cal. Almond Growers Exchange; G. Harold Powell, Cal. Fruit Growers Exch.; C. C. Perkins, Cal. Lima Bean Growers Assn.; A. E. Sunderland, Cal. Associated Raisin Co.; G. H. Coykendall, Cal. Prune and Apricot Growers, Inc.; C. C. Teague, Cal. Walnut Growers Assn.; F. H. Wilson, Cal. Peach Growers.

The basis for the organization reads as follows:

"The object of the legislative committee is to provide a permanent organization which will initiate and encourage legislation to foster and protect the horticultural and agricultural interests of the state; to consider legislation affecting the state, county and local governments that are charged with the protection and development of the horticultural and agricultural interests; and to study their administration and their interrelationships with a view to increasing their value to the state.

"The permanent organization shall be composed only of representatives of producers' organizations, or shippers who represent producers or producers' organizations. It shall not include in its membership public officials, county or state, either as such, or as representatives of the producers' organizations, nor shall it include purely speculative organizations. In the deliberations of the committee all representatives shall have one vote. The permanent committee may appoint an executive committee which shall act for the permanent committee between the meetings of the latter.

"The secretary is to be a salaried officer who shall act as the executive officer of the committee, under the direction of the executive committee The delegates present at the preliminary meeting shall form a temporary organization, appoint a chairman and a secretary for the purpose of presenting the following plan to the horticultural and agricultural producing organizations of the state with a view to the formation of a permanent legislative committee, the chairman and secretary to call a meeting of the duly accredited representatives when appointed by their organizations for purposes of permanent organization

"The expenses of the organization shall be paid by an assessment levied from time to time by the committee on the basis of the f. o. b. value of the product actually sold of the members thereof for the year preceding the assessment, or a minimum fee shall be set by the executive committee for each organization which cannot arrive at the f. o. b. value of the product sold, such fee to be approved by the organization concerned Each of the members agrees to pay its proportional assessment on that basis."

President, C. C. Teague; executive secretary, R. N. Wilson.

The executive committee is: C. C Teague, G. Harold Powell, Geo W Pierce, F. B. McKevitt, L. A. Nares. F. H. Wilson, H. G. Coykendall.

CAPRIFIGS

"Caprifigs and Caprification," by I J. Condit, is issued by the agricultural experiment station, college of agriculture, Berkeley, as Bulletin No. 319

"For many centuries there has been grown in a small valley of Asia Minor a type of fig known as the Smyrna so called from the seaport where the figs are packed and shipped The superior quality of these dried Smyrna figs is recognized in all markets to

which they have been shipped and other fig growing countries have long striven to produce the same quality in their own fig product. It was known that the native growers of Smyrna made a practice in the spring of the year of suspending wild figs, or caprifigs, in the Smyrna trees. From these caprifigs there issued hundreds of small insects or wasps known scientifically as Blastophaga grossorum, which entered the eye of the Smyrna fig, causing the fruit to set. In case this operation was neglected, or if caprifigs were unobtainable, the small Smyrna figs soon turned yellow and dropped off, causing a crop failure. The process of distributing caprifigs among the branches of the Smyrna fig tree, thus insuring the setting of the fruit of the latter, is known as caprification. Although caprification was known by the native growers to be absolutely necessary to crop production, they did not understand the principles underlying the process or the real causes either for the setting or the dropping of the Smyrna fruit. European Investigators have studied the process and published many articles about it, but it is only since the introduction of the true Smyrna fig into California and the establishment of the fig wasp that the necessity for a thorough knowledge of its practical aspects has been appreciated. On account of the very rapid growth of the fig industry in California and the recent large plantings of Smyrna figs, there is a keen demand for practical information about varieties of caprifigs, cost of caprification, and methods of distributing the figs in the orchard."

"WHITE ANTS" DAMAGE GRAPEVINES

Damage to grapevines in California by termites, erroneously called "white ants," has been reported by R. L. Nougaret, in charge of the office of viticulture of the California department of agriculture. Mr. Nougaret recently visited the Livingston district in Merced County and uncovered considerable damage to grapevines in that section. It appears that it has been the custom to use canes or bamboo as markers for young vines, and that these same canes contain, in the joints, colonies of the termites which eventually migrate to the young grapevines, where they eat out the pith from the root upwards, the injury being undiscovered until pruning time.

Mr. Nougaret discourages the use of bamboo cuttings as markers and advises that they be collected, piled and burned.

In localities where termites are known to exist all stakes, whether canes, bamboo or otherwise, should be treated with hot tar or creosote before use in the vineyard.

CHLORIDE OF LIME FOR BORERS

Some weeks ago Dr. Snowden suggested that as a remedy for borers chloride of lime be applied as a wash about the base of the trees; also as a possible remedy for fungi on all trees. He suggested using care and making tests rather frequently so as to learn what effect the chloride of lime had on the bark of the trees. Later an inquiry came as to the strength of the solution, to which the doctor replied: "I would suggest: Try three different strengths of the solution, to wit: One-fourth pound to the gallon. One-half pound to the gallon. One pound to the gallon. It ought to be rubbed to a thick paste with a small quantity of water first to get all the lumps thoroughly reduced before mixing with a larger quantity of water."

FIGHT THE OAK WORM

The live oak and the valley oak, which are characteristic of the landscape of Central California, often are stripped of their leaves by a dark striped worm which is the young stage of a light brown moth. Besides stripping the trees of their leaves and making the owner think that they are dead, the worm crawls on lawns, walks, fences, and into houses, swimming pools, etc., becoming a general nuisance.

Two generations of the pest occur during the year. The worms are most noticeable during April and May and again in August and September; the moths during June and July and again in October and November.

The best method of control is to spray the worm infested trees with a mixture of three to five pounds of arsenate of lead paste dissolved in 50 gallons of water.

This should be done while the worms are small. The live oaks should be sprayed in April and again, if necessary, about the first of August, when the deciduous oaks are sprayed.

Farmers' Bulletin 1076, "California Oak Worm," describes and illustrates the worm and its work, tells about its habits and natural enemies, and explains the methods of control. The bulletin will be sent free on request to United States Department of Agriculture, Washington, D. C.

JACK FROST RAIDS PEACH CROP

It is said that the law of compensation works both ways—if the rich man gets his ice in the summer, the poor man gets his share in the winter. Averages of peach production appear to follow the same rule, according to the estimates just published by the bureau of crop estimates, United States department of agriculture.

Barring the possibilities of further disaster, the commercial peach orchards of Georgia and North and South Carolina will produce fairly heavy crops. California is scheduled for a bumper crop, and several other states will not be far below their 1919 average in carlot shipments of peaches, but these good prospects are more than offset by the frost damage inflicted upon the orchards in other states. Texas has been badly hurt, and so, also, have the Arkansas, Oklahoma, Missouri and Tennessee orchards. The New England crop is reported ruined, and Washington, Utah and Idaho report severe winter killing. To some extent the prospective crop is still further diminished by the decrease in acreage devoted to commercial peach orchards.

PECAN GROWERS

A meeting of the Texas State Pecan Growers Association will be held in Brownwood, Texas, this week, for the purpose of perfecting a cooperative marketing association through which Texas native pecans will be sold to the best advantage of the growers of the state. J. H. Burkett of Clyde, Texas, is chairman of the convention.

Watsonville, Santa Cruz County, has a standard bread ordinance providing minimum loaf weights of 16 and 24 ounces.

MICHELIN
30x3½
THE OUTSTANDING QUALITY
TIRE FOR THE SMALL CAR
Ask any dealer
Michelin Tire Company, Milltown, New Jersey
Other factories: Clermont-Ferrand, France; London, England; Turin, Italy.
Dealers in all parts of the world.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Alien Securing Citizenship

Please give outline of steps necessary for an alien to become a citizen, where should he first apply?—Subscriber, Nipomo.

Jurisdiction to naturalize aliens as citizens of the United States is conferred upon the district courts of the United States and the courts of record in territories and states. The alien appears before the clerk of the courts in the district in which he has resided for at least two years prior. Thus, one residing in Los Angeles County would apply either before the superior court or the United States district court. The alien requests form of declaration of intention and fills it out. He must have reached the age of 18 years and state that it is his bona fide intention to become a citizen of the United States and to renounce allegiance to the particular prince or sovereignty of which he may be a subject. Such declaration must also set forth name, age, occupation, personal description, place of birth, last foreign residence and allegiance, date of arrival, name of vessel if any, and present place of residence in the United States. Not less than two nor more than seven years after making this declaration he must make and file in duplicate a petition signed in his own writing, verified, in which he will state in effect the same things as in the original declaration and the facts concerning the making of his declaration, also the name of his wife, if any, the country of her nativity, place of residence at the time of filing petition, and if there are any children, the same facts concerning them. The petition shall also set forth that he is not affiliated with any organization opposed to organized government or in favor of polygamy, and that he is not a disbeliever in organized government; that it is his intention to become a citizen of the United States and renounce his former allegiance, to reside permanently in the United States. The petition must be verified by the affidavits of two credible witnesses, citizens of the United States, who have known the applicant as a resident of the United States for at least five years continuously theretofore, and of the district in which the application is made for at least one year; that the applicant is a person of good, moral character and qualified to become a citizen. There must also be filed a certificate from the department of commerce and labor stating the date, place and manner of the alien's arrival in the United States, and the declaration of intention of the petitioner which will be attached to the petition. Thereafter he must appear in open court and swear his allegiance to the constitution of the United States and renounce his fealty to any other sovereignty, and that he will support and defend the constitution and laws of the United States. It must then be made to appear to the satisfaction of the court that he has resided continuously within the United States for at least five years preceding and within the district where the court is held for at least one year, behaved himself as a man of good moral character and is attached to the principles of the constitution, and well disposed to good order. He must then produce the testimony of at least two witnesses, citizens of the United States, to the foregoing facts. If he has held any hereditary title he must expressly renounce it. After the filing of the petition the clerk of the court must post notice of the date of the final hearing, giving the names of the witnesses and the description of the alien seeking a naturalization. Action upon the petition by the court can in no case be taken until 90 days have elapsed after the filing of petition and posting of the notice, and no certificate of naturalization shall be issued within 30 days preceding the holding of any general election. The court may in its discretion at the time of naturalizing the alien on the petition of the alien, decree that the name of said alien may be changed, and certificate of naturalization shall be issued to him in accordance with the changed name. No one who disbelieves in organized government or is what is commonly termed an anarchist or polygamist can become a citizen, nor can anyone be admitted who cannot speak the English language. The United States has the right to appear in any of the courts, cross-examine the petitioner or his witnesses and in all ways produce evidence in opposition to the granting of any petition. Fees are provided: For the filing of declaration of intention and issuing a duplicate thereof, one dollar; for the filing of the petition for admission and final hearing, two dollars; for the final order and issuance of the certificate of citizenship, two dollars, in addition thereto such amount must be deposited as will be sufficient to cover the expenses of paying the legal fees of the witnesses. On the issuance of the final order, a certified copy thereof shall be furnished to the alien which he shall be entitled to keep.

Community Property

A married couple have community property held in the name of the wife. In case the wife dies before the husband, leaving no will, what disposition is made of the property?—Subscriber, Claremont.

Upon the death of the wife the entire community property without administration belongs to the surviving husband under the law at the present time, (what is known as "The Community Property Law" being held up by referendum), but wherever any property is conveyed to a married woman by an instrument in writing, the presumption is that the title is thereby vested in her as her separate property, in which event, the husband would receive upon the wife's death, in case he was unable to prove that the property was in fact community property, only one-third or one-half of the amount of the property as the case might be with respect to children. He would of course be entitled to appear in court and petition that the whole property be set aside to him upon the showing that it is community property, but he would have to overcome the presumption of the law.

Estate of Unmarried Person

If an unmarried person dies without leaving a will, what is the law concerning the disposition of his property, both real and personal? Must there be an administration and who are the legal heirs?—Subscriber, Claremont.

The only method of which the law knows for distributing property upon the death of any party is through the intervention of the probate courts. This would require an administrator In the event stated, the property goes to the father and mother in equal shares, or if either is dead then to the other. In case they are both dead, then in equal shares to the brothers and sisters. In case there are no brothers and sisters, it goes to the next of kin in equal degree; those claiming through the nearest ancestor being preferred to those claiming through an ancestor more remote.

SULPHATE FOR ALFALFA

Oregon state bulletin 163, entitled "Sulphur as a Fertilizer" for alfalfa in Southern Oregon should be of much interest to Californians, for in it the results of various preliminary experiments are reported, which indicated that sulphur in various forms had a favorable influence on certain crops, especially alfalfa. Further experiments conducted from 1915 to 1918 inclusive, on various types of soil showed that the alfalfa and clover crop can be increased from 50 to 1,000 per cent on many soils by the use of various fertilizers containing sulphur These soils included very diverse types, ranging from the coarse granite soils to the heaviest adobes, were well supplied with potassium, calcium magnesium and iron, but contained only limited amounts of sulphur.

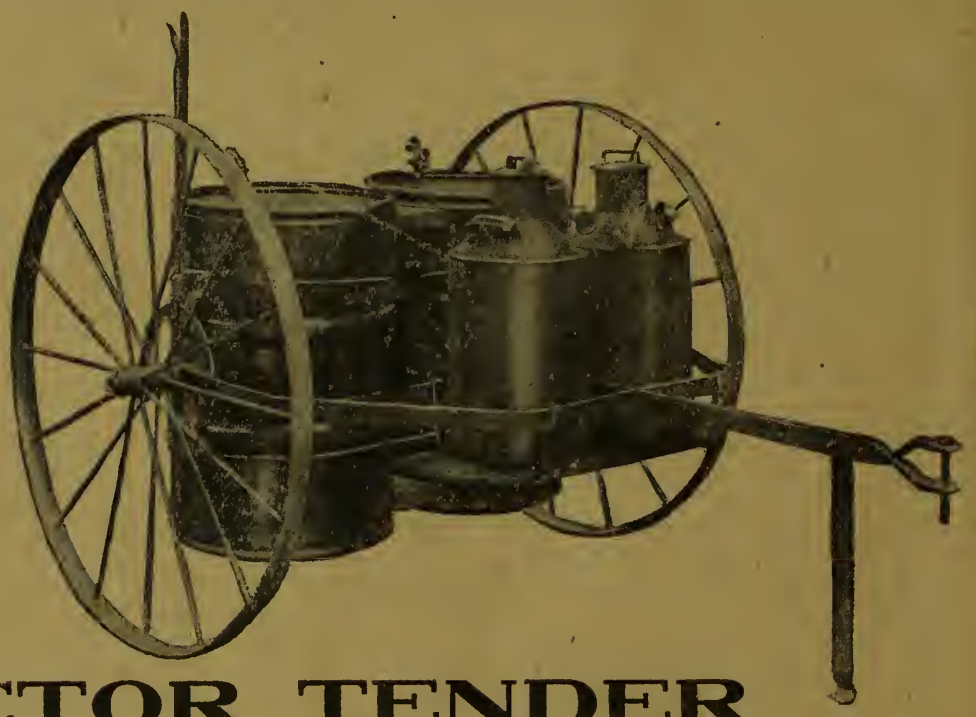
The following fertilizers, containing sulphur, produced similar beneficial results: Flowers of sulphur, superphosphate, gypsum, iron sulphate, sulphate of ammonia, sulphate of potash sulphate of magnesium, and sodium sulphate. On these soils applications of sodium nitrate, monocalcic phosphate, potassium muriate, and lime had little or no effect on alfalfa. "It is apparent from this that the beneficial results obtained from the various sulphur fertilizers can not be attributed to any extent to any effect such fertilizers may have in liberating phosphorus, potassium, or lime in the soil, or on nitrification."

Better results were obtained the first season, where the sulphur was applied to the soil in the fall or early winter, than where applied in the spring. The first season the gypsum and other sulphate fertilizers usually gave better results than flowers of sulphur if applied in quantities supplying equal amounts of sulphur. The second season there was little or no difference in the yield. The various sulphur fertilizers had a very stimulative effect on the root system, le-

Stop Wasting Expensive Fuel

Statistics show that 35 per cent of fuel loss is directly due to spillage from improper facilities for handling.

Every tractor owner spills enough fuel in one season to more than pay for a—



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We also have 2 compartment steel fuel tanks for wagons or trucks in 260 to 360 gallon capacities.

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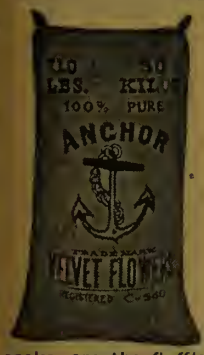

Sulphur

It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards 6 times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of Sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes. LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100% pure, in double sacks, for Dry Dusting and making Paste Sulphurs.

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food and prevent smut in grain, drill into the soil 110 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR, 100% pure. This has increased various crops up to 500%. Send for Circulars No. 6 and 7.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 degree BE., etc., Fungicides and Insecticides.

Carried in stock and mixed to order.

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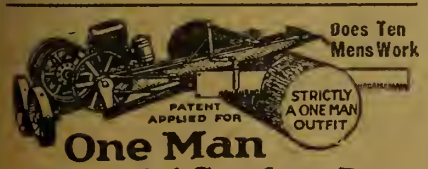

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Linden, San Joaquin County, has a 500 acre walnut orchard.

creasing its size and the number of nodules.

Analyses made of the alfalfa plant grown under local conditions from fertilized and unfertilized plats showed that the fertilized plants contained more sulphur, more protein and more nitrogen than the unfertilized plants. Alfalfa hay grown under local conditions did not contain as much sulphur as that in the Middle Western states.

The amount in alfalfa hay from fertilized plats varied from 3.34 to 4.54 pounds of sulphur to the ton, and in the hay from the unfertilized plats from 2.36 to 2.54 pounds. In the hay from the fertilized plats, from 71 to 79 per cent of the sulphur was in organic form, the remainder in sulphate form, while in the hay from the unfertilized plats all the sulphur was in organic form. Up to the present time gypsum has given as good results on most of the soils as superphosphate. Since the prosphorus content of many of these soils is rather low, it is considered probable that the superphosphate will eventually give better results than gypsum.

"On most all of the soils in Southern Oregon an annual application on alfalfa of 200 pounds of gypsum, or 250 pounds of superphosphate, or 40 to 50 pounds of sulphur and 200 pounds of rock phosphate, will prove highly profitable. The latter combination will supply both sulphur and phosphorus most economically. Sulphur should not be used by itself on soils deficient in lime, as it will cause soil acidity. On such soils it should be used only in conjunction with liberal quantities of lime or rock prosphate."

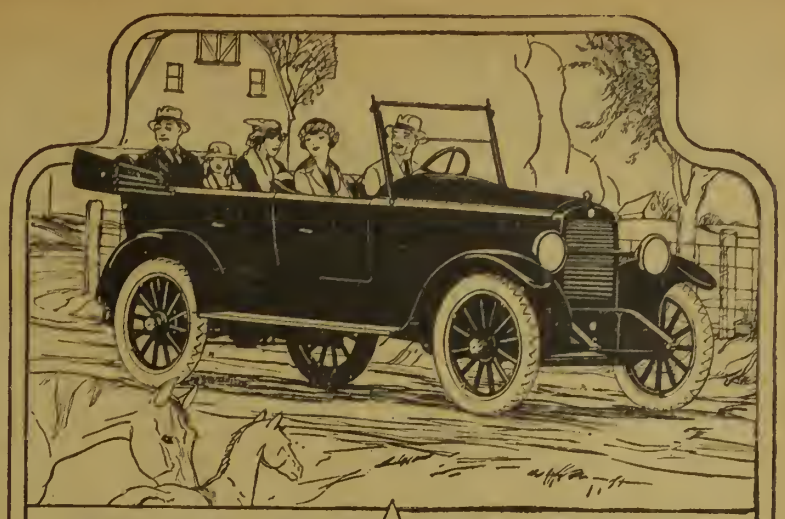
ONION DISEASE

In a recent United States department of agriculture bulletin popular descriptions are given of the more important diseases occurring in the field, in storage and in transit. Among the diseases occurring in the field the author describes smut, mildew (blight), leaf mold, fusarium rot, pink root and root knot, and among the diseases primarily important in storage and transit are neck rot, soft rot, black mold and smudge (anthracnose blackspot). Suggestions are given for the control of some of these diseases, the onion smut being readily controlled by applying formaldehyde solution by means of a drip attachment to the seeder. Mildew (blight) is said to be controlled by applying formaldehyde solution by means of a drip attachment to the seeder. Mildew (blight) is said to be controlled by avoiding excessive soil moisture, by the practice of crop rotation, and by thorough cultivation. The storage diseases can be controlled by giving attention to cultural methods and to sanitary measures.

EAT RABBITS

Besides killing approximately 35,000 jack rabbits which were injurious to crops, the rabbit "drives" which have taken place in Eastern Washington during recent months have helped to lessen living costs by putting on the market a considerable amount of rabbit meat. The biological survey of the United States department of agriculture, under whose supervision the drives were conducted, found on investigation that there was a good demand for wild rabbit meat. Trial shipments made to seven markets indicated that white tailed rabbits would bring the shipper about $2.50 a dozen and black tailed rabbits about 50 cents less. Persons desirous of marketing rabbits were advised that those which had been shot were preferred to those which had been harried and killed by clubbing, and that the carcasses should be drawn as soon as possible after they had been cooled. The sales made the past season were chiefly in Spokane, Portland, Seattle and Tacoma. Considerable interest is being shown in the proposal to further extend sale of jack rabbit meat by trapping the animals in inclosures, properly baited, and supplying certain markets with shipments of a definite size at stated intervals.

Plans for series of summer chatauquas of the Washington Federation of Farm Organizations include a circuit in the Inland Empire, with meetings at Spokane, Yakima, and probably Walla Walla and Wenatchee. It is anticipated that 5,000 farmers will attend the gatherings in each district.



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Light in weight, the Briscoe is easy on tires and mechanical parts. And the famous unit power-plant eats up the miles but not the gasoline.

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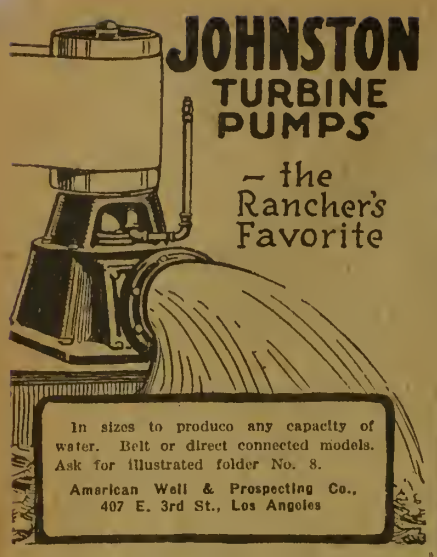
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Favorite
In sizes to produce any capacity of water. Belt or direct connected models. Ask for illustrated folder No. 8.
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Estimate of Acreage in Beans and Potatoes

By E. E. Kaufffman, Feld Agent, Bureau of Crop Estimates

ORDINARILY the bureau of crop estimates does not make a detailed report concerning the acreage planted to beans and potatoes until July, but owing to shortage of potatoes, with the consequent high price, and a large quantity of beans still in the hands of farmers and dealers from the crops of 1918 and 1919, considerable interest has been manifested as to the probable acreage to be planted to beans and potatoes in 1920. In order to supply the best possible information to the public the bureau has made a special inquiry in the leading bean and potato states concerning the intentions of farmers to plant these crops, with the results as indicated in the table below. The states named are those which lead in the production of the commercial, or late storage, potato crop.

As of May 1, it now appears that in California the acreage planted to Lima beans, including Baby Limas, will be about 90 per cent of last year; other varieties of beans, 45 per cent of last year; thus making the intended planting of all beans this year about 60 per cent of last year's acreage, or in round numbers, 240,000 acres. Damage to the barley crop in some localities the past two weeks may increase the acreage planted to "beans other than limas" more than the figure now indicated.

Acreage Per Cent of Last Year

	Potatoes.	Beans.
California	110	60
Colorado	94	65
Idaho	95	100
Maine	*	....
Michigan	90	75
Minnesota	89	....
New Mexico	....	80
New York	97	90
Wisconsin	95	70
Average	95	71

*Uncertain; planted area dependent on receipt of fertilizer.

State Horticultural Commissioner Dean of Washington, has just returned from an inspection tour of apple orchards and says that the 1920 crop should at least equal that of 1919. He says there is practically no evidence of frost damage.

"SOME MILES"
WHO HAS TH BLAME NOW DADDY?
THE FISH THAT GETS UP THIS ADVERTISING!
TO HORSE SHOE DEALER
JACK AND JILL WENT UP THE HILL,
THEIR TIRE BLEW OUT ON THE WAY,
BUT JACK REMEMBERED AN ADD HE READ.
THAT HORSE SHOE TIRES PAY!
For a long hard run-use Horse Shoe Tires

FEDERAL
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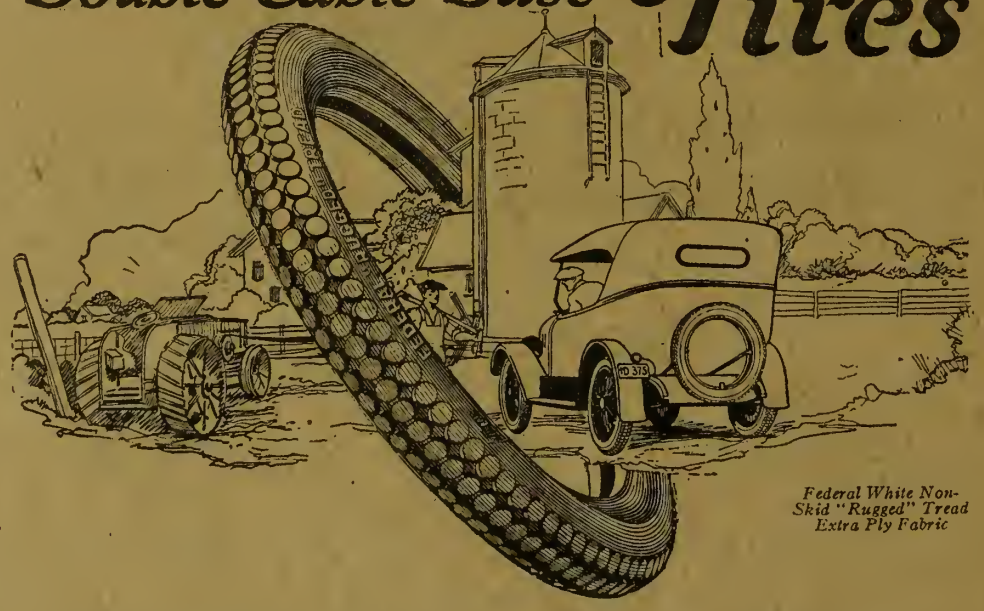

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Here is the tire which does not have to *fight the rim* of the wheel. The Double-Cable-Base, exclusive to Federal Tires, prevents this useless tire waste. Four endless cables of stranded steel hold the Federal Tire permanently firm to its rim.

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The motorists who ride on Federal Tires are getting all the mileage that tires can give. Why not be one of them?

THE FEDERAL RUBBER COMPANY, *of Illinois, Factories, Cudahy, Wis.*
Manufacturers of Federal Automobile Tires, Tubes and Sundries, Motorcycle, Bicycle and Carriage Tires, Rubber Heels, Horse Shoe Pads, Rubber Matting and Mechanical Rubber Goods

CLEAN UP THE STABLE FLY

Have you ever tried to sleep on a hot summer night when just one mosquito had crept through the window screen? Imagine your state of mind if that single mosquito were multiplied by 100 and you had your hands tied!

That sensation, according to the bureau of entomology, United States department of agriculture, is something comparable with what a horse, mule, or cow endures when the stable fly is present in great numbers.

The stable fly greatly resembles the ordinary house fly but for the lance with which he is armed. It is known that he carries disease from infected animals to healthy ones, and there is some ground for belief that the insect aids the spread of spinal meningitis among human beings.

The eggs of the fly are laid in loose, warm straw heaps and piles of stable refuse. A plague of flies always starts from these sources, and the control of the pest is best managed by scattering the straw early in the spring before the beginning of warm weather and plowing it under, or by burning it when the former method cannot be applied.

Stable refuse should be scattered at regular intervals of one week or less throughout the season, starting with early spring. In this way the first generation of the pest is destroyed and a plague averted. A recent publication of the department, Farmers' Bulletin 1097, gives in detail the life history of the stable fly, methods for its control, and some facts concerning the amount of damage done by the insect.

NEMATODE CONTROL

Many experiments are being carried on looking to control of the root and knot nematode, and in a recent issue of a science magazine a report is given of experiments made to determine the possibility of using hot water as a means of disinfecting small quantities of soil infested with the root knot nematode (Heterodera radicicola) and the damping off organisms Rhizoctonia sp. and Pythium debaryanum. The work was carried on with soil in four and eight inch pots and in shallow benches, and the investigations showed that the immersion of four inch pots of infested soil in boiling water for five minutes killed all the organisms concerned. The application of three liters of boiling water to eight inch pots of similarly infested soil gave identical results. The pouring of boiling water over infested soil at the rate of seven gallons per cubic foot of infested soil practically eliminated the nematode and fungi from shallow benches.

It was found that hydrocyanic acid gas as liberated in loam soil by applications of sodium cyanide and commercial ammonium sulphate failed to eradicate the root knot nematode from the soil, even when applied at the rate of 3,600 and 5,400 pounds, respectively, per acre. The chemicals were found to be about equally effective in powdered or liquid form. On account of the cost and because of the imperfect control, hydrocyanic acid gas is not considered to be a practicable means for controlling the root knot on large areas of loam soil. On a small scale, however, it is thought that it might be used to advantage.

LIMA BEANS

Manager Churchill of the Lima Bean Association reports:

Ventura County has planted this year 67,000 acres of Lima and Baby Lima beans, 20 per cent less than it did last year, the 20 per cent being planted in sugar beets instead on account of the uncertainty of prices of beans. The association has been moving Lima beans steadily at $10.43 f. o. b. cars, but is handicapped in making shipments on account of shortage of cars.

Santa Barbara County has planted 12,600 acres of Lima and Baby Lima beans; Orange County, 26,000 acres; San Diego County, 11,500 acres; Los Angeles County, 12,000 acres; San Fernando Valley has planted this year 20,000 acres.

In March the Lima Bean Association of Oxnard shipped over 300 cars of Lima beans at $10.43 net f. o. b cars.

A Purebred Holstein Calf Club has been organized by the boys of Modesto. The Holstein Breeders are backing the club.

BLASTING STUMPS

The engineers corps of the United States army has been conducting experiments in stump blasting and reports that experiments on the efficiency of Grade-III TNT as a stumping powder led to the conclusions that oak stumps can be blasted with this material, but that 9 pounds of TNT as used for a 3 foot stump is too large a charge and that about 5 pounds for a 3 foot stump and 2 pounds for a 1½ foot stump are about correct. It is further concluded that exposure of the explosive for a short time, i. e., an hour, to the moisture in a wet bore hole does not materially reduce its efficiency.

A solid oak stump about 3 feet in diameter and standing 18 inches out of the ground on wet clay soil was successfully blasted with a charge of 7 pounds of Grade-III TNT placed in 2 inch bore holes 4 feet below the surface, 1¾ pounds to the hole. Two oak logs 6 feet long and 39 and 42 inches in average diameter were successfully split into two pieces with 4 ounces and 5 ounces of Grade-III TNT, respectively, placed in a 2 inch bore hole, midway between the ends.

It is concluded "that Grade-III TNT can be used for such purposes as shooting stumps, splitting logs and breaking bowlders. It seems possible that the number of bore holes under a stump of the type of Shot No. 1 might be reduced to three or, in some cases, even less. No. 8 electric detonators seem to insure complete detonation. It seems probable that a smaller auger than 2 inch might be used to bore the holes for splitting logs, thus saving time and labor. In adobe shots on large flat bowlders, better results might be secured by using the same weight of explosive but placing it in two or more charges symmetrically distributed."

ALKALI WATER FOR IRRIGATION

A recent Utah bulletin discusses the work of others bearing on the subject and experiments are reported to determine the concentration of various salts necessary to make water unsuitable for irrigation in sand and loam soils.

It was found that the dry matter produced, the height of plants, the number and weight of leaves, the number and length of culms, the number of heads and spikelets, the turgidity of the plants, and the general appearance of the crops were all useful indicators of the effect of alkali water. Results in different soils showed that wheat should not be irrigated with water containing as much as 1,000 parts per million of sodium carbonate, and that even 500 parts per million will, in a short time, reduce the growth of the crop.

More than 1,000 parts per million of sodium sulphate proved to be harmful after two or three years. A mixture of the three salts—sodium chloride, sodium carbonate and sodium sulphate—was not so harmful as the most toxic but was more toxic than the least toxic individual salt. More than 4,000 parts per million of the mixed salts proved to be dangerous. Dilute concentrations of the salts often stimulated plant growth. On land irrigated with alkali water for only one year, or with but a single irrigation, much stronger concentrations than mentioned above could be endured; but for regular irrigation water, any concentration above about 500 parts per million of sodium carbonate, 1,000 parts per million of sodium chloride, 1,000 parts per million of sodium sulphate, and 4,000 parts per million of the mixed salts is considered dangerous.

SAVE WASTE

Spring is here and with it comes spring house cleaning. The housewives will, in cleaning out the house, throw away or burn great quantities of waste. The lessons learned during the war should not be forgotten; let it be borne in mind that the reclamation of waste is a problem which is not only fitted for war times but for the times of peace as well. The argument which may be advanced from time to time that the utilization of waste material in times other than war is not necessary is fallacious, because it is very essential that some means of offsetting the high cost of living be found.

Do not waste waste, but turn it back into the channels of commerce. You will be surprised at the tidy little sum of money that can be derived by turning over all character of old paper, rags, rubber, metals and other odds and ends to the junk dealers, who will in turn start this waste back into useful trades.

It has been estimated that the value of unreclaimed waste material throughout the United States in the form of paper, rubber, metals, etc., is about $500,000,000. Fully 90 per cent of this material can be reclaimed through the proper efforts.

BRITONS BUY MUCH AMERICAN HONEY

American honey is becoming increasingly popular in Great Britain. On account of the shortage of sugar the English people have taken readily to its use, and it now seems probable that the demand will continue even after sugar again becomes plentiful. The clear strained honey in the glass has the best sale, the preference being for California honeys, according to reports issued by bureau of markets, United States department of agriculture. In 1914 the total importations by the United Kingdom were approximately 2,600,000 pounds. By 1918 this had increased to 36,500,000 pounds, valued at $13,150,000. The United States contributed more to these totals in 1918 than any other country, its share being 16,000,000 pounds, valued at $5,500,000.

Build Up Your Soil With Whip-Poor-Will Cow Peas

WHAT THEY WILL DO:

They make the best summer covercrop.
Maintain a moist surface mulch.
Will prevent June drop.
Require less irrigation than other crops.
Need no irrigation where soil moisture has been conserved.
Build up poor soils with more nitrogen bacteria and humus than any other covercrop.
Afford the best kind of pasture for cattle and hogs.
As a hay have a food value of 43% more than Alfalfa.
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There is no better Bee Pasture.
Thirty pounds of seed is sufficient to plant one acre.
Our seed germinated 96%.

PLANT WHIP-POOR-WILL COW PEAS
Buy Your Seed From
AGGELER & MUSSER SEED COMPANY
620 So. Spring St., Los Angeles, or
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Our Seeds are handled by your local dealer

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Costs Only $1.00 Yearly

CALCO Grain Bins are cheaper and more durable—

CALCO METAL GRAIN BINS cost less than wooden granaries or concrete bins of the same capacity and last decidedly longer than wood. They are proof against rats, mice and vermin of all kinds.

Calco Bins are made of rust-resisting Armco-American Ingot Iron which is 99.84% pure. Unlike granaries of other materials, Calco Bins are highly resistant to all weather conditions, hence durability and long service are assured.

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Being made of metal they are naturally fire-proof. The method of construction with padlocked man-hole, also makes them theft-proof.

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These bins range in capacity from 600 bushels to 5450 bushels. They can be secured and erected in units of any number.

If there is no central station near you for loading grain in bulk, write us for information as to the construction of the inexpensive Baby Grand Elevator.

Order your bin at once and avoid the uncertainty that a last-minute order always means.

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Has the endorsement of the ENGINEERS of all the Large Fruit Growers Associations of California—Therefore

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Factory Built,
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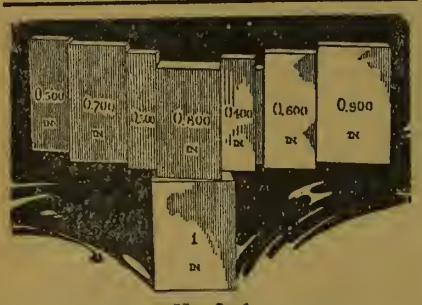

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When Writing Advertisers, Mention The Cultivator.

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Drying Figs

How can I dry figs so they will be soft after drying?—Subscriber, Redlands.

Allow figs to remain on the trees until they drop naturally; with the exception of the large ones they are then dried sufficiently to keep and are much better eating than those that are dried in the sun. Place on trays and stack in sunny, airy place so that the dry air can penetrate the layers, covering top layer of course from direct sun rays. After two days sort out the hard, leathery feeling figs, leaving soft figs in stacks until dried. Then place all perfect dried fruit together in boxes or bins or piles in protection of a shed where they may remain for two weeks to sweat or equalize the moisture. (Figs may be piled in these sweat boxes from three to six feet deep.) They should be turned over with a shovel daily, if possible. After this the figs should be thoroughly washed in brine having strength of four ounces of salt to one gallon of water. Let figs remain in this brine from ten to 15 minutes. Place again on trays two to three inches deep and expose to direct sun for a half day to dry off. Trays are again stacked for two days, after which time figs are ready for packing away.

Grass on the Hillsides

Have noticed reference in your paper to Smilo grass. Will such grass be able to stand and give pasturage if seeded on hillside where irrigation is impossible? I have hill lot a mile back from the ocean; soil deep black loam; would like to seed to good grass that will resist drouth and still be fair pasture for milk cows. Will Smilo answer and what will seed cost per acre? What is method of planting? Would it be necessary to keep stock off first year?—Subscriber, Montara.

This was referred to H. L. Musser, who writes:

"From our experience in sowing this seed we have concluded that the best time to sow is in October, just prior to the rainy season. If it could be harrowed in, all the better. The seed roots very firmly and the cattle could be turned onto it immediately, as they cannot pull it up by the roots unless the ground is very soft or sandy, but when the plant is two or three months old it holds very firm. It will withstand drouth and matures an enormous quantity of seed and apparently every seed grows. It has become a pest in my garden and deligbts to grow on the solid walks and in the most unfavorable places. Last fall I scattered a pound of the seed on a vacant lot where fresh ground had beeu dumped; it seems every seed germinated. It is good pasture for milk cows. We have no test concerning its merits as a milk producer, but this test will be made this summer. We consider one pound to the acre sufficient to start its growth, and if allowed to produce any seed at all the following year it will make a very thick sod."

Budding Stone Fruits

Can peach be budded on apricot?—Subscriber, Van Nuys.

Yes, it is possible to bud various stone fruits on each other, but a seedling peach is considered the proper stock for peach buds. In case of heavier moist soils the Myrobalan has been used, but not so extensively as in former years.

Thinning Peaches

Would be grateful for information regarding thinning of peaches.—Subscriber, Ripon.

If the natural thinning or dropping has not already reduced the crop sufficiently, hand thinning is best. Where there is labor shortage some people have used bamboo poles and have thinned the tree promiscuously in this way; others will reduce the branches by pruning sufficiently. However, growers are doing less of the cutting than formerly. Where fine fruit is desired, hand thinning, choosing the fruits at intervals from four to six inches, accomplishes best results. It takes nerve, and the grower is liable to feel that he is removing altogether too much of his crop, but he never does.

Ants

How can I exterminate red ants?—Subscriber, Van Nuys.

The only way is to follow the trail to their hole and then pour in carbon bisulpbide, and the whole nest may be destroyed. Gasoline or boiling water is also used. See formula in our issue of August 23, 1919, repeated in issue of May 15, 1920, page 820.

Bats

Answering your McFarland subscriber about bats: Get a shotgun and kill your woodpeckers. They make the holes. Chase out your bats and stop holes and your troubles will be over—till more woodpeckers come. You may have to kill a few every year.—J. A. Romine, Hanford.

Tanning

Please give formula for tanning hides so they will be soft and pliable. —Subscriber, Dorris.

Here is formula given in former Cultivator which has worked very well. Like learning a trade, getting rich and some other things, the tanning of leather requires some experience and attention to details. Here are a few hints:

The skin should be salted on the flesh side as soon as the hide is cooled after removal, using ten to 12 pounds to a full sized calf skin. After salting roll the hide tightly. When ready for tanning place the hide in "soak," simply water to remove blood and salt. After being left in this 24 hours the tail and feet should be cut off, and the flesh adhering scraped off, after which the hide should be placed in lime water. To make the lime solution take a bucket of water to each quart of lime. When thoroughly soaked and mixed immerse the skin and allow to lie for three or four days. Thoroughly wash in cold water. Scour and pound in good soapsuds for half an hour, after which take white vitriol, alum and salt, one tablespoon each to skin, and dissolve in sufficient water to cover skin. Let remain in this 24 hours. Wring out and dry. To soften, oil with neatsfoot oil or currier's oil. It may again be washed out in soapsuds and hung up until nearly dry, when it should be worked and softened. If it should remain hard and refuse to soften, repeat the soaking in suds. This will give a rawhide which may answer. However, if it is desired to have the leather more perfectly tanned, after wringing out of the suds and before oiling, place in vessel and take sufficient water to cover, in which has been thoroughly mixed one pint of this mixture. "For a 12 pound calf skin take terra japonica, three pounds; common salt, two pounds; alum, one pound. Put these in a copper kettle with sufficient water to dissolve. Boil." Pour the water above referred to, which has been mixed with a pint of this mixture, over the skin. Every 12 hours take out the skin and add another pint of this tanning mixture. Do this three days, then add the entire amount which has been left of the tanning mixture. If it is desired to darken the leather add one pound of Sicily sumac. The leather should be handled often in this mixture. Drying should be gradual. Working with the hands as it becomes nearly dry aids in stocking the leather.

Tanning Calf Skin With Fur On

Can you give me a good recipe for tanning calf skin with hair on?—Subscriber, Santa Ana.

Tack skin, fur side under, on a board, and after scraping the bits of fat off, moisten all over and sprinkle with a mixture of seven parts salt and one of pulverized alum. Leave about two days to absorb the salt, then wet it again and repeat the mixture. About the fifth day wet it again and sprinkle with a mixture of two parts alum and one part salt. When dry it is cured and can be taken off the board.

Tomatoes in Water Glass

Is it possible to preserve and keep tomatoes in water glass similar to the method of keeping eggs?—Subscriber, Humboldt.

Facts!

You cannot deny them.

Motorists buy Zerolene because it is good lubricating oil; because it makes the car last longer.

More than half the motorists of the Pacific Coast states use Zerolene. Such approval is given only as a reward to a product of highest quality.

There is a Zerolene Correct Lubrication Chart for each make of car. Get one for your car at your dealer's or our nearest station. Use Zerolene for the Correct Lubrication of your automobile, truck or tractor.

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Make Your Valuable Orange Crop Safe From June Drop and Fungus

Are you sure there is no Black or Citricola Scale in your grove, sapping the very life out of the trees that are setting what will be a burdensome crop?

Investigate for your own good. One Black Scale will produce 2000 to 3000 more, quickly spreading to healthy trees. Left alone it retards the growth of the tree and injures the fruit, sometimes lowering the grade considerably.

You can thoroughly clean your trees and eliminate Black and Citricola Scale, Red Spider and Fungus, if you will apply

TIZIT SPRAY

There is a grove near you where TIZIT has done all we claim for it. Send for the name and address of the nearest TIZIT SPRAY user so you can see the results.

The sooner you put TIZIT on, the more work it will do. The genuine TIZIT is labeled TIZIT—Trade Mark Registered.

Folder sent on postcard request

The Tizit Spray Manufacturing Company

1344 Willows St., Los Angeles, Cal.

Also may be ordered through The Fruit Growers Supply Co.

We have never heard of any effort along this line. It would be very easy to test it however. Will be glad to hear from any subscriber who has experience.

Rattlesnake Oil

How is rattlesnake oil extracted and prepared for market? What is the price of same and where may it be sold? May rattlesnakes be killed where found?—Subscriber, Bonsall.

We have never heard of any closed season on rattlesnakes. They may be killed freely at all seasons of the year. As to the extraction of the oil we have no knowledge whatever and will ask some of the hunters to give us information as to methods. There is no established market for the oil.

Walnuts Dying

We have some walnut trees along the highway which grew until the third year and then died in the winter, died from the tops down and turned white on one side of the tree.—Subscriber, San Jose.

Insufficient information is given to enable us to make definite answer; any condition which prevents the new wood from maturing will produce the above results. A shortage of water in the fall or an early frost that came before the new growth had matured, or very hot weather would have this effect. If the trees are cut off a few inches below the damaged wood and the most vigorous sprouts trained for a new tree there will not be much loss of time, but if the old conditions continue, the die back can be expected again.—J. B. N.

Bats

Our house is a Queen Anne cottage with a large attic. It was infested with bats, who made the most unearthly noises at night, until we got a tame squirrel. We let it loose in the house and it cleared the house of the bats.—Capt. H. H. Holmes, Alameda.

THE GAYULE RUBBER

At various times Californians have become interested in the gayule rubber plant, native to Northern Mexico and Southwestern Texas. J. W. Jeffrey, former state commissioner of horticulture, wrote much of the possible culture of this plant in the desert parts of California.

The plant, popularly called gayule in Mexico, is known to botanists as Parthenium argentatum, so named by our own Prof. Asa Gray. Even before the Spanish occupation the natives made toy rubber balls from the juice of this plant, the only member of the composite or sunflower family known to produce rubber. It is a woody shrub or small tree of spreading habit. It has small grayish leaves and bears a profusion of small yellow flowers.

The bark of trunk and roots contains 20 per cent of rubber, but no latex, or sticky juice, exudes when wounded, as is the case with other rubber producing plants. In the gayule the rubber is resident in the cells of the inner bark. The shrub, so far as known, is of slow growth, for it inhabits districts practically rainless, though it would doubtless grow much faster under the stimulus of more water. For that reason it should do well in the real desert sections of California and should be given a trial. Its native range is nearly grassless and contains no large trees, being a typical desert country with an alkali soil, but needing only water to make the region fertile and productive. The price for dried gayule plants has ranged from $7.50 to $50 a ton, but mostly at $15 to $20 a ton.—E. B.

THE PAWPAW IN AFRICA

The pawpaw is grown principally in Natal and the low veld of the Transvaal and is one of the most acceptable of fruits. In order to thoroughly appreciate it one ought to live in a thirly hot part of the country, where its nonappearance at breakfast or dessert always causes long faces. The tree grows readily from seed and bears fruit sometimes under 12 months from the date of planting. An average time before bearing is 18 months. Pawpaws are sold largely in Johannesburg, which is really the principal market of South Africa, and to a lesser extent in the town of Cape Province, where the fruit does not seem to be as well known as it deserves. It is an extremely profitable tree to grow, though there are few orchards of pawpaws.

SESAME SEED IN MEXICO

The average annual production of sesame seed in Mexico is 80,000 tons, practically the entire crop being consumed in Mexico, since local prices are higher than those offered by foreign buyers. Eighty-five per cent of the crop is produced in the eastern part of Michoacan, and the northern and coast regions of Guerrero. The sesame seed is used for oil, the first pressing producing an edible oil, while the product of the second pressing is used principally in the manufacture of soap.

GREEK CITRUS CROP

The citrus fruit crop of Greece for the year 1920 is estimated at 302,000,000 of the larger oranges and 53,000,000 of the Mandarin class. Government statistics of this crop are not available, but these data were gathered from reliable dealers in these fruits.

Citrons which are grown on the island of Crete appear to have been a failure, as information received from this island states that there will be no crop this year. However, there are still about 600 tons of citrons in brine left over from previous crops.

Plant Teague Trees

They Grow and Produce Valuable Crops

We can still supply Valencia Late Oranges, Eureka, Villa Franca and Lisbon Lemons for commercial planting.

AVOCADOS

Good thrifty field grown Fuerte and Sharpless Trees for immediate delivery.

FEIJOAS

Grafted from the best large fruiting varieties.

Write for our new descriptive price list describing forty-six varieties of Oranges, Lemons, Limes and Pomelos and seventeen varieties of Avocados and other Tropical fruits. It's free to those interested.

The R. M. Teague Nurseries

Box A San Dimas, California

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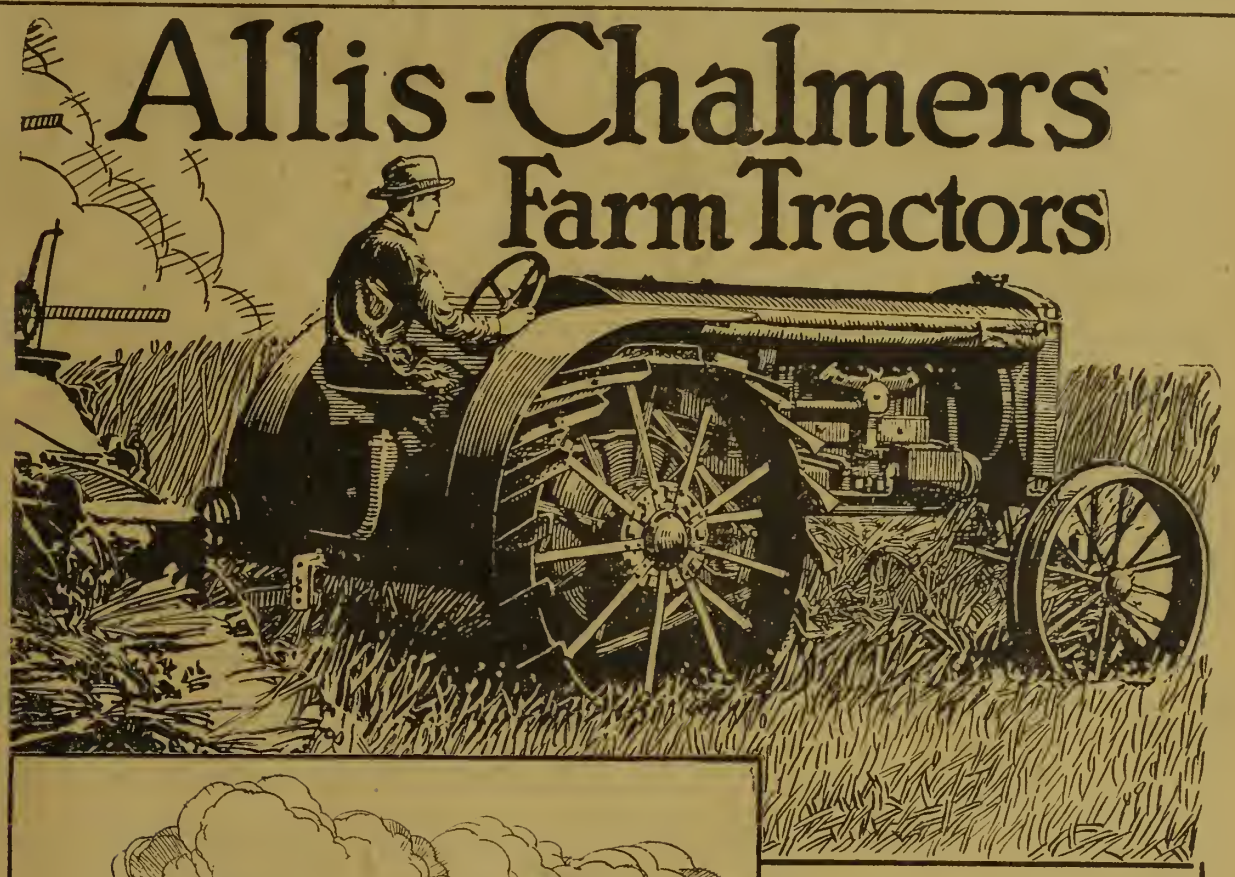

Allis-Chalmers for Work and Economy

RECORDS from owners of Allis-Chalmers 18-30 Farm Tractors, show an average fuel consumption of slightly over two gallons an acre plowing; lowest 1¼ gallons; highest 2½ gallons—nearly all used kerosene.

Plowing depth shows 6¾ inches the average; deepest 9 inches; most shallow 5½ inches—nearly all pull four 14-inch bottoms.

One pulling three bottoms reports a plowing speed of one-half mile in nine minutes, plowing seven inches deep.

Read these statements taken from owners:

"Can't be beat for road work. I grade from 1½ to 2 miles in 10 hours on 25 gallons of gasoline."

"Certainly is fine on plowed ground. You can scarcely tell where the rear wheels go."

"Using an Ottawa C Sheller I threshed 10,000 bushels of wheat last season."

"I use my Allis-Chalmers 18-30 with the largest size McCormick Cutter."

"Pulling an Ottawa C Corn-Sheller, last season I shelled 7,000 bushels of corn."

"It has plenty of power to grind 100 bushels of ear corn per hour."

"Have pulled a corn-picker together with a wagon, husking 70 acres of corn, bringing in twelve and thirteen 40-bushel loads in a day. I pulled this load on high gear."

Allis-Chalmers Manufacturing Co., Tractor Division MILWAUKEE WISCONSIN

For 65 years known as one of the largest manufacturers of high grade machinery in the world

Pacific Coast Distributors: H. V. Carter Motor Co., San Francisco, Cal. — Smith Motor Co., Santa Ana, Cal. — Northwest Tractor Co., Everett, Wash.

We Are Offering for Quick Sale Two Tried Sires

California Jumbo Buster and Blue Valley King

These two boars have sired a class of Poland Chinas that have made it possible for us to secure an ever increasing patronage. Write us at once. We feel sure you will be interested.

A. Buckland & Son, R.F.D., Fresno, Cal.

Lendorris Liberty Bond, Skyrocket and Lendorris Liberator,

are our three herd boars.
They are a combination of the most popular blood lines and their individual excellence assures the purchaser of Poland Chinas the great size and quality desired by all. Our sow herd is in keeping with our three good boars.
A few choice individuals for sale at all times. We solicit your correspondence.

W. L. Haag and Son Hanford, Cal.

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He is a young boar of great promise and bids fair to develop into a remarkable sire of big type Polands. Young stock of both sexes for sale at very reasonable prices.

Z. M. Dickey Dinuba, Cal.

Do You Know?

That the WESTERNER is a son of BIG BOB—the greatest sire of BIG TYPE POLANDS that the breed has ever known? The progeny and direct descendants of BIG BOB have won near 75 per cent of the ribbons at the National Swine Show since its origin?

REMEMBER that THE WESTERNER is a son of BIG BOB, the sire of sires.

ALEX. D. McCARTY. RIVERINA FARMS MODESTO, CAL.

Aviator A strictly big type boar that is siring a class of young Polands of the really big type. We expect to show this good boar and some of his get at the state fair this year. Satisfaction assured on any purchase you make of us.

CROSS BROS MERCED, CAL.

Trewhitt's Big Type Poland Chinas

have long been noted for their size and feeding qualities and have been bought by the leading breeders of the state for the improvement of their herds. Select your next purchase from a herd where you have the assurance of something better.

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King's Big Bone Leader

is siring the big stretchy type of Poland Chinas sought by the discriminating breeder. He is assisted by Giant Bob 2nd, a son of the late grand champion and a pig of great promise.
Write for information. Stock for sale at all times.

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McCune's Quality Herd

of BIG TYPE POLAND CHINAS

attained their prominence by a careful study of blood lines and individuality necessary to real constructive breeding. We produce the type you need in your herd. A few choice individuals for sale at all times.

H. D. McCUNE, Lemoore, Calif.

Sunny Side Farm

where efficiency is our watchword and the production of extra heavy milking Holsteins and big type Poland Chinas is our specialty. A few choice animals of either breed or sex for sale at all times at reasonable figures. Write for information.

R. F. Guerin Visalia, Cal.

Tulare Holsteins Average $400

May 6, 59 Holsteins consigned to the annual Tulare breeders' sale averaged $400, which was generally considered satisfactory by the consignors.

The top female was from the consignment of R. F. Guerin, Visalia, and was Cantate Wonder 3d, a 25.37 pound daughter of Arcady Pontiac Wayne Hengerveld. She was purchased by R. L. Holmes of Modesto, who has developed a habit of topping the Black and White sales, for $1,450. Sadie Maid Pontiac Segis, 24.28 pound daughter of Segis Pontiac Crane De Kol, topped the R. C. Sturgeon consignment, selling to W. J. Higdon of Tulare for $1,025. Lady Legathend, with a three year old record of 18.85 pounds, was sold by Sturgeon to Burr farm, Los Angeles, for $935, who also took the 23.66 pound Princess Hengerveld Orizaba from the same consignment at $800. A like price was paid by H. E. Cornwell of Modesto for Whitehouse Belle 2d from the Guerin herd. By far the heaviest buyer at the auction was G. M. Brown, manager of Burr Farm. This progressive institution selected 15 head of the better lots. A new buyer to make his appearance at a Holstein sale was E. Swift Train of San Francisco. Train, who is laying a foundation for a herd, secured six head. Other buyers at the sale included W. J. Higdon, Tulare; C. W. Gates, Corcoran; Alex Whaley, Tulare; H. E. Spires, Caruthers; C. V. Harris, Compton; P. M. Longan, Tulare; D. D. Elmore, Baldwin Park; J. E. Brown, McFarland; Frampton Bros., Artesia; J. L. Sebastian, Wasco; H. J. Angell, Los Angeles; H. Halff, Tulare; Fakler Bros., Lemoore; Chas. Harrington, Compton; J. W. Sturgeon, Lemoore; J. E. Jones, Visalia; G. W. McNear, San Francisco, and V. S. Scott, Reno, Nevada. Professor Scott is connected with the dairy division of the University of Nevada and has been active in inducing Nevada dairymen to use better blood.

The sale was held in the new Tulare sales pavilion and was managed by The California Breeders Sales and Pedigree Company of Sacramento. C. L. Hughes was in the box. Ben A. Rhoades of Los Angeles wielded the hammer and he was assisted in the ring by Col. Geo. W. Bell of Tulare.

Consigned by R. C. Sturgeon, Tulare

FEMALES

1, Sadie Maid Pontiac Segis, July, 1916, 24.28 pounds; W. J. Higdon, Tulare, $1,025.
2, Lady Legathend, March, 1916, 18.35 pounds; Burr Farm, Los Angeles, $935.
3, Daisy Silent Shade Ornot, February, 1914; 19.05 pounds; Burr Farm, $560.
4, Princess Hengerveld Orizaba, September, 1912, 23.66 pounds; Burr Farm, $800.
5, Madrigal Beryl, July, 1913, 18.58 pounds; E. Swift Train, San Francisco, $450.
6, Parthenea Pietertje Artis De Kol, January, 1916, 13.69 pounds; Alex Whaley, Tulare, $575.
7, Miss Parthenea Pietertje De Kol, January, 1919; Alex Whaley, $350.
8, Violetta Bright Eyes, December, 1911, 14.67 pounds; R. L. Holmes, Modesto, $575.
9, Dorothy Korndyke Burke, September, 1916; Burr Farm, $595.
10, Princess Eva Juliana, August, 1918; H. E. Spires, Carruthers, $305.
11, Rose Arnot, January, 1912; Burr Farm, $225.
12, Molly Walker Pennant De Kol, January, 1918; Burr Farm, $225.
13, Wolly Ambro Barnum, December, 1916; H. Halff, Tulare, $275.
14, Calamity Willis, October, 1910; Chas. Harrington, Compton, $410.
15, Lady Holland 3d, July, 1916; Burr Farm, $425.
16, Lassie Delmar of Pelandale, November, 1916; Walker Bros., Lemoore, $360.
April, 1912; Burr Farm, $575.
18, Highland Lassie Snowball, August, 1913, 13.35 pounds; C. W. Gates, Corcoran, $350.
20, Lady De Kol Pontiac Lult, July, 1918; E. Swift Train, San Francisco, $28[illegible]
21, Calamity Willis Burke, July, 1918, C. V. Harris, Compton, $300.
22, Daisy Creamcup Burke, May, 191[illegible] P. M. Longan, Tulare, $535.
23, Brinka Pontiac Hengerveld, Ma[illegible] 1918; P. M. Longan, $450.
24, November, 1918, daughter of [illegible] Prado Wayne Colantha; C. R. Montag[illegible] $130.
25, Brika Hengerveld of Pelandale, June, 1916; H. Halff, Tulare, $515.
26, Bess Creole Belle 4th, July, 191[illegible] Burr Farm, $550.
27, Lady Sunrise Hengerveld, Septe[illegible]ber, 1918; H. J. Angell, Los Angeles, $2[illegible]
28, Princess Selmora Pontiac, Marc[illegible] 1918; P. M. Longan, $370.
29, Duchess Lady Burke De Kol, Jul[illegible] 1918; J. L. Sebastian, Wasco, $195.
30, Daisy Burke Lult, May, 1918; Burr Farm, $400.
31, Lady Adrianantje Pontiac, May 1918; Burr Farm, $475.
32, Dossie Conejo Dellhurst, June, 1916, Burr Farm, $300.
35, September, 1918, daughter of Aralia De Kol Pontiac Salambo; Frampton Bros. Artesia, $315.
36, Fidessa Cornelia Korndyke, August, 1919; A. E. Brown, McFarland, $105.
37, De Kol Ormsby Cornucopia, June, 1919; C. V. Harris, $120.
38, Fidessa Niko Wayne Creamelt, June, 1919; C. W. Gates, Tulare, $110.

BULLS

34, Dutch De Kol Acme, November, 1918; extra, D. S. Heffleflinger, $150.

Consigned by R. F. Guerin, Visalia

FEMALES

39, Lady Leola Hengerveld, May, 19[illegible] 28.09 pounds; Prof. V. L. Scott, Reno, Nevada, $500.
40, Cantate Wonder 3d, November, 19[illegible] 25.37 pounds; R. L. Holmes, $1,450.
41, S. V. K. P. Gypsy of Sunnyside, January, 1918; D. D. Elmore, Baldwin Park, $600.
42, White House Belle 2d, April, 1917, H. E. Cornwell, Modesto, $800.
43, Vera Pietertje Sadie, Vale, April, 1917; E. Swift Train, $225.
44, Abbekerk Brunhilde Sadie Vale, June, 1917; E. Swift Train, $375.
45, California Juliana Bess, April, 191[illegible] P. M. Longan, $565.

BULLS

47, Sunnyside King Segis Susan, Ju[illegible] 1919; J. E. Brown, $125.

Consigned by Alex Whaley, Tulare

FEMALES

48, Rag Apple Alcartra Prilly, Mar[illegible] 1918; W. J. Higdon, $475.

Consigned by H. E. Spires, Caruthers

51, Oleander Burke, July, 1917; Bu[illegible] Farm, $325.
52, Roma Canary 2d, February, 191[illegible] Burr Farm, $300.
53, Emerson Diamond Pel, July, 19[illegible] 18.78 pounds; H. M. McMorris Jr., S. Francisco, $485.

FEMALES

64, Gleesome Countess Pontiac, Ju[illegible] 1917; Burr Farm, $325.

Consigned by Les McCracken, Ripon

54, Karlray Magadora Valdessa, Apr[illegible] 1918; C. W. Gates, $115.
55, Karlray Duchess Pontiac, Decemb[illegible] 1917; C. V. Harris, $200.
56, Mosswood Colantha Jane, Dece[illegible]b[illegible] 1918; E. Swift Train, $250.
57, Boska Pietertje Netherland, Ju[illegible] 1918; Frampton Bros., Artesia, $160.
58, Eva Gerben, April, 1918; E. Sw[illegible] Train, $180.
59, Mosswood Aaggie Jane, Dece[illegible]r 1918; J. W. Sturgeon, Tulare, $250.
60, Mosswood Miss Cristeria, Janu[illegible] 1919; J. C. Jones, Visalia, $155.
61, Mosswood Colantha Princess, N[illegible] vember, 1918; C. V. Harris, $325.
62, Mosswood Colantha Segis, Ju[illegible] 1919; C. W. Gates, $145.
63, Mosswood Ormsby Segis, Janu[illegible] 1919; Sebastian, Wasco, $195.

Prices Based on Actual Merit

By Frank D. Tomson

There is one question that is probably asked more frequently, of men in close contact with the purebred livestock industry, than any other. It is this: "Don't you think the prices are too high?" As a rule, this question comes from men not as yet closely connected with the business, if at all. They seem always to take the position that the actual value is not there; that the prices paid are advanced by men too enthusiastic in their estimates.

Perhaps it would surprise some of these questioners to know that over in the British Isles, where cattle improvement has been going on for several centuries, values generally adhere to a higher level than in this country. In a recent auction sale in north England, between 15 and 20 high g[illegible] cows sold for an average of ap[illegible]roximately $800. This was before th[illegible] slump in the purchasing power of t[illegible] pound sterling. These cows were all well bred and no doubt carefully selected, but they were not registered and, of course, it could not be expected that they would sell for as good prices as if pedigreed.

Another question frequently heard. It is, "Don't you think the business is being overdone?" Certainly this record just referred to furnishes the answer. There are, undoubtedly, more pure bred cattle in the British Isles to the quarter section than there are in this country to the square mile or even to the township, and the values generally adhere to a higher leve[illegible]

CATTLE FOR SALE

95% Whitefaces

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Heavy Boned Hereford Steers

Mountain Raised—Healthy

100 Cows and Calves

100 Heifers and Cows

Inspect Cattle at Howard Ranch
12 miles Southwest of Chowchilla, Madera County, Cal., or write

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Bunting's Mission Herefords Are Profitable

They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.

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Mission San Jose Calif.

DIAMOND G HEREFORDS

A few choice young bulls, Big, heavy-boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.

H. H. Gable Esparto, Cal.

Ormondale Ranch Shorthorns

Redwood City, Cal.

HERD SIRES

Boquhan Guinea Stamp, the great Imported Young Broadhooks bull. Golden Goods Jr, sire of LITTLE SWEETHEART, Grand Champion International Show, Chicago, 1919.

Bulls and heifers for sale.
Duroc-Jersey hogs for sale.

James McDonnell, Supt.

Beef Cattle Specialist

For 30 years I have been devoting my entire time to pure bred beef cattle. I know where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited. R. M. DUNLAP, Hotel Land. Sacramento, Cal.

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Bred and Open Gilts

Young Bulls

Only one kind—the good kind

The Get of Vaughn's Jones

are of such uniform excellence as to class him with the most prepotent sires in the state.

All his pigs measure up to the same high standard of excellence sought by careful breeders of Poland China hogs. Come and see for yourself.

A. J. Van Cleef Riverdale, Cal.

Poland Chinas

Have a good bunch of young pigs at reasonable prices.

C. C. Dimmitt, Los Angeles, Route 12 south of Laguna Station, Whittier line

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than in this country. Right here some one questions, "If that is true, how does it happen that importers can bring in cattle from the British Isles and sell them and make a profit?" The answer is that a class of breeders in this country in quest of seed stock will pay a premium in order to get it and assume that these importations are of the class of seed stock desired. But, in the main, the level of values for pedigree and non-pedigree cattle in that little country is higher than in our own.

As a matter of fact, we have only gotten well started here in this wonderful country in livestock improvement, in the general adoption of improved livestock by farmers and ranchmen and a general effort to work improvement therein.

The value of a pure bred animal lies in its power to work improvement inherited from its ancestors. The better the ancestry, the more certain the power to bring about the improvement in succeeding generations. The man who recognizes the existence of this prepotency; the man who is a judge of individual conformation and is informed as to the comparative merit of the ancestry, will always have the advantage in the business of breeding pure bred livestock, and the making of the largest success out of the business of agriculture.

The land, which 20 years ago remained unoccupied and untilled, has today, to a very large extent, come under private ownership and operation. Not only this, but the farms that have been under operation are, with comparatively few exceptions, showing a decrease in producing power. This condition has come about chiefly because of lack of livestock, with the result that the fertility has been taken from the soil. It may require long years to restore it.

While this process has been going on there has been a steady increase in the populations in the cities and the towns which relies on the products of the farms for something to eat and to wear. Probably the day is not far distant in this country when 75 per cent of the inhabitants will reside in cities and towns. None of these will lend a hand toward food production, but all are consumers. The ratio of the producers on the farms to the non-producers in the cities grows smaller and smaller each decade. This simply means that the call for the products of the soil will steadily increase and the tillers of the soil may look with confidence toward the permanency of the industry and the assurance of profits to all who wisely and methodically carry on the business of producing this food. That the call for improved livestock is on a permanent basis there can be no question. The one possible weakness is that the farmer himself may not carry on this business with a view to permanency, for if he fails in this he overlooks one of the greatest opportunities that confronts him.

UNIFORM WOOL GRADES SOUGHT

Tentative types representing various grades of wool have been prepared by the bureau of markets, United States department of agriculture, in connection with its investigational work looking toward the ultimate establishment of uniform wool standards. The types decided upon by government experts have been prepared after careful examination of thousands of samples that represent the opinion of the trade generally as to what should comprise wool standards, and which now form the basis of commercial transactions.

There are now no fixed wool grades in universal application, with the result that the purchase of the producer's product is based upon arbitrary standards fixed by individual buyers. It is therefore obvious that to place the business upon a uniform basis would be decidedly advantageous to all concerned.

AYRSHIRE BREEDERS ANNUAL

The 45th annual meeting of the Ayrshire Breeders Association will be held at Springfield, Massachusetts, on June 9, and the National Sale on June 10.

BEGGING THE QUESTION

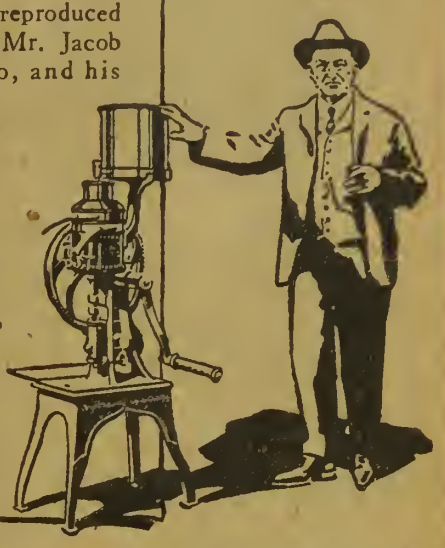
She met him in a darkened room,
Said he, "I've brought some roses?"
She answered with irrelevance,
"Oh, dear! how cold your nose is!"

DURABILITY OF THE DE LAVAL

This illustration is reproduced from a photograph of Mr. Jacob Rimelspach, in Ohio, and his DeLaval Separator, which has been in use for over 25 years.

The machine was brought in on a local De Laval Service Day to be looked over by the service man.

There was nothing the matter with the separator, and after it was cleaned up and oiled Mr. Rimelspach took it home with the comment that it ought to be good for another 25 years.



The De Laval Separator gives the greatest value for the money, because it gives better and longer service. Mr. Rimelspach's experience is equaled by the records of a large number of De Laval machines.

Considering its greater durability alone, the De Laval is the most economical separator to buy; and with its cleaner skimming, easier running, greater capacity and unequaled service, the price of a "cheaper" machine is high in comparison.

If you don't know the De Laval agent in your community, write to the nearest De Laval office

DE LAVAL DAIRY SUPPLY CO.
61 BEALE STREET SAN FRANCISCO, CAL.

EL PROFITO The Big Grand Champion Boar at Los Angeles Livestock Show

MASTER EL PROFITO 391035 is the 10-months-old boar we offer for sale, sired by El Profito, dam Defender's Long Maid; priced to sell.

For the next 30 days we will offer for sale a few outstanding good sows with litters by El Profito; also a fine granddaughter of Big Timm, with a great March futurity litter prospect by The Diplomat, best son of Liberty Bond. This litter is nominated for Sacramento futurity.

Our foundation blood is all direct from the most popular big type herds in the corn belt. Every breeding animal in herd is recorded, and papers go with every sale. For want of help we are compelled to reduce our herd in numbers—first come, first served. Your letter will be promptly answered.

Viola L. Renwick Santa Barbara, Cal.

FORRESTVIEW BOB

A Son of the Noted Caldwell's Big Bob

Is the boar that is siring the class of Poland Chinas that have made it possible for me to have so many satisfied customers. They are my specialty. I strive to please.

J. H. Cook Paradise, Cal.

For easy feeding, early maturing Poland Chinas,

Secure the Get of Model Big Fellow

He was Reserve Grand Champion at the last state fair and was next in line to Giant Bob, later sold for the highest price ever paid on the coast. I solicit your correspondence.

J. F. McSwain Merced, Cal.

I AM STILL OFFERING

exceptional POLAND CHINA values in breeding stock for quick sale. I can fill most any order you want from choice pigs to mature animals. Prices reasonable. I can please you. Write and see.

Eugene Miner Lodi, Cal.

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DETROIT, MICH.

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

High Lights on Recent California Holstein Sales

Chas. S. Harrington, Compton, who is gradually replacing his grade females with pure breds, has been a consistent buyer of top stuff this spring, and also had the distinction of selling the top of the sale at Clearwater on April 27, when a bred heifer consigned by him fetched $1,025.

An outstanding feature of the spring sales has been the buying activity of Southern California breeders. Over 70 separate breeders made purchases ranging from one head up to over 50, and the selections include many of the very top animals offered. The presence of such a wealth of top Holstein blood in the hands of so many different breeders in the southern territory indicates something of the tremendous development that may be expected in the south half of the state within the next few years.

Ernest Otto McClure, Santa Ana, succeeded in picking up a choice lot of heifers during the spring sales. While his ranch is largely given over to sugar beet production, he will have a considerable sized herd of registered Holstein heifers to drop their first calves within the next 18 months, and will once again have a high class producing and breeding herd.

F. F. Pellissier, Whittier, widely known as the owner of one of the best herds of high grade Holsteins in America, has made a beginning with pure breds, tops from several sales having been selected by his son, F. S. Pellissier, who was a gold medal winner in the Holstein judging at university farm last year.

Clyde S. Kennedy, Hemet, secured an outstanding female at the Clearwater sale in Aralia Rose, a 24 pound three year old granddaughter of Prince Gelsche Walker, selected from the A. J. Stalder consignment at an even $1,000.

The consistently high production records being recorded by first calf daughters of Sir Veeman Korndyke Pontiac have made the offspring of that excellent young sire an attraction in every sale in which they have appeared up to date. One of his daughters topped the two year olds in the Guaranty Sale; another topped the yearling heifers at Clearwater, and in the same sale one of his young sons topped the bull calf list. The daughters of this sire are being developed by R. F. Guerin, Visalia, while the bull himself is now owned by Burr Farm, Los Angeles, in which herd he will divide service with the $12,000 bull King Korndyke Pontiac 20th.

R. L. Holmes, Modesto, is assembling a herd of well bred high record females that are of outstanding individuality, a point that Mr. Holmes keeps prominently in mind whenever he makes a selection. The fact that he secured the top priced female in five consecutive sales at prices ranging up to $2,300 is something of an indication of the female end of his herd at present. On another page will be found an item of his purchase of the great young sire Segis Pontiac Abbekerk to head these females.

Robt. T. Curtis & Son, Exeter, secured what was rated generally as the greatest female bargain in the W. J. Higdon sale when he took home the great 34 pound four year old Coloma Beauty Butter Maid at $1,750. She is due to calve in July to the service of the $12,000 bull King Korndyke Pontiac 20th.

The value of popular breeding was perhaps never better illustrated in California than in the 20 daughters of Prince Riverside Walker in the W. J. Higdon sale. These heifers, all yearlings and two year olds, granddaughters of Prince Gelsche Walker and Aaggie Acme of Riverside, two of the most popular lines of breeding in the West, sold for an average of $658, with a top price of $1,350, indicating a most uniform range of values, and it was the opinion of ringside breeders that they all sold well within their value.

Stockton State Hospital, Stockton, was represented at several of the spring sales by W. H. Chestnutwood, business manager, and by W. J. Foley, in charge of the dairy herd. They succeeded in securing a number of richly bred females in the W. J. Higdon sale, and secured a real bargain in the young bull King Korndyke Pontiac Leda at $800. He is by the $12,000 bull King Korndyke Pontiac 20th and out of a 30 pound daughter of Korndyke Queen De Kol's Prince, second dam a half sister to Tilly Alcartra.

Anita M. Baldwin, owner of Santa Anita Rancho, Santa Anita, was represented at several sales by Earl Sturgis, manager of the livestock department, and secured many of the choicest daughters of Prince Riverside Walker in the W. J. Higdon sale. These fit in splendidly with the choice herd at Santa Anita, which carries a preponderance of the blood of Prince Gelsche Walker.

Allison & Storm, Tulare, bought a real herd header in the W. J. Higdon sale when they took home the young bull King Korndyke Paula Segis at $1,125. He is by the $12,000 bull King Korndyke Pontiac 20th and out of a 30 pound daughter of Sir Ormsby Burke Segis, second dam a daughter of Sir Hengerveld De Kol Ormsby.

A two year old daughter of King Segis Alcartra Prilly, the Bridgford three times grand champion, found plenty of admirers in the Higdon sale, and after spirited competition fell to the $975 bid of Stockton State Hospital.

An average of $580 for 20 milking females and six heifers, the entire offering of females in the I. B. Van Blaricon dispersal at El Monte on May 8, marked the most successful dispersal of a small herd in California to date The top of $1,200 for a 26 pound four year old was paid by Chas. S. Harrington, Compton.

The Third Tulare Sale, May 6, was topped by Cantate Wonder 3rd, consigned by R. F. Guerin, Visalia, sold for $1,450 to R. L. Holmes, Modesto. She is only a five year old cow, with a record of 25.37 pounds butter in seven days made at last freshening. Three of her daughters sold in the Guaranty Sale last March for a total of $2,225, including the top two year old S. V. K. P. Claire of Sunnyside, the highest record daugbter of Sir Veeman Korndyke Pontiac. Mr. Guerin still has her last heifer calf in his herd.

R. C. Sturgeon, Tulare, secured an average of around $450 for his females of milking age in his semi-dispersal on May 6, and a grand average of over $400 for his entire consignment, which was a very desirable one throughout, although many of the cows had not been given official records.

H. E. Spires, Caruthers, made his initial consignment at Tulare on May 6 and realized the nice average of $462 on the four females consigned, the top of $725 being realized on a 16 pound two year old granddaughter of Segis Pontiac De Kol Burke.

Buyers of bulls backed by high production found an unusually acceptable selection in the Leeman & Kilgore dispersal at Ripon, and moderate prices were much in evidence Two exceptionally good values were secured by P. Brunold, Modesto, when he secured King Pontiac Sarcastic Korndyke for $700 and Sir Aaggie Goldstone Pietertje for $160. The former is a son of King Korndyke Pontiac 20th out of a 22 pound dam, and the latter a son of Sir Aaggie De Kol Acme out of a 22 pound dam Both of these bulls are high class individuals.

R. Stevens, Stockton, made a keen buy when he took Miss Gelsche Walker Korndyke at $1,125 and her yearling son King Gelsche Walker Korndyke at $875 in the Leeman & Kilgore dispersal. The former, a 32 pound daughter of Prince Gelsche Walker, is on yearly test with 426 pounds butter to her credit in 128 days, and over 11,000 She is making this production with the end of one teat cut off, a blemish that affected her selling price by several hundred dollars and which is not interfering to any great extent with her production.

H. A. De Wolf, Ripon, made his greatest purchase to date in the Leeman & Kilgore dispersal. He secured

(Continued on Page 871)

LAST CALL!

Do Not Miss This Shorthorn Opportunity

Caledonia Farms' First Public Sale

70 Scotch and Scotch Topped Females

At the Farms, West Sacramento, Cal., Thursday, May 27

Imp. Caledonia

Gainford Matchless

SEE WHAT IS OFFERED

Seventy head of cows—daughters of such noted bulls as GLENNBROOK'S MARQUIS, FOND LAVENDER, WHITEHALL KING, LAVENDER DIAMOND, CHAMPION OF SCOTLAND, KING OF PAICINES, PINE GROVE KING, SPICY PRINCE, FAYETTE'S MASTER, WHITEHALL OF ORANGE, BUTTERFLY VISCOUNT, BAPTON PRIDE and other noted bulls.

35 Sell with Calves at Foot; Balance Are Bred

The Blood of Three of the Great Bulls of the West

IMP. CALEDONIA, admitted by all to be one of the great bulls of the breed—of faultless breeding and conformation.

GAINFORD MATCHLESS, grand champion at the 1919 San Francisco show—one of the real top bulls of the West.

PINE GROVE KING, whose proven ability as a sire is evidenced by the many outstanding bulls and heifers sired by him.

If you plan to start a herd of Shortborns don't miss this event—there has never been a better opportunity presented in the West.

Every Animal Guaranteed a Breeder All Over Six Months Tuberculin Tested

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California Breeders Sales and Pedigree Company

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ALL THESE PACIFIC COAST LEADERS

Consigned to the

Minnnesota National Guaranty Sale

(Sold Under a 60-90 Day Retest)

St. Paul June 3-4-5

Study This List Carefully and Come Prepared to Buy Them at Your Own Price

ALCARTRA KING SYLVIA, the youngest son of Tilly Alcartra, sired by the $106,000 bull.

MISS ARALIA DE KOL AAGGIE. She and her 100 per cent sister, also consigned, are the only sisters in the world with seven dams averaging over 1,100 lbs. butter in a year.

RUBY PIETERTJE OF FOREST HILL 2D, 39 lbs. butter in seven days, 162 lbs. in 30 days as a senior 4-year old. Her 30 day record is the largest ever made on the Pacific coast at any age. Gave 118 lbs. milk in a day. In calf to a son of Tilly Alcartra.

KING KORNDYKE PONTIAC ACME, yearling son of Miss Aaggie Acme Burke, world champion junior two-year-old for milk production.

KING PRILLY SEGIS PONTIAC, son of Spring Farm Pontiac Maid 2nd with 35.66 lbs. as a senior 4-year-old. His first twelve dams average over 32 lbs. in seven days.

BOWEDA ALCARTRA PRILLY, daughter of Boweda, 37.61. Sired by California's grand champion show bull.

HOLLYWOOD LILITH MERCENA, 38.91 lbs. butter, 729 lbs. milk. Champion cow of the northwest. In calf to Judge Segis.

HOLLYWOOD GLEN ALEX SEGIS, a son of Judge Segis and Glen Alex Queen De Kol, world champion 42-lb., two-year-old, whose dam also has over 42 lbs., and has produced two 42-lb. daughters.

COUNTESS OF SUNNYSIDE DE KOL 2D, senior and grand champion cow at the Pacific International. In calf to Judge Segis.

AURORA FOBES FAYNE DE KOL 3D, 31-lb. 3-year-old sister to Lady Aaggie Echo Hengerveld who has recently made over 30,000 lbs. milk in a year.

ENSIGN PONTIAC THE GREAT, son of Canary Spofford Empress 2nd with 31.63 lbs. butter from 665 lbs. milk and a 10 month's record of over 700 lbs. butter as a two-year-old.

CARNATION KING DE KOL, son of Carnation King Sylvia from Inka Princess Mutual De Kol 2d, 30.14 as a 4-year-old, her dam a 33-lb. cow.

CARNATION ECHO TIETJE, a son of Champion Echo Sylvia Pontiac from Idleaze Pontiac Lass, 42.28 as a 4-year-old. The highest record living daughter of King of the Pontiacs.

NENA NEWMAN CORNUCOPIA, former world record 3-year-old in both the seven and 30-day divisions.

This Will Be the Greatest Holstein Sale Ever Held

Some of Its Special Features:

254 Head	122 Consignors
45 30-lb. Cows	6 1000-lb. Cows
75 from 30-lb. Dams	25 from 1000-lb. Dams

The highest yearly record bull in the world for his two nearest dams.
The champion cow of the northwest.
The champion cow of the Empire State.
The world record 3-year old in the 30-day division (Pabst Korndyke Cornflower).
The only two heifers in the world with an average of over 1,100 lbs., for their seven nearest dams.
The youngest son of Tilly Alcartra, by Carnation King Sylvia.
The only heifer in the world backed by four direct generations of 1,000-lb. dams.
The only heifer in the world to have made three 30-lb. records in heifer form.
The Minnesota state champion 4-year-old.
A son of the world champion long distance two-year old for milk production.
A son of the highest record living daughter of King of the Pontiacs.
Three bulls backed by three generations of 1,000-lb. dams.

Sale will be held at the Minnesota State Fair Grounds, which is located midway between the cities of Minneapolis and St. Paul, and will start at 9:00 promptly each morning—June 3-4-5

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Minneapolis, Minnesota

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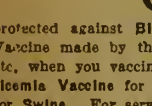

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FOR US

We supply stock and buy all you raise. Laboratories need thousands, big money, easy to raise. Particulars and book 10c, nothing free.
DR. J. A. ROBERTS LABORATORIES
Hollywood, Cal.

KEEP THE PIG FREE OF LICE

Hog lice are so easily held in check that it is nothing short of carelessness when the hog raiser suffers loss by them. He should remember that lice weaken the pig and make it more apt to die of disease, and that when he feeds a lousy pig, he is feeding lice also.

Crude oil is the most effectlve remedy for hog lice. It not only kills the lice, but destroys the nits or eggs, as well. It is also a good remedy for mange.

Kreso dip is a very good remedy for lice, but it does not destroy the eggs.

Coal oil kills the lice and destroys the eggs, but it is apt to blister the pig. When used with about half of lubricating oil, it is more satisfactory.

Methods for Applying Remedies.

The dipping vat affords the ideal way of applying remedies for lice, but it is not practical, except with large herds of hogs. The oil floats on the water, and all that is necessary is to pour on about five gallons aud drive the hogs through it.

Pour the oil on the water in the pig's wallow.

Make a sand wallow ln a sheltered, well drained place, and saturate the sand with the oil. Pigs soon learn to enjoy wallowing ln the oily sand.

Oil may be applied with a mop or a brush.

When the oil ls not too heavy or thick, it may be applied with a common water sprinkler.

34 POLAND HERDS IN FUTURITY

The following Poland China breeders, 34 in all, have nominated their herds for the futurity show to be held at the California state fair: Bassett Bros., Hanford; M. Bassett, Hanford; Geo. V. Beckman & Sons, Lodi; John M. Bernstein, Hanford; Mrs. Alfred Buckland, Fresno; A. Buckland & Son, Fresno; W. L. Choisser, Riverdale; J. H. Cook, Paradise; M. B. Cross, Merced; Chas. E. Dack, R. H. Box 196, Fresno; De Forest & Horr, Susanville; J. A. Crawshaw, Hanford; W. T. Dice, Hanford; Z. M. Dickey, Dinuba; A. J. Elliott, Tulare; Fred Gatewood, Fresno; Johnnie Glusing, Minton; Fred D. Grant Jr., R. K. Box 46, Fresno; W. L. Haag & Son, Hanford; N. K. Horan, Lockeford; H. A. Johansen, R. H. Box 260, Fresno; J. F. Lehman, Lodi; Alex D. McCarty, B. 2250, San Francisco; Les McCracken, Ripon; Earl McCune, Lemoore; H. D. McCune, Lemoore; H. I. Marsh, Modesto; C. Roy Marshall, Sebastopol; E. S. Myers, Riverdale; Viola L. Renwick, Hollister Ave., Santa Barbara; Fred D. Ross, Hanford; H. C. Shinn, Tulare; W. D. Trewhitt, Hanford; W. A. Young, Lodi.

PRICKLY PEARS

The department of agriculture is issuing Farmers' Bulletin 1072, "Prickly Pear as Stock Feed." The bulletin touches upon the importance of prickly pear in semi-desert sections and the ease with which it may be produced upon comparatively worthless land. It calls attention to the fact that while of extremely low feeding value in itself, it is "green and succulent and admirably adapted to produce good condition in cattle when used with dry feeds.' The method of planting is to lay the slabs on the ground in straight rows and partly cover by plowing alongside. Of course, to make it fit for stock feed two general methods have been employed. The more economical has been to singe the plants with a gasoline torch and allow the livestock to graze where they stand. Another has been to put the unsinged plants through a chopper. This results, however, in occasional injury to the animal because of the spines not being cut with the knlfe. The bulletin denies that the so-called "spineless" will revert and become spiny. This, of course, refers to reproduction of the same plant by cuttings. If seed from the spineless plants drops and starts a new plant, it is usually claimed that there is possibility of reversion and extremely spiny plants coming

E. B. and H. Potler, Santa Barbara, have at head of their herd of Poland Chinas the big young boar, Big Longfellow Price, got by the 1200-pound boar, Longfellow Prlce. This young boar was bought from the Renwick herd.

SELECT STALLION AND BROOD MARE CAREFULLY

There is a great scarcity of high class, efficient horses and mules and a strong demand and good prices for that class. The demand and the price for the mediocre work animal, on the other hand, are low. This should emphasize the necessity for the greatest endeavor to reduce the number of inferior horses produced. If the right kind of horses and mules, the kind for which there is always a market, is to be produced, the same care must be glven to their productlon as is given by the breeders of cattle. sheep and swine.

What is needed more than anything else in the production of our work stock ls greater care in the selection of both the stallion and the brood mare. It ls a losing proposition to breed a poor producing brood mare. even to the best stallion, or to breed the good producing brood mare to an inferior stallion, wlth the hope that a good foal may be produced. While occasionally a good one will be produced in this way, the results in most cases will be disappointing, and a foal will be born that will not mature into a work animal valuable enough to pay for the cost of the feed and care necessary to ralse the foal properly.

It is a fact that many progressive farmers balk at paying a reasonable service fee for a good stallion and will breed to an inferior stallion because of the lower fee. It is false economy to stop at a few dollars when it comes to the best horse. It is the colt, and not the high service fee, which counts most in reckoning profits. It costs but little more to raise the $250 kind than lt does the $125 kind.

The estlmates of the bureau of crop estimates show a decrease of 373,000 in the number of horses on farms January 1, 1920, as compared with January 1, 1919, and an increase of 41,000 mules, or a net decrease of 332,000 head in our work stock. Indications are that there was a still further decrease in the number of mares bred in 1919. The effect will not be fully felt until about 1923, or when the foals born in 1919 and 1920 have become of workable age. In many sections the work stock is being used up without any provision for the future.

MAKE EVERY FARM FEED ITS STOCK

The production of enough feed for the livestock is second in importance only to producing food for the family. Farm management studies in the southern states indicate that the most profitable farms not only produce the necessary farm feeds but have a surplus of them to sell and that the livestock is usually of better quallty and better grade on the farms producing a surplus than on farms where staple feeds are bought. These facts are brought out in a series of 16 tests formulated by the department of agriculture to show whether or not a farm is being efficlently managed.

The average farm family requires for its proper maintenance two cows, 40 fowls and one pig for each adult. Enough calves should be raised to replace each cow reaching the age of elght years. Thls family livestock, it is calculated, will requlre one ton of corn and cob meal, 1.234 pounds of cottonseed meal, 55 bushels of corn, 40 bushels of oats, 4,200 pounds of cowpea hay, 2,100 pounds of oat hay, 4,200 pounds of corn roughage, green forage from two acres, and five acres of pasture or their equivalent. A fair provision to a head for work stock is 60 bushels of corn, 40 bushels of oats, and three tons of roughage.

HOGS SELL WELL

The California farm bureau marketlng associatlon at its recent Tulare sale sold nine cars, or a total of 707 hogs. The lowest price was for a small lot of 31 heavy weights; in fact, they averaged 347 pounds. From prlces secured it seems the favorite weight was around 200 to 250 pounds. Two lots, one of 88 and one of 71 hogs, the former averaging 193, the latter 252, both brought $15.80.

Twelve thousand cows contrlbuted a day's work to make the biggest cheese in the world. It was exhlbited recently at the National Dairy Show at Chicago. The cheese weighed 357 500 pounds, was eight feet high and 10½ feet ln diameter.

TESTIMONIALS

"Cows Increased In one week 3 per cent in milk."
A. L. McCULLOCH, Alpaugh, Cal.

"I never saw hogs do so well or grow so fast as on this molasses ration."
C. H. HARTWIG, Yuba City, Cal.

"It has enabled me to keep my stock in better condition at less expense."
J. M. HENDERSON, JR., Sacramento, Cal.

"Have one calf that refuses to drink new milk—prefers skimmilk with molasses. What do you know about that?"
R. HECKLEY, Santa Rosa, Cal.

"It has been a great advantage in getting the stock to clean up the roughage."
H. H. AMES, Chowchilla, Cal.

"One cow will turn down the choicest handfuls of alfalfa hay unless It has been 'Molassed'."
REDWOOD AYRSHIRE FARM, La Honda, Cal.

MOLASSES

cheaper than hay, but has same feeding value as corn or barley.

W. H. YOUNG COMPANY
58 Sutter Street San Francisco, Cal.

Two Dandy Fall Gilts

Sold open. One gilt sired by Orion's King Gano bred to farrow June 7. Weanling pigs from such sires as Orion's King Gano, May Rose King and Winsor's Giant Orion.

SWEET CLOVER RANCH L. R. Hitchcock VAN NUYS, CAL.
Member of San Fernando Valley Duroc-Jersey Breeders Assn.

Johnson's Defender Jr.

is some boar. As an individual he ranks as one of the best in the state. His get are the type that experienced breeders demand. Let me fill your order for anything in the Duroc line. You will be pleased with your purchase.

H. C. WITHEROW Live Oak, Sutter Co., Cal.

Over Two Million Calves

protected against Blackleg for LIFE with ONE treatment vouch for Purity Blackleg Aggressin (Germ-Free Vaccine made by the Kansas Process). Absolutely safe to use. Cannot transmit disease. Brand, castrate, etc, when you vaccinate. OTHER PURITY PRODUCTS: Anti-Abortion Vaccine for Cattle; Hemorrhagic Septicemia Vaccine for Cattle, and Sheep; Anti-Hog Cholera Serum, and High Count Mixed Infection Vaccine for Swine. For service that counts write, phone, or wire

PURITY SERUM CO., J. L. Thatcher, Mgr. Riverside, California

Remember This:

Every animal in the W. H. Rough herd of Big-type Polands is recorded—Spring pigs excepted. You get the papers along with your purchase. You get genuine big-type blood, and big-type blood only. Our breeding stock is well developed and is in excellent breeding condition.

Superbus by Superba

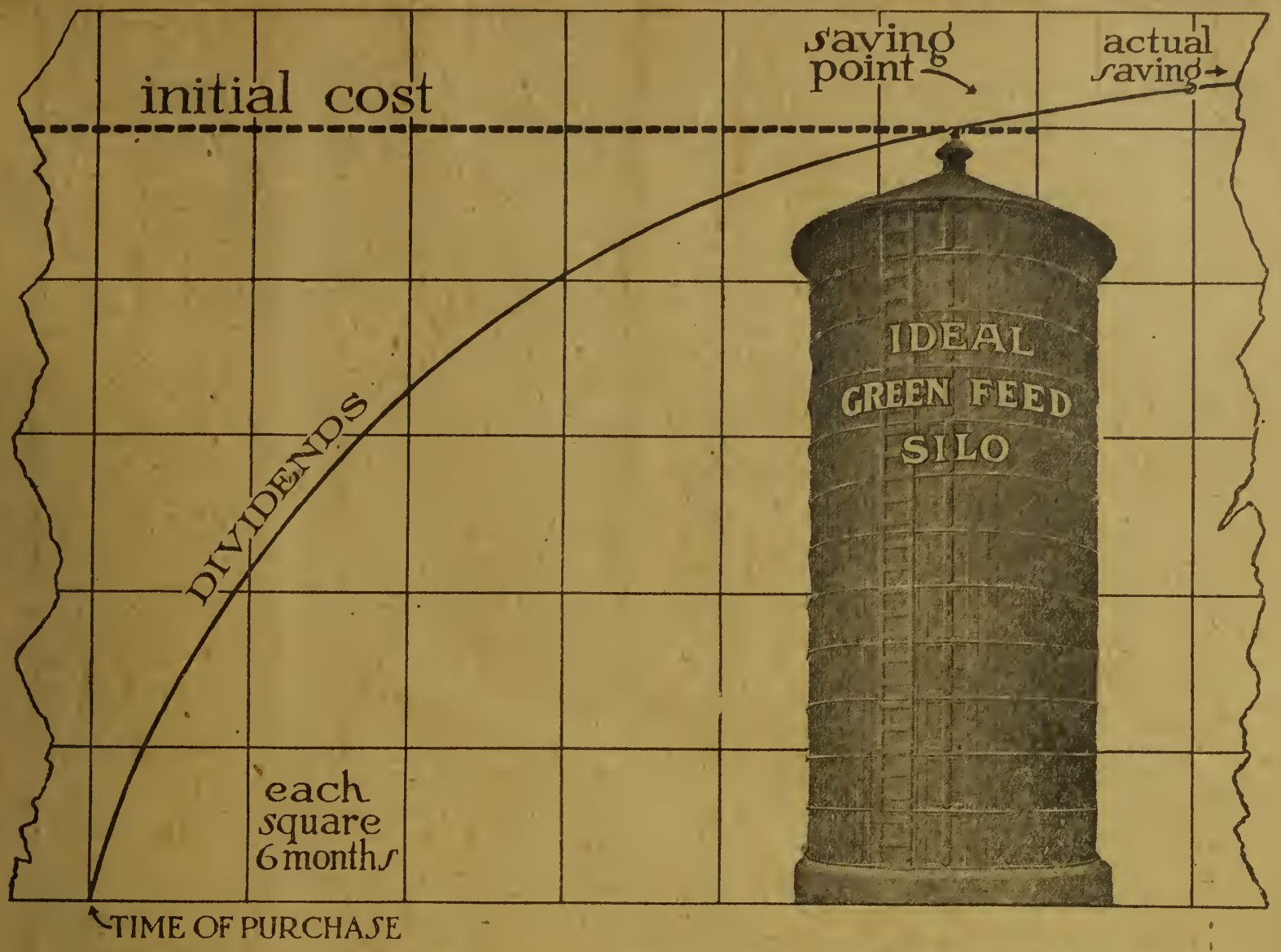
Big Sis 63rd

We breed these Poland Chinas to sell, so you get your selections from anything in the herd. Sows with litters, sows bred to your order, or young sows sold open; also toppy big young herd boars.

It is the blood of the old grand champion Superba, commingled with that of Big Bob, Big Orange, A Wonder, Blue Valley Gold Dust, and Big Long Jumbo.

Address:

W. H. ROUGH
ARLINGTON, CAL.



The Saving Point

The purpose of any silo is, without doubt, to reduce feed bills. Each year there is saved the difference between the cost of silage and the cost of dry feed, which we will call the dividend. In a number of years the accumulated dividends will equal the initial cost of the silo. Not until this point is reached does real saving begin.

Although this point is reached quicker where there is a low initial cost, the same quality which permits low initial cost—inferior construction—prevents the life of the silo from extending beyond the saving point, resulting in actual loss instead of savings.

The California Redwood from which the Ideal Green Feed Silo is constructed is noted for its lasting qualities. The tongue-and-groove staves and airtight refrigerator doors make leakage mechanically impossible. The heavy steel hoops, placed with mathematical precision where pressure demands them, give strength and stability.

With feed saving essentially dependent upon the life of the silo, is it not to your advantage to investigate the Ideal Green Feed Silo, built for year after year of serviceability? The coupon will save writing a letter for more information. Mail it today.

PACIFIC TANK & PIPE CO.,
312 Market St., San Francisco.
907 Trust and Savings Bldg., Los Angeles.
Gentlemen: Please send me full information regarding Ideal Green Feed Silo.

Name .....

.....

Address .....

.....

PACIFIC TANK & PIPE CO.

DISPERSAL SALE

A Beautiful Herd of Young Registered Holsteins

67 Registered Cows and Heifers
3 Registered Bulls

Edgemont Farm, Burbank, Cal.

C. W. Anderson, Owner

Thursday, June 17, 1920

This is one of the finest herds we have sold in California, containing a group of young cattle, from open heifers up to young cows with official records above 26 pounds butter in seven days, that is remarkable for uniformity of type, breeding, and size. This is also without question one of the cleanest lots of cattle ever offered in the west. The foundation females were purchased from a herd that has an unsurpassed history of good health, and when brought to Edgemont Farm were turned into paddocks and pastures made on new ground on which no cattle had been before. They have all been tuberculin tested by the subcutaneous method, just recently, and will be sold subject to retest by the buyer. The sale contains:

17 DAUGHTERS OF BERYL LUECKE DE KOL
He is a proven sire with 17 daughters in the A. R. O. list with records up to over 19 lbs. butter in seven days as two year olds.

12 DAUGHTERS OF RODERICK LINCOLN
One of the great bulls of the West, with 37 A. R. O. daughters, two of them above 30 lbs. butter in seven days.

7 DAUGHTERS OF ABYLA WITKOP
A wonderful group of young matrons of extraordinary type and splendid production.

13 DAUGHTERS OF DUKE BANOSTINE BUTTER BOY
He by a son of Friend Hengerveld De Kol Butter Boy and a daughter of Pontiac Aaggie Korndkye, and out of a dam that made 623.05 lbs. butter from 15,427.7 lbs. milk in 305 days.

ALSO SOME SPLENDID DAUGHTERS OF
KING SEGIS PONTIAC JANNEK, KING SEGIS PONTIAC, MERCI LAD KORNDYKE BURKE, PRINCE GELSCHE WALKER, ARALIA DE KOL PONTIAC MEAD, JULIANA KING REPEATER, KING PAUL KORNDYKE VALE, RODERICK ARALIA DE KOL PONTIAC MEAD.

Every animal positively guaranteed to be a breeder; every animal over six months of age tuberculin tested and sold subject to retest by the buyer.

CATALOG FREE ON REQUEST

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.
Auctioneers: Col. Ben A. Rhoades; Harold B. Rhoades, Los Angeles

EDGEMONT FARM IS FOR SALE

This is one of the best properties in the South. For full particulars address the owner. C. W. Anderson, Burbank, California.

Modesto Holstein Bull Sale

May 27, 1920

By the Stanislaus County Holstein Breeders Association
25 Bulls Mostly Ready For Service

A son of the 41 lb. bull Sir Johanna De Kol Rag Apple out of a 22 lb. dam.

A son of the 30 lb. bull El Prado Wayne Colantha, an extra good son of Prince Hiske Walker, a son of the show cow Riverview Bracelet Brett out of the 30 lb. bull Chimacum Wayne Woodcreft.

A double grandson of the $50,000.00 bull King Segis Pontiac Alcartra.

A son of the 32 lb. bull Lone Oak Terzool Korndyke out of a 24 lb. dam.

A son of the Grand Champion Cow Belle Faskie Hengerveld De Kol, and a full brother to the world record 2 year old heifer.

A son of the show bull Hazelwood Posch Ormsby, out of a cow who held first place in the Stanislaus County Cow Testing Association for three months in succession and made 113.5 lbs. butter in thirty days.

A grandson of Colantha Johanna Lad out of a daughter of Alma Gladstone Sir Alcartra, a brother to the great Tilly Alcartra.

Two sons of King Segis Alcartra Abbekerk, the dam of one of which made 28 lbs. in seven days, 118.30 in thirty days and 228.71 in sixty days.

Three sons of the Grand Champion King Korndyke Hengerveld Ormsby 7th from dams with records up to 24 lbs. A son of the 33 lb. bull King Korndyke Aaggie Fayne.

All of the above and many others ready for service, specially selected for this sale. Not a cull in the offering. Well grown and of the most approved type.

Sale will be held in the stables next the Modesto Veterinary Hospital, Modesto, Calif.

Terms of sale cash, or responsible parties may have one year's time if they so wish.

Write

E. M. MORROW
Sec'y Stanislaus County Holstein Breeders Association
for Catalogs

Duroc-Jersey Registered Hogs For Sale

Bred Sows Sows with Litters Boars and Gilts

They are the large type and the best blood strains to be had anywhere.

Herd Boars—Lucy Orions Model, California's Defender, Diablo Orion Model, Defender Colonel 70th.

Some of the Sows—Lucy Orions Mayflower, Great Wonder I Am Gano, Pathfinders Queen, Prize of Tulare Belle, Twin Oaks Attraction, Lady Defendress 70th, and 50 others.

Weanlings, $15.00 each at Ranch—A large number always on hand to choose from. Crates $2.50 each, refunded when returned prepaid in good condition. Mail orders solicited.

Satisfaction or money back.

DIABLO STOCK FARM
E. F. Petersen, Supt., Danville, Cal. G. W. Emmons, Owner, Oakland, Cal.

LEEMAN & KILGORE HOLSTEINS DISPERSED

The strength of the Holstein market was again demonstrated when on May 12 the Leeman & Kilgore herd was dispersed at Ripon. Aside from the small bull calves, the general average was $436 on females and $371.50 on bulls.

W. J. Higdon of Tulare topped the sale when he paid $1,350 for Florence De Kol Mead, a two year old daughter of King Mead of Riverside. This young thing is a heifer of great promise and sold quite within her value. Higdon also took Cobossie Korndyke Mead, a yearling daughter of King Mead of Riverside, at $1,100 and the aged cow, Molly De Kol Pontiac Mead, a 25.56 pound daughter of Segis Pontiac De Kol Burke and out of a daughter of the sire of his top purchase.

One of the heaviest buyers and, at the same time, a critical buyer, was H. A. De Wolf of Ripon, who selected eight of the better females. Among the De Wolf purchases were: Fayne Spring Farm Pontiac De Kol, a 29.42 pound daughter of Spring Farm King Pontiac 6th, at $850; the 27.56 pound Laura Netherland Skylark at $750; Miss Cornucopia Colantha, Clothilde De Kol of Linwood, and Prulla Creamelle Johanna, all 24-pound cows.

R. L. Holmes of Modesto further strengthened his herd through the purchase of Merci Pauline Burke De Kol, a 29.19 pound daughter of De Kol Hengerveld Burke, at $900 and Pet Salambo Alcartra, a yearling daughter of King Morco Alcartra and from the 33 pound cow Pet Salambo of Riverside, at $650. Holmes has figured as one of the best buyers at the spring sales and his selections have been such as to attract much favorable comment.

One of the outstanding purchases of the sale was made by R. Stevens of Stockton, who got Miss Gelsche Walker Korndyke, a 32.79 pound daughter of Prince Gelsche Walker, for $1,125. She also has to her credit 426.6 pounds butter from 11,156.5 pounds of milk in 128 days.

One of the best buys of the spring series was registered when Mr. Stevens got the November 1919 son of Miss Gelsche Walker Korndyke and King Morco Alcartra for $879. This youngster is a promising herd bull prospect. Another outstanding bargain fell to P. Brunold of Modesto, when he got the yearling son of the $12,000 King Korndyke Pontiac 20th, King Pontiac Sarcastic Korndyke, for $675. This youngster is not only well bred but is a real show prospect.

The sale marked the closing of the partnership existing between Messrs. Leeman and Kilgore for a number of years, during which time they have earned the confidence and respect of the Holstein fraternity.

The dispersion was managed by C. L. Hughes of the California Breeders' Sales and Pedigree Company, Sacramento. Col. Ben A. Rhoades of Los Angeles occupied the box and Col. Geo. W. Bell of Tulare worked the ringside.

A representative list of sales follows:

FEMALES

3. Miss Gelsche Walker Korndyke, Aug., 1914; 32.79 lbs.; R. Stevens, Stockton, $1,125.
4. Fayne Spring Farm Pontiac De Kol, June, 1914; 29.42 lbs.; H. A. De Wolf, Ripon, $850.
5. Molly De Kol Pontiac Mead, Feb., 1914; 25.56 lbs.; W. J. Higdon, Tulare, $975.
6. Laura Netherland Skylark, Oct., 1911; 27.56 lbs.; H. A. De Wolf, $750.
7. Merci Pauline Burke De Kol, Oct., 1913; 29.19 lbs.; R. L. Holmes, Modesto, $900.
8. Pet Salambo Alcartra, June, 1919; R. L. Holmes, $650.
9. Clothilde De Kol of Linwood, Sept., 1915; 24.12 lbs.; H. A. De Wolf, $625.
11. Miss Cornucopia Alcartra, May, 1919; H. A. De Wolf, $275.
12. Stella Pietje, Aug., 1910; 22.88 lbs.; J. E. Headley, Ripon, $310.
13. Stella Pietje Alcartra, June, 1919; Burr Farm, Los Angeles, $175.
14. Blanche Hengerveld of Nevada, April, 1913; 26.08 lbs.; H. A. De Wolf, $550.
15. Blanche Hengerveld Alcartra, Feb., 1919; H. A. Belgum, Richmond, $190.
16. Gamman Sarcastic of Linwood, Jan., 1914; 22.10 lbs.; Earl Graham, Compton, $510.
18. Model Alban Segis Princess 2d, Feb., 1915; 19.77 lbs.; A. C. Van der Acker, Ripon, $400.
19. Empress Hell Pontiac, Nov., 1914; 16.81 lbs.; Geo. M. York, Modesto, $310.
20. May Korndyke Sadie Vale, Feb. 27, 1917; H. A. De Wolf, $325.
21. May Paul Korndyke Sadie Vale, Sept., 1919; W. H. Byron, Peterson, $175.
22. Pascoe Segis Pontiac, Dec., 1916; 13.82 lbs.; H. M. Belgum, $210.
23. Florence De Kol Mead, July, 1918; W. J. Higdon, $1,350.
24. Cobossie Korndyke Mead, April, 1919; W. J. Higdon, $1,100.

Kreso Dip No. 1

(STANDARDIZED)

Parasiticide. Disinfectant.

USE IT ON ALL LIVESTOCK

To Kill Lice, Mites, Fleas, and Sheep Ticks.
To Help Heal Cuts, Scratches and Common Skin Troubles.

USE IT IN ALL BUILDINGS

To Kill Disease Germs and Thus Prevent Contagious Animal Diseases.

EASY TO USE. EFFICIENT. ECONOMICAL.

FREE BOOKLETS.

We will send you a booklet on the treatment of mange, eczema or pitch mange, arthritis, sore mouth, etc.

We will send you a booklet on how to build a hog wallow, which will keep hogs clean and healthy.

We will send you a booklet on how to keep your hogs free from insect parasites and disease.

Write for them to

Animal Industry Department of
PARKE, DAVIS & CO.
DETROIT, MICH.

Facts in BLACK & WHITE

Purebred Holstein Cattle Save Labor

Whatever the amount of milk or butterfat you wish to produce, is it not better policy to use large-yield cows than to feed and shelter the necessarily greater number of small-yield cows? Use Holsteins and you save labor, feed, stable-room, equipment and risk. They are always healthy and ready for work. Choose cows according to their capacity for converting coarse feed into milk. That is the function of a dairy cow, and that is where the big Holstein excels.

Send for Free, Illustrated Booklets They contain valuable information for any Dairyman.

THE HOLSTEIN - FRIESIAN ASSOCIATION
120 Hudson Street
Brattleboro, Vermont.

Quality Holsteins

Our herd is headed by a grandson of the world's greatest dairy cow, Tilly Alcartra,

Sir Aaggie Korndyke Alcartra

whose dam and sire's dam average:
Butter, one year..... 1096.58
Milk, one year.....27316.60

Females and bulls from A. R. O. dams for sale
All animals guaranteed

Leeman & Kilgore, Ripon, Cal.

SELDOM SEE

a big knee like this, but your horse may have a bunch or bruise on his ankle, hock, stifle, knee or throat.

ABSORBINE
TRADE MARK REG. U.S. PAT. OFF

will clean it off without laying up the horse. No blister, no hair gone. Concentrated—only a few drops required at an application. $2.50 per bottle delivered. Describe your case for special instructions and Book 8 R free. ABSORBINE, JR., the antiseptic liniment for mankind, reduces Painful Swellings, Enlarged Glands, Wens, Bruises, Varicose Veins; allays Pain and Inflammation. Price $1.25 a bottle at druggists or delivered. Liberal trial bottle postpaid for 10c.

W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

25. Ethel Riverside Pontiac Burke, April, 1919; W. J. Higdon, $475.
26. Empress Hillside Segis, April, 1915; 16.70 lbs.; G. H. Bertram, Modesto, $150.
27. Empress Lyons Segis, Feb., 1916; 15.76 lbs.; Geo. M. York, $250.
30. Daisy De Kol Emmanline Jane, Sept., 1912; H. A. De Wolf, $560.
31. Doruin Model Segis, April, 1916; W. H. Byron, $285.
32. Lady Mayflower Walker, Feb., 1916; E. Peterposten, Hughson, $310.
33. Tarde De Kol of Linwood, Dec., 1912; Geo. M. York, $325.
34. Marcella Peitertje Hengerveld, Oct., 1914; 15.42 lbs.; G. H. Bertram, $210.
35. Grace Balcken De Kol 2d, Oct., 1914; 11.36 lbs.; W. S. Cornwell, Modesto, $215.
36. Stella De Kol Pietertje Ringwood 2d, Dec., 1914; Geo. M. York, $250.
37. Prulla Creamelle Johanna, Aug., 1915; 24.50 lbs.; H. A. De Wolf, $500.
38. Alma Goldstone Pietertje, Oct., 1914; 18.65 lbs.; E. Peterposten, $260.
40. Empress Parthenea Korndyke, April, 1916; 16.74 lbs.; W. D. Gore, Middletown, $285.
41. Lady Walker Segis, March, 1914; G. H. Bertram, $150.
42. Molly De Kol Pontiac Mead 3d, Jan., 1920; A. Bonetti, San Jose, $160.

BULLS

1. Sir Aaggie Korndyke Alcartra, Oct., 1915; Walter H. Wakefield, Lockeford, $425.
2. King Gelsche Walker Korndyke, Nov., 1919; R. Stevens, Stockton, $875.
46. Sir Aaggie Korndyke De Kol, July, 1919; J. J. Pimental, Merced, $155.
47. Emperor Heil Pontiac Alcartra, Aug., 1919; M. Lopez, Pleasanton, $190.
48. King Pascoe Segis Pontiac, Aug., 1919; John S. Machado, Ripon, $325.
49. King Netherland Skylark Mead, May, 1919; H. A. De Wolf, $250.
54. King Gelsche Walker Alcartra, Dec., 1919; J. R. Coon, Modesto, $535.
59. Sir Aaggie Goldstone Pietertje, March, 1919; P. Brunold, Modesto, $160.
Extra. King Pontiac Sarcastic Korndyke, year old son of King Korndyke Pontiac 20th; dam, Gamma Sarcastic of Linwood; P. Brunold, $675.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

May 27, Stanislaus County sale of bulls, Modesto.
May 29, Henderson Co., Sacramento.
June 17, C. W. Anderson, Burbank. Dispersal.

Shorthorns

May 27, Caledonia Farms, West Sacramento.

Duroc-Jerseys

July 21, Elmer Lamb, Ceres.
July, Conejo Ranch, Newbury Park.
July, Diamond Bar Ranch, Spadra.
July, Winsor Ranch, Bonita.

Hampshires

July, Ortega-Underhill-Rancho, Santa Barbara.
July, Conejo Ranch, Newbury Park.

Poland Chinas

August 21, Merced County Poland China Breeders' Association, Merced.
September 27, Hugh C. Shinn, A. J. Elliott and Alex D. McCarty, Tulare.

The Merced County Breeders Association held a meeting Saturday, May 8, and perfected the constitution and by-laws and elected David Larson of Stevinson vice-president and the following board of directors: E. W. Doane, Merced; Paul Mitchell, Atwater; J. Paxton, Athlone; J. H. Bowles, Merced; F. A. McConnell, Livingston; with President J. F. McSwain and Secretary E. E. Greenough as ex officio members. There are also plans under consideration for an intensive sire campaign and also an advertising campaign.

Predictions have been ventured that the show of Shorthorns at the state fair this fall will be one of the strongest ever made in the state. W. M. Carruthers, veteran breeder of Live Oak, is enthusiastic over a number of young things that he is having fitted. He will show senior calves, most of them the get of Count Glory. Several of the calves are out of Fond Lavender dams, making them line bred descendants of Whitehall Sultan. His calf herd will attract attention.

Les McCracken of Ripon reports that his Poland China herd is in fine condition and that he is planning to hold a sale of bred sows some time in August, the exact date to be announced later. He expects to sell about 40 head that he will select from the 100 sows now on the ranch.

The sale offering of Durocs from the Elmer Lamb herd is rounding into shape. Included in the sale, which, by the way, marks the closing out of one of the pioneer herds of this state, will be the great sow, Mary Jane Pathfinder.

The first registered Holstein calf club to be organized in this state has been started at Live Oak. The club was organized by County Farm Advisor C. E. Sullivan and O. W. Jarvis, agricultural agent for the Sacramento Bank. The following boys and girls are members of the club: Lucius Davis, John Wahlstenholm, Dorothy Strom, Kenneth Vantrees, Hosea Hershym, Vilas Cobeen, Horace Vantrees, Vourls Roulsten, Vernon Cobeen, Teddy Cobeen, Charles Vantrees, Alfred Vierra, Harold Cobeen, Raymond Jenkins, Evelyn Reber, Everett Chamberlain, Wilhur Rutherford, Floyd Wohlstenhoim, Thomas Smith Jr., Louis Farrar and Bruce Jenkins. James Henderson Jr. of Sacramento, who furnished the heifer calves, also donated the club a young son of King of the Black and Whites. The heifers are to be bred to this bull and the members agree to place his daughters on test as they freshen, thus adding to the value of the heifers and at the same time increasing the prestige of the bull.

The California Wool Growers Association is planning a ram sale to be held at the universary farm June 24-25. This will be the first sale of the kind ever held in California, and owing to the fact that there are in this state many of the leading flocks of the West, it is expected that the sale will attract sheepmen from a very wide territory. Professor James F. Wilson of the college of agriculture is in charge of the arrangements.

W. S. Guilford has presented a number of his friends a very beautiful enlarged picture of a group of Shropshires in pasture. Guilford says that the Butte City flock has recently shipped Shropshires to a number of Western states. It is possible to produce a larger type of sheep in California than anywhere else.

Geo. V. Beckman & Son, Lodi, report the recent sale of a good fall boar by Liberty Bond at a good figure.

J. F. Lehman, Lodi, has one of the largest litters seen this season from his senior yearling sow Evergreen Hutch and sired by Evergreen Model. This futurity litter, together with their dam, will be included in the Lehman show herd this season.

Alex D. McCarty of Riverina Farms, Modesto, announces that he has bought the interest formerly owned by Mr. Starkweather and that E. F. Curtis, formerly with Alexander & Kellogg, Suisun, will have charge of the herd. A consignment from the McCarty herd will be included with those from the Shinn & Elliott herds to make up the sale offering for September 27. From present indications this should be one of the greatest offerings of Poland Chinas ever offered at auction in California, featuring The Callfornian and The Westerner. The Westerner is growing rapidly and has over a ten inch bone at present.

Fortuna Bob is a line bred Big Bob yearling boar at the W. H. Rough Poland China headquarters at Arlington. He is a big fellow with plenty of finish, and very active on foot. He should "nick" well with the Superba blood in the herd. The big boar Supremis has shown his ability to "nick" with the blood of Big Bone, A Wonder, Blue Valley Golddust and Big Long Jumbo. Greenfield's Big Sis 30th is a 750 pound sow carrying litter by Supremis.

Mammoth Queen is the big yearling sow in the Renwick herd of Poland Chinas at Santa Barbara, bred by E. D. Frazier of Missouri. This fine brood sow has just farrowed 12 pigs by El Profito. A gilt of her September litter has just now been sold for $125.

The Elliott-Brant Rancho, Owensmouth, will have an aged show herd in the Duroc section at the fall fairs that will attract attention to the south end of the state. The big boar May Rose King will head a herd of big smooth line-bred Orion Cherry King sows.

The Union Commission Company, Santa Barbara, finds it profitable to keep a foundation herd of big-type Poland Chinas for their feeding operations on ranch at Santa Margarita.

MAKE CONSTANT USE OF

ECONOMY STOCK POWDER

FOR YOUR

Hogs---Cattle---Sheep---Horses

And You Will Have Healthy Stock

Economy Stock Powder

contains only the purest Poke Root, Sulphur, Blood Root and other ingredients which act upon the Kidneys, Liver, Spleen and Blood. It sweetens the contents of the stomach and bowels and removes all impurities from the system.

OTHER ADVANTAGES

Economy acts on affected parts,
Economy expels worms,
Economy aids digestion,
Economy suppresses a feverish stomach,
Economy cools the blood,
Economy lossens the bowels,
Economy aids nutrition,
Economy maintains normal health,
Economy is a perfect conditioner.

DON'T BE WITHOUT ECONOMY STOCK POWDER IF YOU WANT TO REALIZE THE GREATEST PROFIT FROM YOUR STOCK.

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LISTEN, fellows, to some straight talk. Many a man when he gets to be 40, *misses something*. He may have lots of money, and a fine family but—

He never "got out and saw things". After he gets settled down, *it's too late*.

Every man wants to see the world. No man likes to stand still all his life. The best time to TRAVEL is when you're young and lively—right NOW!

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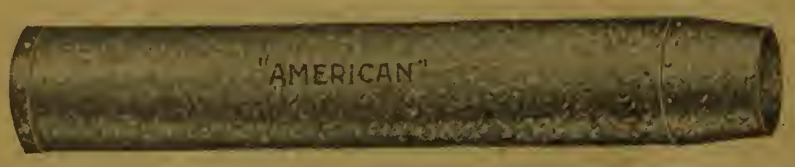

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Turkey Problem From a New Angle

By Jean A. Koethen

OUT against the hills that surround the fertile Hemet Valley lives a man who believes he has solved the chief problems of turkey raising. With a thousand acre range back of him, the warm California sun overhead, dry, sandy soil underfoot, and no fog and little rain to hinder the growth of his young birds, he has certainly chosen their environment well, and this favorable environment is no doubt a potent factor in his success.

The man referred to is C. T. Johnston, who has been raising turkeys for many years in various parts of California and who has studied deeply into the causes of the untimely death of so many young birds. Mr. Johnston says the advice he gives to turkey raisers is not effective within 15 miles of the Pacific Ocean. The fog and chilly wind of the coast, he believes, are death to poults. To my mind he should have made his limit 25 miles instead of 15, but the distance probably depends on the geography of the district. A sheltered valley near the coast might be better than an exposed hillside farther away, except in a very foggy season. The point is simply the one so often made, that dampness is fatal to poults, and dampness means fog as well as rain.

Dinner Time

The boxes ranged along the fences are the nests. Along the hills beyond is the 1,000 acre turkey range.

Inbreeding Is Fatal

Mr. Johnston is satisfied that the underlying cause of the weakness of young turkeys is inbreeding, therefore he is introducing into his flock blood from wild turkeys secured from the mountains of Mexico.

No Turkey Mothers

Mr. Johnston prefers chicken hens for mothers. Part of the young turkeys are hatched by hens and part in incubators; part are reared by hens and part in brooders, but the turkey hens are kept laying as long as they will lay, and their maternal duties turned over to cheaper mothers.

When turkey eggs are hatched in the incubator the temperature is run at 102 the first week, 103 the second and third weeks and 104 the last five days before the hatch begins, beginning the 20th day. No moisture is used except what the incubator provides.

When chicken hens are used as hatchers they are set in the brood houses in which they are to raise their broods. These brood houses are 12 by 14, with a two foot alley through the middle and four compartments on each side. Four hens are set in each compartment, one in each corner. The nest box in each case is a triangle about ten inches high with the two rectangular sides connected by a diagonal slat. This is pushed into the corner of the compartment, which forms the other two sides of the box. The bottom of the box is covered with moist dirt, and the dirt with straw. As the only ventilation in the brood house is through burlap, the moisture in the dirt lasts through the four weeks of incubation and is all that is required.

When the hatch comes off all the poults are given to two mothers, and two of the partitions are removed. This gives each hen room for her brood, which numbers from 12 to 20, according to the weather. The little door opening out of the compartment is opened and a long, narrow run, four feet wide, 16 feet long and two feet high, is fastened over it. All these runs are portable and are moved from house to house as they are needed. When the poults are ready to roost, roosts are put in the houses above the low partitions.

Wild Turkeys

The hen in the center is a wild turkey. Notice the combination house in the background.

Feeding the Poults

The stage is now set for the real business of the season, the raising of the young stock. The poults remain quietly under the hen for from 24 to 36 hours before they receive their first meal. The first five days hen and poults are fed together so that she may teach them to eat. After this they are fed separately, the poults outside and the hen inside, for a hen cannot provide her brood with the requisite warmth unless she is well fed.

The first meal of the baby turkey and its whole ration outside of green feed the first two weeks consists of johnnycake thoroughly baked and crumbled fine before feeding. A handful is sprinkled over the little flat tray and the poults are allowed to eat all they will in ten minutes. The meal is repeated four times a day the first two weeks, the only change being that at the third meal each day chopped onion is mixed with the johnnycake. This meal consists of two-thirds onion and one-third johnnycake.

A scant handful of johnnycake is sufficient for 12 poults at first, but the amount is gradually increased till a two weeks it is probably twice as much. The amount, however, is gauged rather by the time the birds eat than by the exact quantity placed in the tray. At the end of ten minutes whatever remains is removed.

When the poults are about two weeks old they are gradually worked onto two meals a day of chick feed, which is given the first thing in the morning and at 2 o'clock in the afternoon. The other two meals, at 11 o'clock and 5, are johnnycake as before.

Toward the end of the fourth week another change is made. The ration of johnnycake is diminished and a mixture of kafir and whole barley substituted. The amount of whole grain is increased and the amount of chick grain diminished till by the end of three months the birds are on whole grain entirely. Now, as at the beginning, the meal lasts ten minutes.

No Sour Milk

In three respects the feeding is different. First, he feeds no sour or clabbered milk; second, he does not believe in feeding an unlimited amount of green. From the start the poults get onion mixed with their johnnycake at one meal a day. For eight weeks they are kept in the wire runs and not allowed to range. Then the runs are removed and they are given the run of the acre lot in which the brood houses stand. Not until they are past ten weeks are they allowed complete liberty. This means that they receive a comparatively small amount of green for the first eight weeks. His theory is that it is quite possible for poults to eat so much green that they are unable to eat the more substantial food necessary to their growth. Third, he thinks it is just as easy to underfeed as to overfeed. Many of the untimely deaths of little turkeys, he believes, are due to the fact that they have been so underfed that they have not sufficient strength to withstand the slightest attack of indigestion.

Chilled in the Morning

Mr. Johnston's experience has satisfied him that many of the deaths of poults the first three weeks are due to chilling in the early morning. The mother hen, whether she is a turkey or a chicken, is an early riser, and just in the chill of the morning when the poults need hovering most, she is apt to uncover them and leave them to keep warm as they may. Chicks can bear this heroic treatment, but poults cannot. This is one reason why it is so difficult to raise poults near the coast in May. The mornings are always foggy, and the hens eager to be scratching.

Because of this propensity of hens to be up and off, Mr. Johnston prefers raising poults in a brooder, which is always ready to warm them. Two 200 chick outdoor brooders are in constant use and losses among the brooder poults are far fewer than among those brooded by hens. As long as the mornings are warm the hen does good work. Let a frosty morning come, or the wind sweep down from the top of old San Jacinto, and the hen brooded poults are sure to suffer. The brooder poults are given heat as long as they seem to need it, which is usually about four weeks. Each brooder is supplied with its own little yard, about a foot high, and the poults are kept inside till they are ready for range.

Lime for Poults

The value of lime as a preventive of turkey diseases has long been recognized, but it is not always fed so easily as here. Once a week the trays in which the poults are fed are given a good thick coat of whitewash. The birds do the rest, and by the end of the week nearly all the whitewash is pecked off and the trays are ready for a fresh coat.

As 200 hens are needed for hatching, a combination turkey and hen house has been devised which shelters all the adult birds. One side consists of a high shed for the protection of the breeding turkeys in wet weather. On the other side is a lower shed for the hens and above it a sort of balcony, with room for a good sweep of air between roof and walls, where the turkeys roost. Along one side of the turkey shed are coops for the broodies. The nests are outside along the fence. During the breeding season the flock is not permitted to range, but later in the summer and fall they spend most of their time on the hillsides.

The breeders are fed a ration consisting of whole grain and mash, the mash being fed at night with a feeding of milo in the morning and of barley at night. The mash consists of ground milo, ground barley and bran or middlings, with about 12½ per cent beef scrap added. When they are on range they receive only a very light feeding of grain morning and night.

The Lyon Hatchery at Gardena made shipments of 5,000 day old chicks on April 8, 2,700 going to El Paso, Texas.

The hens do not belong in all the garden, nor all the garden in the hens.

INVESTMENT

—not expense

That's what Lactein Condensed Buttermilk is to the big, successful poultry raisers — they know that Lactein saves that 50 per cent of chicks that die the first three weeks of their life — they know how Lactein builds healthy, husky chicks — they know how it gives them the right start and develops the chick into a profit producing machine.

LACTEIN

Condensed Buttermilk

is pure, clean buttermilk pasteurized and processed, with the LACTIC ACID developed to the highest degree of efficiency—it furnishes the delicate chick's system with all the needed elements of tonic and food—keeps its system thoroughly cleansed—rids the chick of bowel trouble—wards off disease—and is a preventive of White Diarrhoea.

LACTEIN Condensed BUTTERMILK is the investment of Chick and Poultry food that turns loss into profit. It is a proven food and tonic—used by the largest poultry raisers in the world.

Invest Today

in profitable LACTEIN for your baby chicks—lay the foundation for heavy producing fowls.

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Try the Coulson System of Feeding

Our free book Chickens from shell to Market gives full particulars

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This is Our Bargain Counter for May and June

B. P. Rox, R. I. Reds, $18 per 100. Mottled Anconas, $17; W. Leghorns, $15. These chicks are from our very best Hogenized bred-to-lay stock. They are as good as the best, regardless of the price. Order direct from this ad and save disappointment.

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Chickens Sick?--Use Germozone

Roup, colds, bowel troubles, sore head, limber neck, etc. At dealers or postpaid 75 cents with 5 book Poultry Library.

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GET MORE EGGS.

"Lady Victory"

1918 Champion laid 304 eggs in 365 days. Highest official record of any living hen. She laid 25 eggs in Jan., 27 in Feb., 29 in March.

***Milkoline* will help make your hens lay more eggs.**

Feeding Milkoline will make you more money —reduce mortality of your flock— keep flock healthy and less liable to disease.

Increase Poultry Profits Any poultry raiser can easily double his profits by doubling his egg production. Feeding **Milkoline** with other feed greatly assists assimilation, keeps digestive organs vigorous and is a wonderful appetizer, tonic and bowel regulator. **Milkoline** contains nutritive elements vital to egg production and not found in grain rations.

13,000 More Eggs

Jas. E. Keyes, Petaluma, Calif., says: "After feeding **Milkoline** for eighteen months to 2,500 hens, I find that worms cannot exist in poultry where **Milkoline** is used. I reduced mortality with laying hens 10 per cent. I increased the egg production of my flock **thirteen thousand eggs** in one year. Feeding **Milkoline** to laying hens keeps them in splendid health thereby preventing disease and derangements of all kinds."

Milkoline

has a base of modified buttermilk with essential fats and acids added. **Milkoline** comes in condensed form. Will not mould, rot or sour. Keeps indefinitely in any climate. **Milkoline** is simply **"Good Buttermilk Made Better for Feeding."** Flies don't bother it.

Lowers Feeding Cost

Many feeders say **Milkoline** lowers feeding cost one-third, because their hens assimilate all feed they eat. Our liberal **Guaranteed 30 Day Trial Offer** enables you to try **Milkoline** at our risk—to prove that it will make you mighty good money.

Prevents Disease

Milkoline is not featured as a cure for anything or a preventative, but due to the acidity in the buttermilk it is a germ destroyer and helps keep poultry healthy, which is the best preventative against disease. **Milkoline** is invaluable as a life saver for baby chicks.

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5 Gal. Keg	$7.50
10 Gal. Keg	12.50
15 Gal. Keg	16.50
32 Gal. Barrel	32.00
55 Gal. Barrel	49.50

Prices on smaller package given in booklet. Buy in barrel lots—it saves you money.

Only 2c a Gallon

For feeding mix one part of **Milkoline** to 60 parts of water (small feeding 5 tablespoons to gallon of water). Feed either with water or mash feed. **Milkoline** keeps their appetite keen and its action is highly essential to normal egg production. When fed as directed **Milkoline costs only 2c a gallon** or less. Trauhaft & Newman, Lankershim, Calif., say: "We would not go back feeding straight buttermilk at any price."

Guaranteed Trial Offer

Milkoline has been producing so many amazing results and we are so certain of what it will do for you that we will ship you 1 Gallon for $2.25, **express prepaid.** Take 30 days — feed half to your poultry. If not entirely satisfied simply return unused portion and we will refund every cent you paid us. No charge for portion you have used. **Milkoline** is legally guaranteed to be satisfactory. You are always the judge. We suggest ordering larger quantity — you get the benefit of lower price — you risk nothing — you must be satisfied or we refund every cent you paid us. **Make this test now.** The sooner you begin using **Milkoline** the quicker you will be making money.

Send This Coupon

THE MILKOLINE MFG. CO.
675 **Creamery Bldg., Kansas City, Mo.**

In accordance with your guaranteed offer, please ship me .....Gallons of **Milkoline** for which inclosed find $..... I agree to use half, but at the end of 30 days, if I am not satisfied, I will ship back unused portion, if any, at your expense, and you are to return my money.

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A new 42-page book explaining fully how to make more money from Poultry and Hogs sent free on request.

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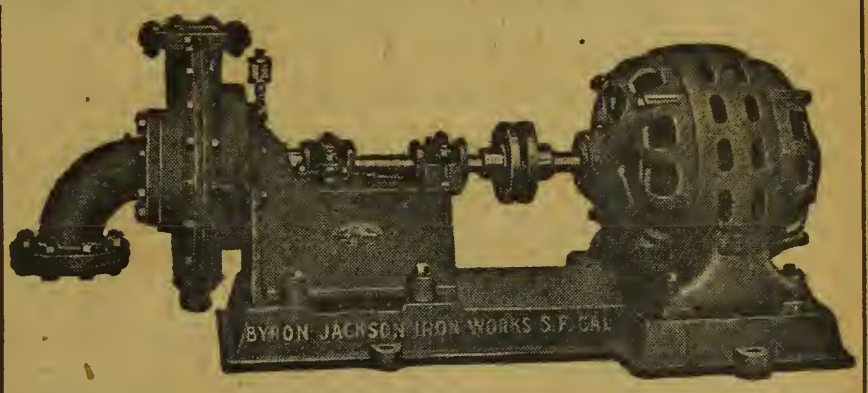

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ENGLAND'S EGG RANCH.
Geo. C. England, Owner.
The home of "ACTUALLY" trap-nested S. C. White Leghorns every day in the year since 1912. P. O. Box B-337, Inglewood, California.

For Sale — White Muscovy Quackless Ducks; eggs 35c. White Wyandotte eggs $3 and $5 per setting, from prize stock. Goose eggs from the best stock in the West $1 each. A few breeders for sale. Turkey eggs from Chicago, Madison Square and several Coast show winners, 50c, $1, $2, $3 each. White King Pigeons $2, unmated pairs; mated working pairs $3. Special price in quantities of over 25 pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

Plymouth Rock Chicks—Barred or White, Rhode Island Reds, Black Minorcas, Brown, Buff and White Leghorns, hatching weekly through May-June. Can book orders for prompt delivery. Prices range from $18 to $13 hundred. 500 lots cheaper—also ship 50 and 25 lots. Capacity 15,000 weekly, rightly hatched from first class breeding stock of good laying strains. Send for latest circular giving prepaid parcel post prices and particulars. Mission Hatchery, Campbell, California.

For Sale—S. C. White Leghorn Breeding Yards (15 hens, 1 cockerel each yard). Hens selected for high egg production. Cockerels sired by our grand cock, the sire of all our winning pullets of the 1919 shows. Eggs from these yards sold for $4.00 per 15 this season. Eggs and stock half price May and June. ALLES SAN DRO POULTRY YARDS, 523-D Rosemont Ave., Los Angeles. Tel. 53511.

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Baby Chicks—Reduced prices for May and June. Expectionally fine White Leghorn stock. Also other varieties. Quick delivery. Safe arrival guaranteed. Write for circular. Stubbe Poultry Ranch & Hatchery, Box 67, Palo Alto, California.

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We are offering to the California public the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

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FREE! FREE!
A Fireless Brooder with every order of one hundred chicks. We ship in the brooder, thus there is no chance of chilling in transit and you have an excellent way to raise them. We have the following varieties of thoroughbred chicks every week: Anconas, Barred Rocks and R. I. Reds, $20.00 hundred. Extra fancy dark R. I. Reds and White Rocks at $25.00 a hundred. White Leghorns $17.50. We guarantee safe delivery. Every one a strong, healthy chick. Orange County Hatchery, 403 E. Santa Clara, Santa Ana, California.

Spring Baby Chicks For Sale—400,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) Stock. Price during May and June, 25, $5.00; 50, $9.00; 100, $14.00. Special prices 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition; no money in advance, pay on delivery. Shipped safely anywhere west of the Rockies. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., PETALUMA, CALIF., 438 Seventh St.

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Baby Chicks — R. I. Reds; Barred and White Rocks; White, Brown and Buff Leghorns; Anconas; Black and White Minorcas; White Wyandottes. Also Turkeys in season. We claim better quality for these chicks because of being from carefully selected stock and hatched by electricity. Give us an order and be convinced. ARTESIA HATCHERY Electric), Box 122, Artesia, California.

White Leghorns—Chicks and hatching eggs from the home of heavy layers. Most modern methods and orchard range assure heavy producers with excellent vitality. Progressive poultrymen demand the best. Fall chicks pay big. Free folder tells why. Orders booked year round. Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, California.

For Sale—R. I. Red, Brown and White Leghorn, Baby Chicks and hatching eggs, from our own Hoganized selected stock. Chicks $15.00 and $20.00 per 100. Eggs $7.00 and $8.00 per 100. Single settings $1.50 and $2.00. Order early. W. J. Rennie, Buena Park, California, R. No. 1, Box 79-C.

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Prompt Delivery of White, Brown, Buff Leghorns, 13c to 16c; large or small lots. Next few weeks White Leghorns, 500 to 1000 lots, 12c. Circular free. Mission Hatchery, Campbell, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

Wanted—The addresses of parties sending to the Warren Poultry Yards, San Jose, Calif., for hatching eggs and chicks, Feb. 20 to April 10, 1920, inclusive and amount of remittance.

White Wyandottes — Prize winning and heavy laying stock; eggs $3.00 and $5.00 per 15. Baby Chix, Cockerels. R. W. Stawetski, Route B, San Jose, California.

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White Minorca Baby Chicks and Hatching Eggs — Dark Cornish and Silver Campine eggs. Folder. Leech Poultry Yards, Baldwin Park, California.

Rhode Island Whites — Hatching Eggs, Chix from best matings possible. Free mating list. Phil. Lehrbach, 1608 N. Ave. 56, Los Angeles.

Hatching Eggs from selected unexcelled White Minorcas. Mrs. F. Van Lew, Grafton, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C, Ceres, California.

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Men With Spare Time—Ranchers especially, can find excellent renumerative proposition, salary guarantee, working for an old reliable California company. Turn your spare time into cash. Write J. H. Yetter, 115 North Broadway, Los Angeles.

Wanted — Salesman who can sell high-grade, dependable nursery stock; exclusive territory; outfit furnished and cash advanced weekly. Commission basis. Address Albany Nurseries, Inc., Albany, Oregon.

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Toyon Farm Association,
UNDER STATE AND FEDERAL SUPERVISION.
Small foundation herds, Heifers and Bulls.
PERFECT IN HEALTH, RIGHT IN TYPE, PRODUCTION AND BREEDING.
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FARMS AT
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350 HEALTHY HOLSTEINS.

For Sale—Seven registered Holstein Cows and a bull, 5 with official record up to 29.61 butter in seven days. All young splendid individuals. Tuberculin tested. Price $4,500.00. Address J. H. Posty, Atwater, Calif. R. F. D. 15.

For Sale—Four registered Holstein Friesian cows. Priced at a bargain considering individuality and breeding. Must be sold on account of the recent sale of the ranch. Mrs. M. Mulder, Rt. C. Box 217, Modesto.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—Entire herd of A-1 Jersey dairy cows, about 33. Address Perry Dresser, Rt. C, Tulare, Cal.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Jersey Bull Calf, 3 months old, out of the imported bull Helen's Oxford. J. R. Carhart, Fullerton, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Wineville, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

WANTED

Will Manage Ranch—A strong, experienced and reliable Scotchman desires a position as a manager of a ranch. He has had ten years experience in California and understands breeding and caring for the various lines of livestock; also field crops and orcharding. He is a man of family and naturalized American citizen. Box D. R., California Cultivator, Los Angeles.

Wanted—Working manager on ranch of 35 acres deciduous fruit. Must prove that he has experience in running gas engine and taking proper care of the place as the occasion might be required. Will pay reasonable wages with good furnished house to live in. Apply Box 22, California Cultivator.

Mathers' Avocado Nursery—Seed wanted, any quantity. P. O. Box 585, Pasadena, Nursery Phone Colorado 6044.

RABBITS

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beeching, 1578 W. 46th Street, Los Angeles.

New Zealand Reds—Young stock. Reasonable prices. Josephine Spencer, 1915 21st St., Sacramento.

TURKEYS

Mammoth Bronze Turkey Eggs — "Gold Nugget" and other prize stock. Flock shows enough wild blood for vigor and fine breeding has added size. NO EGGS sold from other than our own stock. Hints given for feeding and care. Turkeys have range. Guarantee fertility. Prices reasonable. Carrie Andrews, BO-K-HAUNT, Hemet, California.

For Sale—Two Mammoth Bronze "gold nugget" Toms—two years old. Weight about 35 pounds. Selling to prevent inbreeding next season; a bargain at $20 each. Breeding hens at $8 each, AND EGGS. Carrie Andrews, Hemet, California.

For sale — Turkey eggs — Bronze, also Mammoth Bronze, also Thoroughbred Mammoth Bronze Toms. Robinson Turkey Ranch, San Dimas, California.

DUCKS

White Pekin Baby Ducks—White Pekin Duck Eggs for hatching. 152 East Spruce St., Inglewood.

White Muscovy (Quackless) Ducks—Eggs, Ducklings, Breeders. Free circulars. Caldwell Farm, Box 274-E, Los Angeles.

White Mammoth Pekin Duck Eggs $1.00 per dozen. A Surtman, Petaluma, California.

GOVERNMENT LAND

300,000.000 Acres Free Land in U. S.—Send for free descriptive circular of our 100 page book, THE HOMESEEKER, which tells you how to acquire this land, or send $2.00 for book direct. The Homeseeker, Dept. M, 313 Grant Bldg., Los Angeles, California.

PAINTS

Roof Leaks Stopped Quickly, permanently. Our guaranteed roof paint and cement, ready for use, does not settle, thinning unnecessary. Exclusive territory to dependable dealers considered. Dept. 38, Martinek Paint Co., 405 Lexington Avenue, New York City.

BERKSHIRE

BERKSHIRE GILTS
BRED FOR EARLY FARROW TO
"ACHIEVER"
CASTLEVIEW RANCH.
SANTA ROSA, CALIFORNIA.

ANCHORAGE FARM BERKSHIRES
Orland, California.
BRED GILTS FOR SALE.

—A SHOW PROSPECT—
A big, high, long, stretchy boar a year old, ready for service, from a full sister of the 1919 Reserve Grand Champion sow. This boar has world and national champion breeding on both sides. Several good judges have said that this boar would have a great chance for championship honors this year. The price is very reasonable. Sandercock Land Co., 703 Market St., San Francisco. In charge Natomas Land Sales.

Lark Meadow Ranch Berkshires. Choice gilts and sows safe with pig to noted boars. Priced for the rancher. Papers furnished promptly. Geo. A. Stingle, El Monte, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calaa Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

DUROC-JERSEYS

Pathfinder Wonder—Is son of Great Wonder I Am, the largest boar that ever lived, out of a daughter of PATHFINDER. He is one year old and measures 66 inches from his eyes to the root of his tail. We have a fine bunch of yearling gilts of King's Col. and Model Col. breeding that we will breed to him and sell at reasonable prices. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

For Sale—Registered Duroc-Jersey Sows, bred to First Prize Boar of Grand Champion Stock. Weanling Pigs sired by same boar. Also fine lot of fall gilts. Green Canyon Ranch, Fallbrook, San Diego County, California.

Bred Duroc Gilt, September farrow, $150. Defender Uneeda breeding. Champion bred weanlings $21. El Dorado Duroc Breeders Association, Placerville, California.

L. & M. Ranch, Van Nuys — Buy our young boars by such sires as May Rose King, Winsor's Giant Orion, Orion's King Gano, Top Sensation 3rd.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego Co. Address: R. K. Walker.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

The Pacific Herd — Has fall pigs, both sexes for sale. Satisfaction guaranteed. Nettie E. Andrews, Rt. 1, Box 46, Modesto, California.

30 Day Offer Elsewhere—Big type brood sows, litters by El Profito; young boar by El Profito. Viola L. Renwick, Santa Barbara, California.

Big Type Poland Chinas—Pigs, both sexes sired by our champion boar, Blue Valley Model. Write for descriptions. Edwards Bros., Highland, California.

Guaranteed growthy big type Poland Chinas, not pampered, selected for general farm conditions. Stock all ages. Walter Ficklin, Box 946, Fresno.

Tohoqua Big-Type Polands—Young pigs to sell. Champion big-type breeding Ferguson & McKaig, Orland, California.

MISCELLANEOUS

For Sale — 16 James Stanchions, Milk Cooler and Can, Milk Separator and other dairy utensils, good as new. J. W. Off, 5960 Carlton Way, Hollywood, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale—Sacks and Burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

For Sale—Sixty stands Italian Bees. M. Depweg, R. 1, Fullerton, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

FARM LANDS FOR SALE

For Sale—$12,500; two acres all under cultivation; irrigation system throughout; 68 Citrus trees all bearing, ten Walnuts 6 bearing, two Peach trees, 3 Plums, one Japanese Persimmon, one Apricot, one Fig, one Nectarine, Blackberries full bearing, 6 young Raspberries, Grapes; beautiful lawn, flowers and shrubbery. Beautiful home of seven rooms and bath, solid panel walls and plastered, all built-in features throughout; one three-room California house, garage, tool shed, cement walks, curbs and driveway; two chicken runs, and other chicken equipment. Address Owner, C. W. Bean, San Gabriel, California, Box 65.

For Sale—$14,000; a good house of ten rooms and bath, gas and electricity; nearly 4½ acres of best soil, all under cultivation and irrigation; main crop practically walnuts and figs. Family orchard with all varieties. Yard with barn and shade trees. Pecan tree, Black Walnuts, Mulberries, silk worm Mulberry trees, Lemon, Citrus and Blackberries. Place on Mission Drive Blvd. on southeast corner of Euclid Ave. and Mission Drive. This is an ideal place and must be seen to be appreciated. Torrens Title. Address Owner, E. Dondanville, San Gabriel, California, Box 107.

AN IDEAL DAIRY RANCH

The Redlands and Yucaipa Land Company is offering for a limited time, a 1250 acre Dairy Ranch in the famous Yucaipa Valley—two miles from Redlands city limits — on the Ocean to Ocean paved highway. This ranch is equipped with buildings; no better soil in the state; has 500 acres suitable for alfalfa; 750 acres grazing land with live oak trees and living springs; also 100 inches water. One of the best dairying and alfalfa locations in the state. Price reasonable and terms easy. Address, Dike & Logie, Sales Agents, Redlands, California.

PRODUCING ORANGE GROVE
ONLY $2,000 CASH REQUIRED

250 valuable bearing orange trees, many young trees coming on, near packing house, close city, main improved road, 23 acres fine soil, 7-room house, piazza, fireplace, good water, magnificent shade, big barn, garage, poultry houses, other buildings, excellent condition; owner throws in cow, 5 hogs, poultry, wagons, etc., only $6,500, $2,000 cash, easy terms. Details page 55, Strout's Catalog Farm Bargains 33 States, copy free. STROUT AGENCY, 503 E. J., Wright-Callender Bldg., Los Angeles, California.

FOR SALE AND EXCHANGE

10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.

FOR SALE

Some of the finest dairies in the state. Chas. McNeely, Aipaugh, California.

ANTELOPE VALLEY

Buy cheap, good alfalfa and fruit land in the easy lift water district near improved dairy and hog ranches. $50 to $75 an acre, one-fifth cash. Send for circulars. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 685, Willows, California.

For Sale—Oxnard Suburban home site, 15 to 20 acres, good land, fine place for citrus, lemons, beans or sugar beets. Address Owner, W. R. Livingston, 426 B Street, Oxnard, California.

Diversified Farming Lands—Unsurpassed irrigation system; investigate; now's the time. Alex. Murdock, Stockton, California.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

TREES

For Sale—Budded Avocado trees, selected buds from fruiting trees, Fuerte, Dickinson, Puebla, two to three feet, $3.50; over three feet, $4.00. Ten or more trees, 10% discount. Balled and delivered at nursery. DR. H. B. STONEBROOK'S AVOCADO NURSERY. 15 N. Raymond, Pasadena, California.

For Sale—Placentia Perfection and Eureka walnut trees, also Eureka Lemon and Almond trees. These are all high grade stock. Ketscher's Nursery, 1101 E. 4th St., Santa Ana, California. Phone 572WK.

50,000 Florida Sour Orange Seed Bed Trees; 100,000 California Sweet Seedling Seed Bed Trees; Valencias, Eureka Lemons; Supply Co. buds. SOUTHLAND NURSERIES, 1941 East Colorado St., Pasadena, Cal. Phone, Colorado 6352.

For Sale — Valencia Orange and Eureka Lemons for fall and spring planting; all A-1 yearling buds selected from best bearing trees. Order early, good trees are scarce. A. R. Thurston, Montebello.

For Sale—1000 performance record Eureka Lemon Trees, two year buds. Nursery Colorado and Huntington Drive, Lamanda Park, Paul B. Magee, R. D. 2, Pasadena.

Fine Stock Valencia Orange trees, budded Placentia and Eureka Walnuts on black root. A. R. Marshall, 1212 Ross St., Santa Ana, California.

2 Year Pedigreed Lemons, $1.35; Valencias, $1.50. Seed bed stock. L. A. Tuttle, R. 2, Pasadena.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—4 Year Old Manzanillo and Mission olive trees. E. E. Barnes, Highland, California

For Sale — Several hundred Washington Navels, Valencia and Eureka Lemon trees. B. L. Byer, Upland, California.

HOGS

My Victor Herd — Headed by Billiken Chester Whites. For quality and big litters. E. E. Fulton, Box 7, Fair Oaks, California.

Chester Whites—Two sows, two boars, champion bred pigs for sale; eligible for registration. W. Leland Smith, Fair-oaks, California.

MACHINERY

FOR SALE—USED RANCH MATERIAL
WE SELL FOR LESS. SEE US.
WHY PAY MORE?
REBUILT WINDMILLS.

8, 10, 12-ft. sizes, with or without towers. Used Redwood TANKS; 2000-gal., $38; 5000, $68; 6000, $78; 30,000, $245. Many others. New, used GALV. TANKS; used 5000-gal. with top, $100; 3000, with top $75; 2000, with top, $52.50; 1500, with top, $38; new 1000 gal., $43.75; 2000 gal., $59.75.

PUMPS

Large Bulldozer, $135; No. 3 horizontal centrifugal, $65; No. 6 Gould hor. cent., $160; duplex boost pump, $49; No. 3 double-acting AMES, $375; rods, cylinders extra; many other snaps. Complete PUMPING PLANT, 15 h.p. Western gas engine with deep well double-acting AMES pump, rods, pipe, cylinder, belt, complete, $950; guaranteed good shape.

SPECIAL BARGAINS

Mower, $58; 4-gang Stockton plow, $28; potato planter, $65; 4-row beet planter, $25; 2-row bean cultivator, $35; 3 four-gang disc plows, $85 to $140. WHY PAY MORE?

IRRIGATING PIPE.

400 ft. 9-in., 55c; 500 ft. 7-in., 45c; 3-in., 16½c; new light weight, 4-in., 19½c; 170 ft. 8-in., steel riveted with flanges, 50c. We don't keep material; we SELL IT. Material guaranteed as represented or money refunded. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

For Sale—No, they are not sold yet; we offer, at bargain prices:
1 Hoover Potato Planter, practically new,
1 4-section Tractor Disc Harrow,
1 9-18 Holt Tractor, just overhauled.
All worn parts renewed. Phone 234 or address Rio Hondo Rancho, Compton, California.

"DON'T BUILD A TANK HOUSE"

Until you have investigated "Westco" Automatic Pressure Water Systems. Costs Less—Far Better. Ask for circular and prices.
Pumps—Motors—Tanks—Gas Engines.
CALIFORNIA PUMP COMPANY,
919 6th St., Sacramento, California.

For Sale—Holt 75 H. P. tractor (Caterpillar) is absolutely in perfect condition. No reasonable offer refused. Apply Sam F. Scott, 354 Pine St., San Francisco, Cal. Phone Kearny 2556.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—First class condition, used 26-inch Caterpillar disc plows; also a Holt land leveler. Apply Newmark Grain Company, 447 So. Los Angeles Street, Los Angeles. Ask for Krauss.

For Sale—Bean Tools, Planters, 12-foot Hallock Weeders, Cutters, 2 and 4 row Cultivators, Farquhar Thresher, Fanning Mill. Bradford Bros., Placentia, California.

Agency Discontinued—New floor sample S.25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros. Co., Carpinteria, California.

For Sale—Holt 45 Tractor, two engine plows and tank wagon, all in good condition. Price $2500.00. W. R. Mayo, Compton, California.

For Sale—Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

SEEDS AND PLANTS

Rhodes Grass—Is making Imperial Valley famous and will make any other section famous, if it is planted, especially if the soil is hard or alkali. Write Imperial Valley Seed House for Literature. El Centro, California.

"Surest and Best Crop in Cal. Today: Figerinos—the fruit of our wonderful Cactus. Now actually paying over thousand dollars per acre. Proof abundant. Write J. L. Lawson, San Jose, Cal."

I Have Been Shipping Ranere Raspberries to San Francisco since May 5, receiving $45 a chest. Taking orders for plants for December delivery, $10 per 100. F. Everton, R. D. A, Box 305, Mt. View, California.

All Kinds Seeds — Plants and Nursery stock. No. 1 Alfalfa 35c. Sudan 8c and up. Dwarf Milo Maize, Honey Sorghum, Amber Cane. Box 501, Fowler, California.

R*O*S*E*S—$1.50 per doz. Fruit and Ornamental trees, plants, vines, etc. Write for special price list. Kavan Bros. & Currier, San Bernardino, California.

Napier Grass—Strong roots, 25 one dollar; hundred $2.50; thousand $20.00. W. Rubell, 221 N. Catalina Ave., Redondo Beach.

Sweet Potato Plants—Yellow Jersey. V. Imbert, Norwalk, Cal. Tel. Downey 1186.

Yellow Sweet Potato, tomato and pepper plants. Address Ancona Farm, Ontario.

Pumpkin Seed — Mixed Pumpkin Seed, good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

LIVE STOCK

BUTTE CITY RANCH

Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Next sale all breeds, second week in August at ranch. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County California.

Grape Wild Farm—Berkshires, Guernseys. Big Type Berkshire Boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

For Sale — Fifteen milch goats, mostly fresh and coming fresh in June. Fifteen to fifty dollars. Calpensyi Goatery, 5th and Bdwy., East San Gabriel, California.

Registered Female Collie Pups — From work stock. Special price $7.50 account overstocked kennels. Arbor Barth, Manteca, California.

Carruthers Farms—Live Oak, California. Shorthorn cattle and Berkshire swine of quality and select breeding.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

TOYON FARMS CONSIGNMENT TO THE NATIONAL GUARANTEE SALE

Two good Holsteins leave the state next June when Toyon Farm Association ship Moxee Johanna Korndyke Piebe and Princess Jonge Buckeye to the National Sale at St. Paul. Nothing but the best can make the long trip to this Eastern classic. These two cows certainly belong in this category.

Moxee Johanna Korndyke Piebe is a three year old daughter of Cascade Fleta Johanna, the 30,000 pound cow who recently completed her remarkable test period. Her sire is Sir Korndyke Ormsby Piebe, a grandson of Sir Pietertje Ormsby Mercedes. The get of this famous old sire have repeatedly topped the Eastern sales. This cow's breeding should make her a popular subject in the bidding and she should bring a good price. She is in calf to Sir Pietertje Ormsby Mercedes 43rd and her calf thus carries a double cross to Sir Pietertje Ormsby Mercedes.

Princess Jonge Buckeye is the second entry for the sale. She has just completed her third test period, making 1,050 pounds of butter from 27,906 pounds of milk. Her records have all been good, so she carries her own guarantee. Her sire is Prince Hengerveld Buckeye 2d, a grandson of Prince Hengerveld Pietje, sire of two three-times 30 pound cows. The dam Highlands Jonge Pride 2d is a 26 pound cow. Princess Jonge Buckeye is safe in calf to Sir Aaggie Mead, one of the best young bulls in the world.

SALE OF HOLSTEIN BULLS

The Stanislaus County Holstein Breeders are featuring a sale, probably the first of its kind on the coast, a sale of bulls, mostly young though ready for service. It is to be held at Modesto, Thursday, May 27. One of the most promising of these is a son of Sir Johanna De Kol Rag Apple; another is the son of a 30 pound bull, El Prado Wayne Colantha; another is a double grandson of the $50,000 King Segis Pontiac Alcartra. Other offerings are of great merit. Secretary E. M. Morrow of Modesto is mailing the catalogs.

PREVENT FIRES

"Help Prevent Forest Fires" is the slogan which will appear on all mail passing through Uncle Sam's post-offices at Sacramento, San Diego and Los Angeles.

"We hope, by the use of post office cancellation dies, as well as by other means, to bring home to the people of California their individual responsibility in the matter of forest fires," says District Forester Redington.

"Campers in the national forests of this state last year were responsible for over 30 per cent of our fires," he continued, "and yet those very campers are loudest in their denunciation of the annual destruction of our forests by fire. If they would only learn to be careful, to build a small fire and never to leave it until they had put it out with water and then covered it with earth, they could go back each year to their favorite camp grounds. As it is, many of the most beautiful of mountain camping spots are being destroyed by fire each year."

"Help Prevent Forest Fires" should be the first thought and the last of every mountain camper this year.

SALT THE FLEAS

A great many inquiries are reaching the bureau of entomology, United States department of agriculture, for methods of controlling fleas. The work of the department has shown, fortunately, that the best means of controlling fleas in most instances is very simple. Fleas usually originate in the basement of the house, or in some covered place such as woodsheds and stables, to which hogs, dogs, or other such animals have access. The remedy is to give the basement, shed, or other breeding place a thorough cleaning, burn the litter, and then sprinkle the floor or ground in the building or shed with common salt. The salt should be sprinkled thickly enough almost to cover the ground and should then be wet down with water, the specialists say. It should not be wet sufficiently to cause it to run, however. If there are about the place any houses, cribs, or the like built on piles so that hogs and other animals can go under them, salt should be applied there. Generally speaking, it is fairly easy to determine where the fleas originate, and it is usually such a place as can be reached by the salt treatment. It may be necessary to repeat the operation two or three times at about three day intervals.

CONTROL AMERICAN FOULBROOD

American foulbrood is a disease of the brood of bees which is causing great losses to American beekeepers. It has existed almost since bees were were first brought to North America.

It is important that the beekeeper should know whether American foulbrood or European foulbrood is in his apiary, for the two do not respond to the same treatment, according to Farmers' Bulletin 1084, "Control of American Foulbrood," recently issued by the United States department of agriculture.

In American foulbrood control it is necessary that all combs, honey and other materials from the inside of the hive be taken from the bees and that a chance be given them to establish themselves again on new combs. Several methods are given in this bulletin, but the underlying principle is the same in all cases.

No measures which the beekeeper may take will put his bees in such condition that they will not contract this disease, but by guarding them from infection he may save himself much worry and financial loss.

The facts about the disease on which the treatment is based are discussed in this bulletin and the treatment is described in full. The bulletin will be sent free on request.

RASTUS UP TO DATE

Rastus: "Ah've named ma old cow United States."

Sam: "Whaffo do you did dat?"

Rastus: "She done gone dry."

SOME "HA'NTS"

Sweet She: "Some of these old songs haunt me."

Sour He: "Is it because you murdered them so long ago?"

Control CITRUS Pests with NICO-Sulphur

The greatest discovery of the day. Kills all citrus pests in ONE operation. From special formula by Prof. Ralph E. Smith of U. of C.

We are exclusive distributors.

For perfect results use NIAGARA DUSTING MACHINES.

Germain Seed & Plant Co
Established 1871
N. E. Corner Sixth & Main Sts.
Opp. P. E. Depot
Los Angeles, Cal.

YOUR party, dance, social or club session calls for refreshments—and there's one unfailingly successful beverage—Ghirardelli's. Creamy, delicious, fragrant—it's an instant favorite with or without cakes or sandwiches. Better than all, Ghirardelli's is made in a jiffy!

Never sold in bulk—but in cans only.
In ½ lb., 1 lb. and 3 lb. sealed cans—
at the store where you do your trading.

Say "Gear-ar-delly"

D. GHIRARDELLI CO.

Since 1852 San Francisco

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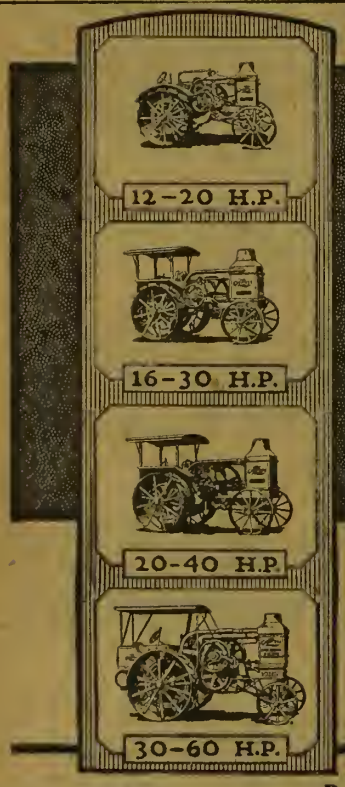
Ground Chocolate



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There's a size OilPull for every need—all standard in design, all *guaranteed* oil burners.

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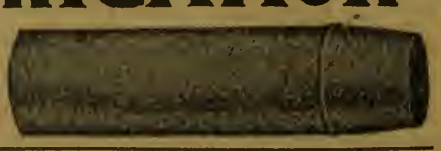

California Cultivator
Costs $1 per Year

Household Department

CLEMENCEAU

By James J. Montague

At fifty-two or fifty-three,
When your old dad and mine
Contentedly sat down to watch
Their suns (not sons) decline.
A gentleman named Clemenceau,
Who dwelt somewhere in France,
Was saying, "In a year or so
Perhaps I'll get my chance!"

At sixty-two, or thereabout,
When, reader, you and I
Without a shadow of a douht
Will feel not quite so spry,
This husky, time-defying chap,
As lively as a pup,
With all his intellect on tap,
Was making France sit up.

At seventy (when we'll be glad
(If we are still around),
This indestructible old lad
Was hale and hard and sound.
At seventy-six, still going good,
The same old thoroughbred
Again got on the job and stood
The kaiser on his head.

And now, arrived at seventy-eight,
He sighs in calm content
When beckoned by the hand of fate
To run for president.
Here's to that lusty heart and brain!
Long may they live and thrive.
Who knows what heights they may attain
When he is ninety-five?

MORE BEAN RECIPES

Bean Soup

1 pint small or large white beans, 1 quart of milk, 1 small onion, 4 tablespoons chopped parsley, butter size of hens' egg.

Beans should be soaked over night and boiled until the skins slip, adding a piece of salt pork when cooking. Rub through a sieve. Fry the onion slowly in butter. Heat the milk in double boiler. Put in butter and onion; add the strained beans, salt and pepper. Let stand, keeping them hot, for two hours. When serving add chopped parsley, stir in and serve at once. This will serve four persons.

Using this same foundation, add half as much strained, well cooked potatoes, a few carrots, and the result is Potage Nirermaise.

Buttered Beans

1 pound large white or kidney beans, 1 tablespoon salt, 5 tablespoons butter, ½ teaspoon pepper.

Wash the beans, cover with water and let them stand over night. It will then be comparatively easy to press the beans out of their cellulous casings. Then cover the beans with a quart of water, bring slowly to a boil, drain, rinse with cold water, again cover with water and simmer for about one and one-half hours. Be careful that the mixture does not burn. Watch constantly and stir often, especially during the last half hour. Add more water as needed during the cooking. When the simmering is finished, put the beans in a baking dish, season with salt, pepper and all but one tablespoon of the butter, adding just water enough to make them the consistency of very thin mashed potatoes. Bake for an hour in a slow oven. Twenty minutes before taking them out dot the remainder of the butter over the top. Serve hot or cold.

Jellied Beans

1 cup cold beans, 2 tablespoons gelatine, salt and paprika, 1 bay leaf, 1 pint tomato juice, 1/3 cup cold water, 1 tablespoon minced onion.

Make a plain tomato jelly by dissolving gelatine in cold water and pouring over this the hot tomato juice in which the seasoning ingredients have been cooked. Add to this mixture one cup cold boiled beans. Pour mixture into molds and allow them to chill. Serve with boiled or oil dressing.

Bean Muffins

2 eggs well beaten, 1 cup cold boiled bean pulp, ½ cup milk, 1/3 cup melted fat, 1 teaspoon salt, 2 cups flour, 2 teaspoons baking powder.

Combine above in order given. Bake muffins in greased muffin pan for 20 or 25 minutes.

Tomato Sauce for Bean Loaf

Stew tomatoes, strain and put the juice down to boil with a little of the mixture; add salt and paprika; thicken to consistency of drawn butter with a little flour.

AN IDEAL LIVING ROOM

A room in which we can spend happy, restful and inspiring hours. It is built on a generous plan with wide casement windows to bring in air and light, and straight hanging draperies drawn back to frame vistas of garden and orchard. The big tapestry covered Davenport welcomes to its comforting arms one or two or three—or maybe four—of the family or makes a comfy coach for tired Dad while Mother reads or sews in the low arm chair opposite. The reading lamp, the table with its books and flowers, the bookshelves beyond unite in creating a homey and beautiful corner.

Pieces of furniture like these are built to last a lifetime and more and only grow handsomer and better as the years go by. They are an investment which brings big returns in comfort and satisfaction as well as in actual financial saving.

THIS WEEK'S PATTERNS

The Cultivator is glad to give this week pattern of a corset cover which has been often requested. 2905 shows a cover with inconspicuous shoulder straps and cut wide and low under the arms to give the maximum protection and comfort. A hint as to the shoulder straps. If these are made of footing or of a good quality of net insertion, they will effectively conceal brassiere or vest strap underneath and render all practically unnoticeable. Straps of vest and brassiere may also well be replaced by similar insertion for wearing under sheer waists and summer dresses. Be sure to send size, name and address when ordering.

The summer gown 3231-3218 carries suggestion of old time rose gardens and shady porches and dainty slippered leisure. Be sure to note the dress requires two patterns, one for waist, one for skirt, each costing ten cents, 20 cents for both. Many of our patrons fail to get their patterns on time because they fail to note that two patterns make up some of the costumes and send only ten cents to pay for one. Be sure to read description of sizes and prices under each pattern number.

The Cultivator Patterns

BE SURE TO SEND SIZE

3230. Ladies Dress—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inchee bust measure. A 38 inch size will require 5¼ yards of 36 inch material. The width of the skirt at lower edge is 1⅝ yard. Price 10 cents.

3238. Girls Dress—Cut in 4 sizes: 4, 6, 8 and 10 years. A 6 year size will require 3¾ yards of 27 inch material. Price 10 cents.

2991. Ladies House Dress—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5⅜ yards of 36 inch material. Width at lower edge, is about 2¼ yards. Price 10 cents.

2905. Ladies Corset Cover—Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Size medium requires 1⅛ yard of 36 inch material. Price 10 cents.

3231-3218. A Charming Costume, 20 cents—Waist 3231—Cut in 7 eizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3218—Cut in 7 eizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. For tho entire costume 7⅜ yards of 36 inch material will be required for a medium size. The width of the skirt at lower edge is about 1¾ yard. TWO scparate patterns 10 cents FOR EACH pattern.

3246. A Dainty Dress—Cut in 5 sizes: 4, 6, 8, 10 and 12 years. A 10 year eize will require 3¾ yards of 27 inch material, and 1¾ yard for the jumper or overblouse. Price 10 cents.

3023. Ladies Apron—Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Size medium requiree 4¾ yards of 36 inch material. Price 10 cents.

3224. A Set of New Sleeves—Cut in 4 eizes: Small 10, medium 12, large 14, extra large 16 inches, over fullest part of the arm. It will require 1¼ yard of 27 inch material for No. 1, ⅞ yard of 36 inch material for No. 2, and ⅝ yard of 36 inch material for No. 3, for one pair of sleeves in a medium eize. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) etamps for each number. In order to furnish our readere with the very latest **NEW YORK** styles, all patterns ordered are filled in **NEW YORK.** Therefore, we promiee to deliver all patterns ordered within **TWO WEEKS;** we guarantee eafe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

3230 looks as if it had just come from a specialty shop which tags amazingly big prices on perfectly simple looking gowns because they have the air of being just right and "exclusive." Simple as it is it has the great charm of perfect design in every detail. A bit of hand embroidery in your own pet color and design will make it distinctive.

The three beautiful new sleeves 3224 are included in the same pattern for ten cents and afford opportunity for changing last year's gowns. No. 1 has an insert, No, 3 a flaring end added, and No. 2 is cut short, so that all are helps to the "make-over" dressmaker.

HOUSEHOLD QUERIES

Spanish Herbs

We have had so many inquiries for address of dealer who can supply Spanish herds, used in recipe for pink beans given by Mrs. Torbert in the Cultivator of April 10, that we have been investigating and find that the names of the Spanish herbs used are oregano, a dried leaf of a plant of the lippia family, and comino (cumin). These may be purchased separately and combined according to taste. Mrs. Torbert recommends using a little more of the leafy herb (oregano) than of the seed (comino). For convenience of inquirers we repeat Mrs. Torbert's recipe for preparing pink beans:

One quart beans (dry), cook till half done or more; one large onion, one red pepper, one slice bacon, one-half cup salad oil or olive oil, pinch of black pepper, salt, one-half can tomatoes, one large pinch Spanish herbs (use a little more of the leafy herb than of the seed). Tie these two herbs together in cloth and add everything named except salt when beans are beginning to soften. Salt when about done.

We have on file in this office addresses of a firm in Stockton which carries the Spanish herbs and of two in Los Angeles, and if readers do not find them in their own locality we will be glad to send by letter on receipt of request.

Drying and Candying Figs

Please tell me how to dry figs, the kind we see in boxes with nuts on top. Are the black and white figs dried the same way? — Subscriber, Tracy.

Directions for drying figs are given on Page 854 of this issue. The black and white figs may be handled in the same way and are equally good. These are placed in the fancy gift boxes displayed in grocery and confectionery stores with a half nut meat pressed on top. Or, thinking possibly our subscriber may refer to candied figs, we give here directions for preparing in this way. These directions also answer for candying other fruits:

Use ripe, firm figs; puncture in several places with wooden toothpick. After preparing as above, the fruit is cooked gently from three to five minutes. Too much cooking will spoil the shape and texture. Too little will result in slow penetration of the sugar, dark color and toughness.

Make a syrup of 25 degrees Balling, about one part sugar to three of water. Heat syrup to boiling and pour over the cooked fruit placed in an earthenware pot while still hot. A Balling saccharometer is convenient when working on a large scale, but is not necessary for small quantities. Half the sugar in this first syrup may be replaced with Karo or other liquid glucose. This prevents the hardening of the finished fruit by crystallization and makes it more translucent.

Keep submerged in syrup. Remove the syrup every 24 hours, increase five degrees Balling by the addition of about one-quarter the amount of sugar used originally, boil, and pour back on the fruit. When the syrup reads 68 degrees Balling (as thick as honey) it is dense enough.

Leave in the last thick syrup until it has penetrated the fruit (three or four days) and then place on a wire screen to drain a few days until the outside of the fruit ceases to be sticky. The fruit will drain more quickly if placed in the sun or other warm place.

The finished fruit may be packed in candy or cardboard boxes lined with paraffin paper or in open jars. In airtight containers they may mold; some ventilation is necessary.

Those who want plans and ideas for making their homes more beautiful and comfortable, will enjoy every one of these FREE BOOKS.

The Coupon below—clipped and filled in and mailed to Barker Bros. will bring them to any home lover with our compliments.

Four walls make a house—but—it requires Furniture to make a Home, and well chosen Furniture to make a successful home.

A successful home is well planned—every item of Furniture is thought over and discussed by all the family. It grows in beauty and comfort because of wise planning. Its charm is maintained by constant attention.

To plan wisely is not always easy particularly for those who are far removed from easy access to big city stores. Barker Bros. for years have been helping home lovers by issuing Booklets, Magazines and Catalogs about the things that make home comfortable and more successful.

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As offered FREE in your advertisement please send me the publications listed below:

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( ) HEARTHSTONES Monthly magazine of Ideas and Helps in choosing Furniture.
( ) QUALITY-REED CATALOG. Describes and pictures Reed Furniture.
( ) LINEN-BEDDING - MATTRESS Catalog.
( ) DRAPERY and RUG CATALOG. A booklet of suggestions for making home beautiful.
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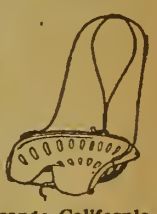

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HAROLD SOMERS, 160 De Kalb Ave., Brooklyn, N. Y.

RHUBARB 90% of the Rhubarb grown in Southern California is Wagner's Improved Giant—Growere making over $1,000 first year. Splendid reeulte in 6 monthe from planting. May, June and July best months to plant for crop next winter. Get plants true to name from the originator. J. B. Wagner, Pasadena, California.

The California Cultivator Costs Only $1 Yearly

Los Angeles Markets

Los Angeles, May 19, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price 56 cents.

Dairy Exchange prices last week on extras:

May	12	13	14	15	17	18
'20 ...	53	54	55	54	56	56

CHEESE

Brokers' prices:
California flats, 27 per lb.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 44 per dozen; case count Produce Exchange closing price 40 per dozen; pullets, Produce Exchange closing price 33 per dozen; pewee pullets, 29.

Dairy Exchange prices last week on extras:

May	12	13	14	15	17	18
'20 ...	44	44	44	44	44	44

POULTRY

Price to producers: Hens, lt., 26; heavy, 32@34, broilers, 27@34, roasters, 38; old roosters, 14; ducks, old, 23; ducklings, 28; ducklings, Pekin, 3½ up, 30; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 16; old, 9.

LIVE STOCK

Los Angeles, May 18 — Weighed and delivered off cars without food or water:

Hogs (hard-grain), 125 to 175 lbs., 15.50 175 to 225 lbs., 16.50.

Cattle (on foot, gross weight)—Steers, good, 11.00@11.50; medium, 10.50@11.00; cows, good, 9.00@9.50; medium, 8.50@9.00; bulls and stags, 6.00; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, May 18, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Old Stock: Market firm. Stockton: Burbanks, fancy and special brands, 7.00@7.50. Idahos: Russets, fancy, 7.50@8.00. New stock: Market firm. Local Early and White Rose, No. 1's, 2.75@3.10; mostly 2.90@3.00; No. 2's, 1.25@1.75 lug.

Onions: Wide range in quality; demand and movement slow; market weak. New stock: Supplies heavy. Imperial Valley and Coachella Valley: Wide range in prices. Bermudas, 1.50@2.00 per crate; lugs, 1.00@1.10. Crystal White, crate, 1.75@2.25; lugs, mostly 1.10@1.20.

Garlic: lb., 40@50.

VEGETABLES

These are the actual prices obtained May 18, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., best, 75@1.25.

Asparagus: Supplies moderate. Delta section: Best, 10@12; local, 15@17.

Beans: Wax, lb., 7@9; Ky. Wonder, 9@11.

Beets: Doz., 40@50; lb., 4@5; sk., 2.00@2.50.

Cabbage: Market unsettled, movement slow; wide range in quality; best, 1@2 per lb.; per crate, best, 1.50@2.00.
as 75. Red cabbage, 3@4 per lb.

Carlots: Demand slow, movement limited, market weak, little change in prices. Carlots f.o. b. usual terms. Cannonball and Winningstadt, per ton, 25.00@30.00; mostly 25.00.

Carrots: Doz., 40@50; lb., 2; sk., 2.50@2.75.

Cucumbers: Market weaker. Local Stock: 1.00@1.35 per dozen; 2.50@2.75 per box.

Corn: Doz., 90@1.00.

Egg Plant: Best, lb., 25@30.

Lettuce: Supplies heavy. Crates, best, mostly 50@75; others low as 35.

Carlots: Demand moderate, movement limited by car shortage; market steady. Many cars rolling on consignment. Carlots f. o. b. usual terms. California crates, Iceberg, mostly 1.75@2.00. Cash sales, 1.50@2.00; mostly 1.50@1.75.

Parsnips: Lugs, 1.00@1.50; sacks, 3.00@3.50; per dozen, 45@55.

Peas: Local, lb., 5@8; poorer low as 3; Northern, lb., 7½@8½.

Rhubarb: Strawberry, bx., 1.25@1.50; Crimson Winter, 75@1.00.

Spinach: Doz., 20@30; lb., 2.

Squash: Imp. Valley, summer, cr., 1.00@1.10; local, lug, 1.50@1.75.

Tomatoes: Imperial Valley Stock: Supplies liberal; market steady; per crate, best, 2.00@2.35; Mexican best, 10@12 per lb.

Turnips: Per dozen, 45@60; per sack, 2.00@2.50.

FRUITS

These are the actual prices obtained May 18, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtown Pippins, 4-tier, 2.00@2.75; 4@6 per lb.; Romes, 2.65@3.25; lb., 6@8.

Apricots: 15 lb.

Bananas, 8@9; Red, 10.

Cherries: Black Knight and Black Tartarian, best, 25@32 per lb., poorer, 18@20 per lb.

Gooseberries: lb., 15.

Loquats: Best, mostly 12@15; poorer low as 7 per lb.

Strawberries: No arrivals. Local: Market firm. Per crate, 5.00@6.50; best, mostly 5.00@6.50; per tray, 2.50@3.25.

Grapefruit: Per box, best, 4.00@4.50. Seedlings packed, 2.50@3.00; loose, 2.00@3.00.

Lemons: Market firm. Local Stock: packer, 3.50@4.25; loose, 2.00@2.25; 2@3 per lb., juice, 2.00@3.00.

Oranges: No carlot arrivals. Supplies liberal. California Navels, best brands, packed, 80's to 100's, best, 5.00@5.75; 126's to 150's, 6.00@6.50. Local market: Packed, 4.25@5.50. Large sizes low as 2.25. Valencias: Packed, best brands, 5.50@6.00.

HONEY

Clear, cool. Demand exceeds supply, movement limited, market higher. Old honey practically exhausted, new supply not on market for about three weeks. Carloads f. o. b., usual terms: Light amber sage per pound, 18; light amber alfalfa, 17. Beeswax, l. c. l. lots, 40@42.

BEANS

300 cars limas sold by association at $10.43 f. o. b. Oxnard. See further comment Page 852.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

HAY

Alfalfa Growers of California, under date of May 19, say: Receipts of alfalfa hay this week still show no material increase. They are remarkably light for this time of year, especially as far as better grades are concerned, the arrivals of which are not sufficient to even satisfy the current demand, let alone stocking up for future use. Prices remain correspondingly firm.

As the season advances, it is becoming more and more evident that important changes in the line up of production and distribution of alfalfa hay in the state have taken place this year, which are apt to effect materially the supply available for shipment to the central consuming markets.

These factors are, principally the net decrease in acreage in favor of other crops, the shortage of water for irrigation purposes, change from producing hay for marketing to its use for dairying, and generally light yield in other sections so far this season. The result is that the first cutting usually more or less of a drug on the market on account of its inferior quality, has in almost every section been eagerly picked up by the consumer in the same districts it was raised, at prices ranging far above Los Angeles market, so a very small percentage of the first cutting remains unsold. The question thereupon is whether the remaining cuttings from this reduced acreage and a probably lighter yield will furnish sufficient hay to satisfy local demands, and also the shipping demand and what effect this situation will have on prices.

The situation is complicated by the fact that the states which usually make up a shortage in California by shipping into this state, seem to be worse off that we this year. The alfalfa growers in these states—Nevada, Idaho, Oregon and Utah—are all expecting to be short this year. The principal marketing acreage of Nevada figures on only one cutting this year on account of water shortage. Oregon is in the market, and is making bids at present in Northern California for alfalfa hay. One of them from a Portland concern, was $27.00 per ton, f. o. b. shipping point for Foxtail first cutting hay. A shortage in California and also in those other states would, of course, make a serious situation all around and its effect on prices can easily be conjectured.

San Francisco buyers have recently been making offers for second cuttings around $30 per ton, f. o. b. shipping point.

The Eastern market for feeding stuffs of all kinds remains extremely firm. No. 1 timothy hay sold this week in Chicago at $50 per ton; standard timothy at $48 per ton. Bran in Minneapolis (the principal producing market of this commodity) sold at $60 per ton. All of these are unheard of prices.

Southern California conditions are improving daily. In regard to the condition of hay received, the demand, and price:

Choice Alfalfa, 38.00 per ton.
No. 1 Dairy Alfalfa, 34.00 per ton.
Standard Dairy, 30.00 per ton.
Stock Alfalfa, 27.50 per ton.

GRAIN AND FEEDS

Price bid local grain exchange, May 18:
Barley, 3.42.
Milo: 2.95@3.28¾.
Eastern Kafir: No. 3, 3.00.

San Francisco Markets

San Francisco, May 18, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:
Extras 56½
Prime Firsts .....Nominal

Extras past wk. and year ago:

May	11	12	13	14	15	17
'20 ...	55½	55½	55½	57	56	56½
'19		58½	59½	60	60	61

Rcts. wk. ending May 18, 5,329 centals.

CHEESE

Dairy Exchange quotations:
Jack, full cream .....23@26
Cal. Y. A. 29½
Ore. Trips 30
Cal. Flats .....24½@28

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 47½
Firsts 43
Extra pullets 41
Undersized 34

Extras past week and year ago:

May	11	12	13	14	15	17
'20 ...	47	46½	47	47½	46½	47½
'19		52½	52½	52½	52	52½

Rcts. wk. ending May 18, 585,586 dozen.

POULTRY

Wholesale prices are:

Leghorn, 30@33; large, 38@40; roosters, young, 45@50; old, 18@20; broilers, 28@35; fryers, 45@50; turkeys, live, 37@40; dressed, 48@50.

Ducks, Indian Runner, 23@25; Pekin, 28@30. Squabs, 55@60; pigeons, doz., 2.35@2.50.

Belgian hares, live, 22@25; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle: Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 10½@11½; do, 1,200 to 1,400 lbs., 10@10½; do, second quality, 8@9½; thin, 6½@8.

Cows and Heifers: No. 1, 8@9; second quality, 7@8; common to thin, 3@5.

Calves: Light weight, 12@12½; medium, 9@10; heavy, 8@9.

Lambs: Milk, 11@12; yearling, 9@10.

Sheep: Wethers, 8½@9; ewes, 7@7½.

Hogs: Weighing 100 to 150 lbs., 15; 150 to 225 lbs., 16; 225 to 300 lbs., 15½; 300 to 400 lbs, 14½.

Virden Packing Company quotes prices on live stock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle: Good steers, 1000 to 1100 lbs., 10@10½; top steers, 1100 to 1200 lbs., 9@9½; good heifers, 1200 lbs. and over, market price; good cows and heifers, 7½@8; No. 2 cows and heifers, 6½@7; canner cows, 3½@4; good bulls, 4½@5.

Calves: Light, 13@14.

Hogs: Top packer, hard and well finished; 100 to 150 lbs, 15½; 150 to 225 lbs., 16½; 225 to 300 lbs., 15½; over 300 lbs., 15; under 100 lbs., 14.

Ewes: Full wool, 7@8.
Wethers: Full wool, 9½@10.
Yearlings: 10½@11.
Milk lambs: 11½@12.

POTATOES

Per 100 lbs.: River, fancy, 4@5 per lb.; new garnets, 6.50@7.00; Turlock sweets, 10 per lb.

ONIONS

Crystal white, 2.25@2.75; red, 3.75@4.25; brown, closed out. Garlic, 30@40.

VEGETABLES

Wholesale selling price:

Artichokes, 1.00@5.00.

Asparagus: lb., white, 6½@8; graded, 8@11; gr., 5@7.

Beans: lb., string, 10@12; wax, 10@12½.

Brussel Sprouts: lb., 8@9½.

Carrots; sk., 1.00@1.50; long, 40@50 per dozen.

Cauliflower, doz., 1.25@1.45.

Cabbage: lb., 2¼@2½.

Celery: cr., 2.50@3.50.

Cucumbers: Eng. doz., 2.00@2.25; hothouse, bx., 3.25@4.00; southern, 3.00@4.50.

Lettuce: L. A., 1.00@1.50.

Peppers: Fla., 40@50 large; 10@15 small.

Peas: lb., green, 3½@5.

Radish, 7@9 doz. bunches.

Rhubarb: bx., 1.25@2.00.

Spinach: cr., 1.00@1.50.

Tomatoes: Brawley, cr., 2.25@3.00.

DECIDUOUS FRUITS

Apples: Newtown Pippins, old stock, 2.75@3.00; Oregon, 2.75@3.25.

Apricots: Imperial Valley, 1.75@3.00 crate of 4 baskets.

Bananas: lb., 8@10.

Blackberries: dr., 2.75@3.00.

Cherries: Purple Guigne, 2.50@3.25 per crate; loose, 10@15 lb., according to quality.

Dates: Dromedary Golden, 7.00@7.25 case.

Loquats; lb., 5@9.

Pineapples: Doz., 3.50@5.50.

Raspberries; dr., 1.40@1.65.

Strawberries; Peninsula, dr., 65@75.

CITRUS .....

Box: Lemons, standards, 2.50@3.00; lemonettes, fancy, 1.00@1.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 3.00@6.50; limes, 4.00@4.50 crate; tangerines, 1.50@3.25 crate.

DRIED FRUITS

Prunes:

Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.
For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2 c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special, "practically peeled," 16¾c per pound, bulk basis.

Apples:

Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:

White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:

Standard 20, choice 22½; extra choice, 24; fancy, 26@27.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

Raisins:

California Associated Raisin Company's prices guaranteed to January 1: Seeded: Sun-Maid, 16s, package, 15; fancy, 16s, package, 15; fancy, 12s, package, 11¾; choice, 16s, package, 14½; choice, 12s, package, 11⅝; bulk, fancy in 25s, 14¼; bulk, bakers, in 25s, 13½; bulk, Malagas and Feherzagos, in 25s, 13. Loose Muscatels: 4-crown, in 25s, 14¼; 3-crown, in 25s, 13¾; 2-crown, in 25s, 13¼; 1-crown recleaned, in 25s, 14. Seedless: Thompsons, 16s, 15½; Thompsons, 12s, 12½; Thompsons, bulk, recleaned, in 25s, 14½; Thompsons, bulk, bakers, in 25s, 15½. Bleached Thompsons: Choice, in 25s, sulfur, 18; fancy, in 25s, sulfur, 18½; extra fancy, in 25s, sulfur, 21; soda dipped, in 25s, 17¾; oil dipped, in 25s, 17¾; Sultanas, 16s, 15¼; Sultanas, bulk, in 25s, 14¼. Layers: 6-crown, flat pack, 20s, per box, 4.05; 6-crown, flat, 10s, per box, 2.20; 6-crown flat pack, 5s, per box, 1.20; 4-crown, flat pack, 20s, per box, 3.20; 4-crown, flat pack, 10s, per box, 1.75; 4-crown, flat pack, 5s, per box, 1.00; 3-crown tray pack, 20s, per box, 3.10; 3-crown, flat pack, 20s, per box, $2.95; 3-crown, flat pack, 10s, per box, 1.60; 3-crown, flat pack, 5s, per box, 95; clusters, 20-1s, cartons, 3.45; clusters, 12-2s, cartons, 3.80; clusters, 4-5s, cartons, 4.50; vineyard run, 100s, 13.00.

RICE

The domestic market is unchanged. Mills are receiving very little paddy, due to the railroad strike. Spot stocks are somewhat depleted. Fancy California Japan, prompt, is quoted at 10.75, June at 10.85, July at 11.00 and choice 25 cents less.

BEANS

Jobbing prices at San Francisco, per cental: Small white, 5.75@6.00; large white, 6.20@6.35; cranberry, 6.00@6.50; red Mexican, 8.50@8.75; pink, 6.40@6.50; California Bayo, 9.50@9.75; blackeye, 7.25@7.50; red kidney, 13.00@13.25; lima, 10.25@10.50; Garvanza, 9.00@9.50; Kotenashis (in bond), old crop, 5.25; new crop, 5.75.

Dried Peas: California, 5.25@5.50 cental.

HOPS

1919 crop, 1.00 per lb. Prices to growers for 1920 crop, 80 per lb.

SPECIAL

Coffee at Wholesale Prices

to readers of this paper, direct from the importer and roaster. Mention this paper and send 40c for a pound of our Household Blend Coffee.

Roasted just right and ground to please.

It's 50c Elsewhere

Delivered free to your door by parcel post, including our latest catalogue.

Money back if not satisfied.

LEE-KOE REG

TEA, COFFEE & BEVERAGE CO.

316 West Fifth Street, Los Angeles, Cal.

HONEY

Demand and movement good, supplies light. Prices, cash to producers: light amber alfalfa, 14@15. Beeswax—demand and movement moderate, at 39@40.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

Hard White—	Per Bus.	Per Cen
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.58
No. 3	2.00	3.48 1-3

The above are minimum prices.

For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.15@3.30.

Corn: California yellow, 3.50@3.65 per cental; Egyptian white, 3.80@4.00; milo maize, 3.35@3.45.

Barley: No. 1 feed, 3.30@3.40.

HAY

Under date of May 15 Scott-Magner says:

Receipts past week 708 tons. Even this small tonnage is not delivered as it arrives because of difficulties in switching. These crippled conditions have upset the hay business badly and prices quoted can only be considered nominal because the trading is so light and the interruption in service so serious that extra prices are paid when goods are obtainable and are really no indication of any stable market conditions here. Practically nothing has come in from outside states and the bulk of receipts is of the clean-ups in lots of old hay and the beginning of the new alfalfa. It is yet too early to form opinion as to the quantity or volume of the new hay crop although many wild guesses are being made at the present time. It has been many years since conditions such as exist have been known in San Francisco or in the state hay market. Dealers and consumers are, therefore, naturally backward in setting figures for trading or in making any substantial offer. Buyers are paying what prices are asked at the present time to supply their immediate need but none are prepared to purchase in any quantity at anywhere near the present range of prices. We quote today wholesale prices in carload lots (old crop) as appear from dealers' transfers upon the hay market in San Francisco) for prices to consumers charges of cartage, commission and handling expenses must be made according to conditions):

Fancy wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat and Wheat and Oat hay	35.00@38.00
No. 2 Wheat and Wheat and Oat hay	32.00@35.00
Choice Tame Oat hay	37.00@40.00
Wild Oat hay	Nominal
Other Tame Oat hay	33.00@37.00
Barley hay	Nominal
Alfalfa hay new	Nominal
Alfalfa hay, old	30.00@32.00
Stock hay	29.00@32.00
Oregon Cheat and Oat hay	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, May 19, 1920.

Orange shippers are getting a fairly satisfactory supply of cars and have been able to send heavy shipments of oranges to Eastern markets which are now paying good prices. New York especially has been absorbing heavy receipts of Navels. Best quality fruit has been running over six dollars. A very satisfactory market is developing on Valencias, prices running from 3.50 to well over 6.00 for top quality.

Lemons: In spite of large receipts of foreigns the lemon market is holding up satisfactorily. Reports are that there are now on dock and afloat 275,000 boxes of foreigns.

Shipments

Shipments of oranges to date from Southern California since November 1, 1919: Oranges, 18,481 cars; lemons, 3,754; total, 22,235. To same date last season: Oranges, 20,957; lemons, 5,126; total, 26,083. From Central California to date this season: Oranges, 5,147; lemons, 287; total, 5,434. To same date, last season; Oranges, 3,007; lemons, 251; total, 3,258. Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

May 12

New York: 15 Nav., 1 Val., 2 seedlings, 5 mixed, 1 lem. Nav. 4.90-6.95, Val. 5.15-5.65, Seedling 4.75-6.20, Bloods 2.95-7.90, lem. 3.75-4.05.

Boston: 20 or., 2 lem. Nav. 4:15-7.00, Val. 3.95-6.35, lem, 2.15-4.75.

Cleveland: 12 or., 2 lem. Nav. 3.90-5.20, Seedling 2.90-4.65, St. Mike 5.45, Jaffa 3.10-4.40, lem, 2.55-3.50.

Pittsburgh: 9 or., 2 lem. Nav. 2.35-7.05, Val. 4.15-6.55, lem. 3.30-4.25.

Philadelphia: 7 or. Nav. 4.45-6.05, Sweet 3.40-3.70.

Cincinnati: 6 or., 2 lem. Nav. 2.90-5.25, lem. 5.05.

St. Louis: 7 or., 2 lem. Nav. 2.60-5.85, lem. 3.25-4.75.

May 14

New York: 28 Nav., 4 Val., 1 Jaffa, 1 seed, 4 mixed. Nav. 2.25-6.50, Val. 4.20-5.90.

Boston: 10 or. Nav. 5.80-7.20.

Pittsburgh: 8 or., 2 lem. Nav. 3.10-5.85, Val. 5.58-6.80, Seedling 2.60-2.80, lem. 1.05-2.00.

Cincinnati: 5 or., 2 lem. Nav. 2.90-5.40, lem. 2.50-3.85.

Cleveland: 6 or., 1 lem. Nav. 3.85-5.20, Val. 3.40-5.15, lem. 3.10.

Philadelphia: 7 or., 1 lem. Nav. 3.10-5.75, Val. 2.65-4.35, St. Mike 3.85-6.90, lem. 2.55.

St. Louis: 6 or., 1 lem. Nav. 4.10-5.50, lem. 3.75-5.00.

May 17

New York: 76 Nav. 5 Val. 4 Seed, 3 Sweets, 3 St. Mikes, 1 Navelencia, 10 mixed. Nav. 3.80-6.55, Val. 3.45-6.35, Seed 2.75-4.70, Bloods 2.55-6.85, Sweets 3.50-5.40, Navelencia 3.70-5.75, Blood 4.65-6.50, St. Mikes 3.35-3.55.

Philadelphia: 34 or., 1 lem. Nav. 2.70-6.65, Val. 2.95-6.70, Sweets 2.95-4.85, Bloods 2.85-5.35, Homosassas 1.65-1.90, grapefruit 1.75, lem. 3.00-4.10.

Cleveland: 10 or., 2 lem. Nav. 3.60-5.75, Val. 2.50-5.50, lem. 2.80-3.00.

Cincinnati: 5 or., 3 lem. Nav. 2.20-2.65, Val. 3.65-3.90, lem. 2.85-3.55.

Boston: 25 or., 3 lem. Nav. 4.65-7.70, Tang. 3.35, lem. 1.50-3.90.

Pittsburgh: 13 or. ,2 lem. Nav. 1.90-6.25, Val. 3.80-6.30, Bloods, 3.10-3.75, Seedling, 3.60-5.10, lem. 2.50-4.00.

St. Louis: 8 or., 1 lem. Nav. 2.45-5.30, Val. 3.15-6.35, Sweets 4.10-5.15, lem. 3.65.

May 18

Philadelphia: 13 or. Nav. 2.70-4.85, Val. 2.65-5.20.

Boston: 20 or., 2 lem. Nav. 3.70-6.80, Val. 3.70-6.95, lem. 2.05-3.95.

Pittsburgh: 7 or. Nav. 2.70-5.55, Val. 2.65-3.55, Sweets 2.70-3.35.

HIGH LIGHTS ON HOLSTEIN SALES

(Continued from Page 858.)

a very choice selection of females and topped it off with one of the greatest bargains in the way of a young bull that has gone through a sale this year. This youngster, King Netherland Skylark Mead, is a son of King Mead of Riverside, out of a 27 pound dam with close to 600 pounds butter in one year as a two year old, second dam a 28 pound cow with 780 pounds butter in one year as a four year old.

W. J. Higdon, Tulare, appeared as a buyer of tops in the Leeman & Kilgore dispersal. He secured two daughters of King Mead of Riverside, a two year old and a yearling, at $1,350 and $1,100 respectively, also two good daughters of Segis Pontiac De Kol Burke.

E. Peterposten, Hughson, was busy early in the Leeman & Kilgore dispersal and made a number of corking good buys before the sale had progressed to the higher prices.

Burr Farm, Los Angeles, has without question been the star buyer of top stuff this spring, starting off with 20 head in the Guaranty Sale at an average of over $700. This was followed through the succeeding sales by unusually careful selections among the higher levels, and brought to a climax with the purchase of King Korndyke Pontiac 20th at the record price of $12,000 in the W. J. Higdon sale. With the outstanding herd of females now on Burr Farm, headed by two such bulls as King Korndyke Pontiac 20th and Sir Veeman Korndyke Pontiac, this establishment takes its place among the leading American breeding plants, and the broad gauge policies shaping the development of this herd are destined to carry it far toward the top of Holstein breeding achievement.

ASSOCIATION TO SEND REPRESENTATIVE TO CALEDONIA SHORTHORN SALE

Edward Cebrian, manager of the Caledonia Farms, West Sacramento, has received word from Frank W. Harding, secretary of the American Shorthorn Breeders Association, that the association expects to send a representative to the Caledonia sale to be held next week. The representative will be glad to advise with breeders and to assist new men in the selection of foundation material from the 70 head of cows that will be sold. Few sales have attracted more interest than is developing over the coming event, much of the interest being due to the fact that nearly all of the offering carries the service of one or another of the famous Caledonia herd bulls, Imp. Caledonia, Gainford Matchless and Pine Grove King. This sale will afford the first opportunity for Western breeders to secure the blood of the first two bulls, and owing to the high esteem in which they are held it is probable that breeders throughout the West will be present.

The development of the registered Shorthorn industry in California has been very active during the past two years and during the last year more valuable bulls have been introduced into California herds than ever before. Heretofore it has been necessary for the leading breeders to go to Eastern herds when in need of herd bulls, but from now forward, with such bulls as are owned by the Caledonia Farms available, the annual pilgrimage East will not be necessary.

The coming sale will be one of the largest ever held in the West, 70 head of cows having been catalogued and at least 35 will sell with calves at foot. Most of the cows are daughters of well known sires.

The sale will be managed by C. L. Hughes of the California Breeders Sales and Pedigree Company and Col Ben A. Rhoades of Los Angeles will be the auctioneer.

COULDN'T BE OTHERWISE

Grouch: "This coffee is like mud."

Waiter: "Sorry, sir. It was just ground before the water was put on it."

WEATHER REPORT

San Francisco, California, May 15, 1920

Stations	Wk. Rainfall	Season. Rainfall	Norm. Rainfall	Temp. Max.	Temp. Min.
Eureka	.02	22.03	43.81	54	42
Red Bluff	T	10.60	24.09	90	46
Sacramento	.00	8.85	19.63	88	44
San Francisco	T	10.42	21.78	66	46
San Jose	T	8.63	16.39	80	40
Fresno	.00	8.21	9.37	90	48
San Luis Obispo	.00	14.81	19.98	72	42
Los Angeles	.00	12.42	15.41	68	52
San Diego	.01	8.48	9.81	64	54

DAIRY AUCTION

OAKWOOD STOCK FARM

Known as the Old Johnson Place

Four miles west and two miles north of Manteca

Thursday, May 27th

224 Head Cows, Heifers and Calves

Mostly all Holsteins

All this stock sired by bulls with reputations.

There are in this herd 135 heifers, from four months to three years old; about 50 heavy with calf and a number that are springers. 54 milk cows, 45 fresh in two months; 35 calves, a few fine bull calves; two fine work mares six years old, weight over fifteen hundred pounds each. Five unbroken colts.

The owner has the reputation for having everything of the best. All will be sold. Stock in fine condition. Sale rain or shine. Free lunch.

J. Flack, Cashier — John S. Ladd, Clerk

Frank Reichmuth, Owner

Gall, Helper and Gall, Auctioneers

For further information, see Gall & Gall, 333 East Market St., Stockton, Calif., or telephone Jack Helper, Manteca, Calif.

DISPERSAL

50 Young Registered Holsteins

30 Heifers — 20 Bulls

State Fair Grounds, Sacramento

Saturday, May 29

This is a complete dispersal of the remaining stock owned by Henderson Company, all young things under milking age.

THE HEIFERS are mostly granddaughters of King of the Pontiacs, being sired by King Pontiac Segis Inka. They are a beautiful lot and many have high record dams.

THE BULLS are mostly sons of King of the Black and Whites, out of choice dams, and they are a most attractive lot of youngsters.

Write for Catalog.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Calif.

Livestock Auctioneers—Hammond and Bradley

If you are contemplating a sale of livestock, of impiements, of land, or of anything short of blue sky itself, then get in touch with us by letter or wire, or in person. WE SAVE our customers money, and we MAKE them money.

Our past employers are our references.

If you are feeling "gamy" see Hammond & Bradley early in the game.

Office 1053-55 South Main St., Los Angeles — **Phone 63545**

For Sale—Registered Jersey Bull, 17 months old. Sire: Noble's Mayfair Hero, No. 122139. Dam: Buttercup Loretta, No. 247777. A very fine individual at a bargain.
Arden Dairy, El Monte, California.

For Sale—One No. 16 Ross Ensilage Cutter, on truck. 36 feet of pipe. Used one filling.
Arden Dairy, El Monte, California.

What's going on inside?

THE mysterious process by which feed is converted into eggs—and eggs *into money*—is no mystery at all to the poultryman who uses SURELAY. You know that nature provides each laying hen with just so many eggs in embryo. After that it's up to the hen—and to you!

If you let Mrs. Hen follow her own lazy inclination in the matter, she may take six or seven years to produce her quota of eggs. Not much profit in that—is there? So, its up to you to see that she produces her full supply of eggs in *two or three years.*

That's why she must be *fed into action.* But, the elements of an egg are derived from so many sources that no single food will answer the purpose. Hence the need of a uniform, balanced feed like SURELAY. For, it contains at least a dozen ingredients blended and mixed more skillfully than can possibly be done by hand. It is made so good, so tasty, that every time Mrs. Hen takes a peck of SURELAY she is eating a little of everything that goes to make up an egg.

The poultryman who consistently uses SURELAY never has to worry about what's going on inside. He knows that all's well with the hen because all's well with the feed. SURELAY contains no harmful stimulants, no questionable "scraps," no adulterated substances. It is a clean, prime feed that has stood the test of time.

And SURELAY is always the same—always uniform! Our daily laboratory tests make sure of that! No guess-work! You know that "what's on the sack is in the sack—and that's what makes the eggs."

If you want to get down into the vitals of this feeding question—if you want to see why SURELAY has won the favor of millions of hens and the faith of thousands of poultrymen—send for our booklet, "Makes Hens Happy." Simply cut out the coupon and mail today—it's free!

STOCK AND POULTRY FOOD DEPARTMENT

SPERRY FLOUR CO.

STOCKTON · CALIFORNIA (A58)

SURELAY

"A Sperry Product"

Stock and Poultry Food Dept.
SPERRY FLOUR CO.
208 *Weber Avenue*
Stockton, California

Please send me, without obligation, a copy of your booklet, "Makes Hens Happy."

Name _____

Address _____

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — May 29, 1920 — No. 22

All Together, Please---"HELP PREVENT FIRE"

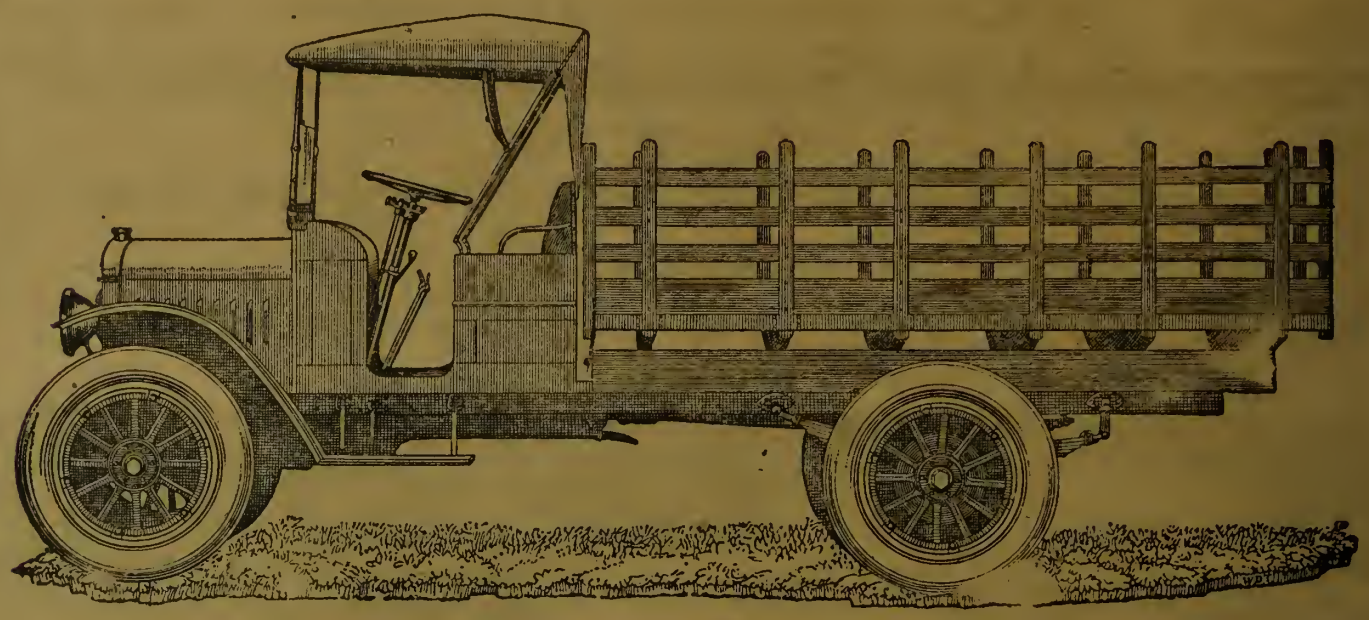
We do not know how great an interest David, the Psalmist, took in fire prevention in forest reserves in the Holy Land, but from the history of that once wonderfully rich land, its agricultural history, we mean, it appears that David might well have sung more songs which would have inspired greater protection of the sides of Lebanon and especially of the headwaters of the Jordan. However, it is possible that he realized to a faint degree the destruction which was being visited upon the land, for he sang: "My sorrow was stirred and my heart was hot within me and while I was musing the fire burned," and it continued to burn for many years after David passed. Three thousand years have not entirely corrected the situation which existed in David's time for today scenes such as depicted above cause serious meditation—perhaps not enough of fierce fighting of fires—and comment on the indifference of a lot of our fellow humans who should join in a campaign to prevent such scenes. Governor Stevens has appealed to us to devote much of the time during the present week to meditation on fire prevention. He says,

"Fire annually devastates large forest areas, lays waste many thousands of dollars worth of pasture, hay, grain and other crops, destroys rural, town and city improvements, thus adding greatly to the economic burden of the people of California."

Eleven states have joined California in observing this week as fire prevention week. Forest service, both state and national, fire prevention bureaus, chambers of commerce, clubs and farming bureaus are uniting and memorizing the slogan, "Help prevent fires."

More miles per gallon
More miles on tires

MAXWELL 1½ TON TRUCK



A transportation investment which will pay the careful owner 100% dividend at the end of the first twelve months.

ABBREVIATED SPECIFICATIONS

ENGINE—Four cylinders cast en bloc with Hot Spot and Ram's-horn intake manifold; cone clutch running in oil; transmission bolted to engine; bore, 3⅝ inches; stroke, 4½ inches.

GASOLINE SUPPLY—Capacity 10½ gallons; positive feed.

TRANSMISSION—Three-speed selective type.

STEERING—Left side drive; 18-inch steering wheel; irreversible worm steering gear, adjustable.

CONTROL—Gear shift lever in center of driving compartment and operated at right of driver; spark and throttle controls operated on quadrant underneath steering wheel; also foot accelerator.

WHEELBASE—124 inches.

TIRES—35 inches by 5 inches pneumatic cord.

REAR AXLES—Worm drive; semi-floating type; extra heavy malleable iron housing.

FRONT AXLE—Heavy drop-forged steel I-beam.

SPRINGS—Front, 38 inches long, 2¼ inches wide; rear, 52 inches long, 2¼ inches wide; both semi-elliptic.

FRAME—Pressed steel construction.

MATERIALS—All steel used throughout Maxwell trucks is made from our own formulae, as specified by our chief metallurgist.

CHASSIS EQUIPMENT—Electric generator, storage battery, electric head and tail lamps, electric horn, complete set of tools, including jack and tire pump with pneumatic tires; seat and front fenders.

Standard Warranty

MAXWELL MOTOR CO., INC., DETROIT, MICHIGAN

California Cultivator

Vol. LIV, No. 22 | Los Angeles, May 29, 1920 | One Dollar Yearly

California's Homiest Homes---What Makes Them

Cultivator Subscribers Tell What Makes a House a Home. Are We Doing and Living Our Best? If So, Some Old Home Influence of Childhood Days is Responsible

PRAYER FOR A LITTLE HOME

God send us a little home
To come back to when we roam.
Low walls, and fluted tiles,
Wide windows, a view for miles.
Red firelight and deep chairs—
Small white beds upstairs—
Great talks in little nooks,
Dim colors, rows of books,
One picture on each wall,
Not many things at all.
God send us a little ground,
Tall trees standing 'round,
Homely flowers in brown sod,
Overhead, thy stars, O God.
God bless, when winds blow,
Our home and all we know.
—L. L. in London Spectator.

"WHAT IS THE HOMIEST THING?"

By C. M. Bloom, Escondido

To me nothing in the house is so homey as the fireplace. It is a thing every member of the household enjoys, even the cat and dog. It is such a part of the home that in some languages it is the word commonly used for home, as "hogar" in the Spanish.

The home is for all, and the homiest thing is necessarily that which all members of the family enjoy. The library should be enjoyed by all; but is it? An easy chair may be furnished for father and mother; but does every member of the household have an easy chair? The piano should be enjoyed by all even when played by those who have very little knowledge of music; but it is a well known fact that there are people who suffer agony when listening to any kind of music. It may be they are not normal, but the house should be made homey even for the abnormal. And for those who are capable of enjoying the library or the piano it seems to me their enthusiasm must be considerably cooled on a winter's eve without a glowing fire in the fireplace.

What a joy it is to the tired farmer or the fagged merchant or the weary any other man or woman breadwinner to return in the evening to the home where the logs are piled in the fireplace and the fire is crackling.

And there is one other who visits the home. It is true he comes but once a year; but he must enjoy dropping in where it is made so easy for him. He comes very late. The little folks have vainly struggled to keep awake to welcome him, but about midnight when slumber envelops all and the fire is almost dead, the fireplace is still there and invites the visitor to enter, and as he drops down quietly and fills the row of stockings, even Santa Claus must think the fireplace is the homiest thing in the house.

"WHAT IS THE HOMIEST THING?"

Mrs. Leola T. Park, Riverside

Books are the most attractive feature in any home and add most to the pleasure of each individual person.

The "Old Arm Chair" in front of the open fireplace is a foretaste of that home that is perfect and complete, but with nothing to read it would lose its charm. Unconsciously when we enter a house the books and magazines are the distinguishing feature, and we estimate the life there through the authors that influence the daily life of the people.

My country home was made more attractive by a square piano, but it sinks into insignificance when I think of the hours spent with Dickens and Scott and Burns. Yes, and Mrs. D. E. N. Southworth and Mrs. Wetherel and others.

From Mother Goose to Macaulay's histories books wield the influence that is "homiest" and best. Their very presence is an inspiration, and nothing broadens and elevates individual character like daily contact with the best authors.

The chill of depression came over me a few days since when I entered a modern "up-to-date" bungalow and there was not a book in evidence. It was simply an expensive house where people stayed and gave no impression of the home life in "Cotter's Saturday Night," nor of the feeling that came when we entered an old fashioned domicile where well thumbed books were piled on the tables and window seats.

THE REAL HOME

By Edgar W. Cooley

Somewhere, before the dawn of civilization, a man and a woman sought a safe place for a little child. It may have been a cave, a crevice amid the rocks, a tangle of grass in a jungle, or a dark recess in the forest. It may have been furnished only with matted leaves or the skins of animals, but it was a place where the family could find comfort and companionship; a refuge in which the children could grow and develop —the one spot to which they laid absolute claim of ownership, over which the mother watched with tender care; for which the father fought and would have died. It was the world's first home.

During the millions of years since then, worlds have been destroyed, continents have disappeared, nations have been overthrown. But the home has survived.

Many millions of men, women and children inhabit the earth. The children outnumber the adults by the ratio of three to one, and the home and the school shape the destiny of boys and girls.

The real home is not simply a place to stay. It is a place the children will always remember; a place to which they will love to return, in which they will rejoice to live. Because it belongs to and is a part of the family, it is a real home.

The rented dwelling, the apartment house, the flat, can never be a true home. It can never center within itself the affections of a generation. It can never impart that stimulus which the pride of ownership inspires. More serious than all else, it cannot cultivate, to its fullest maturity, the love of the parents for their children.

The home is the institution for which and by which all other institutions exist. It was the birthplace of liberty. It is the shrine of patriotism and the abiding place of love and peace and true and lasting friendship.

OUR HOMIEST THING

By Mrs. Ella Williams, Fullerton

Our house had been built with an open upper porch. At first we had thought it a splendid idea to have a place to spend our warm summer afternoons, for it had been built on the east side of the house. We had also thought it an ideal place to take our cots and gaze at the stars and have sweet dreams at night. But in this also were we disappointed. By the time the morning sun beat down on the enclosure all morning and the Santa Ana winds paid their unwelcome calls and spread their carpets of dust on the floor, we gave up all thought of afternoon rest there, and the festive mosquito caused us to change our minds in regard to star gazing or sweet sleep and seek retreat behind screened doors and windows. But we were unwilling to give up that space. We wanted it and needed it, so we called in our good friend, the carpenter, and told him our troubles. After he had made some figures which seemed to agree with the contents of our pocketbook we told him to go ahead and try and outwit our annoyances. After he had finished his work the painter was called in and painted it a beautiful white. Now it was roofed, screened and painted. Curtains on large rods separated the porch into sleeping compartments. Rugs were placed on the floor and the sewing machine found a corner, a delightful little sewing room in itself. There was room and plenty for the beds, and this we find is the homiest thing in our whole house, and winter and summer, year after year, it is in use, a constant delight. Here our nights are spent in peaceful sleep out where the perfume of the roses and orange blossoms mingle and bring pleasant dreams and better health to all the household.

THE HOMIEST THING

By R. M. Hiatt, Ciboba, Arizona

As to what is the homiest thing, will say I think away down in the heart of every person there rests a fond remembrance of the old fireplace with its high dog irons, the crane that the hominy pot hung upon, the mantel or shelf above where the old wooden clock ticked off the time to you, while grandpa and grandma sat in the corners smoking their pipes, the old Dutch oven steaming with corn bread. Talk about your pianos and organs and phonographs, but O, give me an old easy chair with a soft sheepskin and the old fireplace and a good pipe of home grown tobacco and a cup of hard cider, and the smell of the corn bread and hominy and I am a millionaire. I could go on at a great length, but this is enough to bring any person's mind back to the days of the good old fireplace, and to say this is true and far ahead of any comforts of today.

THE HOMIEST THING

By "Mother," Hollister

When I first read your question, "What is the homiest thing in your home?" instantly I thought of my old easy chair. True, we have our little Ford, which seems almost a part of us, as my husband uses it in business constantly and for pleasure on many happy occasions. We have our electric washer and ironer, which makes a housekeeper's life 100 per cent more worth living, and our telephone which we have come to take very much for granted. We have a beautiful apricot orchard just coming into bearing in which my husband says our future is bound up—and altogether a very comfortable and promising though very humble country home.

But my old armchair! I have heard so much in poetry and song about "mother's old armchair," and I wonder if my babies will remember mine with that tender sentiment. Certainly they will hardly be able to remember mother in her hours of rest without it. We furnished our home very humbly, several pieces of the meager furniture being picked up at second hand stores, and I thought this chair quite a find. It is only a simple low wooden rocker with curved arms, and sister said when she saw it—I was buying it in anticipation of our first baby—"It will never do, for you will always be bumping the baby's head on those arms." But I soon became expert in avoiding that accident, and oh, the rapturous hours I have spent in that chair nursing my firstborn, easing his little pains, feasting my eyes on his unfolding beauties, and later consoling him in his childish troubles and telling him stories. Then three years later the whole program was repeated with little

(Continued on Page 893.)

THE CONTEST WINNERS

Never was such a problem put up to the Household Department as deciding on the prize winners in the contest for articles written on "The Homiest Thing." The reason will be plain to all who read in this and coming week's Cultivators what seem to the writers the homiest things in their homes. They have written from their hearts of the beautiful and sincere things in their lives that express the spirit of home. To many the fireplace has seemed the very embodiment of the home spirit; to others the library; to others some musical instrument; to others the garden or living porch. And the literary merit of the articles is equal to the sincerity of the thoughts expressed. So there's the problem: How is it possible to decide whose is best and whose is second best? The only solution we could find was to divide the prize money evenly among three of the articles which seemed typical of the best. Then, of course, to each one published goes one year's subscription to the Cultivator, so that all are, we feel, winners of real prizes.

The cash prizes go to "Mother," Hollister, Mrs. S. F. Korf, Napa, and Mrs. M. B., Lancaster.

Agricultural News Notes of the Pacific Coast

Northern California

Alameda County clalms most efficient fire equipment and patrol.

Petaluma is shipping great numbers of day old chicks by parcel post.

The Mendocino County farm bureau recently shipped 100 head of fat hogs from Ukiah.

Sonoma County farm bureau wool pool is making shipment of four cars Sonoma grown wool.

Oriental beans are still coming in to San Francisco, 3,500 sacks being received during March.

Cattlemen recently met at Montague, Siskiyou County, and planned auction sales of fat stock.

Glenn County Swine Growers Association is now fully organized. F. W. Leavitt of Willows is president.

A $25,000 stock company has been organized to promote and carry through the Sonoma County fair.

J. F. Watt is the new secretary of Reclamation District 2047, the largest in the state, comprising over 300,000 acres.

The Placer County Realty Board is in arms because of a Japanese having been granted a real estate agent's license.

The state commission of housing and immigration is making special study of the housing situation in Northern California.

Placer County farm bureau is registering high school boys and others who are willing to pick cherries or aid in other harvesting operations.

A committee, of which Judge Peter J. Shields is the head, has been organized to secure large appropriation for the university farm at Davis.

Agricultural employers recently held in San Francisco a conference with welfare commission and discussed minimum wage for farm workers.

Horticultural Commissioner Harry Stabler of Sutter County reports 2,607 acres of new orchards and vineyards planted in that county this season.

Agreement has been reached between rice growers and warehousemen on a basis of $2 per ton. The storage period for paddy rice shall be September 1 to August 31.

Amongst other supplies secured by the marketing bureau of Glenn County for members of the farm bureau are auto tires, arsenate of lead, alfalfa seed and all kinds of spray materials.

The Honcut irrigation district in Butte and Yuba Counties has obtained suitable storage reservoir and damsite which will increase storage area 800 acres and supply 43,000 acre-feet to the irrigation district.

The Livermore Stockmen's Protective Association has endorsed the state association and is urging individual members to become members of the larger organization. At the recent annual meeting J. McGlinchey was made president and J. J. Callaghan secretary.

Grape Growers Association of California has filed articles of incorporation. The incorporating directors are: C. E. Humbert of Cloverdale; C. L. Crawford, Ukiah; E. A. Flanagan, Napa; Frank T. Swett, Martinez; Andrew Johnson, Elk Grove; Albert Haentze, San Jose, and E. M. Sheehan, San Francisco.

Central California

Santa Cruz is becoming a liberal shipper of cheese and butter..

Paso Robles, San Luis Obispo County, wishes a creamery and a cannery.

Stanislaus County wool growers are planning formation of a marketing pool.

A local of the Farmers Union is to be established at Denair, Stanislaus County.

Merced County is planning new county fair grounds, race course, aviation field and the required fair buildings.

Linden, San Joaquin County, is appealing for a cannery for an outlet for large quantity of peaches and other fruits.

Barley buyers are offering around three cents per pound for new crop barley.

Dairymen of Kings County recently received $375,000 in cream checks to cover a period of 30 days.

Dr. Whitten of the University of California has held several pruning demonstrations in central counties.

The board of trade at Exeter, Tulare County, has been holding meetings at which farmers have discussed citrus June drop control.

Stanislaus County supervisors are being petitioned to organize Stanislaus Irrigation district which will include about 18,000 acres.

Kern County reports prospects for much larger apricot crop than usual. Cannery at Bakersfield will handle approximately 15,000 tons.

Farm bureau centers in Merced County have been taking votes on the picture bride practice of the Japanese. They are unanimously against it.

Nestle's Food people have purchased the Alpine Evaporated Milk Company's plants, located near Hollister, San Benito County, and Gonzales, Monterey County.

Central California olive growers are discussing methods of advertising or of giving correct information to Eastern consumers as to the healthfulness of olives.

The California Cattlemen's Association is making a special canvass of livestock men of Inyo County. The farm bureau is aiding in the organizing of stockmen.

At a recent fat hog sale at Turlock 15 cents was the highest bid received for a specially choice lot. There was only one bidder present; other offerings were withdrawn.

San Joaquin Valley points are restricting the sale of gas to pleasure cars to three gallons at a time, and no sale to those whose tanks contain reasonable amount of gasoline.

Inyo County farmers are taking steps to secure a farm adviser and a bureau has been organized at Bishop. R. W. Sears is president and A. A. Birely of Bishop is secretary.

The Farmers Union is making a drive for new members amongst Turlock, Stanislaus County, farmers. Turlock already has the largest membership of any section of the state.

Wine grape growers of the San Joaquin Valley are concerned regarding disposition of the government toward the shipment and disposal of wine grapes. At present high prices are being offered for dried wine grapes and "black" raisins.

Southern California

Riverside County farm bureau observed county clean-up day.

Much of last year's bean land is being put into sugar beets.

Imperial County farm bureau meettings will feature poultry demonstrations.

Carpinteria, Santa Barbara County, recently held its seventh annual flower show.

Imperial Valley irrigators have finally received permission to erect wier at Hanlon's heading.

Riverside farm bureau is holding poultry institute under direction of Prof. Dougherty this week.

The California Avocado Association has announced its next convention to be held at Santa Ana, October 9, 1920.

County Horticultural Commissioner Waite of Imperial County has 20 cantaloupe inspectors ready for the shipping season.

C. E. Millspaugh has become head of the California Honey Producers Exchange. The output of the exchange will be large.

Calipatria, northern Imperial County, has finished replanting its cotton crop, made necessary by high winds a few weeks ago.

Prof. Coit's class in citriculture from the state university will soon take a trip through the Southern California citrus orchards.

Farmers Alliance men from the South are urging organization of Farmers Alliances in cotton growing sections of California.

A Pomona orange grower has discovered a seedling orange of exceptionally high quality which may be reproduced in large numbers.

San Fernando Valley walnut growers are organizing a branch of the California Walnut Growers Association. Warehouse will be erected at once.

"Heaviest hay crop in years" is reported from almost every Southern California section. The showers of last week did considerable damage to the hay crop.

The directors of the Palo Verde levee district have passed resolutions with intent to prevent irrigators from using waters from drainage canal for irrigation purposes.

Santa Susana, Ventura County, made a test planting of 150 acres of cabbage but finds the first crop has not matured satisfactorily. The experiment will be discontinued.

Apple growers of Yucaipa and Oak Glen sections of San Bernardino County are giving more careful attention to spraying for codling moth. They expect to ship worm free fruit this season.

Poultrymen of Van Nuys recently received bids for poultry manure, the highest of which was 12 cents per cubic foot for Number One. The San Fernando Valley ships many cars of poultry manure to citrus sections.

The Elsinore farm bureau center is initiating a movement to secure reenactment of the poll tax law, excepting that "all males between the ages of 21 and 60 shall pay $5, excepting all who are property owners and now paying in excess of $5 in personal property or real estate."

The Coast and General

Arizona cotton is three weeks late than usual.

Oil has been found in the vicinity o Fallon, Nevada.

Farmers Chautauqua meets at Spokane, June 24, 25.

The Washington State Grange meet in annual session at Aberdeen, Jun 1-4.

Vancouver, British Columbia, is paying ten cents per pound for straberries.

The first cotton blossoms of t season were brought into Phoeni May 11.

Loganberry growers in Marion Cou ty, Oregon, have rejected offers of 1 cents per pound.

The Whatcom County Beekeeper Association will meet at Ferndal Washington, June 8.

The new lumber mill at Cooley, A zona, in Navajo County, is turning ou 200,000 feet of lumber a day.

Loganberry growers near Salem, Oregon, are contracting to deliver nea 5,000 tons at 10 cents per pound.

The number of automobile license in the state of Arizona is 28,584 up t the first of May. Of these, 11,800 ar in Maricopa County.

Spokane dairy market complains b cause of shortage of dairy suppli which is holding up both butter an eggs. Eggs are now quoted at $13 2 per case.

A series of cotton lectures is bei planned to be held in different parts o the Salt River Valley under the au pices of the Arizona American-Egyp tion Cotton Growers Association.

A firm of New York potato deale has attacked the constitutionality the Lever food control act. The co cern had been charged with profiteering in potatoes and will carry the c to the supreme court.

It is reported that cotton mills Japan are paying an average dividen of 50.20 per cent for the first half the year's business. About half their cotton supply comes from Ind and most of the rest from China

According to the latest estimates the U. S. department of agricultur bureau of crop estimates, the acrea of long staple cotton in the Salt Riv Valley is 185,000. It is probable th the planting of alfalfa has been duced from 85,000 acres last year about 40,000 acres this year.

A number of boys of the agricultur department of the Phoenix union hi school are to engage in a hog raisi project. The financing of the proje is arranged through one of the lo banks and some Poland China pi were obtained from a local breede Records of the cost of production w be kept and the pigs will be sho at the fair here, the winner will r ceive due recognition.

Mrs. M. Armer, the angora goat queen of America, is making a surv of the Angora goat industry in Ar zona with a view to uniting the grow ers in an effort to sell mohair to b ter advantage. It has recently bee suggested that mohair might be used to advantage in the manufacture of automobile tire fabric. At the present time the market price of mohair is considerably less than that of long staple cotton.

Field Lecture on Soils

By Ernest Braunton

PROF. J. W. NELSON of the state college of agriculture gave a field lecture on soils in the lemon orchard of E. F. Underhill, near Glendora, May 14, under the direction of the Los Angeles County farm bureau. Aside from being a vigorous speaker, Prof. Nelson is also a vigorous wielder of the shovel and dug holes in rocky soil for the further entertainment of his audience.

At the close of the performance Mr. and Mrs. Underhill provided an ample lunch under a spreading live oak in midfield. Under this tree is a permanent cobblestone fireplace and stove; tables, benches, etc., built especially to provide comfort and cheer for farmers' meetings. Some of the chief points of Prof. Nelson's speech are herein recorded.

"Agriculture is the present and future base of the prosperity of Los Angeles and other counties of the South. The oil product is a factor, but the former much heralded tourist crop now awakens little interest in the farmer. I state this much to call your attention to the fact that agriculture is nearly our only wealth producing industry and must be protected and fostered or we shall fall into the errors common to other new agricultural sections, some of which are indeed alarming. The crop production in vast stretches of this country heretofore fertile are each year decreasing and the lands may yet revert to the primeval plains.

Mismanagement of Soils

"I have traveled much in that stretch of country that depends for water upon rainfall alone, the Dakotas, Kansas and on to the Mexican line. In Kansas it has been found that the organic matter in the average soil has decreased from its virgin state about 30 per cent, and the crop yields have fallen off to a like extent. Potash and some other plant foods are there in plenty, but unavailable, locked up, while crops are starving. Sufficient soil moisture and organic content is the double bitted key that will unlock the stored wealth. Kansas is making frantic endeavors to correct the evil, and unless she succeeds in the next 50 years the lands will go back to the wild, for even now the organic matter is gone and the rainfall is limited.

"We are approaching the same conditions. We have been pulling on the resources of the soil, in some parts, for 50 years. The tendency of American agriculture has ever been to depiete soils of plant food. The remedy is introduction of organic matter and control of soil moisture. We too have plenty of potash, but it is locked up. Pure oxygen and pure water entering the soil gives us but the same conditions as above the soil, good for animal life but death to plant life. These elements have no power, unaided, to liberate foods in the soil. Analyses show that atmospheres where plants thrive would not retain life in man for five minutes. Decomposition must be accomplished and the foods liberated.

"We have in California soils and climatic environment suitable for every crop. Find this out—experiment; specialize. Some sections now growing citrus crops will give them up; other cultivated sections will turn to citrus. Our soils need classification, and for the first time the United States bureau of soils and the state college of agriculture are cooperating in this work. A soil survey and study of soils to the depth of at least three and one-half feet has been made over 85 per cent of California. A crop map is also now being prepared that charts every ranch of two and a half or more acres, from San Bernardino to the sea.

Farmer's First Duty

"The first duty of every farmer is to consult his soil to determine what crop is best for him to grow. In the past we have been too much dependent upon others. Merchants and those in other lines do not ask outsiders what to do; why should farmers? Find out for yourselves. Study nature; she will serve as a guide. Each year in California $1,000,000 in fertilizers is wasted for lack of intelligent use. Tens of thousands are spent, unintelligently for soil inoculation, not always needed, and again, not always given where needed. Purchase on the basis of local instead of general soil needs. Trained men from the state university, also your farm advisers, are seeking to help all to help themselves. They will show you how to do it—how you should do it yourselves. In the past there has been too much secrecy. Farmers have experimented and have kept the results of such experiments to themselves, whether successes or failures. They are now organizing for the common good of all. That is where the farm bureau steps in.

"Soil is the factor we are dealing with here today. This was brought down from the mountains to where we stand by streams, into great alluvial fans. A few years ago these sandy, rocky soils were thought to be worthless. But trees root at least one foot deeper in these than in heavier soils. Openness gives perfect drainage; some heavier soils hold too much water and heavy subsoils are a menace, as roots soon suffer after heavy irrigation, especially if followed by hot weather. Heavy irrigations on heavy soils have killed many citrus orchards. Undulating hard subsoils form check dams for excess water and roots are poisoned. Light soils need more feeding but you can afford to do it. One ton of organic matter added will increase the water holding capacity six or eight tons. More potash and nitrogen are needed, the latter to build up tree energy to sustain the coming crop. Organic matter is most needed and supplement this with commercial fertilizers. Experiment to see just what is needed.

The Soil Sponge

"The soil sponge is composed of organic matter of all kinds and absorbs and holds water as the sponge proper. Where it is present ideal conditions for plant life prevail. Color tells the amount of organic matter in a soil. In black soils calcium carbonate or lime has converted organic matter into humus. In many soils of lighter color lack of lime has left them lighter because of lack of conversion of organic matter. Foods are easily carried out of soils low in organic matter. Try to imitate nature through use of organic matter, water and lime. Clean culture is a destructive process; we must have cover crops or barnyard manure or orchards will soon become vineyards.

"I lately met a man in San Bernardino who buys manure in all the Western states just east of the Rockies. Most of it goes to the potato fields of Maine. If it pays to ship it from Montana to Maine it will pay well to ship it from Montana to California. Farmers should cooperate through the farm bureau to buy and hold all barnyard manure in the Western states. Save the liquids too, for in them lies 60 per cent or more of the total value. The great Middle West doesn't badly need its manure at present, so get it, for the time will come when they will find they need it and will hold it.

Cover Crops

"Many cover crops are burnt out by summer tillage. Double crop if you can. I know an orchard where the yield was going down each year; mottle leaf was very bad. For seven years the orchard has not been plowed. Both winter and summer cover crops have been grown and disked into the surface soil. After seven years of this the surface soil is a perfect mulch, the mottle leaf is cured and the trees are perfect. He has also applied 20 tons of lime to the acre, doubtless too much, but his soil is fine. His nearest neighbor grew but a winter cover crop and one summer lost his full crop through drop.

"Tests have proven that where the surface temperature was 130 to 150 degrees under bare tillage, a few feet away under a cover crop the temperature ranged from ten to 20 degrees lower, just right for best bacterial action. One orchardist found water percolated 20 inches in 48 hours. After several years double cropping the figures were reversed; it now percolates 48 inches in 20 hours. At first one-third to one-half more water was needed than now for either crop. Now but little more than the same amount is necessary for both crops. Every farmer should get a soil auger and test down at least four feet. Don't leave a strip of four feet in the row where no water is applied. This leaves 15 per cent or more of your soil out of action during the active season. Inside dead wood is a result. When rains come 100 per cent of the roots function and this often results in disastrous premature blooming.

"Do not test the soil by kicking a hole with your foot and guessing it needs water. Do not wait until the trees show need of it; it is then too late. The tree gets a severe shock from lack of water. Then a heavy irrigation is given, with another shock, for the tree is out of condition to immediately use the water. If this occurs once a month during the summer and the trees require five days each time to readjust from the two shocks, nearly a month, perhaps more, is lost in the normal functioning of each tree. Consult the soil, not the tree. Use the soil auger in heavy soil, the shovel in light or rocky soil. A little practice will enable anyone to judge of the water content of a soil. Keep moisture content permanent but do not overirrigate; rather underirrigate. Investigate for lateral as well as for depth percolation. Dig between the rows and in the rows, close to the trees, as well as in the center of the squares."

The Awful Cost of Carelessness

LOSSES from fires in the United States last year, totaled something over fifty millions of dollars. This does not include the losses from forest and field fires, which indirectly might perhaps amount to as much more to irrigators and others. Besides this financial loss, there was a loss of life, estimated by some to be possibly as great as 15,000 human beings.

New York was the heaviest loser, with approximately thirty-six millions of dollars. Following in order come New Jersey, Pennsylvania, Illinois, and, next, California. The National Board of Fire Underwriters has made careful investigation and finds that nearly thirteen millions of this loss was due to defective flues; well up towards half a million to fireworks, firecrackers, etc.; something over four millions to open lights or lamps, candles, etc.; gasoline, coal oil, etc., are responsible for about seven millions; rubbish barrels, for nearly another million; sparks lighting on roofs, about seven millions; defective plumbing, another million; stoves and furnaces, thirteen millions more; electrical flatirons and other electrical appliances, the enormous total of twenty-one millions. Criminally set or incendiary fires get off comparatively easy, with only three millions. Lightning is responsible for nearly another ten millions. Amongst the greatest culprits in the careless setting of fires are matches, and carelessly thrown cigarettes and cigar stubs. Nearly twenty millions of dollars are required to cover this great loss. If figures could be secured as to California's losses we believe the percentage would show a still greater charge to be made to this form of carelessness in this state.

The California state board of forestry has issued Circular No. 7, "Grain, Pasture and Hay Fires in California During 1919." Its first statement is:

"The destruction by fire of grain, hay and pasture in the valleys of California during the season of 1919 exceeds that of any year for which records are available. The high loss was largely due to the following reasons:

"Failure to clear roadsides of inflammable material.

"Lack of precaution in safeguarding grain and hay fields by plowing furrows and cutting hay strips.

"Careless burning of grass and stubble.

Carelessness with matches and burning tobacco, particularly on the part of the traveling public.

"Failure to safeguard tractors and trucks with safe spark arresters.

"Strong winds from 30 to 35 miles per hour that fanned any sparks of fire dropped in grain fields or on adjoining roads.

"Lack of organization and proper fire fighting equipment."

Castle Peak Fire Lookout

Interior view of lookout observatory, showing top of table, sliding map-board with map, peep-sight with alidade, invented on District Two. Photo taken in Holy Cross National Forest, Colorado.

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

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Saturday, May 29, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Look at the cover illustration and think of a whole mountain afire. It may be sufficient to remind of the time last fall when not only one mountain, but many of them, were a mass of fire from top to bottom. It was a wonderful scene, but one for which we do not care to pay the full cost. We are paying it, however, and will be for years to come.

All together, please, HELP PREVENT FIRES!

FLOWERS FOR PATRIOTS

"Worthy patriots, dear to God and famous to all ages," are worthy of flowers on their graves today, and from one side of the country to the other flowers will be heaped upon them. And let the flowers be from our own gardens. As we heard it expressed the other day: "'Boughten' flowers are not for Memorial Day." When we are offering flowers of our own growing, we are offering of our own lives. Let us grow our own offerings.

LIBERTYS STILL DOWN

Another possible reason why Liberty Bonds are in such disfavor at this moment is given in the following from the federal reserve bank of the twelfth district: "The secretary of the treasury is offering approximately a $100,000,000 issue of treasury certificates of indebtedness, carrying five and a half per cent interest, etc."

Naturally the banker and larger handlers of the finances of the country invest quickly in such paper, which carries a high rate of interest and matures within a very few months. Naturally this attractive investment has driven Liberty Bonds into the market and we, the common people, are getting a chance to buy them at wonderfully attractive prices. It is a long time before some of them mature, but we believe the government will yet correct its way and these bonds will return—and not many years, possibly months, hence, to par or a higher value.

HOUSE OR HOME?

Two were talking of their homes. One told of its conveniences, the cosy corner, inspiring pictures, musical instruments, books. The other spoke little of the house, in fact, remarked: "I have no house, but a wonderful little home." From the description, perhaps it would not be amongst the Nob Hill residences shown to tourists to prove the progressiveness of the community, yet withal, well-kept vines, a neat lawn and an exterior which is not forbidding. Presumably it contained the homiest of things which are referred to on the third page of this issue and in the household department. The household department has been asking Cultivator readers to tell of those things which enter into the hominess and add to the happiness of all of us. And the request has brought some little classics which make clear some of the home scenes in California.

VALUE OF THRIFT

Speaking of the necessity for thrift, its value in sustaining the credit of our government by helping to hold up the price of bonds, and in other ways, a former member of the federal shipping board suggests that "Thrift and savings make the only citizenship. When the violent Red gets a little account in the savings bank, he turns a delicate pink." To this it has been suggested that he might add: "When the Red is thrifty enough to acquire a home of his own, he becomes almost white."

There would be vastly less of strikes, of disturbances, of discontent, if the habit of thrift could be so increased that we might all become home owners. Too many of us are still tenants, though we believe that California's high citizenship proves that we are of the greatest of home owners.

FREE CABBAGE

The quickness with which the results of a year's labor, and the little surplus which was expected, become a loss, even a disaster, is shown by a little note on the market page of the Los Angeles Times of last Tuesday. It referred to the slump in cabbage because of the freight tie-up due to the strike in the midst of the cabbage season, and to the further fact that cabbages were practically being given away by the growers, and added: "Theoretically one cent per pound was to be charged at the roadside, but actually the visitors helped themselves. The unfortunate growers looked on or assisted in the distribution of a crop the loss of which means in some instances the abandonment of the effort to make a living by farming."

These ruined farmers, compelled to give up their little homes, will wait many years before speaking very kindly of the class of agitators which is supporting the labor strike.

BOY SCOUTS

Next week will be Boy Scout Week. The program begins on Sunday, when talks will be made in all the churches of the land on the boy scout as a helpful factor in every community. The remainder of the week, up to and including June 6, will be given to field days, lessons in tent pitching, fire building and protection, wall scaling, signalling, and demonstrations of various kinds, even to camp cookery. Boy scouts are naturally active at all times, but they were especially so during the war period, being employed as gleaners in War Savings Stamp, Red Cross and even Liberty Bond campaigns. They are helpers in good health and clean-up campaigns, and are generally laying the foundation for a bigger and better and finer citizenship—"physically strong, mentally awake, morally straight."

Here's to the boy scouts, and this is a good week in which we may all prove ourselves to be good scouts and limber up and encourage the boys.

FIRE PREVENTION

All the West is talking fire prevention this week. Note the word and its meaning: It is prevention and has nothing to do with the putting out of fires once started. Of course, it goes without saying that the various county volunteer fire departments are organized for the purpose of extinguishing fires, but better than all is the putting out of these fires before they are ever started. This means that the camper, the auto tourist with roadside fire, the hunter with his gun wads, the rubbish burner or bonfire maker, the smoker, with his matches and stubs—all of us—shall take every precaution to prevent the hundreds of millions of losses, or at least as great a portion of them as is in our power. Of course, some of these fires have been set with criminal intent, but by far the greatest proportion of the losses is an indictment of American carelessness. Three hundred and fifty millions of cash loss and fifteen thousand human lives are given up annually because of carelessness.

CARRY INSURANCE

Some property holders seem to consider that fire protection consists in keeping the endangered property covered by insurance. From the individual standpoint the destruction by fire of a thousand dollars worth of property covered with eight or nine hundred dollars insurance means but slight loss; from a national standpoint a fire means total destruction of resources. Nevertheless, the wise individual insures.

"How?" That's a question which we will answer, as we have similar questions thousands of times before—"Cooperate."

The Pacific Coast is sending annually millions of its capital to great Eastern financial institutions in order to secure a fire protection which can be carried at home, and by "at home" we mean the local home community. There are something over a score of cooperating county or local insurance concerns in California. Not every one is reaching highest success in piling up reserve funds, but every one is giving a safe and economical protection. The largest has a reserve of only some $60,000 or $70,000. Some of them have no reserve whatever, other than the cooperative spirit of the members, that is, practically no reserve fund is retained in the treasury, but in case of loss assessment is made sufficient only to cover the one fire. We believe the cooperators who would secure greatest success for these organizations would be wise to follow the example of those companies which are creating a reserve fund. However, we will admit the principal factor in the success of these organizations is the true cooperative spirit.

USE OUR CREDIT

The National Stockman Farmer remarked:

"The fact that agricultural and livestock notes formed only one-fiftieth of one per cent of the paper rediscounted with the federal reserve bank of Cleveland last year indicates that agriculture is pretty well able to finance itself in this territory or that those who follow it do not use their credit and credit institutions as do other business men. No doubt farmers need more credit than they get, also they can get much more than they do. Farmers do not use their banks as they might, a result perhaps of a habit the banks have helped to form, for there was a time when farmers' deposits were welcome and their notes not wanted. Whatever may be the reasons for past events and tendencies the future should be different. Farmers should do as all other business men do, establish their bank credit and use it."

Then it enlarges upon the advantage and increased business made possible by this greater use of credit. Many a farmer suffers from lack of capital, but the question is, "Can he afford to secure this greater capital at the rate of interest which agriculture is compelled to pay?" He suffers a handicap of some two or three per cent higher rate of interest than is charged to industrial or commercial interests. It is not good business for him to pay that high rate of interest and endeavor to get by with farming operations. It is not only not best; it is not possible.

BE MIXERS

Director Hecke of the state department of agriculture thinks we farmers ought to mix more with the urbanites. He says:

"Recently a most valuable idea was followed out when the movement was brought into play in the Sacramento Rotary Club by which 'farmer business' shook hands with his urban brother, 'city business.' And when we come to analyze the situation critically we wonder why it was not done long ago. Farmers from counties surrounding Sacramento City visited with the Sacramento Rotary Club at luncheon, and the Rotarians in turn visited with the farmers at the university farm at Davis.

"The farmer of today is emerging from the reconstruction with a first class title to a first class place in the economy of affairs. Whereas in the past he was so busy with the work of providing food and clothing for others that he had little time for "deep reading" and permitted those with less work and more time to frame up the issues for him to sign, from now on he is going to be heard from on the questions which vitally affect him and which, through his farmer business of producing, vitally affect everyone else."

Well, it may be we should mix more and get in touch with the big idea of the big town. The urbanite doesn't mean to be, but there have been occasions when it appeared that he was altogether too patronizing. But it may be that if we could get closer together we would realize we haven't been as far apart at any time as we have imagined.

J. M. COOK'S PATENT
Automatic Ridger and Blocker

Operated by Tractor Driver. Saves 50 per cent on Labor. Ridges and Blocks at same operation. Is indestructible. Has all Necessary Adjustments for Different Soils. Leaves Side Ditches Clear, and puts up any size of block QUICK and ACCURATE.

Cook's Alternating Furrower

Cook's Automatic Alternating Furrower will soon be out. Write or call for particulars.

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To introduce the best automobile tires in the world. Made under our new and exclusive Internal Hydraulic Expansion Process that eliminates Blow-Out—Stone-Bruise—Rim Cut and enables us to sell our tires under a

10,000 MILE GUARANTEE

We want an agent in every community to use and introduce these wonderful tires at our astonishingly low prices to all motor car owners.

TIRES FOR YOUR OWN CAR for a little work in your community.

Write for booklet fully describing this new process and explaining our amazing introductory offer to owner agents.

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One Man Saws 25 Cords a Day

The Ottawa Log Saw falls trees or cuts off stumps level with ground. Saws up logs, cuts up branches, ice cutter, runs pump jack and other belt machinery. Mounted on wheels. Easy to move anywhere. 10 Year Guarantee 90 Days Trial. Write for Free Book and Cash or Easy Terms
OTTAWA MFG. CO., 2741 Wood St., Ottawa, Kans.

RHUBARB 90% of the Rhubarb

grown in Southern California is Wagner's Improved Giant—Growers making over $1,000 first year. Splendid results in 6 months from planting. May, June and July best months to plant for crop next winter. Get plants true to name from the originator. J. B. Wagner, Pasadena, California.

Fire Extinguishers
All Sizes and Styles
Fire Hose and Equipment
Los Angeles Rubber Co.
124 East Third Street

When Writing Advertisers, Mention The Cultivator.

STANDARDIZATION WORK IN THE NORTH

For the following facts concerning standardization work in and around San Francisco we are indebted to S. V. Christierson, standardization inspector of the state department of agriculture:

"Standardization work in the northern part of the state has during the spring of 1920 been confined to a very large extent to inspection of apples being repacked and coming out of storage in San Francisco and in Watsonville. Efforts have been made to place these apples on the market in as good a condition as is possible after a period of from three to five months in storage. Excellent work has been done on the markets of San Francisco by Horticultural Inspector Wm. J. Burke, under the supervision of Dudley Moulton, horticultural commissioner of San Francisco County. This is also true of the markets in Oakland which are being handled by Deputy Horticultural Commissioner D. P. T. Macdonald, under the supervision of Commissioner Fred Seulberger. Although they are necessarily limited in their activities as they have no assistants, and are handling the markets alone, the markets of both San Francisco and Oakland compare very favorably with the excellent condition found on the Los Angeles markets.

"During the months of January and February the district apple inspector for the northern part of the state, W. I. Newcomb, was located in San Francisco, pursuant to a policy which placed him there early last fall to check up as far as possible on the apple shipments arriving daily on the San Francisco markets.

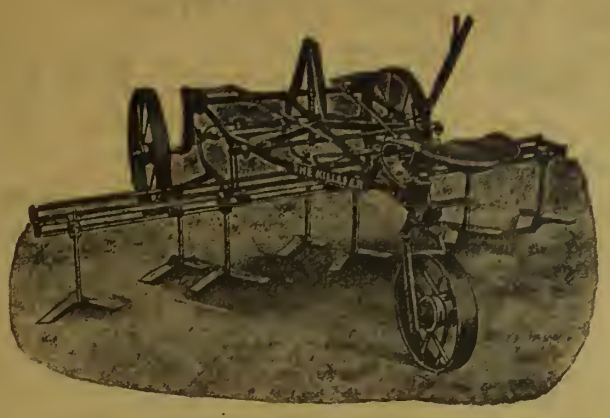
"These remarks on the activities along the line of standardization would not be complete should no mention be made of the strawberry situation in the northern part of the state at this time. The Central California Berry Growers have adopted a raised bottom basket and are not packing their berries, in other words they are being shipped into the market in the same manner as they are coming into the Los Angeles market at the present time, that is, loose without facing or topping. This practice has not met with universal favor as the consumer in the northern markets is accustomed to the smooth finished appearance of the faced basket. However, we have reason to believe that this year's work will be an education to the consumer who is now finding himself in the position of a man who pays for what he gets and is pleased when, on carrying his berries home, he finds the same quality and condition and frequently size, in the center and bottom of the basket as he finds on the top.

"I should hesitate to complete these statements without a word of praise for the excellent work that Mr. Ryan has done in standardization work in the Los Angeles markets. Mr. Ryan is indeed to be congratulated on his vigorous campaign to protect the consumers in obtaining a square deal and is a firm believer in the motto of the office of standardization, which means to the consumer an honest pack, a sound product, and full value, and to the producer an assured market, increased demand, and satisfied customers?

NITROGEN NODULES

In going over a young lemon orchard on sandy, rocky soil near Glendora it was noticed that a few Melilotus Indica were scattered over the field. The occasional one close to the trees was tall and vigorous, of dark color, those between the rows were in every way inferior. Several in each class, or position, were pulled up, for the soil was a loose gravel. Those far away from the trees had no nodules on the roots; those close under the trees were loaded with them. The problem was of easy solution. The owner stated he had several times fertilized beneath the trees, but not over the soil in general. No proper media for bacterial action was present except under the trees. In the "hungry" gravel there was nothing present to ferment. After the first cover crop has been turned under on such soil, bacterial action will become very marked and subsequent cover crops will show vigorous growth and the roots be found well supplied with nitrogen nodules.—E. B.

FOUR ROW BEAN CULTIVATOR



Killefer Efficiency

One man with two good size horses or small tractor, can cultivate four rows of beans with this cultivator. This, like most of our implements, has been developed at the request of ranchers, for a strong, simply controlled cultivator, capable of doing their work better than would be possible with a lighter made tool.

The frame is made of one piece high carbon steel with no joints to work loose or sag and holds the wheels always true and in line with balance of the cultivator. The double frame bar gives ample clearance between the standards and eliminates to a great extent, the tendency to clog in trashy ground. This frame bar has a double lifting device which holds it rigidly on both sides; the steering device is easily operated and very accurate.

The cultivator is equipped with K. Q. sweeps of our own design, which will do better work and wear longer than the equipment usually furnished with other makes of bean cultivators. Standards can be set to cultivate rows of any width from 20 to 36 inches.

All repair parts are carried in stock so there will be no long waiting in case of a break down. We make this cultivator in two weights, four row regular and four row extra heavy. We also make a two row cultivator.

Write for catalog and price list.

The Killefer Manufacturing Co.
2209 Santa Fe Ave. Los Angeles, Cal.

SPECIAL
Coffee at Wholesale Prices

to readers of this paper, direct from the importer and roaster. Mention this paper and send 40c for a pound of our Household Blend Coffee.

Roasted just right and ground to please.

It's 50c Elsewhere

Delivered free to your door by parcel post, including our latest catalogue.

Money back if not satisfied.

LEE-KOE REG
TEA, COFFEE & BEVERAGE CO.
316 West Fifth Street, Los Angeles, Cal.

"The principle of inoculation has never been condemned, but the method of distributing Bacteria has."

NITROSOIL

carries the Bacteria in a more perfect state than the soil itself. All things injurious to their proper development are removed. As a result the culture is always virile.

"Well inoculated legumes can use the nitrogen of the soil air, other crops cannot."

National Nitrosoil Company
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604 Mission Street, San Francisco

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Renewed screw casing costs from one-half to two-thirds less than standard pipe. Large savings on standard pipe, fittings and valves, special fittings made to order. Pacific Pipe is thoroughly tested and guaranteed for 150 pounds working pressure; asphaltum dipped; serves every purpose. Let us save you money. Write
PACIFIC PIPE CO. 237 HOWARD STREET SAN FRANCISCO

Build Up Your Soil With
Whip-Poor-Will Cow Peas

WHAT THEY WILL DO:

They make the best summer covercrop.
Maintain a moist surface mulch.
Will prevent June drop.
Require less irrigation than other crops.
Need no irrigation where soil moisture has been conserved.
Build up poor soils with more nitrogen bacteria and humus than any other covercrop.

Afford the best kind of pasture for cattle and hogs.
As a hay have a food value of 43% more than Alfalfa.
Will improve your silage.
There is no better Bee Pasture.
Thirty pounds of seed is sufficient to plant one acre.
Our seed germinated 96%.

PLANT WHIP-POOR-WILL COW PEAS

Buy Your Seed From

AGGELER & MUSSER SEED COMPANY

620 So. Spring St., Los Angeles, or
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Our Seeds are handled by your local dealer

The De-Hy-Dro Dryer

For the Small Grower
$1000 Complete

The De-Hy-Dro is the perfect drier for small acreage. Dries wine grapes, raisins, peaches, prunes and vegetables. Drying capacity 1 to 3 tons every 24 hours deperding on kind of fruit.

The De-Hy-Dro Drier is an insurance against spoilage from early rains. Simple and easy to operate. No working parts to get out of order.

The new De-Hy-Dro Drier is built to hold 24 standard trays 3 x 8 ft. Order now to insure immediate delivery.

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Prompt Delivery
Write for Catalog and Prices

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Woolwine Metal Products Co.
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PEAR TREES

Should Be Ordered Early

for next winter's planting to make sure of receiving them and not being disappointed.

PLANTING OUR TREES OF QUALITY

will insure satisfaction and we can supply your needs in all other varieties as well.

GIVE US A CHANCE

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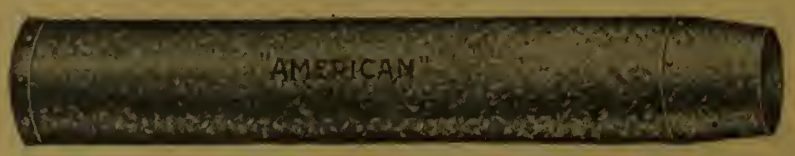
Riveted Well Casing Corrugated and Plain Tanks
Riveted Water Pipe Galvanized Surface Pipe



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"FOR THE LAND'S SAKE" USE
A. C. W. FERTILIZERS

By buying fertilizers on a unit basis and not a cost per box basis, you are losing a money making, labor saving, crop increasing advantage.

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When Writing Advertisers, Mention the Cultivator.

GAS TRACTOR SHORT COURSE JUNE 1-11

"It all depends upon the operator," are the words of tractor manufacturers, salesmen and service men, when speaking of the success or failure of their machine.

Making better operators is the main purpose of the gas tractor short course which is to be held from June 1 to 11 at the university farm at Davis.

This course will also interest those who are considering the purchase of a tractor or who wish to get up to date on tractor construction. Each student will learn certain definite things at this course, such as how to locate and remedy motor troubles, how to adjust carburctors, time magnetos, babbitt and scrape bearings, repair radiators and judge good features of tractor construction, etc.

The enrollment is limited to 180, so if you plan to come, send in your application now to the Dean, University Farm School, Davis. The fee for the course is $1. Board and room may be secured at the university farm dormitories and cafeteria, and should not exceed $20 for the course.

Write for further information if interested.

YEAR BOOK, U. S. D. A.

The Year Book of the department of agriculture for 1919 is now available. We believe that when this book is ordered direct from department of agriculture or rather from the Public Printer, Washington, D. C., that a remittance of $1 is required, but if subscribers to the California Cultivator will write to their congressman or one of the state senators it may be secured without cost. The Year Book contains report of the secretary of agriculture. However, this only covers some 50 pages. There are special reports on Contagious Animal Diseases, Tile Drainage, Atmospheric Nitrogen for Fertilizers, Farm Practices in Growing Wheat, Three Centuries of Growing Tobacco, Hog Cholera Control, Marketing and Purchasing Demonstrations in the South, Electric Light and Power in the Farm Home, Common Sense in Poultry Keeping, What the Farmer Should Expect From the Seedsman, Fight Against the Pink Bollworm, Trapping on the Farm, The Horse Power Problem on the Farm and many other special articles, together with tabulated statistics. The California representatives may be addressed in Washington as follows: Senators, James D. Phelan, Hiram W. Johnson. Representatives, District No. 1, Clarence F. Lea; 2, John E. Raker; 3, Charles F. Curry, 4, Julius Kahn; 5, John I. Nolan; 6, John A. Elston; 7, H. E. Barbour; 8, Hugh S. Hersman; 9, Charles H. Randall; 10, Henry Z. Osborne; 11, William Kettner.

WALNUT SOIL DEMONSTRATION

Under the auspices of the Los Angeles County farm bureau a lecture on soils and demonstrations through borings were held in the orchard of B. F. Maxon, West Covina, May 14. The chief speaker was Dr. L. D. Batchelor of the Riverside experiment station. D. C. Wylie, manager field department of the California Walnut Growers Association presided at the auger, assisted by many willing ranchers. The chief points of Dr. Batchelor's address are here given.

"The walnut grower must know that he is wetting his soil for at least eight feet in depth. During July the soil must be full of moisture or nuts will not fill. In August if soil is dry 'stick-tights' or tight husks will result. Autumn finds some soils so dry that leaves do not properly mature before dropping and winter die-back results. Winter's rains often come just in time to save the trees but still not in sufficient volume to wet deep enough.

"The standard of the crop is set by June 1 so that early moisture is most important. It is then decided by the tree how many number one, number two, or culls it will yield. The penetration of rains should be closely studied by each orchardist as soil texture differs much, in some localities even within a few hundred feet. It is conceded that in ordinary soils an inch to an inch and a half of rain is required to wet down one foot, therefore the necessary eight feet for walnuts requires eight to 12 inches of rain if soil is dry. In soils given 15 acre-inches in March a test shows plenty of moisture at six feet and probably no further supply is needed until July.

"There is a disadvantage in many localities in using the basin method of irrigation. This is especially true where soil is light and winds are strong. Owing to the heavy top many trees blow over under these conditions. A zone of dry soil next the tree is needed for stability and protection against either strong prevailing breezes or occasional high winds. Orchardists should make many borings in an orchard to determine if both depth and lateral percolation are the same in all parts. More water may be needed in some parts than in others."

Borings were then made in three widely separated parts of the orchard to the depth of ten feet. In each case the moisture content was satisfactory and the soil similar in texture throughout though the surface soil was darker in color by reason of humus content. The last irrigation was given in December. This condition was declared unusual and indicative of the highest type of walnut lands. At the close of Dr. Batchelor's talk Prof. Nelson spoke briefly on soil problems on much the same general lines as reported elsewhere from the citrus orchard, but with more especial application to walnut soils.—E. B.

ERADICATION OF CITRUS WHITEFLY

Harry S. Smith, entomologist in charge of the office of pest control, California department of agriculture writes:

"For a number of years one of the citrus feeding species of whiteflies has existed on the Stockdale Ranch near Bakersfield. An attempt was made by the old state horticultural commission to eradicate the pest on this ranch, but without success. Viewing the occurrence of this insect at Bakersfield as a menace to the citrus industry in Southern California, another attempt at eradication has just been completed through the cooperation of the county horticultural commissioner of Kern County and the office of pest control. Kent S. Knowlton, the county horticultural commissioner at Bakersfield, and Mr. Branigan of this office have given the work their personal supervision and it has been painstakingly carried on. Approximately $750 was spent by the county and the Stockdale Ranch. It is hoped that this will mark the end of the infestation, but the work will be followed up with frequent careful inspections."

NEW STRAWBERRY PEST BREAKS OUT IN CALIFORNIA

What is probably the most serious pest of strawberries in the United States has recently appeared in California. D. P. T. MacDonald, deputy horticultural commissioner of Alameda County, last week called the attention of the office of pest control to the serious damage being done to strawberry plants at Mt. Eden, near Hayward, Alameda County, by a root infesting grub. Examination showed it to be one of the strawberry root weevils of which there are several species. This has later been determined by Dr Van Dyke as otiorhynchus rugifrons.

The pest works on the roots of the plants, killing it outright and generally the destruction is complete in the area where it is found, no plants being left in a healthy condition. The adult is wingless so that the distribution is slow, excepting where the plants or soil are moved or where irrigation water is permitted to run through the infested portion of the patch.

The strawberry root weevil is a serious menace to the future of the strawberry industry in California, and an effort will be made to eradicate it unless it is found to be so widely distributed that such an attempt will prove impractical. County commissioners can aid greatly in determining what should be done by instructing their inspectors to look for the pest in their districts.

This weevil undoubtedly came in on strawberry plants from the Northwest four years ago, the particular plants in the infested area having been purchased in Oregon.

COMMENT.

He is indeed
A dismal elf
Who cannot chuckle
At himself.

BEEMAN

THE INEXPENSIVE TRACTOR FOR SMALL RANCHES

Does the work of one horse at one-quarter the cost. The Original One Horse Tractor—five years on the market.

Motors Equipment Tractor Co.,
1310 So. Grand Ave., Los Angeles, Calif.
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Since 1902

Pomona DUPLEX-PLUNGER Pumps

One Pump Will Do Your Work

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

Send for Catalog 103

Pomona "Made Right" Irrigation Gates and Valves

PRICES RIGHT-QUALITY RIGHT
SEND FOR BOOK C.

POMONA MFG. CO.
POMONA, CAL.

Place Your Order NOW for Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or ex steamer to arrive.

C. HENRY SMITH, General Agent
Pacific Coast and Hawaiian Islands
311 California St., San Francisco.

Santa Cruz County farm bureau membership is being increased.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Rose Rust

We have a large rose bush completely covered with rust and it is dying. What shall we do with it?—Subscriber, Puente.

A bush so badly affected and dying should be dug up and burned so its spores will not affect other foliage. Spraying with Bordeaux mixture will usually control this rust. As it spreads slowly watch your bushes and pick off and burn all affected foliage; then spray.

Tomato Profits

How many tons of tomatoes can be produced on an acre? What is the cost of picking a ton? What are the canneries offering per ton? How late may one plant?—Subscriber, Lemoore.

The range of production is from five to 25 tons an acre, dependent upon soil and season, not so much upon culture, as with ordinary care under good natural conditions crops are generally good. Three years ago the cost of picking was $2 a ton, but it has been steadily climbing until this season the cost will range from $4 to $4.50. Canneries in the south are paying $20 per ton and this price generally prevails for good fruit. Some sales in other parts of the state are reported as low as $15 to $18, but it is thought this was for poor stock. The planting season for winter crop ranges from May 1 to August.

Katydids, Aphids, Scales

Please tell me what is on the enclosed apple twigs. I have sprayed them with arsenate of lead, but it has done no good.—Subscriber, Van Nuys.

The twig with large scales in two straight rows is infested with katydid eggs. This and other twigs also have on them San Jose scale and woolly aphis. The latter is hard to eliminate but not hard to control if trees are sprayed each spring when dormant. A thorough spraying next spring with lime-sulphur, ten per cent solution, will fairly clean your trees. Nothing should be done at present.

High Rentals

Why should Imperial Valley land, as stated on page 781 in the May 8 issue, bring an annual rental of $45 per acre? The lands but a few years ago commanded at government prices $1 per acre; water was conveyed to the land at a cost of five or ten days work per acre or not over $30 cash, leveling, placing levees, ditches, etc., say not to exceed $135, total cost $166.—J. R., Bloomington.

The rental of some of California's agricultural lands has risen so high that it is impossible for the average farmer to raise average crops and pay the rent. There are special crops under special conditions where $45 per acre is perhaps reasonable, but these special conditions are allowed to influence the prices charged for other lands not so favorably situated. The result is ruin for many a man who has not used special judgment in taking lands at such prices, which with his inexperience has caused complete failure. But to answer more directly our inquirer as to whose fault it is and to call attention to this unjust situation, we may say that we believe rentals have been affected more by the Japanese than by any other one factor. They have been able with their intensive efforts and self denial to produce some great crops, they live on a plane an American could not possibly touch and "get by" under these enormous rentals. This has compelled the American renter to pay an equal price. In other words it comes back to "supply and demand."

Chick Feed

Here are two poultry foods, one of which was sample from which I made purchase, the other is from the sack of goods which was really delivered, and on feeding chicks with this food had several hundred die the first day. Does it contain poison or what was the cause of the chicks death?—Subscriber.

It is impossible on such meager information to give cause of the death of the chicks. An analysis of the feeds would be necessary and if there is reasonably good evidence that the feed was poisonous the University of California through its chemical laboratory could give the best information. However, the feeds were referred to Professor Dougherty, chief of the poultry division, and he answers as follows: "We have examined the two samples of feed carefully, and while there is undoubtedly a difference in these two samples it is not possible for us to make an analysis. This work will have to be done by the pure food and drugs laboratory, provided that there is good ground for the belief that the food sent by the dealer to the poultryman contains poisonous materials. I would earnestly question this and believe the trouble has been produced primarily by the method of feeding and perhaps by the fact that the mash used is a laying mash and contains certain feeds which, while satisfactory for adult stock, are too indigestible for young stock. We do not believe at present that a mixture containing coconut meal or cottonseed meal should be fed to baby chicks."

Spraying Citrus

Is there a law to compel a man to spray his citrus trees that are covered with scale? Trees are next to clean grove.—Subscriber, Buena Park.

Yes, the law is very stringent in the matter of horticultural pests. In case neighboring trees are infested the matter should be reported to your county horticultural commissioner—in your case, Earl Morris, Santa Ana.

Nematodes

As new subscribers we are very much interested in nematodes. Is it a disease or what is commonly known as wireworm? What is the remedy?—Subscriber, Bellflower.

The nematodes are often called eelworms in potatoes. Wireworms are much larger and entirely different. As to remedy there seems to be none within economic bounds. However, one must observe the greatest caution in choosing seed potatoes so as not to carry the pest into the soil. Hence the only treatment is prevention.

Corn Ear Worm

Is there any satisfactory method of controlling corn ear worm? — Subscriber.

Very satisfactory results have been had from use of dry arsenate of lead. The more common method of using is to place in small bag of coarse muslin which is shaken over the tips of the ears as the silk begins forming. Do not use too freely as a light sprinkling seems sufficient. Repeat after a few days.

THE BLACK BLOW FLY

At this season of the year it behooves the stock raisers of California to devote serious attention to the combating of blow flies. One species of this pest has already made its appearance; namely, the black blow fly. This insect is of medium size and uniformly bluish black in color, except the eyes, which present a reddish tinge.

The favorite breeding place of this insect is in the putrefactive tissues of dead animals. In the living animal the fly prefers to deposit its eggs on soiled healthy areas and suppurative sores. Heavily wooled sheep are the ones most commonly attacked by the maggots of this fly. The eggs are deposited on the rump of unshorn ewes following lambing and around the horns of bucks when the horns have become injured at the base. The maggots first attack the wool of the ewes, but gradually penetrate to the skin and then under it and may eventually kill the animal. In the buck the seat of infestation gives the maggots easy access to the ear, and oftentimes the animal thus attacked becomes useless.

To prevent the multitudinous breeding of these flies carcasses should be buried deeply or burned soon after death. Wounds infested by the maggots may be treated by pouring into the wound a small quantity of chloroform and then covering it with pine tar.

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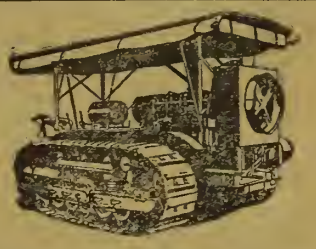

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Plant Quarantine Board Meets at Salt Lake City

Use of the quarantine, not as a drastic remedy to be applied after a destructive crop pest has gained a foothold, but rather as the "ounce of prevention" which is "better than the pound of cure," is the idea underlying the formation of the Western Plant Quarantine Board, which held its second annual convention in Salt Lake City, May 11-13. The board was organized at Riverside last year. Harold R. Hagan, Utah crop and pest inspector, is secretary of the board, which held its meetings in the Utah state capitol.

G. H. Hecke, director of the California department of agriculture, chairman of the board, expressed the thought given above in describing its purpose. To J. Rawlins of Draper, chairman of the Utah crop and pest commission, however, Mr. Hecke gave credit for sounding the keynote of the meeting, which was that quarantine work will never reach its full efficiency until it is taken out of politics. Mr. Rawlins said that it takes years to develop a good plant quarantine inspector, and that when one is developed he should be kept on the job and be paid a salary sufficiently attractive for him to remain in public service.

Governor Bamberger made the address of welcome after roll call had shown 14 delegates from the 11 Western states represented on the board. Mr. Hecke then made his annual address in which he called attention to the objects of the board, the work it has accomplished and that which remains for it to do.

Mr. Hagan made a brief report on Utah's quarantine work for the past year, showing that Utah shippers had broken the regulations of other states five times, so far as called to the attention of his office, and three times had shippers into his state broken similar regulations.

Frederick Maskew, chief deputy quarantine officer of the California state department of agriculture, read a paper on terminal inspection of plants shipped by mail, the paper having been prepared by Lee A. Strong of California, who was unable to be present. The paper told of cooperation between California and the post-office department, and urged the adoption of similar measures in other states.

Andrew Kimball of Arizona reported at considerable length and brought up the subject of the pink bollworm and the boll weevil as a menace to California and Arizona, the only large district remaining that can grow the best cotton and is free from these pests. Mr. Kimball was appointed chairman of a committee on cotton seed and cotton, with Arnulfo Liera of Lower California, Mexico, and Frederick Maskew of California as the other members. W. H. Wicks of Idaho reported briefly on quarantine work in that state. O. A. Pratt of the federal service, who has been assigned to Lower California, told of the quarantine work there, and said that that state of Mexico is adopting as strict quarantine rules as any state in the United States.

PRACTICAL EDUCATION IN TRAVEL CLASS

Dr. J. Eliot Coit announces his citriculture class of the University of California in its traveling course will be in Los Angeles County during the next few days.

This course covers the fruit growing industries of the entire state and lasts for six wees. It is participated in by advanced students in agriculture in the university, who travel in automobiles and study the practical side of fruit growing in this way.

The class will spend Saturday, May 29, in the study of the wholesale terminal market, Los Angeles, and the cold storage plant in connection therewith. On Monday, May 31, they will visit the farm adviser's office, chamber of commerce, horticultural interests at the Huntington Estate, Pasadena; state insectary at Alhambra; and on Tuesday, June 1, they will study the purification and use of sewage water for irrigation at the Pasadena city farm, the North Whittier Heights lemon and avocado plantings, certain nurseries at Whittier; Leffingwell Ranch; and the Whedon avocado orchard at Yorba Linda. On Wednesday, June 2, they will visit the California Fruit Growers Exchange.

There are 16 students in the class, 12 men and four women, about half of whom are Californians, the rest being students who have come here from foreign countries, including England China, Argentine, Australia, India and Brazil.

CLAREMONT HORTICULTURAL CLUB

This club will hold its last meeting of the club year at Pomona College Claremont, Saturday, May 29. The annual election of officers and business meeting will occupy the forenoon. In the afternoon at 1:30 the public program will begin with the last of Prof. R. S. Vaile's talks on Fertilizers and Their Conservation. Dr J. G. Biller will speak on Citrus Blast Mrs. J. C. Hazzard will occupy the "Woman's Hour" and Senator Joseph A. Rominger of Long Beach will close with Important Legislation Needed.

BUT BETTER THEN THAN NEVER

Browne: It is never too late to mend.

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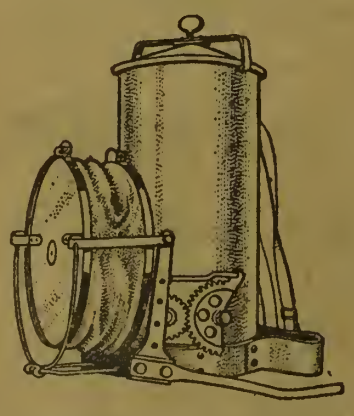

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Who Pays Baling?

Landiord under written agreement with the tenant agrees to furnish horses, harness, tools, machinery and all seeds. The tenant takes care of the grain and does all the work for one-half of the crops. There is nothing in the agreement as to who is to pay for the threshing and furnishing of sacks for the grain or who is to pay for the baling of the hay and furnishing the wire for baling. Who pays for these items?—Subscriber.

Sufficient is not stated in respect to the contract to determine just what are the rights of the parties. Such a contract between two parties may amount to a lease of the land; such a lease may, according to the terms, vest title to the crops themselves in the tenant or may vest title in the landlord with a llen. The contract may be such that a tenancy in common is created in the crops or it may be construed that the tenant is merely working for an agreed percentage. Each one of these methods of construing the contract would of course have a great influence upon the answer to this question, as such contract creates the relationship. The landlord might be required to furnish all things if he is the owner of the crops. If the tenancy in common is created they might be required to equally bear the expenses, or if the tenant owns the crops, he might be required to bear all expenses. However, another matter enters into this which may be sufficient to give the answer which you request. As a general rule to be applied here, it is shown that the partles who made the contract were both cognizant of the general usage prevailing in a certain community in respect to such matters as the above; they were presumed to have been made in accordance with reference thereto, and such general custom or usage will be read into and made a part of the contract, thus in the case of Corey versus Struve, 16 Cal. App. 318, a case of lease for the growing of sugar beets. There being no clause in the lease in reference to the disposition of the tops, it was held that the general custom prevailing in that locality, that the landlord receive the tops and that such tops were plowed under for fertilizer, would be read into the lease, and made a part thereof, so in this instance, if there is a custom which has been prevailing in your locality in respect to the matter in question which is known to both you and the tenant, it would undoubtedly prevail and be read into the lease as a part thereof, in the absence of a definite agreement contained in the lease itself. If you desire more explicit answer send down the lease itself.

Property in Wife's Name

The title to a ranch is vested in the wife, although the property was acquired subsequent to marriage by joint earnings. Can the wife sell or will the property without consulting the husband? Is his signature to the deed necessary to make it a valid instrument?—Subscriber.

The property being community property, the husband should join in the signature on the deed, and on the assumption that it is community property, upon the wife's death the whole of the property would go to the husband. The fact that the title to the property is in the wife's name raises a presumption of law that it is her separate property, but this presumption can be overcome by evidence in a proper proceeding. This presumption that it is her separate property is however conclusive in favor of purchaser or encumbrancer in good faith and for a valuable consideration.

Pipe Line

In 1913 a nelghbor gave me verbal permission to lay a four inch pipe line through his land. Lately I understand that he wishes to make me remove the pipe. Can he do so?—Subscriber, Puente.

The term "verbal agreement" is too indefinite to admit of an answer to such a question. The permission might be a mere license upon which, of course, no claim of right could be based. It is essential in order to establish a prescriptive right that the user be actual, open, notorious and not clandestine; that it be claimed in hostility to the owner of the land and as of right and exclusive of any right of the owner of the land; that it be continuous and uninterrupted for five years prior to the commencement of the action, that is to say, that the water is used through the pipe whenever needed for irrigation purposes. It is sufficient that it be used during the cropping season; and in case the easement should be assessed for taxation separate from the land, that taxes have been paid thereon. This is a matter, however, for the owner of the servient estate to show. If you have acquired a right by prescription you are not required to remove the pipe line. If it is only under a license, then you have not and may be required to remove the pipe line.

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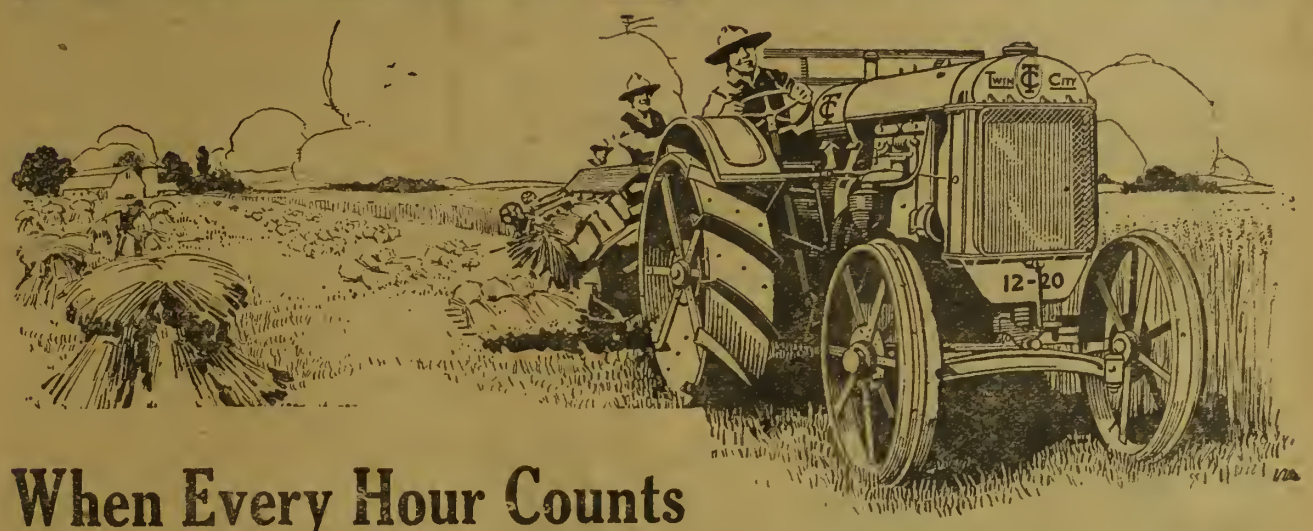
12-20 Kerosene Tractor with 16-valve engine



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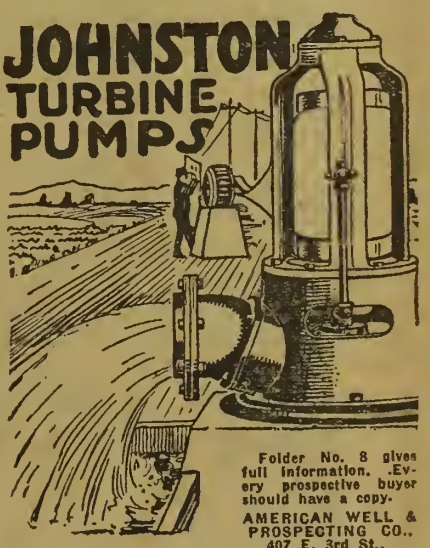

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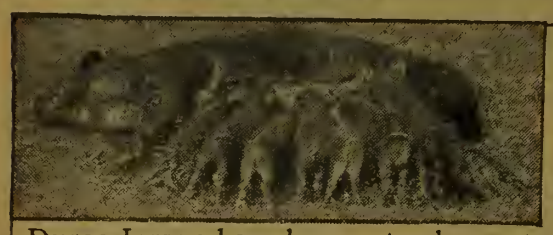

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H. P. Slocum, Willows, Cal.

Making Contacts in Marketing Purebred Livestock

By L. B. Burk

THE United States department of agriculture through its bureau of markets has been investigating the various systems and methods of marketing pure bred livestock now in use, with a view to effecting a system of communication among breeders, farmers, county agents, state agents, and state and national livestock associations, which will enable breeders to dispose of their surplus more easily and assist buyers in locating the desired stock close at home.

Breeders of pure bred livestock have felt for a long time that there is a need for a closer acquaintanceship with the livestock farmer who does not breed pure bred animals. The breeder with only a few animals especially, often has difficulty in disposing of his surplus profitably, and the man who never before has purchased pure bred animals frequently needs information relative to the location, value and quality of the animals desired. Such information is of especial importance if it helps him in finding what he wants near at home. Although in many instances the animals offered by the small breeder may lack condition and are inferior, the principal reason for his inability to sell is the fact that he is not a well known breeder, he is not acquainted with the usual methods of selling purebred livestock, and he has not been able to realize the value of advertising.

Since a substantial growing industry depends largely upon the success of a large number of small breeders, it is of vital importance that a reasonable profit from the beginning be realized or they will become dissatisfied and quit the business.

The principal difficulty lies in the inability of the uninformed purchaser to get definite, accurate information regarding the kind of animals to buy and where they can be located most easily. The importance of starting with the right kind is so vital to the success of the business and there is so much misinformation that the purchaser needs advice from a disinterested party in whom he places confidence.

The bureau of markets in cooperation with the various state agricultural colleges, county agents, and local livestock associations, is inaugurating a plan which will assist buyers very materially in obtaining easily the information desired regarding purebred animals. The plan is based upon the cooperation of the breeders within a county or community. The farm bureau or county agent's office is the headquarters for the local cooperative association and usually the county agent is the secretary.

Although many different ways of getting results are employed by the various local associations the principal object in the plan of the bureau of markets is for the association to supply definite detailed information regarding the various herds in the county to those who desire it. This enables the buyer and seller to get together easily in order that a sale may be made, and when this is done the association considers it has accomplished its purpose. It is obvious if the secretary is to direct buyers he must be well acquainted with the breeders and the herds in order to furnish the necessary information readily. Naturally the first step is to make a survey and determine the number of breeding animals in each herd, the number of each sex, the age and quality, and the kind of sire heading the herd, together with the exact location and the approximate number of animals offered for sale each season, this being the information needed. As soon as this information is completed it is filed in a form readily accessible to anyone. By this method fairly complete files may be maintained by collecting such data twice each year and when direct inquiries are made more definite information may be obtained by telephone. The information is then plotted on maps which are placed in conspicuous places where everyone will have an opportunity to see them. In a surprisingly short time every farmer in the county knows where all of the breeders within the county are located. In some states the county agent obtains a list of the number of animals for sale each month and this list is published by the state field agent in marketing and distributed within the state. In counties where this plan has been most successful county agents claim to have done as much as $9,000 worth of pure bred livestock sale business each month.

Where the demand is not great enough to absorb the supply within a county the members of a community use two methods for disposing of the surplus. One is to conduct a consignment sale and sell the animals at auction. The other is to advertise extensively as a pure bred livestock center or county. Both methods have given excellent results. Some communities, however, have made the mistake of selling all of their best animals privately and consigning the culls or less desirable animals to the sale. Such sales are frequently a great disappointment and great care should be taken to offer nothing but high class animals at auction because visitors are sure to judge the quality of a man's herd by the animals he consigns to the sale.

As soon as the survey is completed in a county a copy of the tabulated data is sent to the state field agent in marketing where the data from all of the counties are kept. The object is to enable him to handle inquiries within the state and to furnish buyers the necessary information which is sent in by the various county agents. It enables him to direct men in adjoining counties and those who desire carlots of certain breeds to certain groups of counties which have a very large number of animals.

The state field agents of the bureau of markets, cooperating with the animal husbandry men of the college, work out plans for assisting buyers both within and outside the state in locating the animals needed. They often help county agents find animals for club members, make definite arrangements and plan trips for out-of-state buyers in order that they see the maximum number of animals at the least expense. They also cooperate with breed associations in conducting local auction sales.

Just recently the field agent in marketing and the animal husbandry specialists in Nebraska attracted buyers from Texas who bought 300 pure bred hogs in one lot from four adjoining counties. The fact that these men were assured that they would be shown a thousand high class registered breeding hogs per day in five adjoining counties was one of the strong arguments which caused them to cross some of the other leading livestock states and buy their hogs in Nebraska. The Texas men were extremely well pleased with the service rendered and the breeders were pleased to get the opportunity to make such sale. As the plan becomes well established so that the county agents know where the various herds are located and the kind that are for sale, the foreign buyers will find the services of these county agents of great value in locating the kind of animals they want.

The state field agents in marketing of whom there are 28, transmit a condensed report to the Washington office of the bureau of markets, where it is kept on file for use in directing foreign buyers and buyers in various sections of the United States to districts most accessible to them.

In a recent communication it was learned that a certain party in Central Florida made inquiry for a carload of Herefords in Central Montana approximately 2,500 miles away. It later developed that he could have obtained animals at a very reasonable price, sired by an international grand champion bull, within 150 miles of his home. Had this man bought animals in Montana he would have had an enormous freight bill to pay, the long trip would have been extremely hard on the cattle and it would have been necessary for them to become accustomed to the change in climate and altitude before they would have done well, and it is quite likely the initial cost on the farms would have been the same for the same quality of a

lmals. Although thls is a striking example of the need of the servlce described herein there are hundreds of less striklng but slmilar cases every year ln different sectlons of the United States.

During the past year many breeders have expressed a desire to enter the foreign field, but very few American breeders have been foreign traders ln the past and a large amount of information is necessary before shipments and proper contracts can be made whlch will assure success in the undertaking.

In vlew of this fact the Unlted States department of agrlculture has taken steps to assist ln developlng foreign trade ln pure bred livestock. An attractively illustrated booklet prlnted in both Spanish and Portuguese, showing the types and location of our Amerlcan breeds, together witn the guarantees offered by the United States government against disease, was publlshed and distributed in South America. Detailed personal investigations of conditions in South American countrles and Europe have been made during the past year by representatives of the bureau of markets and now, from time to time, there are buyers from those countrles coming to Washington and requesting assistance. On this account it is necessary that the Washington office of the bureau know what organizations are prepared to handle foreign trade and what state or states can offer most desirable stock, shipping facilities, and detailed service. It is qulte apparent that buyers from South Amerlca need dlrect assistance and it also is lmportant that such assistance be efficient and given promptly without charge. All matters must be handled by partles in whom the seller, as well as the buyer, has confidence. The seller must also appreclate the value of future trade and not place a prohibitive prlce on hls animals if he expects to make a sale.

Business methods in the United States are quite different from those in South Amerlca and all assistance given South American buyers will be greatly appreclated because it will help to reduce the cost of importing animals into thelr country. This, of course, is an important matter since the buyer naturally will purchase his stock from countrles where he can buy the cheapest, other condltions belng equal. Since many of the governments of the South Amerlcan countries subsldize the importation of livestock the breeders and farmers naturally expect the United States government to glve assistance when they come to thls country to buy.

The country livestock association which keeps definite, complete and up-to-date information on file, and makes this fact known to the state field agents ln marketlng and the Washington office of the bureau of markets, will render a much needed service to its members, the livestock industry as a whole, and to foreign buyers who come to this country for pure bred animals to improve their herds.

A Bad Situation

By A. L. Spellmeyer

MORE than 80 millions are invested in California beef cattle and 200 millions in land, a total of almost 300 millions.

It would be well for the people of this great cattle state to wake up and find out that one of its greatest industrles is today being seriously injured. The cattlemen are losing so much money they refuse to stock up and hard winter prospects discourage portions of the state, even though they wlsh to fill to normal numbers.

The cattle association advises withholding of beef. Ten cent steer beef means loss for many, ruin for some; 11 cent beef means breaking even for the majority.; 12 cent beef would mean restocking, fair profits and encouragement of an industry vital to the state and its soil and economic prosperity.

Although prices to cattle producers have dropped ln the last two months from 13 cents to ten and the effort is to drlve it lower, does anyone know of any decrease to consumers? Cattle price declines approximate 25 per cent—and the industry was not profitable before such declines. $36 per head decline on a 1,200 pound steer which should dress 60 per cent, or 720 pounds of beef, means about five cents decline, or some 25 per cent on carcass prices. Where does this money taken from producers go? Surely consumers don't get it and retailers still pay high carcass prices.

Foolish indeed is it to cater or play to public demand for lower living costs by lnjuring an industry so that it cannot operate. For the public and for the certainty of the future it is far better to see vital production secure a living profit, so that future plenty and consequent lower prices may be assured. It assures nothing to wreck the cattle business merely to have the public say the packers are holdlng prices down, and the packers are pointing to their wonderful efforts to lower llving costs in the country, which efforts have been totally at the expense of producers and future cattle production.

A decline of 700,000 beef last year seems small, but remember all the surplus of accumulation from war cold storage, etc., was practically absorbed. Next year cattle will show larger decreases. At present the situation is not dangerous, but it will take five years to bulld the nation's herds to our slaughter needs if we start now, and before that five years the increasing shortage will be a serious matter.

Locally in this state it has stopped all cattle activity, all restocking—and owing to the past three drouthy years supply is already under normal. Cattlemen should wake up. Let them write the association, finance a market committee to meet the issues, follow the beef bought at ten cents or less through to the consumer and make the finding public. Cattle didn't come down in other countrles, and cattle never did rise with other commodities or expense. Lower prices to producers merely mean a loss they cannot stand. If the cow men will get together they can stop the latest gouge. Write the Secretary California Cattlemen's Association, 222 Sharon Building, San Francisco, you cattlemen, and join the association if you don't belong already. We can do what walnut and orange men do.

SANTA BARBARA CATTLEMEN AND FARMERS COOPERATING IN FIRE PREVENTION

Eugene S. Kellogg, secretary of the Santa Barbara County branch of the California Cattlemen's Association, writes that his association and the farm bureau are cooperating in the matter of fire prevention.

The two organizations, cooperating, are installing fire fighting apparatus in each locality in the county for the coming season. This apparatus will consist of 14 two-wheeled trailers, each trailer equipped with six National Standard chemical fire extinguishers, 60 recharges, six three-gallon fire buckets, six shovels and five five-gallon milk cans.

The farm centers in each locality will act as custodians of the apparatus, arranging for fire fighting crews which will familiarize themselves with the operation of the extinguishers and be ready to act on short notice in case of fire.

Bumper crops of grain in the county this year, together with abundant feed on the range, make this equipment essential. To further guard against the possibility of the spread of camp fires along the highway, definite camping sites are now being located at convenient distances along the highway, which will be provided with water and adequately protected by fire breaks. An ordinance will be passed prohibiting persons from building fires along highways at other than the regularly designated camping sites.

KINDRED FEELING.

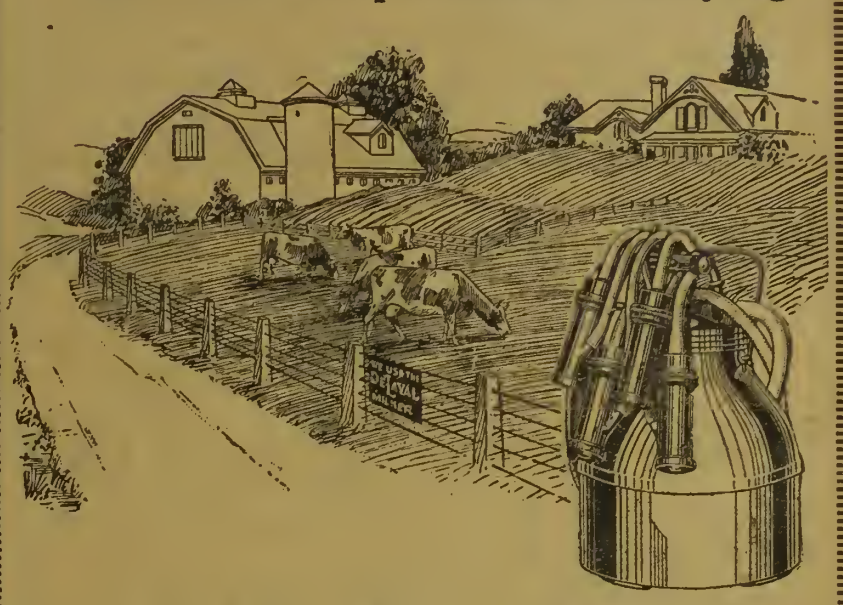
"You say you want no government whatever?" said Mr. Rafferty.

"None whatever," rejoined Mr. Dolan.

"I hope you get your wish for a minute or two, Then I can handle you any way I feel without a chance of your calling a policeman."—Washington Star.

The De Laval Milker

—the road to profitable dairying



A De Laval Milker is a short-cut to profitable dairying, because it makes possible the production of more milk at less cost.

One man with the De Laval Milker can do the work of three hand milkers, and the work is easy and pleasant. Besides, the saving in labor, the gentle and regular process of De Laval milking and the alternate action, cause the cows to give down their milk quickly and freely, which usually means increased production.

The quality of the milk is the highest, because the De Laval Milker is simple and sanitary in construction, and easy to wash and keep clean. It is used on many farms producing certified milk.

The De Laval Milker is a distinctly different type of machine. Its simplicity and durability are insurance against annoying and expensive delays, and repair costs.

The De Laval Company's well-known reputation for service is an additional insurance of lasting satisfaction to users of De Laval Milkers.

Write to nearest De Laval office for Milker Catalog, mentioning number of cows milked

De Laval Dairy Supply Co.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

61 Beale Street San Francisco, Cal.

California's Entries in National Sale Honored at Sacramento

CALIFORNIA Holsteins were accorded new distinction last Saturday when the consignment from this state to the National Sale to be held at St. Paul, June 3, 4 and 5, was assemhled in Sacramento. The occasion was taken advantage of by the Rotary Club of the capitol city to stage a parade in honor of the event.

The consignment, headed by the celebrated young son of Tilly Alcartra and Carnation King Sylvia, was loaded on gayly decorated trucks and taken to the steps of the state capitol huilding, where it was greeted by the Sacramento Rotary Club and a large number of spectators. George H. Hecke, state director of agriculture and a member of the club, made an address in which he paid high tribute to the work of the California livestock breeders. Hecke declared he was certain that the time was at hand when a new era in California agriculture was getting under way and that the fame of this state, first as a source of gold, then as a great wheat producing section and later as the world's greatest fruit state, was about to be eclipsed as the home of the world's greatest livestock. And such development was hoth logical and desirable, for in the end a successful system of agriculture depends upon livestock—and the better the livestock in any community, the greater the prosperity of that community. At the close of his remarks, he placed a wreath of green around the neck of the "world's greatest calf," the battery of camera men got into action, and the parade, led by a band, followed a course through the principal streets of Sacramento.

The consignment, which is easily the most valuable and important ever sent from California. consists of 11 head, three hulls and eight females, that are entered in the sale mentioned, which is the classic event of Holstein history.

A. W. Morris and Sons, Woodland, consign the young bull from Tilly Altartra. While less than three months old, this youngster is probably the most talked of calf that the breed has yet produced. Combining as he does the blood of two of the greatest cows in the world, and having for his sire Carnation King Sylvia that sold as calf for $106,000, he is expected to prove the sensation of the sale, and there are many who expect him to top the price paid for his sire. This firm has also sent East the young bull King Korndyke Pontiac Acme, a son of King Korndyke Pontiac 20th, the hull recently sold at auction by W. J. Higdon of Tulare to Burr Farm, Los Angeles, for the Coast record of $12,000. The dam of this youngster is the wonderful young cow Miss Aaggie Acme Burke, with a junior two year old record of 1,034 pounds of butter from 24,388.8 pounds of milk, a world's record for milk. From the same herd and out of Aralia De Kol Acme, a daughter of Sir Aaggie De Kol Mead and out of Aralia De Kol Pontiac Mead, with a record of 932 pounds of butter as a two year old. The seven nearest dams of Miss Aralia De Kol Acme held the world's record average of 1,118.7 pounds butter. The fourth member of the Morris lot is Miss Aralia De Kol Mead, also a daughter of Sir Aaggie De Kol Mead. Her dam is Aralia De Kol Mead 2d, 851 pounds butter as junior two year old, the second highest in the state.

W. J. Higdon contributes the wonderful young cow, Ruby Pierterje of Forest Hill 2d, whose record of 39.74 pounds butter in seven days was the largest reported last year, and whose 30 day record of 162.5 pounds of butter is the highest ever made on the Pacific Coast.

Toyon Farms Association, Los Altos, sent the three year old cow Moxee Johanna Korndyke Piebe, a daughter of Sir Korndyke Ormsby Piebe and out of the 30,000 pound cow Cascade Fleta Johanna; also Princess Jonge Buckeye, with an unreported record for 365 days of 1,051.43 pounds of butter from 27,906.17 pounds of milk.

Bridgford Company, Patterson, contribute the bull King Prilly Segis Pontiac, a son of the noted sire and show bull King Segis Aicartra Prilly, and out of Spring Farm Pontiac Maid 2d, senior champion at the 1919 California state fair and with seven day record as a senior four year old of 35.66 pounds butter. From the same herd has been sent Boweda Alcartra Prilly. This heifer, sired by the Bridgford herd hull, is from the noted 37 pound cow Boweda, that was sold in the 1919 Guaranty Sale for $2,400. The third lot from this herd is the heifer, Rose De Kol Alcartra Abbekerk, sired by King Segis Alcartra Abbekerk. She is from a 30.54 pound four year old.

The J. S. Gibson Company, Williams, will be represented by Roma Princess Alcartra, a granddaughter of Tilly Alcartra. She was sired hy Prince Alcartra Korndyke, and is out of Roma Princess Korndyke. This cow has a 305 day record of 775.3 pounds butter from 17,781.17 pounds milk and a 30 day record of 30.39 pounds.

A very few select Berkshires have recently been installed at the D. J. Bastanchury ranch at La Habra. These are from the noted N. H. Gentry herd at Sedalia, Missouri, and include the young boar Baron Premier 157 and four young sows, all the get of the great Baron Premier.

At Hollow Hill Farm, Colton, is now to be seen one of the young aristocrats of the Guernsey breed, the hull calf whose dam is Imp. Brittleware Mistletoe, with record of 751.4 pounds fat as a four year old. Sire of calf is Effie's King of Hollow Hill.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

June 17. C. W. Anderson, Burbank. Dispersal.

Duroc-Jerseys

July 21, Elmer Lamb, Ceres.
July, Conejo Ranch, Newbury Park.
July, Diamond Bar Ranch, Spadra.
July, Winsor Ranch, Bonita.

Hampshires

July, Ortega-Underhill-Rancho, Santa Barbara.
July, Conejo Ranch, Newbury Park.

Poland Chinas

August 21, Merced County Poland China Breeders' Association, Merced.
September 27, Hugh C. Shinn, A. J Elliott and Alex D. McCarty, Tulare.

Diamond Bar is already a name to conjure with in California Duroc circles. The one big fact to be noted at the ranch today is the 125 hrood sow whose spring litters aggregate no less than 1,000 pigs. The selection of these high class hrood sows has required the most exact knowledge and skill As swine superintendent Walter Gatton has made good in securing brood sows that are genuine producers and bred along ultra popular blood lines The Ace of Pathfinders heads the list of sires as one of the top-notch sires of the hreed. Four other recognized great boars of the breed are likewise doing effective service at the ranch. while a number of spring litters are accredited to leading sires of the Corn Belt. Individual merit with the ahility to reproduce is to be the slogan at this hreeding headquarters Fred Lewis, the owner, is doing more than one man's share to hring California into her own as a leading hog growing state of the Union.

The Duroc-Jersey breeders of Glenn County met at the city hall, Willows, May 18, and formed the Glenn County Duroc-Jersey Breeders Association The following officers were elected President, F. H. Hurni, Orland; vice president, C. N. Slocum, Willows; secretary-treasurer, C. D. Bright, Glenn; directors—B. Hollingshead, Orland; S. N. Slocum, Willows; D. F. Small, Willows; J. E. Bogue, Glenn; E. D Conolley, Willows. It was unanimously agreed to give the pig club our full support and offer prizes for the best pigs. A futurity show will be put on at the Glenn County fair in Octoher —C. D. Bright, secretary-treasurer

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A. E. Harvey of the Fairbanks Ranch, Redlands (Hampshires), has taken a unique stand in the conduct of his hreeding operations His prime requisite in all breeding stock is the very limit of bone and stretch, consistent with quick and easy feeding quality. The great sire Harvey's Choice illustrates this theory. He is a regular 1,000-pounder in show form, and the pigs are like the sire. It should be remembered that the Fairbanks Ranch is the home of many of the greatest show and hrood sows on the Pacific Coast. The younger herd boar, Chong, reserve grand champion at Los Angeles Livestock Show, is accredited with many fine litters of the spring farrow.

One of the great producing Holstein cows of Southern California is Baron Anahelle Lillith, owned at the Jas. J. Jeffries ranch at Burhank. She has done better than 38 pounds in seven days and is now developing into a fine prospect for a long distance record.

Big Profits

If You Will

Raise Guinea Pigs

In order to supply our ever increasing demand for cavies (guinea pigs) for use in hospitals, laboratories, etc., we have opened a California branch. Few industries offer such profit at such slight Investment of money and time. Foundation stock can be purchased for only a few dollars and cost of raising is only about 5 cents per head. We agree in writing to purchase all the cavies you raise from stock purchased from us or their descendants and will pay $1.20 a pair for animals weighing over 8 ounces delivered. Even a few pens should pay you well. Send for booklet about breeding, care and money making opportunities raising cavies. You can get started raising cavies on an investment as low as $5.00.

To Sell To Us

250,000 NEEDED YEARLY

by laboratories and other institutions every year In all parts of the country. Many of these big orders, representing over a million and a half dollars expenditure each year, are waiting for supplies. Waiting for people to wake up to their opportunities and raise sufficient stock to meet their requirements, One institution alone in Pennsylvania requires on an average of 1,500 guinea pigs each week.

We have more orders than we can possibly fill, so we will furnish you breeding stock at small cost.

Guinea pigs are very prolific and at 6 weeks of age are ready for mating. They thrive in any climate and can be successfully raised in congested neighborhoods without annoyance of disagreeable odors, even when kept in large numbers.

This Has Nothing to Do With Vivisection

10 Guinea Pigs should earn $100 a year 500 Guinea Pigs should earn $5000 a year

Dr. J. A. Roberts Laboratories

6634 Sunset Blvd., Hollywood, Cal.

Send 25c for booklet on "How you can make $2,000 in one year"

COW MANURE

Book early to be assured of delivery when you want it

Sulphate of Ammonia Nitrate of Soda

Commercial Fertilizers

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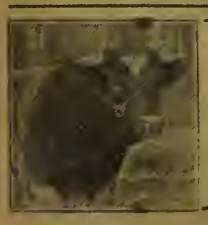
Los Angeles Office: 909 California Bldg. Phone Main 5408

HOLSTEIN BULL CALF

Four months old sired by Sir Veeman Korndyke Pontiac, dam Dotty Driscilla Canary now on year test making very fine showing. If you are in need of a Holstein bull write us.

BURR FARM

Box 220, Route 2. East 26th and Downey Road, Los Angeles



MR. FARMER

The thick-fleshed, good-milking Shorthorn cow is the kind that will make the surest and best return on your farm. Her steers will top the market and so will she when it is time to turn her for beef.

It pays to grow Shorthorns. Purebreds pay the best.

AMERICAN SHORTHORN BREEDERS' ASSOCIATION
13 Dexter Park Ave. Chicago, Illinois

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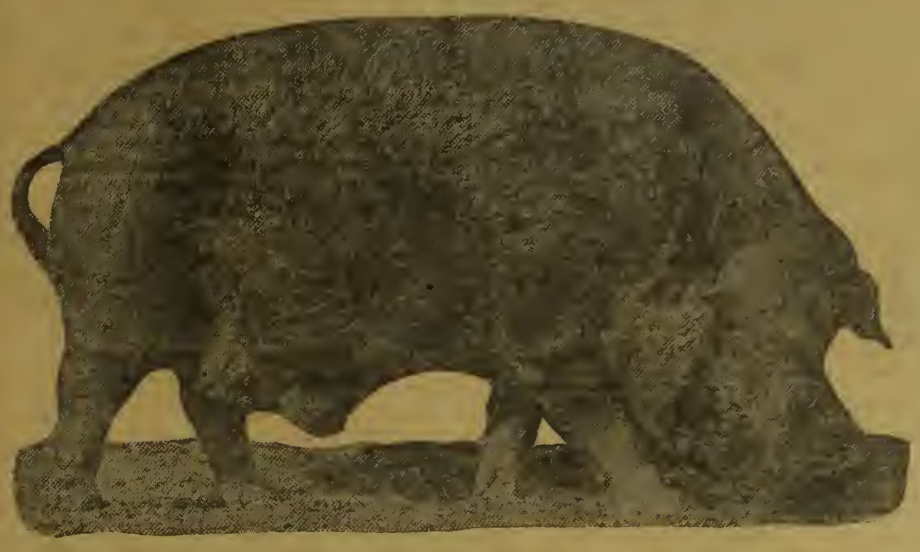

Ace of Pathfinders

The Ace of Pathfinders headed the World's Grand Champion Duroc herd at the 1919 National Swine Show; also the first-prize get-of-sire herd. He was Grand Champion at the Los Angeles Livestock Show, and stood second to the world's champion boar at the National. He is by Pathfinder, out of Hiawatha, by Crimson Prince, and besides his show ring record he is considered one of the greatest sires of the breed, his pigs being the crowning achievement in Duroc breeding.

Other Great Sires Used

The Spring litters at Diamond Bar are also by such eminent sires as Great Sensation, Great Orion Sensation (world's grand champion), Royal Pathfinder (the $20,000 boar), Great Pathfinder, Great I Am, High Pathfinder, Top Orion, Mammoth Sensation Jr., Great Sensation 2nd, California Great Wonder and Orion Reformer.

Splendid Galaxy of Brood Sows

The dam of every pig we offer is either a prize winner herself or the daughter of prize winners, and every one has demonstrated her merits in the breeding herd as well as in the show ring. Our sows are largely of PATHFINDER, GREAT SENSATION, GREAT ORION and BIG BONE GIANT blood lines.

Pigs Must Have Good Mothers Of course you want pigs sired by a noted boar, but do not stop there. Be just as particular about the dam, especially if you are selecting a herd sire. There never was a great man in history who did not have a wonderful mother, nor was there ever a really great boar whose dam was not a very high class brood sow. The better the sow the better the offspring—don't forget that.

Winners and Producers We breed Durocs with a constant view to their ultimate end—the pork barrel. With us the supreme test of greatness is a sow's breeding ability, and if she cannot produce fast growing, easy feeding, profit-producing pigs we must consider her a failure—no matter what her pedigree or show ring record may be.

Can Supply All Needs

No matter whether you are looking for a foundation herd, new blood for an established herd, show animals, or simply boars to put money-making qualities into a grade herd, we can satisfy you. We have the biggest, stretchiest Spring pigs you ever saw—1,000 of them. They represent the utmost in Durocs, and are a great lot of prospects.

While quality is high, our prices are most reasonable. You can't resist them. We will give you the best hog value you ever saw, and our guarantee of satisfaction goes with every animal. Call or write. Correspondence cheerfully answered.

Let us start you on the road to greater prosperity with a few choice pigs. You need this breeding to insure your success. The dollar mark is stamped on every animal. Grow them out and they will make a fortune for you.

Diamond Bar Ranch

Spadra, Los Angeles County
California

FRED LEWIS
Owner and Manager

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147
at head of our great herd of brood sows.

HARVEY'S CHOICE
Grand Champion Boar
at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair
SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

A. E. Harvey, Manager Redlands, Cal.

LLANO VISTA RANCHO

The Hampshire breed of swine is par excellence the economic pork maker—so recognized the world over. The carcass cuts up with the minimum of waste. It is a breed trait to do this. The Hampshire is large and clean-cut in type, and a great rustler. In a word, the "Hamp" is the California hog. We have 150 pigs in our spring litters. We have bargains any and every day in bred sows and sows with litters. Foundation stock our specialty.

F. A Langdon, Mgr.
Perris, Cal.

O.U.R. Hampshire Swine

Ortega-Underhill-Rancho

Thos. T. Dinsmore, Mgr., Santa Barbara, Cal.

Foundation Blood Now to Be Had in Big-Type Polands

The 900-lb. grand champion El Profito at head of herd.

We are right now offering foundation stock that you will appreciate.

This herd is outside the recognized Poland China breeding district, yet we find excellent sales both locally and by mail. Order for our surplus stock. The right foundation is the secret of our success. Papers go with all sales promptly. Write us today.

Viola L. Renwick Santa Barbara, Cal.

BERMA RANCH

Size and quality predominate in our big type Poland Chinas. No better big type sows are found in the state. Buy Berma Poland Chinas and you buy wisely.

C. E. DACK R. H. Box 196 Fresno, Cal.

TWO PREMIER SIRES

are found at the head of our herd. Caesar's Buster and Rosebud's Jumbo are siring the type of Poland Chinas you want. Get them early.

THOS. CAESAR & SON, Reedley, Calif.

BERNSTEIN'S RANCH

Home of King's Big Ben, where he is siring those early developing big type Poland Chinas that are ready for the market at 6 mo. They have size, bone, quality and are from the easy feeding families.

W. Bernstein Hanford, Cal.

Record Crowd---Big Barbecue---Heifer Raffle

These were some of the highlights in the big HAMMOND & BRADLEY CLOSING OUT SALE of high-class dairy cows at the old Fredericks Ranch at Hynes, May 21st. The 77 cows offered were eagerly absorbed by buyers at an average of $145 per head. The young heifer was drawn by an "innocent bystander" under rules and regulations voted on by the crowd. She then went under the hammer at $65.

The New Hammond & Bradley Sales Yards will shortly be announced, meantime keep an eye on the gun for happenings all along the line.

For live wire action in the selling field write, wire or consult

HAMMOND & BRADLEY
Offices 1053-55 S. Main St., Los Angeles, Cal.

When Writing Advertisers Mention California Cultivator

Tallowy Butter

Complaints are sometimes received at the office of dairy inspection of the state department of agriculture that butter from certain dealers is white and has a tallowy taste. Experiments have shown that this condition is no fault of the manufacturer in many cases. It does not represent an admixture of foreign fats, as has sometimes been hinted, but it is the effect of certain enzymes or ferments which are normally present in butter but whose functions have been diverted.

Placing sour cream in rusty utensils or tin plated copper vessels in which the copper has been exposed by wear results in the production of iron or copper lactate. These salts act as catalytic agents in the presence of certain enzymes and cause them to oxidize the natural pigment or coloring matter of the butter, thereby making it appear white. At the same time certain fat constituents of the butter are also affected and produce the flat flavor and peculiar odor by which such butter is characterized.

It has been further shown that raw cream butter is more prone to develop tallowiness than is butter made from pasteurized cream; also, the temperature at which the butter is stored is a factor—that kept at room temperature develops the condition rather quicker than that kept at a low icebox temperature. It is believed that the use of high temperatures for pasteurization, as high as 80 degrees Centigrade (176 degrees Fahrenheit), will, to a very great extent, destroy the enzymes that bring about the change. Milk cans and other utensils with which milk and cream come in contact should be re-tinned when the plating is worn off.

Sweet Clover Seed Not Injurious

That sweet clover seed screenings are not injurious when fed to stock in proper quantities is the conclusion justified by tests made by the bureau of animal industry, United States department of agriculture. While it is recognized that an unqualified general statement should not be based on a few experiments, the results obtained by a limited number of tests tend to prove there is no ground for the fear entertained by some, that sweet clover seed screenings with hay can be fed to sheep to good advantage though perhaps they do not form as desirable a grain feed as bran. The experiments suggest that a larger use might be made of these screenings as a stock feed.

One of the tests consisted in feeding two sheep with screenings composed largely of immature sweet clover seeds together with a small proportion of other seeds, fairly typical of screenings commonly used. Two other sheep in the same test were fed commercial screenings. The average daily ration per 100 pounds of live weight of sheep at the outset ranged from 1.06 to 1.79 pounds. This was the only feed given to the animals for a week, but the amount was gradually increased from day to day. All of the four sheep in this test lost weight, but this was attributed to the fact that at the beginning of the experiment the rations were insufficient to keep the animals in good condition, granting that sweet clover seed was a good feed. There were no other indications of any injurious effect from this ration.

To determine what bad effects, if any, might follow the use of sweet clover seed in addition to other feed, two sheep were given all the alfalfa hay they could eat and in addition nearly one pound daily of sweet clover screenings for each 100 pounds weight of each animal. One of these sheep increased from 101 to 103 pounds and the other from 100.75 to 109 pounds. Two other sheep were fed in practically the same manner except that instead of sweet clover seed screenings a small quantity of bran was substituted for hay. The weight gains of the two last mentioned animals were not quite so large as the other two, but this was attributed to the smallness of the bran ration.

Further to test the relative value of bran and sweet clover seed screenings as a grain ration, two sheep were given a ration of screenings daily and two others were given a ration amounting to three-fourths of a pound of bran daily. All four of these animals were kept in a pasture during the day and received their respective grain rations at night. All of the sheep remained in good health during the experiment. Those fed sweet clover seed screenings did well so far as this experiment was concerned, although the weights at the end of the test, which lasted approximately six weeks, seemed to indicate that the bran was the better feed.

THE HORSE STILL A USEFUL ANIMAL

As for the draft horse ever being completely eliminated by mechanical power, I am firmly of the opinion that tractors and trucks, useful as they are, important as they undoubtedly are, as factors in our industrial life and development; as essential as they confessedly are in the economic progress of the age in which we live, are no more destined to remove the draft horse from the realm of agricultural production than was the locomotive. It must not be forgotten that Stephenson's "Rocket" frightened for a time the farmers of England into the belief that the steam engine sounded the death knell of horse breeding in Great Britain; but time proved such fears to be absolutely groundless. The railways stimulated British farming operations because they brought about a much closer relationship between producer and consumer, and so with the gasoline and petroleum burning engines that have now come to help knit closer and closer the bonds between the fields, the factories and households of the nation. There is no finish fight on between mechanical and horse power in this year of Our Lord 1920, as some would have us believe. Each supplements the other. Both are necessary and desirable, and both will undoubtedly go forward to new and greater achievements as the country expands in population and production.—Alvin H. Sanders.

AS THE SCOTCH SEE US

The North British Agriculturist has a correspondent in California, a shepherd now on the Butte City Ranch He is John Brims. In a recent issue of the Agriculturist he commented upon California climate as compared with that of Scotland, upon the value of Troneyhill shepherd dogs, and gives to Scotch readers an idea of the method of docking lambs. He writes:

"We have a way of docking lambs at Butte City Ranch that is different from anything I ever saw in Scotland, and I am sure that many of my old friends will be glad to learn of it. Instead of cutting the tail off with a knife, we sear it off with a hot iron. The iron used is made like a wide-bladed, blunt chisel and has a long handle. It is heated in a small stove specially made for the purpose and in which wood is burned. The lamb's tail is pulled through a slot in a board to protect the rear part of the lamb from being scorched, and the tail taken off less than an inch long. Our sheep are registered Shropshires. The hot iron sears the stump, and if the job is not done too fast there is no bleeding at all.

"British breeders will do well to remember that we want the big, useful 'dual-purpose' kind of Shropshire in California."

SUDAN FOR PASTURE

Farmers who do not have silage to supplement the year's supply of feed should plant some crop for solling or pasture, accordlng to S. P. Clark, extension agronomist of the college of agriculture. Many questions are at this time being asked about Sudan grass and Mr. Clark makes the following suggestions:

"It is cheaper to raise young stock on pasture than any other method of feeding. Not only do cattle, hogs and horses thrive better on pasture than on dry feed, but it takes much less time and labor to have the stock harvest their own feed.

"Sudan grass is a crop that has proved itself to be a very satisfactory temporary pasture. Sudan grass in appearance is very similar to Johnson grass. In fact, persons who are not acquainted with the crops have difficulty in telling them apart. Sudan grass is an annual and has to be planted every year. It does not have the objectionable fleshy root stocks that Johnson grass has to carry it over from year to year. Sudan grass stools out quite readily and makes a fair sod, so will withstand the tramping of the animals.

"Sudan grass makes a rapid growth, being ready to cut for hay six weeks from seeding. The growth is renewed after every cutting from stools sent out from the crown and a cutting of hay can be secured every 30 days until frost.

"Because of its ability to renew growth in this manner Sudan grass makes a much better pasture than any of the sorghums. It is very palatable to dairy cows, producing milk of excellent quality and it requires very little grain to balance the ration.

"Sudan requires a firm, well prepared bed and it takes 15 to 20 pounds of seed to plant an acre."

KEEPING THE SILAGE CUTTER BUSY

On practically every farm it is necessary to watch the work carefully when the silo is being filled in order to keep the teams coming to the silage cutter in just the right order. If two teams arrive when only one can unload, one team must stand idle while the other is unloading, and this is an important loss of time.

To avoid this, R. T. Greely of Illinois arranges to have the corn binder cut part of the corn at the near end of the field and part at the far end. In that way it is possible to send some of the wagons to the far end and some to the near end. If the teams seem to be bunching up at the machine, he sends one or two of the empty wagons to the far end, so that they will not come back quite so soon. If there is a delay in getting to the machine, he sends the empty wagons to the near end.

He watches the corn binder, of course, so that it keeps enough cut ahead at each end to keep the work balanced. As a rule, however, it is not necessary to move the corn binder more than once or twice a day. When the binder goes from one end to the other it cuts a row of corn on the way. —System on the Farm.

MEETING OF CALIFORNIA HOLSTEIN-FRIESIAN ASSOCIATION

A regularly called meeting of California Holstein-Friesian Association was held at Tulare on the evening of May 4, at which a number of important matters came up for discussion and action, with something over 40 members present. $150 was voted as a contribution to the general prize fund of the coming California Dairy Cow Competition. After short discussion a resolution was adopted favoring the introduction of a bill at the coming session of the legislature to provide for the cooperation of California with the federal government in the work of eradicating bovine tuberculosis. This work will open the way for federal accredited herds in California. It was voted to hold the next Guaranty Sale at Tulare, provided the new $250,000 hotel at Tulare is completed by that time, the date to be set for some day in the latter part of March, 1921. The president was authorized to appoint a committee of two to arrange a Holstein futurity, based on production records. It was voted to expend the sum of $250 on a float to represent California Holsteins in the big parade to be held at St. Paul, Minnesota, on June 2 preceding the National Sale—C. L. Hughes, secretary.

ARE YOU PAYING FOR A SILO?

If you have a dozen head of cattle or more and do not have silage to feed them you are losing enough money each year to pay for a silo. Many dairymen who now have silos say they paid for themselves the first year by the saving in cost of feed, the increased flow of milk, and the improved condition of the livestock.

Here are ten good reasons why a silo should be on every farm where livestock is kept:

The silo preserves the palatability and succulence of green crops for winter feeding.

It conserves the entire crop.

The silo increases the livestock capacity of the farm.

Silage can be fed in summer when pastures are short.

Silage is relished by dairy and beef cattle and sheep.

It is digestible and aids in the digestion of other feeds fed with it.

Silage reduces the cost of production of milk, beef and mutton.

It will increase the milk flow.

Silage promotes the health of the herd.

The silo provides an economical method for the storage of roughage.—Idaho Experiment Station.

GRAIN FEEDING EXPERIMENT COMPLETED AT UNIVERSITY FARM

That the increase in production secured by heavy grain feeding of cows is not sufficient to pay for the increased cost of the grain ration is the conclusion drawn by F. W. Woll, professor of animal nutrition, from a feeding experiment with cows in the University of California dairy herd.

"The practice of feeding grain to dairy cows varies considerably among California dairymen," said Professor Woll, "some feeding about a pound of grain (concentrates) for every three pounds of milk produced, others only a pound for every five or six pounds of milk. Apparently the experiment now closed corroborates the result obtained in the former two trials, that the increase in production secured by heavy grain feeding is not sufficient to pay for the increased cost of the grain ration."

A bulletin is to be published shortly on the experiments with cows in the university herd.

SOY BEAN BY-PRODUCT VALUABLE SWINE FEED

Soy bean oil meal has been found to be a valuable supplemental feed to corn for swine feeding through tests at the Ohio experiment station. This oil meal is a by-product from Southern mills where the oil has been extracted from soy beans for commercial use.

As a supplement to corn soy bean oil meal was found to be more valuable than linseed oil meal and gives excellent results when fed to pigs on forage in addition to the corn ration. Since these feeds as well as corn are low in ash, salt, ground limestone and ground rock phosphate were kept before the pigs in the tests at the Ohio station.

Pigs fed a ration of corn eight parts by weight and soy bean oil meal one part gained more rapidly and required less feed per unit of gain than those fed ground soy beans as a supplement to corn.

Ground soy beans as a supplement to corn were not entirely satisfactory, as when the pigs were given free choice they failed to eat enough to balance the corn. Their lack of palatableness is believed to be due to the oil content of the beans. When the oil is removed this disadvantage is overcome.

PITY THE POOR HORSE

Humane drivers try to protect horses from insects. Here is a recipe for an inexpensive wash that is very effective: Oil of bay berries, 5 parts; napthalene, 10 parts; ether, 16 parts; methylated spirit, 60 parts. These are common chemicals found at all well stocked drug stores, so there is no difficulty about getting the mixture whenever it is needed.

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We are offering to the California public the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

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For Sale — White Muscovy Quackless Ducks; eggs 35c. White Wyandotte eggs $3 and $5 per setting, from prize stock. Goose eggs from the best stock in the West $1 each. A few breeders for sale. Turkey eggs from Chicago, Madison Square and several Coast show winners, 50c, $1, $2, $3 each. White King Pigeons $2, unmated pairs; mated working pairs $3. Special price in quantities of over 25 pair. Write for catalog. Paradise Valley Poultry Ranch, National City, California.

Spring Baby Chicks For Sale—400,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) Stock. Price during May and June, 25, $5.00; 50, $9.00; 100, $14.00. Special prices 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition; no money in advance, pay on delivery. Shipped safely anywhere west of the Rockies. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., PETALUMA, CALIF., 438 Seventh St.

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White Leghorns — From the home of heavy layers. Buying carefully selected spring cockerels now is economy. We have them from our choicest pens. All breeders have orchard range. Fall chicks pay big. Free folder tells why. Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, California. Phone 492.

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Day Old Baby Chix—From mature hen eggs. White Leghorns, $15.00; Barred Rocks, Black Minorcas, Rhode Island Reds, $20.00 per 100. Terms, one-third cash with order. Last hatches May 12, 21, 28 and June 4. T. C. Hawley, 504 E. Elm St., Lodi, California.

Baby Chicks from my carefully selected, thoroughbred flock of S. C. White Leghorns. May, June and July delivery at $13.00 per 100. Good, strong chicks at this reasonable price. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

White Leghorn Baby Chix. Heavy laying. Hoganized stock. May and June delivery. $13.50 per 100. Safe arrival of strong live chix guaranteed. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks—Pure bred S. C. White Leghorns, bred from our own stock. Best strain. Folder and price list mailed to you for the asking. Order now for fall delivery. Buena Vista Poultry Yards, Sonoma, California.

Chicks — Eggs — Hoganized White Leghorn, Buff and Brown Leghorns, Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, San Jose, California.

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Pure Bred Berkshire Pigs at weaning age, either sex. J. D. Rodolf, Sunshine Ranch, Yuba City, California.

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First Offering—For the first time I am offering you an opportunity to purchase some of my big bone spring pigs from grand champion sows and such boars as Big Model, Uneeda Model Col., and Cal. King of Orions. You can find what you want in this herd, to be headed in future by Fannie's Orion King. La Tierra De Uva Rancho, C. C. Ellis, Prop., Exeter, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

For Sale—Registered Duroc-Jersey Sows, bred to First Prize Boar of Grand Champion Stock. Weanling Pigs sired by same boar. Also fine lot of fall gilts. Green Canyon Ranch, Fallbrook, San Diego County, California.

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L. & M. Ranch, Van Nuys — Buy our young boars by such sires as May Rose King, Winsor's Giant Orion, Orion's King Gano, Top Sensation 3rd.

SWEETWATER DUROCS

The most popular herd in the West. Winsor Ranch, Bonita, San Diego Co. Address: R. K. Walker.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

For Sale—Beautiful registered Poland China sow, 2 years old to farrow in about 5 weeks; second litter; also 3 of her pigs, both sexes, 5 months old, also registered. See these, they are a bargain Harry Stocks, El Monte, Cal.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford California.

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30 Day Offer Elsewhere—Big type brood sows, litters by El Profito; young boar by El Profito. Viola L. Renwick, Santa Barbara, California.

Big Type Poland Chinas—Pigs, both sexes sired by our champion boar, Blue Valley Model. Write for descriptions. Edwards Bros., Highland, California.

Guaranteed growthy big type Poland Chinas, not pampered, selected for general farm conditions. Stock all ages. Walter Ficklin, Box 946, Fresno.

Tohoqua Big-Type Polands—Young pigs to sell. Champion big-type breeding. Ferguson & McKaig, Orland, California.

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White Pekin Baby Ducks—White Pekin Duck Eggs for hatching. 152 East Spruce St., Inglewood.

White Mammoth Pekin Ducks, ten weeks old, $1.00 each. Eggs $1.00 per dozen. A. Surtman, Petaluma, California.

GOVERNMENT LAND

300,000,000 Acres Free Land in U. S.—Send for free descriptive circular of our 100 page book, THE HOMESEEKER, which tells you how to acquire this land, or send $2.00 for book direct. The Homeseeker, Dept. M, 313 Grant Bldg., Los Angeles, California.

FARM LANDS FOR SALE

For Sale—My beautiful ranch home fifty acres; all level, fenced and in crops; thirty acres in cotton; twelve in alfalfa; three in melons, one-half in potatoes, one in tomatoes, two in corn. Abundance of big and little shade trees, fruit trees, berries, grapes; good modern six-room and bath plastered house; big barn, stanchions for cows; separator house, chicken house, electric pumping plant for irrigating, abundance of water, gas engine pumping plant for domestic use. Flowing well 700 ft. deep, 4 wells on ranch. Two mares with colts, two three year old horses, two good cows, two heifers, one hundred chickens, three sows. Implements of all descriptions. All good. One-half mile from good town. High and grammar schools. Good neighborhood and fine location. Not able to do the work reason for selling. Price $15,000. For quick sale. Owner, John F. Gates, Corcoran, California, R. I. Box 8.

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For Sale—$14,000; a good house of ten rooms and bath, gas and electricity; nearly 4½ acres of best soil, all under cultivation and irrigation; main crop practically walnuts and figs. Family orchard with all varieties. Yard with barn and shade trees. Pecan tree, Black Walnuts, Mulberries, silk worm Mulberry trees, Lemon, Citrus and Blackberries. Place on Mission Drive Blvd. on southeast corner of Euclid Ave. and Mission Drive. This is an ideal place and must be seen to be appreciated. Torrens Title. Address Owner, E. Dondanville, San Gabriel, California, Box 107.

For Sale—Forty acre ranch on a paved highway in the San Joaquin Valley; good buildings, including a modern six-room bungalow, electricity for lights and power, first class pumping plant with plenty of water; twenty acres in alfalfa, ten acres in olives, ten acres for buildings and farm land. This place is surrounded by well improved places, worth from $500.00 to $1,000.000 per acre. NO BOOGABOO about this, it was acquired for a friend who could not take it and owner has more land than he can handle well. Price $15,000. Inquire of C. C. Ellis, Exeter, California.

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Large Bulldozer, $135; No. 3 horizontal centrifgual, $65; No. 6 Gould hor. cent., $160; duplex boost pump, $49; No. 3 double-acting AMES, $375; rods, cylinders extra; many other snaps. Complete PUMPING PLANT. 15 h.p. Western gas engine with deep well double-acting AMES pump, rods, pipe, cylinder, belt, complete, $950; guaranteed good shape.
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4-gang Stockton plow, $28; potato planter, $65; 4-row beet planter, $25; 2-row bean cultivator, $35; 3 four-gang disc plows, $85 to $140. WHY PAY MORE?
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1 Hoover Potato Planter, practically new,
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All worn parts renewed. Phone 234 or address Rio Hondo Rancho, Compton, California.

One 200 Horse Power Western Gas Engine, New — Fitted with Bosch High Tension magneto. Gas starter. Will run on gas, gasoline, tops or coal oil. The engine has never been used, is absolutely new and at a sacrifice. Lloyd Machine Works, 712 North Main St, Los Angeles, California.

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For Sale—Six-foot Piano Binder, ready to go. Regular price $356. One left, will sell for only $210. Davenport Implement Company, 110 North Los Angeles St., Los Angeles, California.

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Agency Discontinued—New floor sample S.25 Samson Sleve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros. Co., Carpinteria, California.

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For Sale—Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

WANTED

Wanted—A first class Horticulturist; must thoroughly understand the culture of vines and alfalfa and the preparing of new ground. Must come well recommended and disposed to stay permamently. For such a man I can offer a good proposition. C. C. Ellis, Exeter, California.

Wanted—To hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

Mathers' Avocado Nursery—Seed wanted, any quantity. P. O. Box 585, Pasadena, Nursery Phone Colorado 6044.

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My Victor Herd — Headed by Billiken Chester Whites. For quality and big litters. E. E. Fulton, Box 7, Fair Oaks, California.

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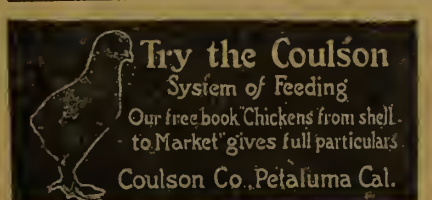
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B. P. Rox, R. I. Reds, $18 per 100. Mottled Anconas, $17; W. Leghorns, $15. These chicks are from our very best Hoganized bred-to-lay stock. They are as good as the best, regardless of the price. Order direct from this ad and save disappointment.

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Answers to Poultry Queries

By Jean A. Koethen

Buttermilk for Chicks

We have recently become subscribers to the Cultivator and I have read therein references to buttermilk for little chicks, but nowhere do I find explained just how it is to be fed. Is it to take the place of water or feed and should they be allowed to drink all they want or only be fed a certain amount?—Mrs. F. N. O., Paso Robles.

Buttermilk is fed in a variety of ways. Some poultrymen put it before the chicks in fountains at the very first before they have had a drink of water, because they say the chicks will learn to drink it more readily than they would if they had water first. In such a case it does not take the place of water but is just given for a day before water is allowed. After this both water and buttermilk are given as long as the buttermilk is fed. Others feed a mash moistened with buttermilk after the first few days. At the Cornell station and some others the chicks are given this moist mash from the start. Buttermilk is so wholesome you can hardly make a mistake no matter how often you feed it nor how much. If you feed the moist mash make it crumbly wet, not sloppy, and feed just what the chicks will clear up in 20 minutes or half an hour.

Marketing Broilers

How old should White Leghorn cockerels be for crate feeding? What weight should they be to bring the best price when finished? What ration and in what amount should they be fed?—Reader, Santa Ana.

The age does not matter so long as the weight is right. Leghorn broilers are generally marketed at from 1¼ to two pounds weight, when they are known as "heavy broilers." If they are kept longer than this they put on weight very slowly. The price is the same whatever they weigh, one and one-half or two pounds. It is just a question of whether or not the additional weight will cost all you get for it. Crate feeding is not very largely practiced by Southern California poultrymen. For the most part the cockerels are kept in small yards until they are ready for market. When they are crate fed the feeding is commenced about two weeks before they are sent to market. If they are kept in such close confinement longer than this they are apt to go off their feed. Whether the cockerels are in crates or in small pens their fattening ration should consist of moist mash. The chief ingredient of this mash is corn meal. The mixture may consist of two parts corn meal to one of middlings and one of ground or rolled oats, or two parts corn meal to one of middlings, or equal parts corn meal, middlings and ground barley, but it should be moistened with sour milk and fed in a trough attached to the front of the crate three times daily. Feed all the birds will clean up in 20 to 30 minutes.

Rolled Oats for Turkeys

Should rolled oats be cooked for little turkeys?—Subscriber, Beaumont.

No, they should be fed dry, either alone or mixed with greens.

Green Cut Bone

Please tell me whether in your opinion the feeding of green cut bone would supply the place of beef scrap in a poultry ration?—Subscriber, Pittsburg.

If you can get green bone regularly and in sufficient quantity, and it is fresh and sweet, there is nothing better. Beef scrap is just a substitute for fresh meat. You would need to feed the green bone as often, I should think, as three times a week, and as much as the hens would eat at one meal, in order to have it take the place of meat in the mash.

Last Eggs Less Fertile?

Is it considered that the last eggs in a clutch are less fertile than those laid earlier?—Subscriber, Pittsburg.

Certainly not, unless the male bird has been removed from the pen. Eggs are fertile from four to six days after matings and remain so as long as the male is with the hens and from four to six days after he is taken away. If the last egg in a clutch is very small, as sometimes happens, it is not suitable for hatching for this reason, and not because it is infertile.

Weak Legs

Will you please tell me what causes leg weakness. Several of our pullets five months old are troubled with it and we are unable to cure them. We feed a laying mash, milo and wheat for scratch, bran mash at noon, and a variety of greens. One-third of the flock are now laying at five months of age. Would you consider that they had been forced?—Subscriber, Escondido,

No, five months is not too young for well bred pullets to lay, especially in the spring. Your ration is very good and not to blame, I feel sure, for the weak legs. Leg weakness in young chicks is usually attributed to too close confinement and consequent lack of exercise and is most quickly cured by putting the chicks on range or at least giving them more room for exercise. Weak legs in nearly full grown pullets have some other cause. I should examine the wheat very carefully. Moldy or musty or diseased or spoiled grain of any sort sometimes produces a disease one of the symptoms of which is great weakness. The birds stand and move with great difficulty, but the trouble is in their lungs and digestive organs, not in their legs.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

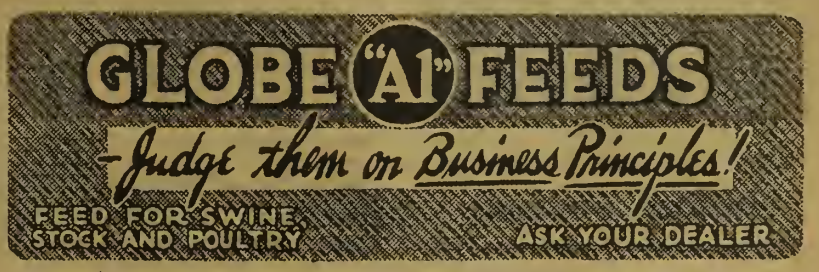
By Max Kortum, Manager

Report for week ending May 8: R. C. Gibson of Newhall took first place for the week with a production of just 80 per cent, or 56 eggs, for his ten hens. The whole flock averaged 66 per cent for the seven days. Up to date three pens have passed the 1,000 egg mark. These are as follows: D. B. Walls, 1,150; Enterprise Ranch, 1,065; B. F. Rose, 1,049; W. J. Neef of Santa Cruz should have been among these, but he had the misfortune of losing one of his good hens, which gave his count a setback of 48 points.

There seems to be a misunderstanding with some of the poultrymen as to how the count is affected when an alternate hen is put in place of a regular hen that dies. The record of a dead hen dies with her and only the eggs that the alternate has to her credit to date are substituted in place of the discarded record. Anyone with a little thought should see that this is the only way that this can be done, but I have been told that the belief of some is that the record of the alternate is added to that of the dead hen. Such a procedure would make a false record.

Following are high pens for the week: Gibson, 54 eggs; Bellows, 54; Gray, 53; Gibson, 52; Stalling, 52; Peck, 52; Barker, 52; Schlink, 51; Enterprise, 50; Pasquale, 50.

Ventura County reports 10,000 acres less in Lima beans than last season.



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In every home that can afford a Piano there should be a Player of some kind—it will bring so much pleasure and relaxation.

A Player-Piano will help the children with their music—it will give the older folks a greater musical appreciation. And for dancing you can have the jazziest of music.

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Household Department

THE DAY OF MEMORY

Bring the flowers, fair and sweet;
Follow close the marching feet
Of the veterans who go,
With their loyal hearts aglow
With the love of men for men,
To their comrades' graves again.

Bring the blossoms, sweet and fair;
Lay them down with love and care
Where the little banners wave
O'er each soldier's sacred grave;
Say a word of grace and prayer
For the hero buried there.

Listen while the chaplain reads
Office for the dead and deeds
Are recounted once again
Of the war stormed hill and plain;
Listen while is called the roll—
Death has taken heavy toll.

Bring the little ones to see
And to listen eagerly;
Dirge and volley, prayer and speech,
Deep into their hearts will reach;
They the rites must carry on
When the veterans all are gone.
—Emma A. Lente in Farm Journal.

MANDY'S MEMORIAL DAY

By John Clair Minot in Youth's Companion

MANDY'S mother took in washing and was as busy on Memorial Day as on other days; but for Mandy herself, after she had wiped and put away the breakfast dishes and carefully swept the kitchen of the little cabin where she and her mother lived, the day was her own to do with as she wished. There was no school, and her mother would not need her until night. So she tied her brightest ribbons to the ends of her kinky little braids and set off down the street to seek adventures.

Mandy often did errands for her mother, and she felt quite at home in any part of the city. She knew that on a holiday like this there would be many wonderful things to enjoy. Certainly there would be bands playing somewhere and men marching, and nothing could be finer than that. In a little while she had left behind the dingy part of the city where she lived, and found herself on a broad avenue that bordered a beautiful park. There the sidewalks were more crowded, and everyone seemed to be waiting for something. Mandy squirmed her way through the crowd until she reached the curbing, and there, in the very front row, she, too, waited.

She did not have to wait long. In a little while she heard music in the distance. It was the band that she had hoped for. It came nearer and nearer, but it was playing a solemn piece in very slow measure, instead of the lively airs that she liked. In front of the band big policemen marched and other men rode on horseback, and behind the band came a long line of soldiers. How she loved the uniforms and all the bright buttons and buckles and rifle barrels that flashed in the sunlight—and the flags that waved over the ranks!

When the flags went by, the men and the boys near Mandy took off their hats. Mandy wore no hat, or she would have felt like doing the same; but her bright eyes grew brighter, and she stood very stralght and saluted the flag with her hand, just as her teacher had taught the class to do during the flag exercises at school.

Next after the soldiers came a long line of automobiles. The first of them were filled with flowers, some in baskets and some fashioned into clusters and wreaths. Old men rode in the automobiles that followed—bent and gray haired men in blue suits, with little ribbons and bronze badges on their breasts, and with wide brimmed black hats on their heads. As they rode slowly past, the people on the sidewalks clapped their hands, and Mandy clapped hers as loud as she could.

Just then the band ceased playing and the procession stopped. Two of the old men stepped from one of the automobiles near Mandy. One of them bore a wreath and the other a cluster of roses. They crossed the avenue and went into the park, and there they placed the flowers on the base of a memorial to Abraham Lincoln. They stood there a moment with their hats in their hands and then walked slowly back through the crowd to their automobile. A young man on horseback, waiting near by, dashed down the avenue. A moment later the band began to play again and the procession moved on.

The crowd thinned out. Some followed the procession, some went in other directions. Mandy heard a man say that the procession was going to the Soldier's Monument in Union Square and then to the cemetery at Holly Hill. That was a long way off, and the band was already so far down the avenue that Mandy could hear it only faintly. The park, with its trees and flowers and its broad stretches of green grass, looked very inviting and she decided to stay there and play a while.

When she passed the Lincoln memorial she could not resist climbing upon the broad step at its base and smelling of the beautiful roses that the old men in blue suits had placed there. Suddenly an idea came to her. She would make a wreath of her own. Surely she ought to have some part in the Memorial Day that the teacher had told the class about only the day before.

In a few moments more she was busy making a wreath of the daisies that dotted the green slope beyond the Lincoln memorial. Other children were playing near by; but Mandy was used to playing alone, so she kept at her task when curiosity drew them to watch her. It was not easy to make a wreath of daisies and grass, even with the help of a twig that she broke from a bush, and Mandy wished very hard that she could use some of the flowers that grew in a bed beside the path; but she knew that she must not touch them. There was a sign that said so, right in the middle of the bed, but the daisies were free to anyone.

After a long time Mandy finished her wreath and carried it over to the monument. Then, just as she placed it beside the beautiful roses, something happened.

"Hello, Snowball!" called a heavy voice behind her. "What are you doing here?"

Mandy jumped so suddenly that she almost snapped the bright ribbons from the kinky braids. "My name's Mandy," she said, "and I've made a wreath for Mr. Lincoln."

"Oh, I see!" said the man, and he smiled in such a friendly fashion that Mandy was not a bit afraid. There was another man with him. Both of them were old men with white hair. On the breasts of their blue suits there were little ribbons and bronze badges and they wore wide brimmed black hats. Mandy knew in an instant that they were the two men who had placed the wreath and the roses there two or three hours before.

"And what do you know about Lincoln?" went on the man, still smiling down at Mandy.

"Oh, I know a lot about him!" answered Mandy promptly, with eyes shining. "He was a good man, and he saved the country in the great war, and he loved the colored people and—"

"Yes, yes, sure enough," said the man. "Lincoln was a good man and a great man, and he did indeed save the nation, and he loved all people North and South, black and white. I don't know of any place where it is more fitting for us to put flowers on Memorial Day than on a memorial to Abraham Lincoln."

And then the other man spoke for the first time. "Somehow I feel," he said, "that Mandy's little daisy wreath is more beautiful than the roses that we left here."

The two men looked hard at each other and nodded. Then they both patted Mandy's head and walked slowly back to the automobile that had been waiting for them.

Mandy watched them ride away, and then she started for her home in the dingy little alley. It was well past noon and she was hungry. As she hurried along the street she thought over what the men had said—the old men who had been soldiers in the war long, long ago, when Abraham Lincoln had saved the nation, and her heart thrilled with a proud feeling that she had really had a part in their Memorial Day, and that their Memorial Day was her Memorial Day.

COERCION

"Don't you think the world owes you a living?"

"Yes," replied Plodding Pete. But the world is a tough old creditor. I find I have to hand it a few wallops with a pick and shovel to convince it."

THIS WEEK'S PATTERNS

A lovely graceful design, 2916, to be developed in white or buff linen or a heavy plain material of similar kind. This style is best suited to a figure of above medium height and the long straight lines will help the rather stout figure.

A pretty checked gingham is shown beside it, 3236. The make-over possibilities of this pattern will at once appeal to the woman whose last year's gingham shrank. Underskirt, collar, vest and belt are of plain material, with flaring bell cuffs of the same.

A school dress, 3222, and a dress-up dress, 2888, with dainty frills of lace are shown for girls from six to 14.

A particularly good slip-on apron and house dress are pictured in 3010 and 3244.

A beautiful little play suit is shown in 3241 developed in striped Devonshire with cuffs, collar, belt and pocket tops of plain contrasting color. A blue with red stripe, trimmed in solid red would be particularly good, for dark blue and red seem to fit in very well with garden play. They don't really care if they do get smudgy and muddy. Then after a trip to the tub and ironing board back they come to their small owner fresh and bright as new. An edging of old fashioned heavy red rickrack finishes collar, cuffs, belt and pockets.

A dainty dress is 3236. The extra fulness in front will appeal to the mother of lusty active legged youngsters who jump and run and need plenty of room to do it in.

The hats shown in 3237 and 2888 are of the very best design.

Now is the time when stocks are being cleared from the shelves to make room for fall goods, and the careful buyer may often find real bargains. The talk of price cutting in ready mades we all hope will really mean something, but look twice at ready mades and don't buy if you can get better material and make it at home for less money. A look over these patterns makes one impatient to pull the sewing machine out of its corner and start it humming.

A hint: Look through your machine drawers or the box where you keep your thread, sewing machine needles, hooks, buttons, snaps, bias binding, braid, belting, etc., and the first time you go to town stock up with these necessities. Oftentimes one is delayed in finishing a much needed garment for lack of these little things.

THE HOMIEST THING

(Continued from Page 875.)

brother. And what blessed hours of rest the old chair has afforded me after the babies were asleep!

Now that they have reached the real live boy romping age, my old chair "plays many parts." It is a truck, a tractor, a locomotive, a bridge, a slide, or whatever the game happens to require, until rescued by mother and placed in dignified state back in its own place by the window. We are now looking forward to little Number Three, and as I sit in the old chair and joyously plan the little wardrobe and other needed things, I am more and more hampered by old H. C. L. Finally I tell myself: "Yes, we must save in every way we can, and though I should dearly love some new furniture and especially a new rocker, this old one will serve to bring up one more baby—and thankful I am to have it."

The homiest thing to me is my old armchair.

MY HOMIEST THING

By M. B., Lancaster

As I went about my work this morning with the Household Editor's question, "What is the homiest thing" in mind, I kept saying to myself, "What shall I call my homiest thing?" I know what it is myself but how shall I put it into words so that others will feel just what I mean. It would probably come under "library" in our editor's suggestion list, but I do not wish to call it so for to most of us library means a stately room, lined from floor to ceiling with beautifully bound books —most delightful but within the reach and memory of the very few. Shall I call it the written word? Hardly, for that excludes the illustrations, an important part of my idea. I think I shall name it the love of literature.

At once I take the homiest thing from the realm of the material to that of mental and spiritual, where, I believe, it belongs. It is just as much the homemaker's province to govern that realm; to provide the atmosphere in which her children shall develop, as it is her duty to see that they have proper food and clothing.

Our children may forget the color scheme of the living room, or whether the window hangings are silk or cotton, but they will always hold the memory of the homey spirit of comfort, rest and affection that fills the room like a benediction when the family gather about the fire in the evening to listen to the inspiring words of some good author.

The love of literature runs like a silver thread through the memory of my own childhood. I never pick up one of the novels of Dickens, Thackery or Hawthorne but I hear my sister's voice reading, and enjoy again the quiet humor and feel the thrill of suspense as the plot thickens. We had such good times at Christmas, but the sweetest memory is that of my father reading the beautiful story from Matthew.

We were a large family, each of strong individuality, but the love of reading formed ever a bond of sympathy. There is not one of that now so far separated group but can read aloud smoothly and pleasingly and not one but finds the truest recreation and inspiration in good books and magazines. Can a home give greater gifts to its members?

My own small son will, I know, have the big dictionary that went to school with mother among his earliest memories. From the page of precious stones he learned to distinguish and name colors, from that of wild flowers to love and watch for the prototype of the pictures, and from the page of flags he got the first idea of nations and their emblems. Those pages may be a little frayed but they have served a good purpose. There is too a little leather bound "Longfellow" that I am sure he will always cherish for from its pages he heard the "Song of Hiawatha" and repeated its musical phrases before he could pronounce the words plainly.

Friends of the Household, I believe we can give our children nothing more precious than a love of literature. I believe that nothing will do more to make the home a wonderful place of growth and inspiration than an atmosphere of communion with the best in the great world of letters. In a sense it does away with the limitations of time and space and makes of our children heirs in the wisdom of the ages and leads them to become citizens of the universe.

THE HOMEY THINGS

By Mrs. S. J. Korf, Napa.

The homey things of our home are undoubtedly our musical instruments. When our oldest daughter was in her early teens she never tired of the piano, and we never tired of listening to her playing. Often in the evening we would all join in some good songs, sometimes the Sunday school hymns, and during the war it was usually the war songs.

While our oldest son was in the navy he played the clarionet in the band, and when he would get home, what a good time the young folks would have with their music, practicing their new pieces together, and quite often some of the navy boys from Mare Island would come over and spend the evening with us (we lived at Vallejo during the war), and the evenings were always spent singing and playing the new songs.

And if the young folks did not happen to be using the piano, Papa would slip over to the piano and play some good old tune, such as "Pull for the Shore, Sailor, Pull for the Shore," or "When You and I Were Young, Maggie," or "Old Kentucky Home." And the neighbors would come in and such a chorus we would have.

So of all the home charms, there is nothing that we prize so highly as our musical instruments and pleasures in the home with them.

(More interesting letters will be published next week, describing "The Homiest Thing" in other households.)

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The Cultivator Patterns

BE SURE TO SEND SIZE

2916. A Stylish Gown. Cut in 3 sizes: 16, 18, and 20 years. Size 18 requires 4¼ yards of 54 inch material. Width at lower edge is about 1⅝ yards. Price, 10 cents.

3222. Girls' Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. A 10 year size will require 2½ yards of 27 inch material for the guimpe, and 2¾ yards for the dress. Price, 10 cents.

3010. Ladies' Apron. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. Size Medium requires 3¼ yards of 36 inch material. Price, 10 cents.

3241. A Practical Play Garment. Cut in 5 sizes: 1, 2, 3, 4 and 5 years. A 4 year size will require 2⅝ yards of 36 inch material. Price, 10 cents.

3237. Ladies' Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A Medium size will require 7¼ yards of 42 inch material. The width of the skirt at its lower edge is about 1¾ yards. Price, 10 cents.

2888. Girls' Dress. Cut in 5 sizes: 6, 8, 10, 12 and 14 years. Size 12 will require 4⅝ yards of 44 inch material. Price, 10 cents.

3244. Ladies' House or Porch Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches buet measure. A 38 inch size will require 6 yards of 36 inch material. The width of the dress at lower edge is 2½ yards. Price, 10 cents.

3236. Child's Dress. Cut in 5 sizes: 1, 2, 3, 4 and 5 years. A 2 year size will require 2⅛ yards of 36 inch material. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS

10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

Los Angeles Markets

Los Angeles, May 26, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price 54 cents.

Dairy Exchange prices last week on extras:

May	19	20	21	22	24	25
'20 ...	56	56	56	55	54	54

CHEESE

Brokers' prices:
California flats, 27 per lb.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 43 per dozen; case count Produce Exchange closing price, 41 per dozen; pullets, Produce Exchange closing price 40 per dozen; pewee pullets, 29.

Dairy Exchange prices last week on extras:

May	19	20	21	22	24	25
'20 ...	44	43	42	42	43	43

POULTRY

Price to producers: Hens, lt., 23; heavy, 28@30; broilers, 26; roasters, 39; old roosters, 14; fryers, 37; ducks, old, 23; ducklings, 28; ducklings, Pekin, 3½ up, 25; others, 20; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 16; old, 9.

LIVESTOCK

Los Angeles, May 25 — Weighed and delivered off cars without food or water:

Hogs (hard-grain, 125 to 175 lbs., 15.50; 175 to 225 lbs., 16.50.

Cattle (on foot, gross weight)—Steers, good, 11.00@11.50; medium, 10.50@11.00; cows, good, 9.00@9.50; medium, 8.50@9.00; bulls and stags, 6.00; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, May 25, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Old Stock: Market firm. Stockton: Burbanks, fancy, 8.50@9.00. Idahos: Russets, fancy, 9.00. New Stock: Market firm. Local Early and White Rose, No. 1's, 2.75@3.00; No. 2's, 1.10@1.90 per lug according to size.

Onions: Supplies of wax heavy. Yellow moderate; wide range in quality; demand and movement slow; market weak. New Stock: Imperial Valley and Coachella Valley: Wide range in prices. Bermudas, 1.50@1.75 per crate; lugs, 1.00@1.10. Crystal Whites, per crate, 1.50@2.00; lugs, mostly 1.00@1.20.

Garlic: lb., 40@50.

VEGETABLES

These are the actual prices obtained May 25, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., best, 75@1.25.

Asparagus: Supplies moderate. Delta section: Best, 10@12; local, 15@17.

Beans: Wax, lb., 5@7; Ky. Wonder, 7@9.

Beets: Doz., 40@50; sk., 2.25@2.75.

Cabbage: Supplies heavy. Market weak; movement slow; wide range in quality. Best, 1@2 per lb.; per field crate, best, 1.25@1.50; others, low as 50. Red Cabbage, 4@5 per lb. Carlots: Demand improving; movement limited; slightly better feeling; wide range in prices. Many cars rolling on consignment. Few sales. Carlots f. o. b. usual terms. Cannonball and Winningstadt, per ton, 22.50@27.50. Cash sales, 17.50@20.00. Few high as 25.00.

Carrots: Doz., 40@50; sk., 2.50@2.75.

Cucumbers: Market weaker. Local 1.25@1.50 per box.

Corn: Doz., 90@1.00.

Egg Plant: Best, lb., 25@30.

Lettuce: Supplies heavy. Crates, best, mostly 40@50.

Carlots: Demand moderate, movement limited by car shortage, market steady; many cars rolling on consignment. Carloads f. o. b usual terms. California crates, Iceberg, mostly 1.75@2.00. Cash sales 1.50@2.00, mostly 1.50@1.75.

Parsnips: Lugs, 1.00@1.50; sacks, 3.00@3.50; per dozen. 45@55.

Peas: Local, lb., 5@7; poorer low as 3; @1.10; local, lug, 1.50@1.65.

Rhubarb: Strawberry, bx., 1.25@1.50; Crimson Winter, 75@1.00.

Spinach: Doz., 20@30; lb., 2.

Squash: Imp. Valley, summer, cr., 1.00@1.10; local, lug, 1.50@1.75.

Tomatoes: Imperial Valley Stock: Supplies liberal; market steady; per crate, best, 2.00@2.65; Mexican best, 10@12 per lb.

Turnips; Per dozen, 40@50; per sack, 2.00@2.25.

FRUITS

These are the actual prices obtained May 25, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Apricots: 10@12 lb.

Bananas, 8½@10; Red, 10.

Cherries: Black Knight and Black Tartarian, best, 14@18 per lb.

Gooseberries: lb., 10.

Cantaloupes: Imperial Valley: Standards, 7.00; ponies, 6.00; flats, 2.50.

Loquats: Best, mostly 12@15; poorer low as 7 per lb.

Strawberries: No arrivals. Local: Market firm. Per crate, 5.00@6.50; per tray, 2.50@3.25.

Grapefruit; per box, best, 4.00@4.50. Seedlings packed, 2.50@3.00; loose, 2.00@3.00.

Lemons: Market firm. Local stock: packed, 3.50@4.25; loose, 2.00@2.25; 2@3 per lb., juice, 2.00@3.00.

Oranges: Supplies liberal. California Navels, best brands, packed, 80's to 100's, best, 5.00@5.75; 126's to 150's, 6.00@6.50. Local market: packed, 80's 4.00; 96's, 4.25; large sizes, low as 2.25; lugs, culls, mostly 1.50@2.00. Valencias: Packed, special brands, 5.50@6.00. Local packed, 4.50@5.00.

HONEY

Demand exceeds supply, movement limited, market higher. Old honey practically exhausted, new supply not on market for about two weeks. Carloads f. o. b., usual terms. Light amber sags per pound, 18; light amber alfalfa, 17. Beeswax, l. c. l. lots, 40@42.

BEANS

300 cars limas sold by association at $10.43, f. o. b. Oxnard. See further comment Report on Lima Bean Market by Manager Churchill, of California Lima Bean Growers Association, on this page.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	24.00@26.00
Barley	18.00@20.00
Alfalfa	23.00@27.00
Barley Straw	8.00@10.00

Alfalfa Growers of California, under date of May 26, say:

The principal feature on the alfalfa market is the serious shortage in market centers because practically no cars are to be had. The small supply now reaching the market is entirely due to auto trucking. This limited supply meets with keen demand, and market is materially stronger. Los Angeles prices as named this week:

Choice alfalfa	36.00@38.00
No. 1 Dairy	33.00@35.00
Standard Dairy	30.00@32.00
Stock Alfalfa	25.00@29.00

GRAIN AND FEEDS

Price bid local grain exch. cwt., May 25

Barley: 2.80@3.02½.
Corn: 3.86¼@3.90.
Milo: 2.80; Eastern, 2.75.
Eastern Kafir: No. 3, 2.85.

San Francisco Markets

San Francisco, May 25, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	54½
Prime Firsts	Nominal

Extras past wk. and year ago:

May	18	19	20	21	22	24
'20 ...	56½	56½	56	55	54½	54½
'19		61½	62½	62½	63½	61½

Rcts. wk. ending May 25, 6,505 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	29½
Ore. Trips	32
Cal. Flats	24@28

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	46
Firsts	42
Extra pullets	39½
Undersized	32

Extras past week and year ago:

May	18	19	20	21	22	24
'20 ...	47	46½	45½	44	44½	46
'19		53½	54½	54	54	51

Rcts. wk. ending May 25, 538,602 dozen.

POULTRY

Wholesale prices are:

Leghorn, 29@32; large, 37@39; roosters, young, 45@50; old, 18@20; broilers, 30@35, fryers, 45@50; turkeys, live, 37@40; dressed, 48@50.

Ducks, Indian Runner, 23@25; Pekin, 28@30. Squabs, 55@60; pigeons, doz., 2.35@2.50.

Belgian hares, live, 22@25; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Cattle—Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 9@10½; do, 1,200 to 1,400 lbs., 8½@9½; do, second quality, 7@9; thin, 6@7.

Cows and Heifers—No. 1, 7½@8; second quality, 6@7; common to thin, 3@4.

Calves—Light weight, 10@11; medium, 8@9; heavy, 7@8.

Lambs—Milk, 11@12; yearling, 9@9½.

Sheep—Wethers, 8@8½; ewes, 7@7½.

Hogs—Weighing 100 to 150 lbs, 15; 150 to 225 lbs., 16; 225 to 300 lbs., 15½; 300 to 400 lbs., 14½.

Virden Packing Company quotes prices on live stock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle: Good steers, 1000 to 1100 lbs., 10@10½; top steers, 1100 to 1200 lbs., 9@9½; good heifers, 1200 lbs. and over, market price; good cows and heifers, 7½@8; No. 2 cows and heifers, 6½@7; canner cows, 3½@4; good bulls, 4½@5.

Calves: Light, 13@14.

Hogs: Top packer, hard and well finished; 100 to 150 lbs, 15½; 150 to 225 lbs., 16½; 225 to 300 lbs., 15½; over 300 lbs., 15; under 100 lbs., 14.

Ewes: Full wool, 7@8.

Wethers: Full wool, 9½@10.

Yearlings: 10½@11.

Milk lambs: 11½@12.

POTATOES

River, 6@6½ per lb. Idaho, Gems, 6.50@7.00 per 100 lbs.; new, 6@7 per lb.; new garnets, 6.00@7.00 per 100 lbs.; Turlock sweets, 10 per lb.

ONIONS

Crystal white, 2.25@2.75; red, 3.75@4.25; brown, closed out. Garlic, 30@40.

VEGETABLES

Wholesale selling price:

Artichokes, 1.00@5.00.

Asparagus: lb., white, 6@8½, graded, 9@11; gr, 4@7.

Beans: lb., string, 6@12; wax, 6@12.

Brussel Sprouts: lb., 8@9½.

Carrots: sk., 1.00@1.50; long, 40@50 per dozen.

Cauliflower, doz., 1.25@1.45.

Cabbage: lb., 2¼@2½.

Celery: cr., 2.00@3.25.

Cucumbers: Eng. doz., 2.00@2.25; hothouse, bx., 3.25@4.00; southern, 3.00@4.50.

Lettuce: L. A., 1.00@1.50 cr.

Peppers: Fla., 40@50 large; 10@15 small.

Peas: lb., green, 3½@4½.

Itadish, 7@9 doz. bunches.

Make Fruit Picking Cheaper and Easier

Look at the illustration and study the construction of the **Short Turn Cross-reach Orchard and Vineyard Truck.** It will appeal to any one who has ever handled fruit at the trees or vines. Nothing could be more serviceable or easily handled in a California orchard or vineyard.

This truck is built light, but strong and serviceable. Instead of a coupling pole or reach, two ¾ inch rods or cross reaches connect the front and rear axles, making it possible with turn tables front and rear, to turn in just one-half the space necessary with a straight reach.

The rear wheels follow exactly the same track as the front wheels. It will turn in a four foot radius. Owner makes frame and bed to suit himself.

Everything about this truck is just as good as the cross reach feature. It is a low priced, labor saving device that should be owned by every orchardist and grape grower. Wheels 24 inches high, 5 in. grooved tires. Axles 49 inches long over all.

Dealers will find it in ready demand in fruit districts.

Davenport Implement Co.

Manufacturers of and Dealers in Implements for California Conditions

110-112 North Los Angeles St., Los Angeles, Cal.

HOW to Kill SCALE and Control RED SPIDER During the Summer Months

What are you doing to stop the ravages of the Black Scale, Citricola Scale and Red Spider in your valuable Citrus grove?

These pests are well known to every citrus grower. They are numerous and all too plentiful. Scale hatches ALL THE YEAR. Soon after hatching it feeds on the tree, taking the vitality that is needed for crop and growth. Scale multiplies with great rapidity. After it feeds it attaches itself to the tree AND NOTHING TRIED SO FAR KILLS IT IN THIS STATE.

Fumigation which, applied for fifty minutes once a year will kill the newly hatched scale while being applied, but what about the unhatched scale? IT TAKES an INSECTICIDE applied after the rainy season, thoroughly covering all the tree and remaining on the tree, ready for any scale that touches it at any time, TO KEEP THE YOUNG SCALE KILLED.

THAT IS WHAT TIZIT SPRAY WILL DO. And it will do more. It controls Red Spider. And TIZIT stimulates the tree—cleans it—and helps it to function properly. You don't have to take our word for this—these things are attested by a great number of the CLEANIEST, BEST PAYING GROVES IN THE CITRUS DISTRICT.

LARGER CROPS, BETTER FRUIT, HEALTHIER TREES and a killing out of the scale—these are proven facts by demonstration one season after another where TIZIT SPRAY IS USED.

TIZIT SPRAY is made under the personal supervision of Mr. John Bacigalupi, who has had sole charge of its manufacture since 1914. The trade mark T-I-Z-I-T is registered. It is not an oil base spray and it contains nothing that can harm the tree. TIZIT is put up in 200 pound barrels and sells for only Twenty-five Cents per pound f. o. b. Los Angeles.

To use, mix in the proportion of five pounds of TIZIT to one hundred gallons of water. Spraying with TIZIT is an exceedingly cheap form of crop insurance.

Why not kill your Scale, control Red Spider and clean up fungus All Summer with TIZIT SPRAY when you can do it so easily, cheaply and surely. Examine your trees carefully now for spider and scale. If any are found it means a reduction of your crop and damage to your trees unless the pests are fought and eradicated. Feed them TIZIT and don't worry.

Write us and we will tell you of the grove nearest to you where you can see what TIZIT has done. Free pamphlet on request, ask for it.

Tizit Spray Manufacturing Company

Sole Manufacturers of TIZIT SPRAY

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O. K. Champion Potato Diggers

Every potato grower can save money by owning and operating O. K. CHAMPION Potato Diggers.

Deliveries Now, For Catalog Write

CALIFORNIA IMPLEMENT CO.

122-124 N. Los Angeles St., Los Angeles

Rhubarb: bx., 1.25@2.00.
Spinach: lb., 6.
Squash: Summer, cr., 1.00@1.25.
Tomatoes: Brawley, cr., 2.00@2.75

DECIDUOUS FRUITS

Apricots: Imperial Valley, 20@25.
Bananas: lb., 9@11.
Blackberries: dr., 2.75@3.00.
Cherries: Purple Guigne, 2.00@2.50 per dr.; loose, 12@20 lb., according to quality.
Dates: Dromedary Golden, 7.00@7.25 case.
Figs: box of one layer, 2.50@3.00.
Gooseberries: lb., 10.
Loquats: lb., 6@15.
Pineapples: Doz., 2.50@3.50.
Raspberries: dr., 1.35@1.70.
Strawberries: Peninsula, dr, large, 75@1.10;small, 45@70.

CITRUS

Box:Lemons, standards, 2.50@3.00; lemonettes, fancy, 2.75@3.00; choice, 1.50@2.00; grapefruit, fancy, 2.50@3.50; choice, 1.75@2.25; limes, 4.00@4.50 crate.
Box: Lemons, standards, 2.50@3.00; lemonettes, fancy, 1.00@1.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 3.00@6.50; limes, 4.00@4.50 crate; tangerines, 1.50@3.25 crate.

WALNUTS

Net prices have been named by California Walnut Growers' Association.
No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded. 31½.

RICE

The domestic market is unchanged, with very little activity. Fancy California Japan, prompt or June, 10.50; July 10.60. Choice is 25 cents less.

BEANS

California Bean Growers Association, San Francisco:
The bean market has shown considerable activity during the past two weeks, particularly for California Large and Small Whites and Pinks. For the past few days, however, owing to car shortage and railroad strike conditions which are still an important factor in the East, there has been a slight easing up in orders on account of the difficulty in securing transportation. The market is firm, with an upward tendency, the following prices being quoted at this date:

Large Whites	6.50@ 6.70
Small Whites	6.10@ 6.35
Mexican Reds	9.40@ 9.50
Red Kidneys	14.00@14.50
Bayos	10.40@10.60
Pinks	6.60@ 6.80
Cranberries	6.50@ 6.75

HOPS

1919 crop, 1.00@1.05 per lb. Prices to growers for 1920 crop, 75@80 per lb.

HONEY

Extracted, jobbing price: Water white, 22; per lb. for sage and 20 for white clover; light amber, 18; amber, 16; comb, 28@30 for water white; light amber, 26@28; amber, 25.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

Hard White—	Per Bus.	Per Cen.
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.58
No. 3	2.00	3.48 1-3

The above are minimum prices.
For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.
Oats: Red feed, 3.40@3.50.
Corn: California yellow, 3.70@3.75 per cental; Egyptian white, 4.10@4.25; California milo maize, 3.45@3.50; Eastern milo maize, 3.15@3.25.
Barley: No. 1 feed, 3.40@3.50.

HAY

We quote today wholesale prices in carload lots (old crop) as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.)

Fancy wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat and Wheat and Oat hay	35.00@38.00
No. 2 Wheat and Wheat and Oat hay	32.00@35.00
Choice Tame Oat hay	37.00@40.00
Wild Oat hay	Nominal
Other Tame Oat hay	33.00@37.00
Barley hay	Nominal
Alfalfa hay new	25.00@36.00
Alfalfa hay, old	30.00@32.00
Stock hay	29.00@32.00
Oregon Cheat and Oat hay	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, May 26, 1920.

Oranges now going forward more freely and unfortunately showing a great percentage of decay. Navels have been practically cleaned up and Valencias are now filling the requirements.
Lemons are meeting with fair demand in Middle West. Enormous supply of foreign lemons along eastern coast points is preventing liberal shipment beyond the Mississippi.

Shipments

Shipments of oranges from Southern California to date since November 1, 19,393 cars; lemons, 4,091; total, 24,484. Last year same date: oranges, 22,116; lemons, 5,479; total, 27,595. From Central California this season to date: oranges, 5,288; lemons, 287; total, 5,575. To same date last season: oranges, 3,248; lemons, 251; total, 3,500. Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTION

May 19

New York: 37 or., 1 lem. Nav. 3.05-6.40, Val. 3.85-7.60, Seedling 3.30-4.00, Bloods 3.40-.500, lem. 1.95-2.35.
Boston: 20 or., 1 lem. Nav. 3.10-6.65.
St. Louis: 7 or., 2 lem. Nav. 3.60-5.70, Val. 3.75-5.25, Seeds 2.60-4.60, lem. 4.05-4.60.

May 20

New York: 40 or., 4 mixed, Nav. 3.05-5.70, Val. 3.50-6.50, Sweets 3.75-4.65, Bloods half 3.10, Tang. half 4.20, St Mike 5.70.
Boston: 15 or., 2 lem. Nav. 3.65-6.35, Val. 4.40-6.65 Sweets 4.60-5.30, Blood, halves 2.80-2.90, lem. 3.35-5.10.
New York: 34 or. Nav. 2.30-5.70, Val. 2.80-6.15, Mikes 4.50-5.85, Seeds. 2.65-3.05, Bloods 3.15-4.55.
St Louis: 8 or., 3 lem. Nav. 2.50-5.80, St. Mikes 2.10, lem. 3.10-3.55.

May 25

New York: 35 or. Nav. 3.15-5.70, Val. 2.75-7.15, Seeds 2.25-4.65, grapefruit, halves 1.70, Sweets 2.00-4.40, Bloods 1.40-3.40.
Boston: 27 or., 2 lem. Nav. 2.65-6.25, Val. 4.10-5.90, Bloods 3.05-3.60, Seeds 2.65-4.15, lem. 2.35-4.20.

HONEY PRODUCERS

C. E. Millspaugh, one of the best known men in the bee industry has been appointed general manager of the Honey Producers' Cooperative Exchange. Mr. Millspaugh will bring to his work as general manager of the organization a strong influence for a spirit of unity.

The obtaining of markets has been accomplished by organizations having to do with citrus fruits, raisins, nuts and other products. The honey producers are now expected to secure similar strength of position. California produces annually a greater volume of honey than any other state in the Union.

Mr. Millspaugh has had 18 years experience with honey producers, and is recognized as a marketing authority.

WEATHER REPORT

San Francisco, California, May 22, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.00	22.03	44.28	60	44
Red Bluff	.00	10.60	24.30	96	58
Sacramento	.00	8.85	19.77	98	48
San Francisco	.00	10.42	21.92	75	47
San Jose	.00	8.63	16.53	90	44
Fresno	.00	8.21	9.44	98	52
San Luis Obispo	.00	14.31	20.11	88	46
Los Angeles	.08	12.50	15.48	82	52
San Diego	.40	8.88	9.89	66	54

Increased Yields of Alfalfa
Follow Applications of

With alfalfa selling around $35.00 per ton, every alfalfa grower is interested in producing a big crop at minimum expense. Numerous experiments by authorized Experiment Stations, County Farm Advisers and individuals have proven conclusively that yields of alfalfa are greatly increased by the use of Gypsum; in fact, the increase in yield is so great as to be almost unbelievable for the small expense and little trouble incurred.

The reason is perfectly simple. Alfalfa requires sulphur and sulphur is most easily and economically obtained in AGRI GYPSUM. Feed sulphur to alfalfa and the plants grow larger, more rapidly and of finer quality. There is abundant proof on record to convince the most pessimistic of this fact. Bulletin No. 163 of the Oregon experiment station containing results of various experiments, tells of greatly increased yields of alfalfa in the soils of California, Oregon and Idaho, **where sulphur was applied in some form.**

In the Palouse hills of Eastern Washington, H. H. Curtis, who owns a large dairy farm near Pullman, has more than doubled the total yield of alfalfa on his farm by the use of Gypsum.

Think what it would mean in dollars to YOU to double YOUR alfalfa yield at as little expense as did this well informed alfalfa grower.

Would you be interested in an investment of say $4 or $5 per acre for AGRI GYPSUM if you thought you might double the yield of your alfalfa crop?

The County Farm Adviser of Mendocino County, California, is reported to have secured increased yields of alfalfa ranging from 11 to 60 per cent, by the use of applications of sulphur. **AGRI GYPSUM** contains the sulphur your alfalfa needs. Put it on your alfalfa and turn a fair crop into a big one, a few dollars worth of **AGRI GYPSUM** into many dollars worth of hay. **AGRI GYPSUM** is made by the largest producer of Gypsum in the world—near at hand, affording minimum freight rates, and good business judgment suggests that you use it now.

Other crops that are greatly benefitted by the application of **AGRI GYPSUM** include beets, beans, peas, potatoes, cantaloupes, cotton, cabbage, cauliflower, vetch, melilotus, peanuts, barley, citrus fruits, deciduous fruits and milo.

AGRI GYPSUM Will Reclaim Alkali Soil

It is a matter of official record that alkali soils may be reclaimed and made to produce splendid valuable crops by the application of **AGRI GYPSUM.** If in doubt about this, write for proofs and our authority for statements made in our advertising.

Ask your dealer for **AGRI GYPSUM** and you will be sure of the product ground fine to do the most good with the least amount used.

If your dealer cannot supply you write

United States Gypsum Company

(Sole Producers of AGRI GYPSUM)
902 Citizens National Bank Bldg.
5th and Spring Sts. Los Angeles, Cal.
(Small Free Booklets sent on request)

KROGH PUMP AND MACHINERY COMPANY

147-159 Beale St., San Francisco, Cal.

Krogh Pumps Are Absolutely Water Balanced
No End Thrust Possible **No Set Collars Used**

The No Trouble Pump

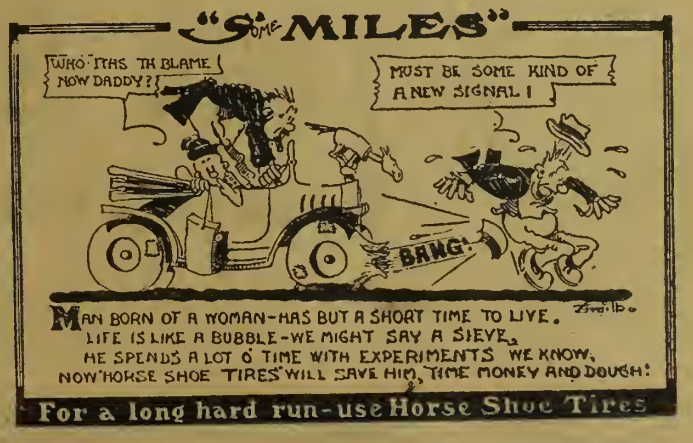
Krogh Direct Motor Driven Pump

Fitted With Ring Oiling Bearings

Renewable Babbitted Bushings

Ring Oiling Gland

We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.


"SOME MILES"
WHO ITHS TH BLAME NOW DADDY?
MUST BE SOME KIND OF A NEW SIGNAL!
BANG!
MAN BORN OF A WOMAN-HAS BUT A SHORT TIME TO LIVE.
LIFE IS LIKE A BUBBLE-WE MIGHT SAY A SIEVE,
HE SPENDS A LOT O TIME WITH EXPERIMENTS WE KNOW,
NOW HORSE SHOE TIRES WILL SAVE HIM, TIME MONEY AND DOUGH!
For a long hard run-use Horse Shoe Tires

You never get more out of your Tire than the Maker put in

STAND on a street corner some day and watch the motor cars go by. Every now and then you will see a motorist with two or three tires strapped on the back of his car, each tire of a different make.

A man afraid of his tires.

* * *

No matter how many precautions a man may take he will never get out of a tire *more* than the maker put into it.

If a tire is built to go a *limited number of miles* there is no reason why it should be expected to go any farther.

When it breaks down before it has gone the limit, there is no reason why an allowance should not be made to the buyer.

The car in the foreground has a wheel out of line.

Few motorists realize that a displacement of only one degree has the same effect on a tire as if it was dragged 92½ feet in every mile.

New tires have been known to be completely stripped of their treads in 100 miles of running under such conditions.

What intelligent buyers are looking for is *better tires*—not limited-mileage tires or conciliatory allowances.

And they are beginning to look behind tires to the *principles* on which they are built and sold.

* * *

Here is the principle which governs the production and sale of U. S. Tires: Build a tire as good as human skill can build it, and let *responsibility for quality* exceed every other consideration.

Seek out the new kind of tire dealer—the man who believes in quality and square dealing, who is putting the tire business on as sound a basis as any other retail business in his town.

Back of him stands every resource and facility of the United States Rubber Company—the oldest and largest rubber organization in the world.

U.S. Tires are built on a *quality* basis as fast as quality conditions will permit—*and no faster.*

And they are guaranteed free from defects in materials and workmanship for the life of the tire—*with no limitation of mileage.*

United States Tires

United States Rubber Company

Fifty-three Factories

The oldest and largest Rubber Organization in the World

Two hundred and thirty-five Branches

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — June 5, 1920 — No. 23

Turning Culls Into Gold

THE packers saved all but the squeal; the lemon growers are turning the culls of their orchards into citric acid. Touch your tongue to a crystal and you will see wherein the greater economy is shown by the California growers.

Up against the foothills east and south of Corona, back from the main highway where the tourist seldom ventures—and thereby misses a bit of wonderful California scenery—is placed a little factory, illustration of which appears here. We say "factory" though it is one of the side lines of a great lemon orchard. The El Cerrito Ranch grows some of California's finest lemons; it also grows those which are not of the finest and, jealous of its own reputation, determined that these, which are not the finest, should be withheld from the packing box and from the eastern consumer, at least in the form of lemons. The growing of lemons is too expensive to "dump them in the wash," hence they must be turned into a product more attractive and still command for the growing end of the orchard something of a profit because of their disposal.

The United States uses large quantities of citric acid. From it may be made cooling drinks, and it has an extended use in medicines, all of us being acquainted with citrate of magnesia and other attractive combinations. In the arts its larger and more general use is by the calico printer. For years we have saved of our wastes in marmalades, in jellies, in bottled juices and in citrate of lime, but this demand has been too limited, hence this citric acid factory.

It has a capacity of five tons of lemons per hour; it is running 24 hours per day. The lemons, if from outside of El Cerrito Ranch, come in flat cars, are handled with scoops on endless carrier to crusher and press and the juice drains away to large tanks, where, after a series of acidulating, neutralizing, separating, filtering, granulating, crystalizing, refining, and barreling, it is ready for shipping. A ton of lemons will yield approximately 50 pounds of citric acid, in addition, 15 pounds of lemon oil. This 15 pounds, however, will soon be greatly increased by improved equipment. An important side line of this industry is the use of the wastes. For instance, gypsum results from the process by adding sulphuric acid to the citrate of lime. This gypsum, almost an ultramarine blue, is now being used in the orchards of the El Cerrito Ranch.

The plant is under the superintendence of E. T. Brink, with Dr. Doell in charge of the laboratory.

Only the merest hint of the process or of the economic side of this plant, but we hope sufficient to attract more attention to the wastes which we should be saving.

Citric Acid Plant of the United Chemical Company on El Cerrito Rancho, Near Corona, Riverside County

THE FIRST cord tire made in America was a Goodrich.
Goodrich still makes the first cord tire in America—
The Silvertown Cord

Goodrich Tires

Best in the Long Run

The B. F. Goodrich Rubber Company, Akron, Ohio • Adjustment Basis: Silvertown Cords, 8000 Miles; Fabric Tires, 6000 Miles

California Cultivator

Vol. LIV, No, 23 Los Angeles, June 5, 1920 One Dollar Yearly

A Few Sugar Saving Suggestions

By W. V. Cruess, Before Housewives League, San Francisco

THE first question to ask is "How much sugar do we need to satisfy the requirements of the body?" We consume on the average in America about 90 to 100 pounds of sugar per capita. This entire amount can be replaced completely with starchy foods. No sugar is absolutely necessary, but our appetites have been pampered by highly seasoned and sweet foods to such an extent that sugarless meals are decidedly unpleasant. Therefore, although theoretically we need no sugar to maintain ourselves at full efficiency, we practically must have at least a small amount of sugar to satisfy the cravings of our "sweet tooth."

Sugar is used in the body as a source of energy; in other words, as a "quick fuel," if used in small or moderate amounts. When eaten in excess it tends to ferment and cause digestive disturbances. The average person may eat safely not more than about four tablespoons of sugar per day, according to Professor Mary E. Robinson of Missouri University. Those who work hard at manual labor or athletes or others who indulge in violent exercise may eat a larger amount; children, less. There is a grave danger involved in giving children too much sugar, especially in the form of candy, in that this may lead to a dulling of the appetite for other foods, with a consequent improper balancing of the diet, leading to improper nutrition or retarded growth.

During the war we saved on sugar because it was a patriotic duty. No such patriotic urge now exists—practically all action now must be taken in the interests of our pocketbooks.

Saving in sugar can be accomplished in two general ways: First, by using less, and, second, by using suitable substitutes wherever possible. The following suggestions are based on one or both of these ways. They can be followed without hardship and are in some cases preferable to the more usual methods.

Canning Fruit

All fruit which is agreeable to eat fresh without sugar is also agreeable to eat when canned without sugar. This applies to most fruits when they are thoroughly ripe.

We do not eat a peach or an apricot with pleasure until it is perfectly ripe, juicy and sweet. If canned when it reaches this condition it is excellent without sugar and much superior to imperfectly ripe fruit canned with any amount of sugar. By allowing the fruit to become dead ripe before canning, it gains in flavor, texture and sweetness. Sugar is absolutely unnecessary for its preservation. It will keep equally well without.

It is difficult for canneries to make use of this principle, owing to difficulties of transporting and handling perfectly ripe fruit and to an acquired public taste which insists more on the preservation of the form of the fruit and the clearness of the liquid than on flavor or nutritive value. Where it is possible to take the fruit directly from the tree to the kitchen, as in many cases of home canning, it can be used dead ripe with great advantage even in normal times.

A few fruits, such as freestone peaches, are best canned as soon as possible after harvesting. Most fruits, such as apricots, pears, apples and berries, improve in flavor, texture and sweetness if stored a day or two, or in some cases longer, in a moderately cool, dry place before canning.

Canning Without Sugar

When fruit is canned in the ordinary way it is surrounded in the can with a liquid consisting of water, sugar and the juice of the fruit. The amount of sugar used depends on the acidity of the fruit and the taste of the consumer. It may, in many cases, be omitted in whole or in part, especially if care is taken in diminishing the amount of water used as much as possible. The following method is recommended:

The fruit is sorted, washed, peeled, pitted, or otherwise prepared as in ordinary home canning. It is then placed in a pot on the stove with a little water to prevent scorching. The amount of water added will vary with the fruit to be canned, firm fruits requiring more than berries or soft fruits. Heat slowly to boiling, stirring occasionally to present sticking and scorching. Allow to simmer until the fruit has sent out sufficient juice to cover it. For berries and very soft fruits the time of boiling will be about three to five minutes, and for firm fruits, about five to ten minutes. While the fruit is being prepared, heat jars, rubbers and covers in boiling water. A large dishpan is convenient for this purpose. Ladle the hot fruit through a funnel into the hot jars and add enough of the hot juice to cover the fruit and to fill the jars completely. Any juice that is left over may be used with the next lot of fresh fruit instead of water. Place the rubbers and caps on the jars in position but do not screw or clamp down tight. Leave the caps on the jars loose enough for the escape of steam during the sterilization process. Place the jars on a false wooden or wire screen

(Continued on Page 908.)

Concerning Our College of Agriculture

By R. P. Royce

CALIFORNIA faces an unfortunate condition as regards its agricultural college and it begins to appear that the time is at hand when some sort of a move must be considered looking toward placing that institution on a more efficient basis. As is known by all, the college of agriculture is a department of the University of California and has existed as such since its organization many years ago. The headquarters of the institution has always remained on the campus at Berkeley and until 1905 practically all of the activities of the college were centered at Berkeley. Always without adequate equipment, the old "cow college," as it was termed, managed to get along in some way or another. The California college of agriculture was not much different in the nineties from similar institutions in other states. It wasn't taken seriously, not much was expected of it and consequently its actual accomplishments were of minor importance. The same situation prevailed in other states to a large extent. However, when there came a general awakening to the possibilities of agricultural investigation and instruction, and the leading states began to develop their agricultural colleges, California faced this proposition: There was no available or suitable land adjacent to Berkeley—the hills were rather more picturesque than practical. And in the course of the rapid development of agricultural colleges, California was so handicapped that we fell almost hopelessly behind.

The type of instruction given the students was almost entirely lectures. There were no facilities for acquainting the students with the more practical side of the work—soil investigations, crop experiments, livestock management and the other important phases of the work were not possible. The institution turned out a "book farmer" par excellence.

That such a situation could not be permitted to continue for all time was certain. It was recognized that there must be some way to provide the necessary land, for surely the place to teach agriculture was and is on the land. Finally, in 1905, a change was made. A tract of land, now known as the university farm school, was organized. It is not too much to say that much of our real progress made in agricultural development dates from the establishment of the university farm.

It is not our intention to in any way question the accomplishments of the college of agriculture or the university farm school, but the points we wish to raise are these:

Has the most been made of the opportunities afforded by the university farm for the development of an efficient institution for agricultural instruction and investigation?

Is the University of California graduating men as well trained as are institutions of similar character in other states?

Is it advisable to consider a complete reorganization of the college of agriculture in order that the entire department can be headquartered at Davis rather than at Berkeley?

(Continued on Page 920.)

A LETTER FROM A GRADUATE OF U. C.

Editor California Cultivator: I have just finished reading an article (in California Cultivator, May 1, Page 730) written by R. P. Royce relative to the University Farm Picnic and also to the college of agriculture. As a graduate of the division of animal husbandry, college of agriculture, University of California, his comment on the work of that division in particular, was of interest.

Probably the general public interested in the work of the college of agriculture does not know under what tremendous difficulties the division of animal husbandry has been and is working. Without facilities to demonstrate to the student and stockmen the relation between stock and the farm or why livestock is essential to the best development and continued use of farm lands, with a constant diminishing staff of instructors, with a divided system of instruction and management, part of the university work being given at Berkeley and part at the university farm, Davis, the situation is discouraging, to say the least. To turn out efficient graduates in animal husbandry, men who can compete with graduates of similar institutions, is impossible under the existing conditions.

The prospective graduate of the college of agriculture in the animal husbandry division, under present conditions, does not have the opportunity of seeing or working with a live animal in connection with the animal husbandry work until the last half of the third year in the college. The next opportunity, and sad to say, the last opportunity for contact with the livestock, is the last half of the fourth year.

An illustration of the result of this system, or lack of practical training, is shown by the recent livestock judging contest held at the university farm. The University of California men numbered about half of the men entered in the contest. In the final judging of the stock the first four highest scores were won by university farm school men and not by the college men. In a recent lecture one of the animal husbandry professors stated that the ability to judge stock correctly was 75 per cent of the necessary qualification for a successful breeder of livestock.

The animal husbandry student of the college of agriculture under present conditions cannot expect to compete on the same plane with graduates of similar institutions of the Middle West. As Mr. Royce states, the college of agriculture, and especially the animal husbandry division, is facing a critical period. In justice to the taxpayers of the state, to the livestock interests and especially to the students themselves, the condition should be changed. This change means, for one thing, giving the student of animal husbandry more contact with animals, which means, four years at the farm.—W. P. Wing, U. C.'20.

Agricultural News Notes of the Pacific Coast

Northern California

University farm school will hold entry tetsts June 15.

One car of cherries from Lodi sold in Chicago for $7,388.50.

Airplane patrol of the Sequoia national forest began May 15.

San Francisco receives from 80,000 to 100,000 dozen eggs daily.

Foul brood is reported in many of the apiaries of Sutter County.

Sonoma County farm bureau will take charge of the coming county fair.

Del Norte County fishermen report: "Salmon are now running in the Klamath River."

Poultry feeding demonstrations are being conducted by Alameda County farm bureau.

Pear blight was the topic discussed at the recent meeting of pear growers of Lake County.

County horticultural commissioners are meeting in state convention in Sacramento this week.

San Francisco weather bureau reports cooler and more backward May weather than for years.

Sperry Flour Company has entered the rice growing industry and has made large plantings in Butte County.

Richvale and Gridley, Butte County, farmers stand to lose immense sums because of disputes over irrigation water.

Pumping plants, automobiles, trucks and other users of gasoline are inconvenienced by gas shortage over all the valley.

A number of agricultural students from the college of agriculture recently visited fruit producing sections of Butte County.

Recent meeting of grape growers in San Francisco resulted in unanimous decision to go ahead with grape growers organization.

Prof. Miles B. Kennedy, formerly with the University of Nevada, is now dairy chemist with the California department of agriculture.

Irrigators at Colfax, Placer County, report melting snows are sending down much more liberal supply of water than was anticipated.

Fruit Growers of California, Inc., has fixed prices for canning cherries: Royal Anns, 11½ cents; Tartarians and Republicans, nine cents.

The Glenn County farm bureau lumber department now has 40 men employed getting out timber, sawing about 10,000 feet of lumber daily.

Oroville canneries announce they will pack no peaches this season—decision due to high cost of sugar. Figs and grapes will be the principal fruit canned.

In the gas shortage which is very stringent in all sections of the Sacramento Valley, "Farmers First" is the motto which governs, especially where irrigation plants are involved.

Auburn, Placer County, recently sent a delegation in connection with Sacramento County Auto Trades Association to clear the snow from highways over the summit to open roads to Truckee.

Sonoma County farm bureau, under direction of Adviser Weinland, is laying out a big year's work along line of cooperation, extension of good roads and better general farming methods.

Central California

Monterey County farm bureau is conducting an employment office.

Farm bureau committee held a fat hog auction at Poplar, Tulare County, May 28.

Corralitos, Santa Cruz County, fruit growers are constructing a dehydrating plant.

Apricot growers report actual sales of canning fruit ranging from $70 to $110 per ton.

The capacity of the creamery at Oakdale, Stanislaus County, has been nearly doubled.

The University of California citriculture class visited Tulare County citrus groves last week.

While Kings River is now flowing about 1,800 second-feet, the water has not yet reached Tulare Lake.

Several towns in San Joaquin Valley have placed an absolute ban on all bonfires during water shortage.

Pajaro Valley apple growers are holding meetings and encouraging enthusiastic support for better inspection.

Lodi grape growers are already considering ways and means of overcoming the car shortage in shipping table grapes.

Top prices at fat hog auction held recently in Turlock were $15; in Le Grand, $15.35; Madera, $15.75; Fresno, $16.30.

Agents of the California Peach Growers, Inc., are busy signing up contracts with members for the coming peach crop.

San Jose reports: "The canning prospects for the season are growing brighter every day. Old pack moving off rapidly."

Tulare board of trade reports production of that county's livestock industry as nearly double the combined value of fruit and grain.

Tulare municipal water supply is being jeopardized by careless users; at times the pumps are unable to lift any water from the wells.

Stratford, Kings County, has appealed to the railroad commission for an order compelling the water company to serve their lands with waste water.

County Sealer of Weights and Measures Johnson of Fresno will aid dairymen in securing correct weights of cans of milk and cream from creameries and separating stations.

San Joaquiu Valley growers recently received checks aggregating four and a half million dollars through the Associated Raisin Company. This represents about $30 a ton on all ralsin grapes.

The forest reserve officials are making a canvass of cattle feeding lands in Inyo County with an idea of securing information as to who are entitled to summer pasture privileges on the reserve.

W. J. Higdon is heading a committee appointed to effect a new organization of the San Joaquin Milk Producers Association. Secretary Ayers will aid in conducting a new membership campaign.

The damage clause in the Associated Raisin Company contracts has been sustained in superior court decision. The damage clause for the coming season will call for two cent payment for failure to deliver.

Southern California

Navels are all shipped.

Riverside's total rainfall for the season is 11.55 inches.

Mill Creek road into Bear Valley, San Bernardino County, has been opened.

Every hay baling crew is busy putting up Southern California's biggest hay crop.

Yucaipa, San Bernardino County, reports almond crop as practically 50 per cent of normal.

Walnut growers at Puente, Los Angeles County, are erecting a $175,000 walnut packing plant.

Imperial County threshing machines were recently stopped for a whole day by a thunder shower.

California Lima Bean Growers Association reports Baby Limas all sold. Price now quoted is $10.71.

San Bernardino County farm bureau is promoting fight against heavy trucking on improved roadways.

Valencia oranges are running to exceptionally large sizes, but are of fine quality and commanding good prices.

The recent light rain in hay growing sections of Southern California is reported as doing practically no damage.

The Yucaipa Apple Growers Association has disbursed $14,000, practically the final payment on apple deliveries, 1919.

Los Angeles County farm bureau is buying soil augers for the use of members in the determination of subsoil conditions.

Brawley, Imperial County's, first full car of cantaloupes went out May 23. Last year's first car was sent out on May 26.

Lima bean growers of Ventura County are making almost daily shipments, and it is hoped the 1919 crop will soon be sent to market.

Several walnut orchards of Southern California are suffering because of winter killing, which is more serious this year than any preceding.

The Arlington farm center has changed its name to the Alvord farm bureau center. This because most of the members reside in the Alvord district.

Some of the burned ovor areas of the Sierra Madre are being reforested. The San Dimas center of the county farm bureau is aiding in planting young trees.

The Ventura County Fair Association invited all members of the association to meet at a barbecue, after which the matter of "greatest county fair ever" was discussed.

Hemet, Riverside County, stands very straight and says: "We have the best hay crop in California." Her apricot crop, however, is reported as less than 50 per cent of normal.

Milk producers of San Pasqual, Ramona and Escondido, San Diego County, recently met with the board of directors of the county association and discussed percontage of butterfat.

A total of eight cars of strawberries has been shipped this season from the Gardena-Moneta district. Owing to the car shortage, express shipments of berries have been unusually heavy. The second crop of berries commenced to come in about May 20 and from all reports will be heavier than the first crop.

The Coast and General

Spokane, Washington, is featuring a "Farmers' Chautauqua," June 24 and 25.

Lane County, Oregon, will hold its county fair at Eugene, September 21-24.

Fruit growers at Langley, Washington, unite in the ownership of a community sprayer.

The farm bureau of Island County, Washington purchased 1771 boxes of stumping powder during the winter season.

University of Arizona reports: "Farm bureau idea gaining strength rapidly among farmers and farm women."

Strawberries are reported as finding slow sale on Seattle, Washington, market High price of sugar is given as the reason.

One farm bureau in Washington purchased nearly 1,800 boxes of stumping powder for blasting, a saving of $3,000 to the farmers.

Farmers in the Walla Walla Valley of Washington report damage exceeding $15,000 annually because of depredations of beavers.

Planting of prune trees has been resumed in the Yakima Valley where several years ago orchards were pulled out because of low prices.

Wheat growers meeting in Kansas City "demand that agricultural courses be revised to educate actual farmers who will return to and work on the land."

State Horticultural Commissioner Dean of Washington has ruled that his inspectors may enter Yakima Indian reservation and continue cleaning up of orchard pests.

The Apple Growers Association of Hood River recently made a distribution of $225,000 on the 1919 apple crop, bringing the total funds distributed to May 1 to growers to $2,000,000.

Arizona cotton growers are uniting to secure a labor supply in time for harvesting this fall. It is estimated there will be needed at least 40,000 pickers to harvest the crop of 285,000 acres in Arizona.

Loganberry growers near Salem, Oregon, who contracted for a term of years to deliver berries at three cents per pound have been given relief by the courts and released from their contracts. The growers are now offered as high as 13 cents per pound.

About 150 milk and cream producers of territory about Spokane, Washington, recently met and took initial steps toward the formation of a dairymen's cooperative association. Another meeting will be held June 15 when it is hoped to formally outline the work.

To cope with the labor shortage in cotton fields of Arizona and California the employment service of the United States department of labor has organized a zone in those states on same lines as the twelfth federal reserve district. District headquarters is in San Francisco.

To determine the value of different commercial fertilizers and their action on various kinds of soil in several parts of Washington, demonstration plots have been started by a soil extension specialist of the state college in ten counties of the state Benton, Skagit, Whatcom, Yakima Snohomish, Kittitas, Lewis and Clarke

Echoes of the Avocado Convention

Extracts From the Addresses

IT is not possible to reproduce all the good things said and read at the fifth annual convention of the California Avocado Association, but the most important committee report was printed in the Cultivator of May 15, and propagation and handling of the young trees will be presented in full, a paper of vital interest to all who grow trees. But there are important and interesting statements from prominent members that cannot well be overlooked.

In his presidential address William H. Sallmon: "It is a satisfaction to be able to state that our affairs are in a sound condition and we are on a firm foundation. We do not have to face the specter of debt for more than 100 new members have been added during the year, making a gain of $500 in our net resources, and with all bills paid we have in the bank a comfortable balance of more than $1,500. . . . With a membership of 161 two years ago and 216 last year, it was felt that we might reasonably seek to attain the 300 mark this year. And it is a pleasure to record that we have done it. There are now enrolled 301 bona fide members, in addition to eight honorary members" (Dr. W. L. Hardin reports 42 also joined during the convention.—Ed.).

Avocados in Florida

From a paper sent by John B. Beach, West Palm Beach, Florida, we take the following excerpts regarding California varieties fruiting in that state from scions sent from local orchards:

"Blakeman has fruited for two years and produces fruit of good quality, from a pound to a pound and a half, maturing in January and February. Dickey (Habersham) is a good grower, productive, of good size, quality and appearance. Lyon has so far shown an exaggeration of the faults it has in California and what fruit has been produced generally cracked before maturity.

Parent Tree of the Fuerte Avocado

During the last five years the Fuerte avocado, originally introduced into the United States in 1911 from Atlixco, Puebla, Mexico, has come to the front as one of the most promising commercial varieties in this country. It is remarkable in that it is apparently a hybrid between the Guatemalan and Mexican races. This illustration shows the parent seedling tree growing in the garden of Alejandro Le Blanc in Atlixco. The tree is believed to be about 60 years old, and it produces about 500 fruits annually. Photographed by Wilson Popenoe, Atlixco, State of Puebla, Mexico, December 22, 1918. Used by courtesy of U. S. Department of Agriculture.

"Fuerte has shown itself universally an excellent, thrifty grower and generally a good bearer. Spinks is a vigorous grower and promises to be prolific, size about 25 ounces and quality good. Linda has produced some specimens weighing 36 ounces of excellent quality, tree a good grower. Taft has given quite general satisfaction, is of superior quality and medium size. Wagner, quality good, bears freely of fruits about 22 ounces."

Marketing Avocados

A. F. Yaggy, Santa Barbara, writes: "At a time like this, when sugar jumps $5 a hundred over night and food staples sell at the price of luxuries, it is no wonder that good sized avocados have retailed as high as $2 each. It is no wonder, either, that certain of our members express the opinion that at the present time the association need not seriously consider the question of marketing; that the trade is calling for avocados faster than they can supply them.

"In former discussions of marketing the grim specter of overproduction haunted the meetings, but as the years roll by the good angel, Increased Demand, has proven more than a match for him, and from the way prices have risen we can all easily believe that it is perfectly possible to send a skyrocket to the moon. Just when this bubble of wild extravagance will burst and things will settle down to something like real values no one can say, but whether that time comes in one year or five, we can be reasonably sure that things classified as luxuries, such as fruit selling at $2 a pound, will be the first to go begging. In the meantime many small plantings and a few larger ones are getting to the productive stage and nursery stock is in great demand.

"Of course, the law of supply and demand will regulate the price, as has been pointed out at every meeting of the association. We know that the supply is bound to increase rapidly and we are all so imbued with the great virtues of this fruit that we believe the public will share our enthusiasm and keep shouting for more, regardless of price. I think sales direct from grower to consumer is not the correct way. I think the Avocado Association should form a marketing place in Los Angeles where the growers could take or ship fruit and receive a price per pound, such price to be determined by the board of di-

(Continued on Page 904.)

Treating Frosted Walnut Trees

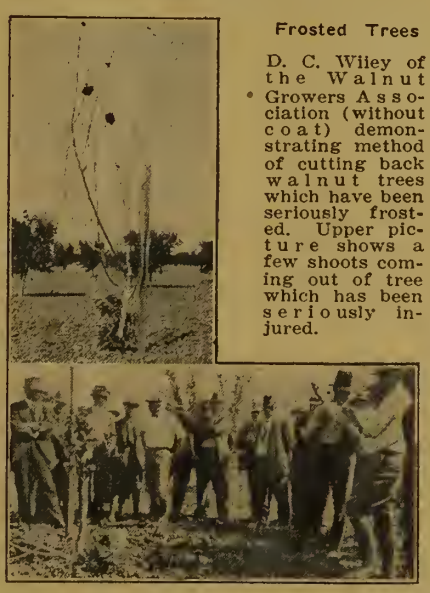
By Ernest Braunton

THE unusually heavy frosts during the first week in November, 1919, found many fruit and nut trees of the deciduous class most persistent in the retention of foliage and vitality, and they were either killed or badly injured, being full of immature sap.

This damage was not apparent during autumn and winter, but is painfully manifest to the orchardist in spring when such trees refuse to leaf out. Among young trees few were killed; in some orchards few were injured, while in other sections every tree in a considerable acreage was badly injured. In older orchards no trees were killed, but damage ranged from almost nothing to the killing of wood two years old.

As so much difference of opinion prevails as to why one orchard or one tree is immune, while others are not, the Los Angeles County farm bureau held four meetings on May 24 in the Van Nuys-Owensmouth-Zelzah section of the San Fernando Valley, to discuss the subject with the growers, inform them of results of late experiments and demonstrate the best methods of treatment of frost damaged trees. After introductory talks by Farm Adviser Hodgson and Secretary Rosecrans, Dr. L. D. Batchelor of the Riverside experiment station addressed the first of the meetings, at the Grimes ranch, Van Nuys, and D. C. Wylie, manager field department of the Walnut Growers Association, demonstrated pruning methods in the orchard. Dr. Batchelor spoke substantially as follows:

"This injury to walnut trees is an old story with us and must not be viewed as a calamity for which no remedy is known. We have been investigating it for five or six years. It is a trouble that has been experienced in nearly all walnut sections. It merely constitutes a more or less serious setback and trees badly injured have been brought back to perfect form and vigor. It is only necessary to give these trees an intelligent pruning and so treat them in years to come that they may be more or less resistant to further injury.



Frosted Trees

D. C. Wiley of the Walnut Growers Association (without coat) demonstrating method of cutting back walnut trees which have been seriously frosted. Upper picture shows a few shoots coming out of tree which has been seriously injured.

Causes of Injury

"The damage wrought may fall within one of four classes or causes: 1. Frost injury to young trees that remain active late in the fall and are caught in full leaf by early autumn frosts. Warm, sunny weather may follow, the leaves fall, the twigs dry quickly and older wood may become badly sunburned on top or south sides. 2. Lack of soil moisture in fall. Even well ripened trees will take a little soil moisture. The same spring appearance will occur as with frost damaged trees unless drouth kills old wood, even to four or five years growth, and occasionally the whole tree, while frost kills but wood one or two years old. 3. High water table. Too much water at the roots so trees cannot mature season's growth, which should become properly cured in early autumn. 4. Alkali salts. A common and extending cause. Leaves usually dry and fall early in August or September, and may leaf out again in October and be caught by frosts as in class number one. Trees may die back for three or four years growth. This class of injury is most common in the older orchards. There is a fifth cause of die back, but rare—sunburn in summer from unusually hot weather.

The Local Problem

"In the local walnut section all the damage may doubtless be ascribed to cause number one—early frosts. The first week in November we experienced similar trouble in trial plots at Hemet, where we had young trees kept growing, while in checks plots having ripened wood little or no damage was done. We have, therefore, created the same conditions you have here. As to remedy: The root system has in no wise been injured and you may build a new tree upon it from a strong new shoot as easily as the nurseryman grew it in the first instance, so long as the shoot appears above the graft.

"Trees little injured are easily shaped, and no case is hopeless where a single green shoot appears. The damage is easily and quickly repaired. Cut back the old growth down to live wood on all trees. If this is high enough, leave several branches, but if low on the young trunk, cut to a strong shoot, preferably on the windward side, and leave but this one. If stakes are present, always cut in this way, but if no stakes are present you may leave the old trunk to tie to for the first year, removing all but the main shoot that is to form the new tree. Do not head or top this the first year, even though the tip may get frosted. If you cut it off, laterals may start out that are still more tender and may be seriously frozen.

Irrigation Practice

"In local sections irrigation should doubtless not be given after the first week in August. With young trees it is better not to wet down more than two feet at that time. There is no hard and fast rule, but this gives you September and October in which to harden trees. The sap thickens and a greater degree of cold is then necessary to wreak damage. After this hardening, if fall is dry, one should irrigate from November 1 to January, as the season requires.

"The Placentia generally matures earlier than the Eureka and starts earlier in spring. The Erhardt is a good variety so far as observed, but is not sufficiently known to warrant specific recommendation. The Franquette is very hardy but is a failure locally, so far as crop performance is concerned. Irrigation is necessary to all orchards, and about three during summer is the general practice—in June, July, and August."

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and LIVESTOCK and DAIRY JOURNAL

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

A NEW PARTY

We have an invitation to attend "The National Convention of the Committee of Forty-eight" at Chicago, July 10, 12 and 13, to form a new political party.

We have cordial appreciation of the invitation, but must decline. We all have trouble enough now with two parties offering all kinds of inducements. "We are witnessing a silent and ominous revolution in our national life." May be true. Still we believe if we will all get busy with the parties now in existence we may accomplishe more and with less of the dizziness which comes from perpetual revolution.

GAS SHORTAGE

With the increase of power on farms, with greater demand than ever in the industries, with the vast increase in the number of pleasure autos, comes the word that production of gasoline and distillates is slightly under normal. This has somewhat frightened us all and has given the pessimist occasion to make claims as to ultimate reduction or exhaustion of the oil supply.

This has been claimed to be a false alarm by many of the more optimistic. Old Mother Earth has not failed us and she will yet yield many millions of gallons of gasoline. Meantime, wiser heads are advising investigations as to manufactured power. It has been found that sawdust, vegetable fibers and many other substances, even a bucket of water, offer unlimited power possibilities. The chemist observes that if we will but decompose the water and secure the hydrogen and the oxygen we may combine them again and secure the most powerful mixture of gases known. "All that is needed is simply to decompose the water."

STILL WORTH WHILE

"If a man with pick and shovel or with mortar hod can earn $6 or possibly $10 per day while one in a profession or calling requiring highest education receives only $1,500 or $2,000 per year, why should we strive for education?"

The Cultivator has no particular wisdom to offer in answer to this question. Perhaps we must admit that education is generally figured in dollars and cents. Perhaps it must be if we have the American commercial spirit. It appears to us that there is a higher satisfaction in the personal attainment, still more in fitting ourselves to be of greatest service to our community and to our country.

But, bringing it back to the dollars and cents standpoint: "Mere strength and awkwardness will not always command the premium which it does today; the earth will return to normal conditions ultimately, and by the time the education now being sought is secured, there will be occasion for its use. Bear in mind no business is successful without sufficient capital, and the capital which moves the earth is intellectual capital."

TRUCKS—GOOD ROADS

Several counties of the state are taking steps to enforce regulations against heavy trucking over their good roads. Especially is the farm bureau active in the campaign. In Orange County the farm bureau in formal resolutions has called attention to the excessive rate of speed which heavily loaded trucks maintain and declares that "if said practice is not at once checked or stopped it will result in total destruction of the paved highways, therefore, be it resolved that it is the sense of the Orange County farm bureau and each and all of its members that the provisions as to the loads hauled or driven on or over the highways of Orange County and the speed at which said loads are hauled or driven should be rigidly enforced, and that we herewith demand of our board of supervisors the enforcement of said provisions of said ordinance, even to the extent of employing, if necessary, an inspector, or inspectors, who shall be authorized and empowered to demand and enforce the weighing of any load or loads moved over said highways, and if necessary to have said load or loads reduced in weight to conform to the provisions of said ordinance."

SAVING THE WASTES

Professor Cruess' article makes most attractive reading for the housewife and in fact for all of us, in that it is another suggestion leading to saving of the wastes, and in the saving of wastes there is sometimes 100 per cent of the profits of some large industries. The article not only tells how our lower grade fruits may be combined with sugar and made into most attractive preserves, jellies and jams, but how the fruit may be made to take the place of sugar which is needed by every normal human. And sugar's 500 per cent increase is a feature of the H. C. L.

Dealing even more exclusively in waste products are other concerns like the one at Corona referred to on first cover page. This describes a citric acid plant on the El Cerrito Ranch, where hundreds of tons of lemons are manufactured into a few hundred pounds of a product of high value.

Then California has her marmalade factories, cider mills, skimmed milk evaporators, fruit, potato, vegetable and other evaporators, all saving wastes or low grade products. Yet they are only one-tenth of enough to save all the wastes.

Investigators and practical workers are bringing about a condition which will add much to the profits secured in California.

WAR BONUS

No country ever had a more united people than did America when once it decided to go to war. We wondered at ourselves, that we were able in a little over a year to put a couple of million men in the fighting front and have in training another two millions ready to go and even going every day. But still more wonderful was the fact that there were "in service" 100,000,000 of true Americans. To the few was given the honor to represent the great majority, but their service was no more willingly rendered than was that of those who stayed at home and wrought or produced as best they could. Some of those who did go across the water did not come back; others came bearing marks of injury which will incapacitate them for life. These men and dependents should never be allowed to suffer, and the history of this nation will give reassurance that the veterans of the world's greatest war will not be compelled to suffer because of its forgetfulness.

Most thorough vocational training, together with hospital service, is being rendered and will be continued, but the feeling is gathering force in all sections of the country that general and indiscriminate distribution of a cash bonus is not called for and, on the part of many men who were in the service, "tends to lessen the inspiration and debase the motive of national service." The caring for those who are incapacitated or for their dependents does not in any sense become a charity; it is simply the thoughtfulness of a great nation in caring for those who have been true to it.

MORE SUGAR PER ACRE

Mr. Shamel is back from the Hawiians. Mr. Shamel never goes anywhere without two perfectly good eyes, and they see a great deal. In the Hawaiians he saw fields, 200,000 acres of which produced something like 600,000 tons of sugar per year. He also saw that those 200,000 acres should produce 1,200,000 tons of sugar per year. In fact, the Hawaiian Sugar Planters Association realized that much of their problem before Mr. Shamel was called upon for help. The managers of the association, or rather of its experiment station, knew of Mr. Shamel's work with tobacco of the South, with corn of the Middle West, with the citrus of California, and they said: "Perhaps he will have equally practical suggestions for sugar and pineapple planters of the Hawaiian Islands." He went and told them—in fact, proved to them by actual experiment—what they knew but did not fully realize—"Like breeds like."

During all these years of growing sugar in the Hawaiian Islands the "seed cuttings" have been chosen indiscriminately. Mr. Shamel chose cuttings from the largest and most thrifty stools showing greatest number of large stalks with high percentage of sugar. Again, he chose from parent plants producing small canes, perhaps only one partially developed, or two or three, or again, one large husky cane with others of indifferent growth. These were planted and invariably produced their like.

The problems confronting the sugar grower are not quite so simple and quickly solved as the hint above may suggest, but Mr. Shamel's three months in the Hawaiians were sufficient to aid those islands to produce a far greater quantity of sugar. This year the returns will not be as great as had been expected. The strike of the Japanese laborers resulted in a tie-up at a critical time, so the planting will not be up to normal.

Practically one-half of the sugar is produced on the island of Oahu. This is practically under irrigation. Forty per cent is from the island of Hawaii and ten per cent from Maui.

TRUTH IN FABRIC

"All wool" fabric may be all wool and still be inferior stuff. Virgin wool may constitute only a part of the material, for 'shoddy' (old wool rags) is proving very attractive as to cost so the manufacturer economizes and we pay the price. Increase in use of shoddy is indicated by the following:

"More than 1,265,000,000 pounds of virgin wool have accumulated in the storehouses of the world since the beginning of the world war, according to statistics compiled by the National Sheep and Wool Bureau of America. When the world's wool clip of 1920 is completed a few weeks hence this amount will be increased by 2,500,000,000 pounds it is expected. In spite of the high price of wool fabrics the storehouses of America alone contained 700,000,000 pounds of virgin wool last September, ten months after the signing of the armistice, or 100,000,000 pounds more than the country's annual consumption.

"Even the most honest retailers are unable to detect the presence of shoddy in 'all wool' goods, because shoddy is all wool. The purchaser buys his 'all wool' clothing without knowing that he is getting old rags respun, and pays virgin wool prices.

"The Truth in Fabric bill, when enacted into law, will make the manufacturers come out in the open and tell what their goods are made of. Then people who want virgin wool and are ready to pay for virgin wool can get honest cloth, and goods made of shoddy will take its rightful place and price and can no longer masquerade made as virgin wool."

The Truth in Fabric bill was introduced in the house of representatives on January 7 by Congressman Burton L. French. Its number is 11641. John J. Esch is chairman of the interstate committee of the house. Senator Arthur Capper of Kansas introduced the bill into the senate, where its number is S-3686. The chairman of the interstate commerce committee is Albert B. Cummins.

All the farmer asks is that the manufacturer be compelled to tell the truth. The public demand will then soon correct the situation created by oversupply of virgin wool in storage

Copyright 1920, by The Goodyear Tire & Rubber Co.

"We haul local growers' fruits and delicate vegetables, such as lettuce, on pneumatics—Goodyear Cord Tires—because they are marketed in better condition this way and buyers give first choice to produce so protected. Our Goodyear Cord Tires run everywhere in cultivated fields and in a sandy orchard and deliver mileages to 15,000."—C. C. McIntosh, of McIntosh & Andru, Truckmen, Palmetto, Florida

As statements like this make apparent, more and more farmers are preventing the bruising of fruit, mutilation of delicate vegetables and much shrinkage in livestock by hauling on Goodyear Cord Tires.

In this way they reverse the situation that existed when solid-tired trucks or wagons were used with a resulting loss in crops, stock weight and general income due to slow, jarring transport.

On the resilient Goodyear Cord Tires a farm truck delivers smoothly and quickly, safeguarding the original condition of the load so as to secure the best prices for it.

The able pneumatics thus become important factors in the marketing of perishable produce and carefully fattened animals, as well as in practically all the work of raising and handling on and off the farm.

The excellent and often unusual mileages obtained from these tires attest the toughness of Goodyear Cord construction developed with that extraordinary manufacturing carefulness which protects our good name.

Farmers' records, detailing how pneumatics assist crop moving, motorization, chores and other activities, can be obtained by mail from The Goodyear Tire & Rubber Company, Akron, Ohio.

GOODYEAR CORD TIRES

Success of Long Pruning

By Ernest Braunton

THE Los Angeles County farm hureau held some pruning demonstrations in the San Fernando Valley, May 27, that were of unusual interest. The first was on the ranch of J. C. Craig. Here there were, three years ago, some large apricot trees so low in fruit production that it was decided to remove them, though they were fine, vigorous shade trees. They had always been headed back vigorously each year, made splendid growth but bore little fruit.

Mr. Craig was persuaded to try the new long pruning method on one-half of the trees, pruning the others as before. The results were nothing less than startling. A good crop came the first year, more the next year, and now, third year, two-thirds of the crop should be knocked off; the trees are much overloaded. The "headed back" trees are comparatively barren. On one of the long pruned trees the writer counted the fruits on the first branch he came in contact with as he approached the tree. Said branch was about three-fourths of an inch thick and four feet long. It contained 119 apricots of good size. One-half the number would have been too many.

A Record Crop

Next those interested visited the orchard of Chas. B. Sexsmith, across the road. Here is the finest seven year old orchard the writer has seen, loaded with a crop that cannot be mentally grasped without seeing it. Mr. Sexsmith, too, thought little of his trees, for the yield was light and he anticipated making a change. After seeing a tree long pruned and hearing the argument in favor thereof, he concluded to so prune one-half of his trees. Of course the next year all were so pruned.

Last year, the second year of long pruning, the orchard yielded five tons to the acre; this year it is expected to almost double that yield. Mr. Sexsmith told the writer some of the trees will yield over 500 pounds and all will average more than 400 pounds each. Had he long pruned his trees from planting he would have had a like yield at five years instead of seven. Every visitor, nearly all being apricot growers, was most enthusiastic over results, and all are strong advocates of the new pruning method, which alone brings maximum results.

Long Pruning Method

Artemus Ward wrote: "I dont kare what a man sez, so long as he sez it in a phew words." Boiled down, this new system is: do not top or head back, but thin, thin, thin. Also every fruit tree naturally forms at least twice as many leaders as it should have, and this number must be reduced, being careful to keep the center open. These are the "phew" words given the writer by Dr. J. C. Whittien, professor of pomology at the Universitl of California. But we will hear Dr. Whitten's story, told to the assemblage, as nearly as the writer can re-tell it.

"Years ago, while at the University of Missouri, I taught my students the same old heheading or topping system which we all thought was right. It is strange that light came, not through crop investigations, but through study of frost injury. To be short, a peach grower reported an unpruned tree had passed through a hard winter unharmed; the pruned trees were injured. It was found the trees with the longest and most vigorous upright shoots, the result of heading back, were most damaged—the juice was thinnest, most watery. On the unpruned tree the thin, short pendant twigs, especially on the lower part of the tree, were unharmed, and in season bore enormously. The growth was finished and the sap thick and rich with sugar.

The Young Tree

"The first year cut the young whip off at 30 inches above the soil. Allow about three branches to grow (four are admissable), one near the top, another six inches below and the third six inches still lower, all three well distributed around the tree, the lower one on the sunny side if possible. This is the ideal tree. Not all make an ideal start, hut vary this first year's training as little as you can.

"The second year leave these three leaders unpruned, but snip off the ends of all other shoots so they will have four or five leaves to shade trunk, elahorate the sap and become the first food storers and probably the first fruit bearers. Each of the three leaders should he allowed to hranch into two each, making six leaders from which to build the tree. The tree so built will bear less fruit the first or second fruiting year, but after that crops will far outrank those obtained through any other method of pruning.

"Keep the trees well thinned and the centers open. The best way to stop head growth or rank upright shoots is not to head or cut them off. Let them shoot up. At the end of the first year length growth largely stops, but little being made in subsequent years. Laterals will spring forth and give a tree well furnished with small wiry drooping branches. Trees so trained have a larger root system and a greater trunk diameter than "beheaded" trees. By keeping top well thinned we huild a larger food factory, for only finished thick, leathery, dark colored leaves manufacture plant food. The tree comes from the air. Burn the green wood and 97 per cent goes hack into the air; hut three per cent of ash remains, the mineral part that comes from the soil. Therefore huild from the air—in all parts of the tree.

"The top thin leaves on rank growing tips evaporate ten times as much as the finished thick dark leaves. They really spend more than they store and rob the tree of some of the food manufactured by the lower leaves. They waste water, build nothing. Like the spendthrift they are prodigal while the bank account is good but the first to show distress when hard times come. Just now, in May, cut back ends of small limbs if they too much hang over the center of fruiting branches, merely to let in light and air. Next year these shortened hranchlets will put out laterals that hear fruits. Never cut back heavy wood hut pinch back young twigs to six inches long. While main leaders and framework are upright the fruiting branches of all sizes should be drooping. The sap does not rush to the ends in drooping branches as it does in upright ones. A heavy crop or heavy pull on an upright shoot will break it off as the pull is lateral or sidewise. On a drooping branch the pull is lengthwise."

The charge was at first made that trees pruned by the Whitten method would run to top and the heaviest crop would be there, hut the contrary has proven to be the present condition. The upright growth is but little each year because the trees are so well thinned that laterals put out everywhere and fruit is everywhere, a wonderful distribution. He so encourages short laterals with "snipped off" terminals that fruit is as plenty within a few inches or a foot of the soil, as it is in any part of the tree. Under the old method the trees were bare below and about the main forks. Under the new method this zone is filled with small branches loaded with fruit. From among those who have given long pruning a three years trial there are no backsliders, nothing but highly enthusiastic advocates and practitioners The beheading or topping method has gone, to return no more.

ECHOES OF AVOCADO CONVENTION

(Continued from Page 901.)

rectors after they have carefully can vassed the situation as to the amount of fruit available. The fruit should he distributed from this marketing point to local consumers and shipped to distant markets. They could arrange for growers to ship direct to consumers and distant markets, but it should he done under direction of this marketing point."

Maturity Work on Avocados

E. M. Chace, director citrus by-products laboratory, Los Angeles, treated this suhject very fully from both a technical and a practical point of view.

Plant Teague Trees

They Are Grown From Selected Buds Taken From Trees With Individual Performance Records both for Quality and Quantity Production

LEMONS

We can supply Eurekas, Villa Francas, and Lisbons. All budded from the best and most prolific bearing types. If you have lemon land do not be afraid to plant Lemons. They will yield satisfactory returns when they come into bearing.

LIMES

Every home orchard in the protected localities should contain one or more lime trees. We have some extra large trees of both the Mexican and Tahiti Seedless varieties.

POMELOS

We still have a few nice Marsh Seedless, Triumph, Imperial, Foster and Duncan trees unsold.

Handsome returns are realized from Pomelo orchards where properly planted and cared for.

ORANGES

We can still supply a limited quantity of Navels, Valencia Lates, Mediterranean Sweets, Ruby Bloods, St. Michaels, Tangerines and Mandarins for both home and orchard planting.

AVOCADOS

Good thrifty field grown Fuerte and Sharpless trees for immediate delivery.

FEIJOAS

Grafted from the best large fruiting varieties.

Write for our new descriptive price list describing forty-six varieties of Oranges, Lemons, Limes and Pomelos and seventeen varieties of Avocados and other Tropical fruits.

It's free to those interested.

The R. M. Teague Nurseries

Box A **San Dimas, California**

Founded In 1889 by R. M. Teague

Extracts from this paper, of interest to all, are here given:

"Natural and commercial maturity cannot be correlated, for, manifestly, many things are sold and eaten before they are naturally mature. Commercial maturity may be said to he that stage of growth at which the fruit may be harvested with equal satisfaction to the producer and consumer alike. The producer ever seeks to put his product on the market physically sound, while the wise consumer ever seeks fruit that has developed its full size and flavor. There is no definite natural point at which one can say a fruit is commercially mature. Some persons of peculiar tastes will enjoy fruit which is much too acid for the average consumer, and some will not care for it until it is so far advanced as to seem insipid to the great majority. After giving the matter considerable thought for several years I have come to the conclusion that the only reasonable way to handle the question is to set a purely arhitrary standard which should be as low as good marketing practice will permit. This, it is true, will not place before the public a product of which the great majority of growers should feel proud. The standard must be high enough so that the fruit on reaching the market will not turn the majority of the buying public against the crop as a whole. Any standard which will not accomplish that is worse than useless. This, of course, is not satisfactory to the market hog, who would dispose of his crop at the greatest profit to himself alone and let the other growers look out for themselves, nor is it entirely satisfactory to the idealist who would make it much more severe. The former, however, is a public nuisance which should be hated, and the latter has his remedy in his private brands, where he can regulate the quality of his output to his own satisfaction.

"Some fruits undoubtedly develop the best eating quality when left to mature upon the plant, but this is not the case with all fruit. Certain varieties of apples and pears are always harvested before maturity in order to develop their maximum flavor, and in some cases several weeks of storage are necessary. Bananas, for instance, are harvested green in the tropics, even when they are intended for local use, and are said to develop a better flavor thus than when left on the plant to mature. It must be confessed, however, that the depredations of birds and insects upon the maturing fruit have had no little part in bringing about this custom.

"The above mentioned fruits increase their sugar content after removal from the tree, as they have stored within the fruit material from which sugar is produced. Other types of fruits, however, do not materially increase their sugar content after harvesting. In our experimental work with citrus fruits we have failed to find evidence of any increase in sugar content after the fruit is removed from the tree. There is, however, a decided decrease in the acid content, which is sometimes mistaken for an increase in sweetness.

"It is apparent, then, that some fruits may be harvested some little time before they are ready to eat, while others should be left upon the plant as long as possible.

"In the case of the avocado, the flesh contains no starch from which sugar can be produced after harvesting; indeed, sugar plays no appreciable part in the composition of its flesh and in all probability gives no indication of maturity. In fact, so far as the limited data on hand go, they show less sugar hy far in the matured fruit than in the green. Apparently, also, the sugar decreases after the fruit is removed from the tree.

"We must, therefore, turn to other constituents to determine the maturity of the fruit, and naturally the oil content presents the best indication of success. At the present price of avocados, the oil determination method, it is believed, will not become popular, for manifestly the fruit will have to be destroyed for the test, so that we are concentrating on the study of the correlation method.

"With many fruits it is easily possible to predict maturity from the physical characteristics of the fruit. Usually color is thought to be the first evidence of ripening, and often is. But it is also true that some fruits color before they become palatable. Next to color the "feel" of the fruit is most often used; not many fruits can be left on the tree, however, long enough to become soft, as the shipping quality would be lost. The color of the stem is also an indication of maturity. With some fruits the color and condition of the seed or seeds is sometimes used. In the case of Bartlett pears, the color of the seed is taken by many growers as an indiction of ripening, and also the ease with which the stem can be broken from the hranch.

"One naturally looks to the seed as a good indication of maturity, but this examination is not available in the case of the avocado at present, as the fruit is too expensive. Advanced maturity is often indicated by the facility with which fruit separates from the twig, but too often this takes place only after it is too ripe for commercial use. The avocado separates naturally from the fruit spur in two places—at the junction of the fruit with its stem, and at the point where the fruit stem is attached to the parent plant. In our experience many strains of avocados are mature enough to store before they will separate readily at either point. So far, the physical characteristics which seem to us to give the best indication of maturity are the color of the fruit and of the stem."

AVOCADO GROWERS ELECT

The officers for the ensuing year are: President, W. H. Sallmon; vice president, W. L. Hardin; secretary, R. Agnes McNally; treasurer, J. M. Elliott. The new directors are: R. M. Teague, S. M. Jamieson, C. D. Adams. The holdovers are W. H. Sallmon, W. L. Hardin, J. M. Elliott, Mrs. J. T. Stewart, A. F. Yaggy, Dr. Lester Keller. The next convention will be held at Santa Ana, October 9, 1920. The address of the secretary is Altadena.

APPLES TO AUSTRALIA

The United States commercial agent at Melbourne, Australia, cables that the Australian government has removed the prohibition against the importation of American apples, effective May 19, 1920. This prohibition has been in effect since July 18, 1917.

Citrus growers of Tulare County recently met at Exeter and discussed June drop.

MICHELIN

UNIVERSAL CORD

It is fitting that the house which 25 years ago invented the pneumatic automobile tire should now introduce three improvements which result in greatly increased mileage:

1—A new tread compound, perhaps unequalled for durability

2—An improved tread-design that effectively opposes skidding and still further increases the durability of the tire

3—A super-sturdy oversize body that gives unsurpassed freedom from blow-outs

For a new degree of motoring satisfaction, use Michelin Universal Cords.

Michelin Tire Company, Milltown, N.J.

Other factories: Clermont-Ferrand, France; London, England; Turin, Italy

Dealers in all parts of the world

A Sturdy Oversize Cord Tire that Establishes a New Standard for Supreme Durability and Freedom from Skidding

DUST

NICO-SULPHUR
KILLS APHIS AND RED SPIDER ON CITRUS TREES

SPECIAL Nico-Dust
FOR Walnut APHIS

SPECIAL DUSTING SULPHUR
FOR Red Spider ON CITRUS TREES

Write for prices and specific information. We are exclusive distributors.

For perfect results—use NIAGARA DUSTING MACHINES.

Germain Established 1871
Seed & Plant Co.
N. E. Corner
Sixth & Main Sts.
Opp. R.R. Depot
Los Angeles, Cal.

Sulphur

It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards 6 times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of Sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100% pure, in double sacks, for Dry Dusting and making Paste Sulphurs.

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food and prevent smut in grain, drill into the soil 110 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR, 100% pure. This has increased various crops up to 500%. Send for Circulars No. 6 and 7.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 degree BE., etc., Fungicides and Insecticides.

Carried in stock and mixed to order.

SAN FRANCISCO SULPHUR CO.
624 California Street, San Francisco, Cal.

We are equipped to make immediate shipments. Send for "ILLUSTRATED BOOKLET"; also booklet "NEW USES FOR SULPHUR" Price-list and Samples.

Ask us for prices for Carbon Bisulphide, the surest remedy for destroying ground squirrels.

Commissioners Discuss Nematodes

"It is much easier to name the plants which nematodes will not attack than to enumerate the host plants of these pests," according to D. G. Milbraith of Washington, D. C., who addressed the convention of horticultural commissioners being held in Sacramento by the state department of agriculture. Mr. Milbraith is one of the three men in this country who have made a special study of these dangerous soil pests. The nematodes are round worms and are related to the trichina worm found in pork and to the intestinal worms of domestic animals. Some species of nematodes are harmless or even beneficial, but other species are among the most dangerous pests of agricultural crops.

The root knot nematode is not native to the United States but has been introduced in nursery stock and potatoes from the warmer parts of the earth. It is now widely distributed over the tropical, subtropical and warmer temperate countries. Some parts of California are still free from nematodes owing to the efficient work of the quarantine officers of the state.

No practical control measures on a field scale have been devised. In certain sections like the Imperial Valley some benefits can be obtained by summer tillage, which dries out the soil and dessicates the nematodes. Flooding for a period of time also kills the pests, and they are not found in rice sections. Small seed beds in the nursery can be treated with steam to kill the nematodes. Wheat, barley, corn, sorghum, Sudan grasses and other cereals and grasses are not attacked, and these crops may be grown while attempts are being made to clean the land. Alfalfa is not injured by the nematode, but furnishes it with a sufficient food supply to enable it to live over in the soil.

While it does not seem practicable to attempt to exterminate the nematode in orchard sections, it may be possible to localize infestation. It is hoped in time that all infestations may be reported to the horticultural commissioners and that thereby sections of the state not yet infested can be kept clean. It is extremely difficult to detect all infestations of nematodes, owing to the fact that often there is no outward indication that nursery stock is infested, although typically a characteristic knotty condition of the root is observed. The necessity for continued rigid inspection was pointed out, however, for even if inspection cannot be expected to keep out all infested stock, it will repay the cost many times if it postpones the infestation for only a few years.

Although the development of the vacuum fumigation process has taken place only within the last ten years, results which have thus far been obtained indicate that it holds great possibilities for the control of insect pests. The most extensive work has been done with dates in the Coachella Valley, where last year 75 per cent of all the dates were fumigated by this process. Carbon bisulphide is used and the fruit subjected to a vacuum. Experiments with potatoes indicate that the tuber moth, which has threatened to cause a quarantine against potatoes by many states, can be completely killed at a low cost without injuring the potatoes for seed purposes. Storage insects infesting raisins and other dried fruits can likewise be controlled and insects infesting narcissus and other bulbs are readily killed.

A large vacuum fumigator is to be installed in the Port of Los Angeles, several private firms in this state and Oregon are installing apparatus, and indications are that it will play an important part in the future of the cotton industry.

Improvements in the mechanical construction have reduced the cost of vacuum fumigation to a negligible factor when compared with the great losses which would occur if these pests were not controlled.

Making a Pure Seed Law Effective

By G. H. Hecke, Director of Agriculture

Regardless of the expected legislation bearing upon the important question of pure seeds, it is evident that we must view the matter from certain angles which may be affected only indirectly by any future regulations or code of procedure.

The most potent and far reaching factors having direct bearing upon this important issue of clean, high quality seeds are essentially educational, and any good results to be had through the enactment of pertinent laws must of necessity be influenced in a great degree by the care that has been employed in preparing both the consumer and the producer to meet the conditions which will be brought into action by such needed legislation.

California at present has no pure seed law. Such meritorious legislation, however, has been in effect in other states for some time, and notwithstanding the faults and flaws that invariably crop out when new codes and regulations are substituted for the old order, the cumulative benefits to be had under the operation of such laws are readily appreciated and improvement as affecting their efficiency is only a matter of time and progressive educational work.

The great advantages to be enjoyed by a given state from the enactment of pure seed legislation must accrue as well from sources other than those merely having to do with seed inspection and seed testing.

The farmer must of necessity be taught that poor seed is dear at any price.

Under such conditions the dealers, being confronted by more critical buyers who decline to use cheap and inferior seeds, will discontinue or discourage the sale of any but a better grade, produced under favorable conditions and guaranteed as to germination and freedom from excessive admixtures of noxious weed seed.

And seed laws which may be placed on the statute books in a given state have for their primary object the improvement of the quality of agricultural seeds, but to realize the greatest benefits to all concerned we must revert to the source of much of the past difficulty and apply certain remedial measures on the farms where the seeds are produced.

The seed grower should understand that clean seeds reasonably free of weed seeds in the end mean dollars and cents to him and that the reputation of his business will receive the greatest stimulus through the exploitation of a guaranteed product, exceeding in fact the returns from any other known source of advertising.

As an index to the great injury that misrepresentation can work a given seed house, we will cite the following:

A lot of seed was purchased for alsike and timothy mixture. Analysis showed it to contain 28 different kinds of weed seeds, amounting to nearly 12 per cent by weight. This seed was shipped by a Middle Western seed house which was guilty of many other infractions of the laws of common honesty. In the absence of a federal law it may not be possible for the state to hold up interstate shipments such as these, but we may rest assured that but few hard headed, thinking farmers will go back to that seed firm when they want more alsike and timothy.

Thus we may see that the efficacy of any so-called seed laws that may be established depends in a large measure upon the consistent observance of many related factors which may not for purely mechanical reasons be adequately covered by the law as written.

To this end, then, we should have:

A wider common knowledge of weeds and approved methods of control and eradication to be taught in the schools and agitated by the press through newspapers and farm journals.

The earnest cooperation of farmers, seed dealers and seed producers in California, making for the establishment of standardized grades of ap-

International Dehydrator

Has the endorsement of the ENGINEERS of all the Large Fruit Growers Associations of California—Therefore

"It Must Be Right"

The International Dehydrator is equipped to use ANY KIND OF FUEL—ELECTRICITY OR GAS ENGINE POWER can be used—and can be operated WITH or WITHOUT WATER.

Installations can be made anywhere on orders booked at once.

Factory Built,
Scientifically Correct,
Machine Is Complete,
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Write for names of Prominent Purchasers and Descriptive Circulars.

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Place Your Order NOW for Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or ex steamer to arrive.

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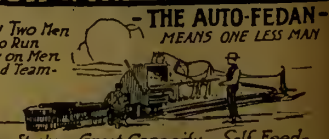
Only Two Men to Run Easy on Men and Team-

-THE AUTO-FEDAN-
MEANS ONE LESS MAN



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proved strains and varieties grown and stored in California under favorable conditions.

A radical departure from the over-colored, extravagant style of advertising so-called phenomenal varieties to be replaced by a plain, honest, descriptive statement as to variety, merits, etc.

CALIFORNIA AVOCADO CONVENTION

The new board of directors of the California Avocado Assnciation met May 20 at the home of J. M. Elliott. The election of officers was the first business of the meeting. Wm. H. Sallmon of San Diego was reelected president. Mr. Sallmon had announced his intention of retiring from the office but acceded to the urgent request of the board to continue as president for another year.

J. M. Elliott, who had served as vice-president and whom the directors desired to reelect, was, at his request, relieved and was unanimously elected treasurer.

Dr. W. L. Hardin, who has devoted much time, energy and ability to the office of secretary for two years, was elected vice-president. R. Agnes McNally of Altadena was unanimously made secretary and manager of the new bud selection department. With the addition of this new department, which is one of the most important matters yet undertaken by the association, the work of the secretary will be so increased that the members at their recent annual meeting voted to employ some one whose whole time should be devoted to it.

The fall meeting was set for October 9 at Santa Ana.

The annual report covering the October meeting at Santa Barbara and the recent annual meeting at Los Angeles will be published immediately. This report is to include all of the papers and discussions of the two meetings. The membership of the association has grown from 216 to 335 during the past year.

GRAPE EXCHANGE ELECTS OFFICERS

The California Grape Growers Exchange came into existence on May 18 when articles of incorporation were filed with the county clerk of San Francisco and the secretary of state at Sacramento, starting with a membership of 350 growers owning or controlling 20,000 tons.

The officers for the ensuing term are E. M. Sheehan, president and manager; C. E. Humbert and Frank T. Swett, vice-presidents; H. F. Stoll, secretary, and George M. Bowles, treasurer.

The board of directors includes C. E. Humbert, representing Lake, Mendocino and Sonoma Counties; E. A. Flanagan, Napa and Solano Counties; Frank T. Swett, Alameda and Contra Costa Counties; A. E. Haentze, Santa Clara, Santa Cruz and San Benito Counties; Andrew Johnson, Yolo, Sacramento, Placer, El Dorado, Yuba and Sutter Counties; T. H. Kewin, San Joaquin, Stanislaus and Merced Counties; C. E. Crawford and E. M. Sheehan, directors at large, and George M. Bowles, representing the state market director.

E. M. Sheehan, Frank T. Swett and George M. Bowles constitute the executive committee; T. H. Kewin, Albert Haentze and Andrew Johnson will be the auditing committee. The depository for the funds of the exchange will be the American National Bank of San Francisco.

The board of directors will meet and fix the minimum price at which the different varieties of grapes will be sold in the different sections represented by the membership.

AIDING IN BUD SELECTION

The work of the Bud Selection Association is to be facilitated by the cooperation of the federal department of agriculture. We have letter from Prof. A. D. Shamel, who only recently returned from a period of sugar cane investigations in the Hawaiian Islands, in which he says:

"We are planning to concentrate this summer on deciduous and bud selection studies. We expect to begin performance record studies with individual trees much in the same manner as those which have been carried out with the citrus. Much of this work—in the beginning, at any rate—will be done in the central and northern part of the state. We are planning to cooperate actively and energetically with the California Nurserymen's Bud Selection Association, of which L. B. Scott is manager. While difficulties have been and will be encountered in developing this pioneer project, as is the case with all similar projects, I am confident that this work will lead to the propagation of better trees and the improvement of the fruit industries through the growing of the best established varieties for commercial purposes and the production of more uniformly good crops of fruit from the best strains that now exist without doubt in these varieties. It is a forward movement which in one form or another is bound to succeed."

CITRUS INSTITUTE

The directors of the California Citrus Institute announce a meeting of that organization for Thursday and Friday, June 24 and 25, at the Elks Club House, Santa Ana.

A particularly strong program is being arranged dealing especially with the care of mature orange groves and with the labor situation in orange groves and packing houses.

One of the features of the meeting is to be a banquet held in the Elks dining room at 6:30 p. m. on Thursday, June 24. This banquet is to be entirely informal and is open to members and non-members alike. Plates $1 each.

Following the banquet a most interesting lecture will be given by W. S. Jones of Claremont on the general subject of water conservation. Mr. Jones is an engineer of very wide reputation and has done more towards the rational conservation of storm water in Southern California than anyone else. Data which he will present from his studies of water storage possibilities will be of very great interest and importance to all of Southern California. Citrus growers and others interested in irrigation agriculture are urged to take advantage of this splendid opportunity to hear Mr. Jones, as well as to partake of the fellowship of the informal banquet.

So far as possible those who are expecting to attend the banquet are asked to communicate with Orange County Farm Bureau, Santa Ana.

TUNE—"JOHN BROWN'S BODY"

Brother's lost a button from his $14 shirt,
Mother's sewing fasteners on her $40 skirt.
Sister's nice and comfy in her $80 fur,
And father works like 60 for his $30 per.

—Delphi (Ind.) Citizen-Times.

STANDARDIZATION

Strawberries noticeably uniform in quality have appeared in the Los Angeles wholesale and retail markets since the plan of consistent prosecution of offenders was put into effect by the Los Angeles County horticultural department. Fines totaling $1,850 to date have been assessed against strawberry and potato growers who prepared and sold "topped" packages.

Judge Chambers of Los Angeles caused $900 to be contributed to the city treasury when he fined each of 16 berry growers and two potato growers $50 after they had plead guilty to charges brought by A. E. Bottel and M. Shepherd under the deceptive pack provision of the state law.

Arrests have been made in Pomona, Long Beach and Santa Monica for deceptive packs of strawberries, and the township justice has in each case upheld the inspector's judgment and imposed a fine. Judge Underwood of Long Beach assessed a penalty of $25 and a suspended sentence of 25 days against a Japanese grower arrested by horticultural inspectors a second time, and other courts have stated that similar action would be taken by them in case of "repeaters."

San Mateo County producers are objecting to annexation of their county to San Francisco.

The Heart of the Tractor

When you come right down to the nub of the matter, while the general design of a tractor is important, still it is really only secondary. If the heart of the tractor—*the engine*—isn't right, the rest doesn't matter greatly, although every individual feature, of course, has its value and relative importance to the whole.

The heart of the International 8-16 kerosene tractor is a dependable, powerful mechanism that has every feature essential to heavy-duty, low cost operation—dust and dirt protection, valve-in-head construction, removable cylinder liners, throttle governor, kerosene mixer, high tension magneto, power-driven fan to supplement effective cooling system—features that stand for economy of operation and minimum repair upkeep.

But it isn't only the heart of the International 8-16 that is built right; every detail of its design and construction from the quickly adjustable drawbar to the wide-face, large-diameter pulley is made with the same conscientious regard for operating thoroughness—satisfactory service to the purchaser.

Confer with your nearby International full-line dealer if you are interested in a dependable tractor that is just right for general farm work and orchard cultivation—a tractor that will render low-cost service on both belt and drawbar —

International 8-16

INTERNATIONAL HARVESTER COMPANY
OF AMERICA (INCORPORATED)
CHICAGO U S A.

Western Branch Houses:
Los Angeles, Cal. San Francisco, Cal. Portland, Ore.
Spokane, Wn. Helena, Mont. Billings, Mont. Salt Lake City, Utah
Cheyenne, Wyo. Denver, Col.

Control of Root Form of Woolly Apple Aphis

THE treatment in brief is the application of carbon bisulphide mixed with water at the rate of one-half fluid ounce to four gallons. When the liquid is agitated, the portion of the material not entering into solution forms a mechanical mixture with the water. A margin of safety is thereby secured which insures the success of the treatment. Under no circumstances is it necessary to employ a stronger dosage than the foregoing. Constant agitation of the mixture is absolutely essential.

In applying quantities of liquid for the control of soil inhabiting insects, such as the root form of the woolly apple aphis, it is necessary, in order that the material may be effective, to prepare a basin around the base of the tree for the reception of this liquid in order that it may be spread evenly over the soil surface, and to insure permeation and absorption by the soil.

In preparation for the reception of the carbon bisulphide solution the basin should be made as shallow as possible, to prevent exposure of the roots. If the roots are exposed, the gas in solution is prevented from acting upon the aphids thereon, and the treatment is thereby rendered incomplete. The bottom of the basin should be absolutely level, with the soil heaped up around the edges to confine the liquid to the area undergoing treatment.

In order to simplify the placing of the liquid, strips of galvanized iron 12 feet in length and 5 inches in width, providing for a circular basin 4 feet in diameter may be utilized. After leveling the ground about the base of the tree one of the strips of galvanized iron is placed with the ends overlapping three or four inches and the dirt heaped up around the outer edges. This gives a level basin for the reception of the liquid and confines it to the area to be treated.

The success of this treatment depends on the one essential, that sufficient liquid be used. Experiments carried out for the purpose of obtaining data on this point demonstrated the general efficiency of three-fourths of a gallon of liquid per square foot of soil treated. This is equivalent to about one and two-tenth inches of water.

This quantity of liquid, in the majority of cases in moist soils, and regardless of the soil type, will penetrate to reach the aphids infesting the roots at the lower levels. This condition is due to the diverence in the depth of infestation in the various soil types by the woolly aphis. In general it may be said that the root infestation by this insect occurs at greater depths in light soils—for instance, the shale loams—than is the case in heavy soils, such as the clay loams. On the other hand, a given quantity of liquid will penetrate a given soil in proportion to the depth of the aphis infestation in that soil. For this reason a standard recommendation can be made as to the quantity of liquid required for all soil types.

The treatment may be used in either dry or moist soil, but is less laborious in the latter. If the ground is well drained, the best results are obtained after a heavy rain, when the soil is saturated, since a given quantity of liquid will penetrate deeper in moist soil than in dry soil, thereby resulting in a more thorough control.

When the liquid is applied to dry soil, most of the liquid, (when used at the rate of three-quarters of a gallon per square foot) is taken up and retained by the first few inches of dry top soil. In order to insure the death of the aphids in the lower levels of the soil under these conditions it is necessary to use a much larger amount of liquid per square foot of area treated, with a consequent increase in labor and cost.

FRUIT STOCKS FROM ORIENT QUARANTINED

The secretary of agriculture has issued a quarantine, effective June 1, prohibiting the importation of fruit stocks, cuttings, scions and buds from Asia, Japan, the Philippine Islands and Oceania. This quarantine was issued in response to a hearing held at the department in Washington, March 9, and is for the purpose of excluding from the United States diseases and insects which are known to infest such materials in various oriental countries. These pests include cankers, blister blights and rusts, the Oriental fruit moth, the pear fruit borer, and the apple moth.

This quarantine has very little commercial significance, as the importations involved are limited in quantity and of minor importance. Such imported fruit stocks and cuttings have hitherto come chiefly from France or other European countries, and only recently have some requests for permits for the importation of such stock from Japan been received.

Enough is known of the insects and diseases which attack such trees in the Orient to indicate the extreme undesirability of opening up general commercial importation of such articles. Furthermore, no adequate survey of these countries has been made, and the diseases which are not known probably outnumber those which are known. It will still be possible under Quarantine No. 7, to which this action is an amendment, to import the articles prohibited through the agency of the department of agriculture and under full departmental disinfection and control to meet all legitimate needs for the introduction of any new varieties or strains of necessary stock which would otherwise not be available for horticulturists in this country.

SUGAR SAVING SUGGESTIONS

(Continued from Page 899.)

bottom in a wash boiler or large pot containing enough water to rise to about one-half or two-thirds the height of the jars. Place the lid on the boiler and heat the water to boiling. After the water boils, continue the heating for 20 minutes for most fruits. Pears, apricots and clingstone peaches require 25 to 30 minutes unless very ripe. Remove the jars and tighten the caps while the fruit is still boiling hot. Wax top cans may be used in the same way if the wax is not applied until the cans are taken from the sterilizer after sterilization.

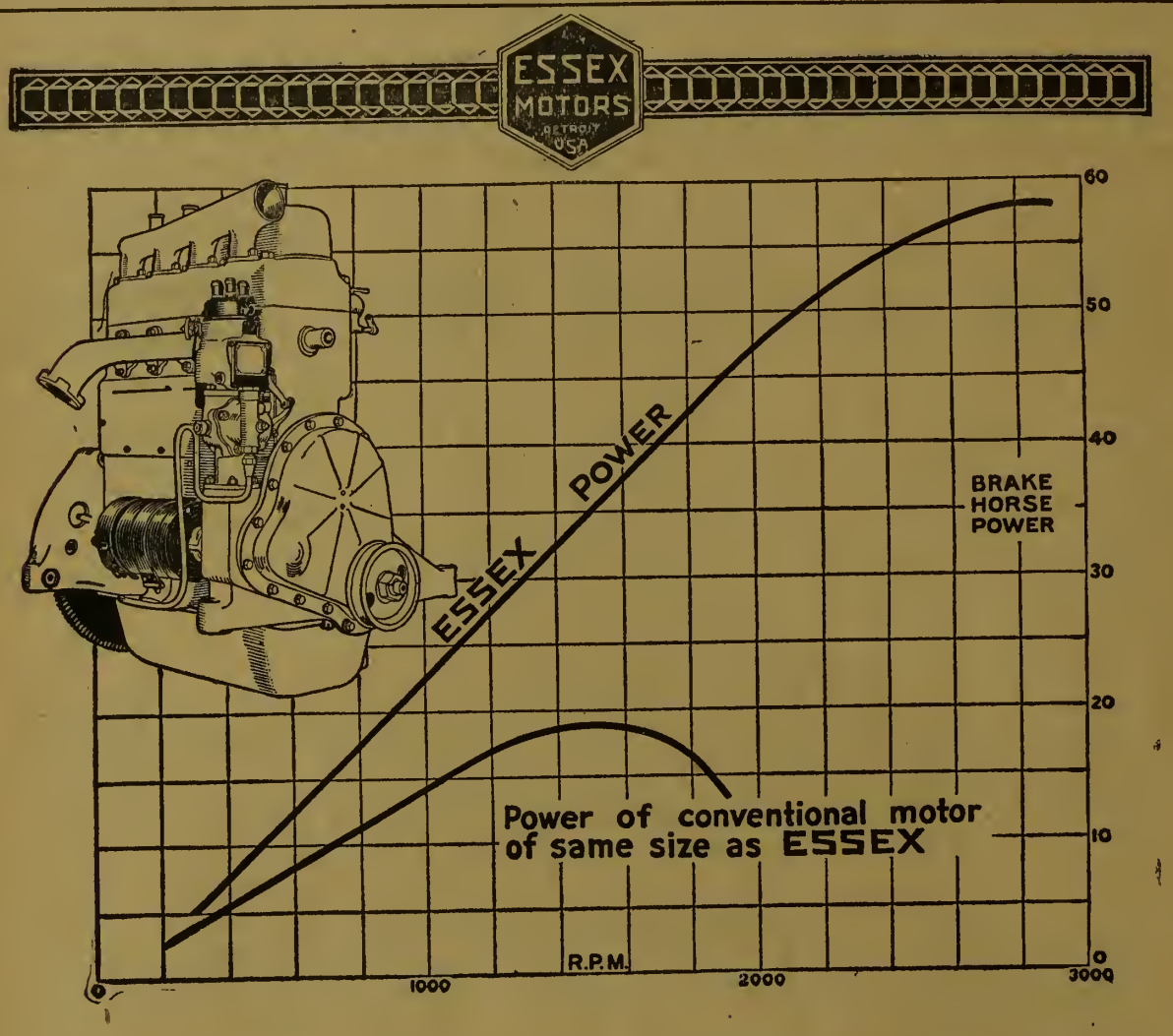
This is what is usually called the hot pack method. The cold pack method described below can also be used, but has certain disadavantages for this purpose, as more water is necessary and the sterilization is less certain.

Canning With Sugar Substitutes

The additional sweetness required in some cases and for some tastes can be obtained by the use of sweet substances other than sugar. Of these obtainable in the market, the principal are corn and other syrups, and honey.

If the hot pack method described above is used, one-fourth to one-half a large cup of syrup should be added to each pound of sweet fruit at the preliminary boiling. For acid fruit about twice this amount may be needed. Where necessary a very small quantity of water to prevent scorching should also be used.

Where syrup is used the cold pack method can be employed. This differs from the hot pack method simply in the omission of the preliminary cooking in an open pot. The prepared fruit is packed directly in the jars or cans and then covered with a liquid made by mixing and heating a cup of syrup with two to three cups of water, according to the sweetness desired. The liquid is added while boiling hot. To avoid breaking glass jars this hot liquid must be poured slowly and carefully into the center so that it does not come in contact with the glass un-



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(199)

til it is partially cooled by the cold fruit.

The sterilization is then carried out in a covered boiler, as already described for the hot pack method.

The only advantage of this method is that most fruits can be made to retain their form a little better. Its disadvantages are that it requires more water, which takes up valuable space in the jars; it is often difficult to expel all the air from the jars and there will, therefore, be an unnecessarily large unfilled space below the cap; it requires more fuel for heating; and, finally, the sterilization is less certain, owing to the difficulty of estimating how long it takes for the inner parts of the fruit to reach the boiling point.

Use of Fruit Juices in Canning

Many fruits contain more juice than is necessary to cover the solid parts of the fruit in canning. This juice which remains over after canning may be used instead of water or syrup in canning other fruits which are deficient in juice.

Grape juice or juices from other fruits may be prepared by crushing the fruit or passing it through a food chopper, heating it to the boiling point and then separating the liquid from the solid part by pressing and straining through a cloth or jelly bag.

The objection to grape juice, and some others for canning is that they are often too acid. The acidity may be diminished by adding two level teaspoons of precipitated chalk to each gallon of juice while boiling hot. After stirring for several minutes the juice is strained through a good jelly bag and is then ready to use as a substitute for syrup in canning. The chalk can be obtained cheaply at a drug store and is perfectly harmless. Instead of chalk, baking soda may be used in the same proportion and without straining. Very ripe grapes in the hotter regions do not usually have an excess of acid.

In making jellies, jams, preserves, etc., an increase of sugar is an essential part of the process and not simply a matter of taste, as in canning.

Jellies and Marmalades

To make jelly, a fruit such as apples or red currants containing sufficient pectin and acid is necessary, together with an amount of sugar about equal to the juice.

The fruit is boiled until tender with a little water or fruit juice, pressed in a coarse bag and then cleared by passing through a jelly bag. If low in acid, a little lemon juice is added and then three-fourths to a whole cup of sugar to each cup of juice. The juice is then boiled. If it boils at 220 degrees Fahrenheit, it is poured immediately into glasses. If it boils at a lower temperature than this, the heating is continued until by evaporation the boiling point rises to this point. Full directions are given in an illustrated leaflet on "Fruit Juices and Jellies," published by this station.

The large amount of sugar needed in jelly making may be saved by substituting two-thirds cup of corn syrup, honey or fruit syrup for each cup of sugar.

The use of the sugar may be deferred by bottling the juice before the addition of sugar and sterilizing in exactly the same way as described under canning. This juice can be mixed with sugar or syrup later and made into jelly when required.

Marmalades are simply jellies containing pieces of fruit. Sugar can be saved in their preparation exactly as with jellies.

Jams, Fruit Butters and Preserves

These products require about the same proportion of sugar as jellies and it can be replaced by corn syrup, fruit syrups or honey in the same way. Two-thirds of a cup of syrup is equivalent to about one cup of sugar.

Candied Fruits

Corn syrup or honey may be substituted entirely for the sugar recommended in candied fruit recipes.

Fruit Drying

Nearly all fruits can be dried and the use of sugar postponed until they are consumed. Sun drying, for warm, dry localities, is described in "Methods for Food Preservation III"; methods of drying for other localities, in Farmers' Bulletin 841, U. S. A. If thoroughly ripe fruits are dried, very little sugar is needed in cooking the dried product.

Sugar Substitutes

Syrups and honey can with advantage be used instead of sugar in cakes, cookies, bread, pies, etc. Dried fruits, especially raisins and prunes, when cooked with rice and cereals, often make sugar unnecessary. Excellent candies can be made without sugar by a skilful use of raisins, dried fruits, and nuts. Suitable recipes are found in current issues of many household magazines.

Lemonade and coffee, oatmeal and other breakfast cereals can be satisfactorily sweetened at the table by means of colorless corn syrup and other syrups of good quality.

It has been found that the use of a little salt makes a much smaller amount of sugar acceptable in jams and other preserves. Dr. Langworthy recommends the use of one-fourth ounce of salt with each six ounces of sugar to each pound of fruit.

Saccharine, which is 500 times as sweet as sugar, gives a sweet taste, but its use is dangerous to health. It is a medicine, not a food.

Granulated Sugar Not Necessary

For the maintenance of bodily health, vigor and efficiency sugar is only one of several carbohydrates utilized by the body. All of our carbohydrate needs will be amply supplied if we eat generously of starchy foods such as rice, potatoes, and corn products, even if we should entirely eliminate all sugary substances from our diet.

Sugar Equivalents

One cup of sugar may be replaced as regards food value by anyone of the following:

One cup of maple syrup, four-fifths cup of Karo, one cup of sorghum syrup, one cup of honey.

The following table gives the composition of some of the more important sugar substitutes.

	Water Per Cent.	Carbohydrates Pct.	Fuel Value Calories Per Lb.
Sugar, gran., cane or beet, C. P.		100.0	1814
Sugar, brown		95.0	1723
Sugar, powd., free starch		100.0	1814
Maple sugar	5.0	93.0	1685
Maple syrup	34.2	64.0	1160
Honey	18.2	81.2	1470
Molasses, cane	25.1	69.3	1300
Corn syrup	19.0	80.5	1468
Sorghum syrup	28.6	63.3	1154
Ref. malt syrup	20.0	75.0	1360

(From Sherman's Food Products.)

Sugarless Candies

These may be made from dried fruits and nuts. The following recipes are typical:

Stuffed dates may be prepared by splitting the fruit lengthwise and filling the centers with chopped nuts. Wrap in oil paper to preserve the texture.

Fruit squares and dipped dried fruits may be made by grinding finely such dried fruits as seeded raisins, dried figs or seeded prunes in a food chopper, adding one-fourth this amount of shredded or ground cocoanut or other nut meats, moistening with fruit juice, shaping into balls or squares and rolling in powdered sugar or dipping in melted chocolate.

Carameis may be made of two cups of sorghum or Karo syrup, one and one-half squares of chocolate, one-half cup of condensed milk or cream, two tablespoons of vinegar. Cook until it will form a hard ball when dropped into water, pour on buttered pan and when cool cut into squares and wrap in waxed paper.

Sugarless Cakes

May be made by substituting refined malt syrup or corn syrup or other syrups in such recipes as the following, given by Professor Mary Robinson of Missouri: One cup of syrup, one cup of sour milk, two and one-third cups of flour, one-fourth cup of melted fat, one and one-fourth teaspoons of soda, one-half teaspoon of salt, one teaspoon of ginger, one-half teaspoon of cinnamon, one-half teaspoon of all-

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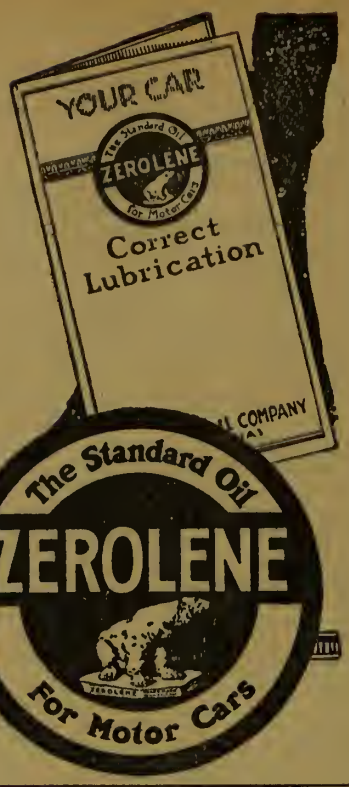

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spice. In other recipes similar replacements of sugar may be made.

Ice Cream Without Sugar

Easily and satisfactorily made by use of such recipes as the following: One cup of syrup such as maple syrup, malt syrup, corn syrup, etc., or honey; three cups of milk, three egg yolks. Make a custard of egg yolks and milk, add the syrup, and freeze.

Retail prices of various syrups show that corn syrup is the only syrup that furnishes sugar at a price appreciably less per pound than cane or beet sugar. This means that there is very little economy in purchasing many varieties of syrup to replace sugar. Corn syrup sugar is less sweet than cane sugar—if enough of this syrup is used to furnish the same sweetness as given by a given amount of sugar almost twice as much of the corn syrup sugar will be required. Therefore, for mere sweetening purposes corn syrup is more expensive than sugar. For preserving purposes, however, the corn syrup is cheaper. It is stated that malt syrup can be produced as cheaply as corn syrup. It is sweeter and more palatable than corn syrup, but has to date only been produced for bakers' use in this state.

Most table syrups are made from cane or beet sugar and water, a fact which explains why they must sell for a higher price than sugar. Raisins at present sell for 23 cents per 15 ounce carton, a price, when sugar content is considered, greater than that of sugar itself.

Summary

No adult should eat more than four tablespoons of sugar per day. A part of this may be supplied by sugar substitutes such as syrups, honey, dried fruits, etc.

Use cereals or other starchy foods to replace sugar in the diet. These may entirely replace sugar without serious consequences to bodily and mental vigor.

Reduce to a minimum the sugar used in beverages such as tea, coffee, and cocoa. Many beverages are served sweeter than they need be and sugar is often left in the cup.

Cereals such as boiled rice, wheat flakes, rolled oats, etc., if thoroughly cooked and properly salted, are palatable without sugar. If sugar is desired, add dried fruits at time of cooking.

For desserts, use recipes calling for less sugar, substituting corn syrup, malt syrup, or other syrups where possible in such recipes. Serve more fresh fruits for dessert. Omit rich desserts calling for large amounts of sugar.

When sugar is craved, buy fruits. The substitution will be better for the body and will satisfy the need for sweets.

Saccharine is a medicine, not a food. It should not be used except on a doctor's prescription and for patients who cannot assimilate sugar.

Can fruits after they are dead ripe and without sugar.

Put up jelly juices in tin or glass and take a chance on prices of sugar dropping later. Then make up the jelly.

Dry fruits instead of canning in localities permitting this method. Use more dried fruits to replace sugar in the diet.

June in the Vegetable Garden

Southern California

By D. F. Reichard

THERE are reports from the government crop reporting bureau that the indications are that this year's crop will not be sufficient to supply home demands, let alone have a surplus to ship abroad. This is a very serious condition, and the one method to overcome it is to increase as much as possible the yield of the home gardens. The department of agriculture asks all who have the space to put in a garden and produce something for home consumption. This can still be done, especially on ground that has been cleaned or worked up earlier in the season. Land that has had no attention and been allowed to go to weeds, by this time is almost, if not entirely, dried out and will take a lot of water to soak up. Unless water is cheap the expense will be more than the crop would yield. But on a plot that has been under cultivation the moisture will not be used up and with a reasonable amount of irrigation can be put into shape for a dandy summer garden that will produce good, substantial food.

At this season of the year seeds should be put into the ground as soon as possible after the soil is made ready. Set plants as late in the day as practical and be sure to put water at the roots. The cool night air will revive them so that the plants can better stand the drying air of the day.

June is a good month to plant vining plants. Make generous plantings of Pike's Peak or Hubbard squash for winter use, Early White Bush or Fordhook summer squash. Chicago Pickling and Davis Perfect cucumbers planted at this time will be ready to pick during August and September. This is the best month to put in casabas; muskmelons and watermelons planted at this time come in for use on those warm September and October days.

Plant freely of the more substantial food crops—corn and beans. These will be ready for use in from eight to 12 weeks. Plant Oregon Evergreen or Country Gentleman sweet corn, Stringless Green Pod or Kentucky Wonder beans or any variety of field corn or beans that will mature before frost. Put in small plantings of the hardy vegetables for continuous supply. Set plants of peppers, tomatoes and egg plant for late crops.

When the garden needs wetting do so by running the water slowly in furrows beside the row of plants. Cultivate as soon as the soil breaks up nicely without sticking to the tools.

Watch out for garden enemies and plant diseases. At first appearance of either make an immediate attempt to eradicate it. If any plants are backward, work in a small quantity of commercial fertilizer around each plant as a stimulant.

Arizona

By M. E. Bemis

THE garden crops which may be planted in June are even more limited than those in May. The principal work of the gardener for June will be preparation of the land for beans to be planted in July or August or getting the land ready for later crops.

It is true that it is not yet too late to set out tomato or sweet potato plants although the best results cannot be expected from plants which are put out in June. Land that is idle or which would prove troublesome from weeds may be greatly benefited by having grown on it a small crop of cow peas. Casabas and pumpkins may be planted but it is a little late even for these to do their best.

The crop for the garden, which promises most at this season of the year, is corn for roasting ears. Fortunately there are two varieties which do extremely well in southern Arizona. One of these is the old and well known variety of Mexican June. That which is commonly grown here has been improved by selection at the Sacaton experiment station where the long staple cotton was brought to its present stage of perfection. This variety of Mexican June corn does exceptionally well. Unlike most field corn it makes splendid roasting ears. Another variety is the Pima. This in many respects is quite similar to the Golden Bantam sweet corn, although nearly white. This variety, so far as

we know, originated with the Indians and has been improved to some extent by selection. The fact that it has been grown in the arid sections makes it of inestimable value as a sure crop. The ears are small but the plant is prolific. It grows to a height of only three to five feet usually and may be planted in any month of the summer season and roasting ears are frequently obtained in ten to eleven weeks from planting.

Northern California

By A. R. Gould

NEW plots may be sown this month for a successional supply. As the earlier crops mature they should be cleared off, the ground limed and manured and put into good working condition for later crops. Do not let the ground lie idle too long. Make it produce, but keep it well supplied with manure. Bear in mind that every crop you take off removes many of the essential elements from the soil which must be put back. Considerable areas in this state have been cropped year by year and no thought has been given to the manure question. The result is impoverished soil. Certain important soil elements for crop production are carbon, oxygen, hydrogen, nitrogen, sulphur, phosphorus, potash, lime, magnesia and iron. All these are absolutely essential and a deficiency of any of the soil elements acts detrimentally to the growth of the crops. The need of manuring the soil is apparent and where it is not possible to obtain farmyard manure a well balanced concentrated artificial fertilizer must be used. Soil bacteria are working while we sleep and a fertile soil is full of these microscopic organisms whose purpose is to make the chemical elements soluble for the roots of crops. These organisms can only perform their work in a fertile soil or one that contains a proper amount of humus or organic matter such as decayed leaves or farmyard manure. To try to raise crops on impoverished soil or sow seeds is to waste time and money and get no results.

Lettuce

Translant those sown last month in rows six inches apart in the row having the rows well irrigated. Towards the latter end of the month sow Los Angeles and California Cream Butter.

Beans

On well prepared ground sow Golden Wax, Refugee, Canadian Wonder or Stringless Green Pod, all good dwarf varieties. White Tepary is a small white which will grow on sandy soils with little water. As a shell bean it is excellent. Varieties of pole beans to sow now are Kentucky Wonder Wax and Burger's Green Pod. These should be sown in rows two feet apart, and after they are several inches high they should receive frequent cultivation through the rows. If aphis appear on the young shoots, spray with Black Leaf 40.

Tomatoes

These should be now getting fairly well established and will require cultivation around the plants and a little water, but after this month they should not require much more irrigation. If they are to be allowed to ramble along the ground, very little attention will be required, but if the training method is adopted they will require stakes for support and one to three main stems may be run up.

Potatoes

Cultivate between the rows of the early varieties, and the soil should be drawn up toward the plants, thus protecting the tubers. Any plants showing signs of decay or disease should be removed and burned. Burbank may be planted as a late crop on well prepared soil. Secure only clean seed.

Parsnips

This is an excellent vegetable for fall use and may be stored to keep through the winter. Sow the seed in rows 18 inches apart in fairly rich soil. Hollow Crown is the best variety.

Squash, Cucumbers and Melons

Keep these well supplied with water to get them established and cultivate around the plants.

Corn

Continue to sow such varieties as Country Gentleman, Golden Bantam and Golden Cream. Sow in small hills two to three feet apart each way and as the seedlings appear thin to three plants to each hill.

Leeks and Celery

There is still time to plant these out in prepared trenches. Rich soil is very essential. The plants should be set six to nine inches apart to allow for development. See that the soil is in a moist condition before planting out. Best varieties are: Celery, White Plume and Golden Self Blanching; leeks, Dobbies Champion and American Flag.

Beets

Sow for succession in rows 12 to 18 inches apart, later thinning the plants to four inches apart in the row—Improved Blood Turnip and Crosby's Egyptian. They require a rich, moist soil to thrive.

Cauliflower

Make up a small seedbed in a semi-shaded position and sow California Wonder or Early Snowball. In the meantime thoroughly trench your plot with manure 18 inches deep, as the success of this crop depends on soil preparation.

Turnips

Sow Early Snowball and Purple Top Flat Dutch, in rows 12 to 18 inches apart, and later thin to four inches apart in the row.

Onions

It will be necessary to keep the hoe or wheel cultivator busy. Irrigate twice during the month.

Strawberries

This plot will require some irrigation to keep the plants in fruiting condition. If they show signs of being attacked by red spider or mite, spray with liquid sulphur.

CHANGING MARKETING PLAN

The California Walnut Growers Association announce that they have booked orders for over 10,000 tons of walnuts, 1920 crop. They have decided to discontinue offering futures. The plan to be followed this year in outline is:

First, that any contract already made by dealers may be cancelled for the 1920 crop, provided the request for such cancellation may be received prior to June 1. Then about September 1 allotment will be made to various brokers of amount and grade of goods they may offer in this territory. No orders will be taken, however, until opening prices are announced, presumably October 1. So far as can be judged this early the coming crop of walnuts will be somewhat smaller than 1919 but still large. Many of the walnut sections have been blessed with sufficient rainfall, and while the crop may set slightly later than last year, the association through its field department is urging the best of care and the deepest of irrigation to perfect the crop.

The association will guarantee its opening prices against its own decline on all shipments in transit or on accepted orders unshipped up to the date of a possible decline, but in case of an advance, all previously accepted orders will be charged for at the price prevailing when the order was accepted by the association.

POTATO FLOUR

A recent article published by the British board of agriculture deals with the production of potato flour or farina, and the value of this industry to the farming interests in offering a steady market of wider scope than when supplying potato residues which can be used as feeding stuffs. A brief discussion is given of the choice of varieties of potatoes for this industry, of the manufacturing process, and of the type of factory required.

MEXICAN TOMATOES

The state of Sinaloa, on the west coast of Mexico, furnishes the entire supply of tomatoes exported from Mexico. Last year this crop was about 780 carloads, of which more than 500 cars went to the United States. The 1920 crop, now nearly all shipped, is considerably larger.

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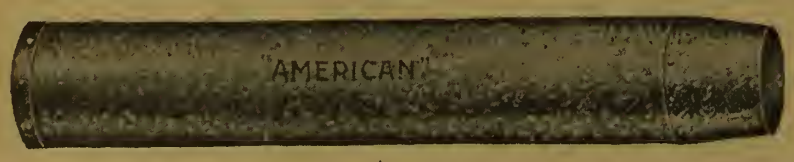

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June in the Ornamental Garden

Southern California

By Ernest Braunton

JUNE is not a planting month. For a succession of flowers some things are held over—dahlias, gladiolus, and cannas. Plants from pots, cans, boxes and balled plants still may be moved, as they may be at almost any time of the year. Carnations, hollyhocks and violets are some of the perennials which may be planted, and quite a list of annuals may be sown or planted. The writer is putting out asters in his own garden.

But if June is not a planting month it is one fraught with much care and many responsibilities. The constantly increasing heat of summer falls heavily on many plants that are now making their heaviest growth. Water must be supplied in heavy quantities. It may be that in August we shall begin to rest roses and a few other plants for an autumn spurt in blooming, but June growth of all sorts must be encouraged and fostered.

There is no month in the year that plants and soils need more protection from heat. Shade, whitewash, mulch, should be added to copious and frequent waterings. The surface soil must be lightly but often stirred. Cultivation conserves much water, aside from killing weeds and aerating the soil. While thorough watering through irrigation must be practiced, light morning sprinklings are cleansing and invigorating and a very light one may be given on hot evenings, to freshen plants taxed by the noonday sun.

But where days are fiercely hot and nights quite cool do not water at night. The contrast in temperature between noon and night already is too great for many plants. Do not make the range greater with a wet soil over night. Let the soil remain dry and warm over night, as the sun left it, and give plants a light spray in early morning so they will be refreshed for the day's trial and the air kept cooler for several hours. On the other hand, where nights are hot, and with special plants, watering at night is desirable. All day the sun pulls moisture from soil and plant. Supplied at nightfall they have all the hours of darkness in which to drink and restore vitality. Keen judgment and considerable knowledge of plant life are the proper basis for June garden practice and no hard and fast rules may be laid down.

Northern California

By A. R. Gould

A HOME place without flowers is like a world without sunshine. No matter how large or small the house is, it should be set in a garden. Many people we meet love flowers, but excuse themselves from having many in their garden for the reason that they have little time, knowledge or luck in raising them. They think it is necessary to be an expert to produce flowers, but such is not the case. The garden columns of the Cultivator provide the knowledge necessary month by month, and with a little hard work, a few seeds and a good water supply a gay garden and healthy pastime will be within reach of any reader. There is still time to prepare and plant a garden and still have flowers this season. You may plant dahlias by tubers or raise them from seed sown at once in pots of sandy soil. Plants of zinnias, asters, marigolds, cosmos, ageratum, lobelia, stocks, snapdragons, verbenas, sunflowers, calliopsis, larkspurs or salpiglossis may be secured from your nurseryman and set out, and many of the above produce fine cut flowers.

Nasturtiums

For a quick showing and one which will repeat itself by self sowing, nasturtiums are hard to beat. They thrive on almost any soil and once established require very little attention. Seeds may be sown of the climbing types for banks or covering fences, and the dwarf types are useful for massed effect in flower beds or borders. The dwarf variegated leaved are also very pretty. Sow the seed broadcast and cover about one-fourth of an inch deep, watering in immediately after sowing.

Pruning Flowering Shrubs

This is often neglected, but it is an important operation, nevertheless. After they have finished flowering the old flowering shoots must be cut back on all subjects. This will encourage the new flowering shoots to develop. Such subjects as Philadelphus, deutzias, lilacs, etc., will need this attention this month. Use sharp pruning shears and cut back to a bud.

Treatment of Newly Planted Trees and Shrubs

See that these have a regular supply of water and cultivate around the trees to conserve moisture. A mulching of farmyard manure to the roots will be of great assistance and hold the moisture for the season.

Water Gardens

Nothing is more inviting during the hot, dry season than a pool of water, and a few aquatics or water loving plants are very interesting to grow. The pool may be of any size; some even use a small tub sunk in the ground. A small cement pool is not difficult to construct. The depth should be from 18 inches to two feet, and in the pool water lilies may be grown. Of course to grow any large variety to have a range of color a large pool would be needed, but for the small pool, eight or ten feet in diameter, the "baby types" are suitable. These will give a range of color—lilac, yellow, white and rose. The plants should be placed in boxes or large flower pots having a mixture of good soil and cow manure, and the water must cover the rim of the box or pot by several inches. Water loving iris (Japanese) and cyperus (an aquatic grass) should be planted by the edge of the pool. Water lilies love the full sunlight, hence it is not advisable to build the pool in a shaded position. Goldfish, if kept in sufficient quantity, will keep the pool free from mosquito larvae which are so troublesome in still water.

Roses

These will need a good mulch of farmyard manure at the roots, but first cultivate and water thoroughly. This will help them through the hot summer. Cut off all dead flowers and seed pods. At the first sign of mildew spray with sulphur solution or dust with flowers of sulphur. The former should also be used as a preventive of rose rust but must be used early in the season, giving the dormant bushes several applications to be effective. For aphis, or green or brown fly, spray with Black Leaf 40. Tie in any new shoots of climbing roses, as these should be making considerable new growth just now.

Begonias

Tuberous types of these should be planted out this month in a shady situation. They thrive in rich leaf soil and need a fair amount of moisture. They may be secured in single and double forms.

Dual Purpose Plants

By Ernest Braunton

THE great world war brought us to a keener realization of the value of economic ornamental plants than anything else could have done. He who had planted a chayote to cover an arbor found himself in possession of excellent summer squashes at a time when all vegetables were at a premium. Likewise the grower of passion flowers, if he had the right species, could make jellies or jams or have fresh fruit of a pleasant sub-acid flavor.

The writer considers it superfluous to offer any argument on the double value of such plants and wishes only to ask the question: If one may have fruit bearing plants of the highest ornamental value, why plant those having only ornamental value? To be sure, gardens need a great variety of flowers and plants for foliage effect. but let us first procure those of economic value as fundamentals and then introduce variety as incidentals, to give brilliant color or striking effect.

For convenience we will consider some of the plants in alphabetical order and call attention to their special merits or uses rather than group them for general use. Aberia caffra is known to us as the Kei apple, from the Cape of Good Hope. It grows a fleshy, globular fruit two inches in diameter that is excellent for conserves, pickles, etc. The tree is somewhat spiny and therefore is good for hedges. Two species of Actinidia are grown for their excellent fruits, though both are climbers of unusual value—broad handsome foliage. All species are grown as ornamentals but A. arguta and A. Chinensis are the edible species; the latter is called Chinese gooseberry and used for the same purposes as the gooseberry proper. Its fruits are sometimes two inches long. In some cases only one sex of flower is on a plant and if one so finds another plant of the opposite sex must be procured.

Akebia quinnata has been called the climbing pomegranate, though the name is not a good one or of good application. It bears an oblong fruit, four or five inches long, filled with a rich, tasty pulp in which are imbedded the numerous seeds. Only in this way does it at all resemble the pomegranate and it is not closely related to that plant. It is a fine ornamental vine thriving best in partial shade. The edible bamboo was full described in a recent Cultivator, is hardy throughout California and should be extensively planted.

Carissa grandiflora, the Natal plum, is the finest hedge plant grown, in appearances at least; one of most handsome foliage. For a large part of the year it bears, sparingly, a crop of brilliant scarlet berries the size and shape of pigeon's eggs. When fresh they are very palatable; cooked, they cannot be told from sweetened cranberry sauce. Has always fruited best under coastal conditions in California but plant thrives in all localities. The cherimoya was recently fully treated in the Cultivator and is a fine, small fruit tree for the warmer sections only.

When a handsome deciduous shade tree is desired one cannot do better than plant a large fruiting European chestnut. As these trees planted singly are often self sterile, that is, will not bear, it is better to plant two trees, even if close together. The citrus family is too well known to our readers to need listing, but among the newer sorts the tangelo and dwarf Chinese lemon are jewels. Willow-leaved mandarins. kumquats and tangerines are highly ornamental and all living in the warmer citrus sections should have a seedless lime, the best of all for lemonade.

Dates: Who does not like to keep a "date?" The writer believes a careful study of the varieties now grown will reveal one or more that could be profitably grown over much of California for a family tree. The dates might or might not be of good commercial value but sufficiently good for home consumption.

The eugenias in several species should be grown in every garden. They are of the highest decorative value and are extensively planted for "only this and nothing more." But more than a half dozen species bear edible fruits, and it is said that a late comer, E. Hookeriana, is the best of all. It also remains free from insect pests while nearly all other species are infested with scale.

Feijoas and other guavas are pretty well known; all are of good ornamental value yet worth still more as fruit bearers. All do best under heavy feeding and considerable pruning. Of the lot the feijoa is the hardier and the budded varieties are excellent. Seedlings are unprofitable. The strawberry guava still is the more popular and its yellow variety (or species lucidum) is also much in demand. The larger guavas are for practically frostless localities only.

When covering an arbor for summer shade only one may well make use of grapevines, for in no other situation will grapes do better. Thornless blackberries will serve the same purpose, and if for evergreen shade we have a new evergreen raspberry from the Himalayas. This novelty still wears its bontanical name of Rubus ellipticus. It bears yellow berries of fine quality, not firm enough for distant shipping but delicious for home use and the plant is a true evergreen, standing considerable frost and growing rampantly.

Jujubes are deciduous shrubs but decidedly ornamental when in full foliage and quite handsome when in fruit. They are hardy throughout California, good bearers of good fruit but do not seem to be for sale anywhere. Loquats are ornamentals for all parts of the state and seldom is a seedling of little value though it perhaps is better to plant the named budded varieties. Macadamia ternifolia is the Australian nut tree, of first class value for either fruit or decorative purposes. It is hardy and drouth resistant. It should be kept well watered for the first few years but fruits best under dry treatment.

In frostless spots one may grow mangoes, but as hardier varieties are introduced we may extend the planting zone of this most excellent tropical fruit. At present the Haden is the best variety to plant. In dry situations the olive makes a fine shade tree with edible crop and the carob is not without value for like situations. Papayas from the tropics will stand but little frost but failures are more due to "wet feet" during winter, a condition from which the papaya quickly suffers. In appearance the plant is palm like, with large luxuriant leaves.

Persimmons are of good ornamental value when in leaf and a tree well loaded with fruit is a glorious sight after the leaves have fallen. There are many good varieties. The pistachio nut tree will also qualify as an ornamental large shrub or small tree, while for a deciduous shrub the pomegranate has few superiors. Last, not least, where a large spreading shade tree is needed during summer a walnut of any kind has few equals.

WHITEWASH MAY PREVENT SUNBURN

It is quite impossible to state which method is best to prevent sunburn of trees. If moisture is supplied evenly throughout the season in quantities and at times to maintain the proper amount of soil moisture, trees will not sunburn. There is danger if too dry or too wet. Shakes, tree protectors, or whitewash may be used with good results to reduce danger of sunburn. A good whitewash may be made as follows: 5 pounds rock lime, ¼ pound sulphur, ⅛ pound salt, ¼ pound glue. Add sulphur to lime while slaking; dissolve salt and glue in hot water and add to lime solution. Add enough water to make thick as paint. This is the formula recommended by Placer County farm bureau.

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Killing Stumps

Please give me information regarding killing of eucalyptus stumps in short time, that is, other than by digging them out green.—Subscriber, Pixley.

When the tree is cut, if the brush is piled along by the old stumps and burned, this will then prevent the stumps from suckering and usually kill them, providing one has taken care to clear the earth from the roots a short distance down. Stripping bark from stump down to larger roots is also effective. To remove stumps, dynamite is quick but expensive. Some recommend boring a one and one-half or two inch auger hole in the stump, or if a large one, two or three holes, filling with saltpeter and allowing to remain for a few months or a year when the stumps will burn very satisfactorily. Then there is the charpitting method, that is, when stump is dry dig a deep hole on one side, fill with fuel and fire. Later when briskly burning, cover over, and the stump will smolder for some days. In some cases the charring continues almost to the tips of the roots. Instead of filling with saltpeter, some have had very good success by using kerosene and filling the holes repeatedly as it is absorbed, and later burning. The use of chemicals to prevent sucker growth is not economical.

Little Housefly

Am bothered with pest of flies smaller than common housefly. They seem to remain suspended or in a group circling about on the porch, and if opportunity offers, enter the house. What kind of fly is it and how may it be controlled?

This query was referred to Prof. W. B. Herms of the University of California. He answers: "The fly your subscriber refers to is undoubtedly the lesser housefly, frequently seen hovering in mid-air or flying hither and thither in the middle of the room. Where the common housefly is encountered most abundantly in the kitchen or dining room, particularly on food, the 'little housefly' will be seen as commonly in one room as another, and very seldom actually on the 'spread' table. The writer commonly observes a half dozen or more of these little flies dancing weirdly in the center of the room midway between the floor and the ceiling. Various observers have estimated that this species constitutes from one to 25 per cent of the total population of flies in the house. The eggs of this species are deposited on decaying vegetable matter and excrement, particularly of humans, horses and cows. The larvae emerge in about 24 hours and may be recognized as compressed, spiny organisms about six millimeters long when full grown. The pupal period lasts about seven days under favorable conditions. From the breeding habits, it will be seen that control depends on the proper disposal of vegetable matter and manures. Dry matter will not breed flies, hence spreading or disposal in such manner that drying is rapidly accomplished will give good results."

Termites or White Ants

How can I exterminate white ants in my house that eat the woodwork, books and papers?—Subscriber, Calistoga.

These pests are extremely hard to control. If there is damp timber or timber lying on moist ground where they can get entrance they burrow or practically destroy all woodwork. Follow their work to the burrow and exterminate by liberal use of carbon bisulphide. This should also be used, so far as possible, in places where they are working in the wood. In confined places, destroy by saturating cotton waste or sponge with the carbon bisulphide. Clear away all dirt from woodwork and allow to become dry. Bear in mind that carbon bisulphide is combustible and even explosive and fire must be kept away while it is being used.

Sweeny

I have a colt three and one-half years old that has developed sweeny. Do not know the cause as she has been running on the range except for about four days work at plowing in a three horse team. Will be greatly obliged if you advise treatment for her. Should she be worked at all? Would it be better to keep her on the range or in the barn?—Subscriber, Cabazon.

Answer to the above is given so completely by an article by Dr. Petrie in the Cultivator of January 25, 1919, that we reprint:

Sweeny is the result of strained muscles of the shoulder. It may be caused by a slip forward or back or by a sudden jerk of the shoulder when the hub of a wagon strikes a solid object or a plow strikes a stone. At first the muscles swell, but are usually not noticed. If the muscles were properly treated at that time they would not shrink below normal and would regain their full strength, but when neglected they will shrink away and become very weak. The proper treatment in the first stages would be plenty of hard rubbing with a good liniment. This liniment would be good for such cases. Equal parts of turpentine, spirits of camphor, tincture of capsicum, ammonia, alcohol and olive oil. Shake well and rub in once or twice a day.

A method commonly used to restore shrunken muscles is to run a tape under the skin the whole length of the muscle. Cut a hole in the skin at each end of the muscle and with a long, flat needle draw the tape through and leave it there. Tie a large knot at each end so it will stay. Soak the tape with equal parts of turpentine and castor oil and leave it until the muscle is up to normal size, then remove it and wash out the wound with a good antiseptic. It will soon heal.

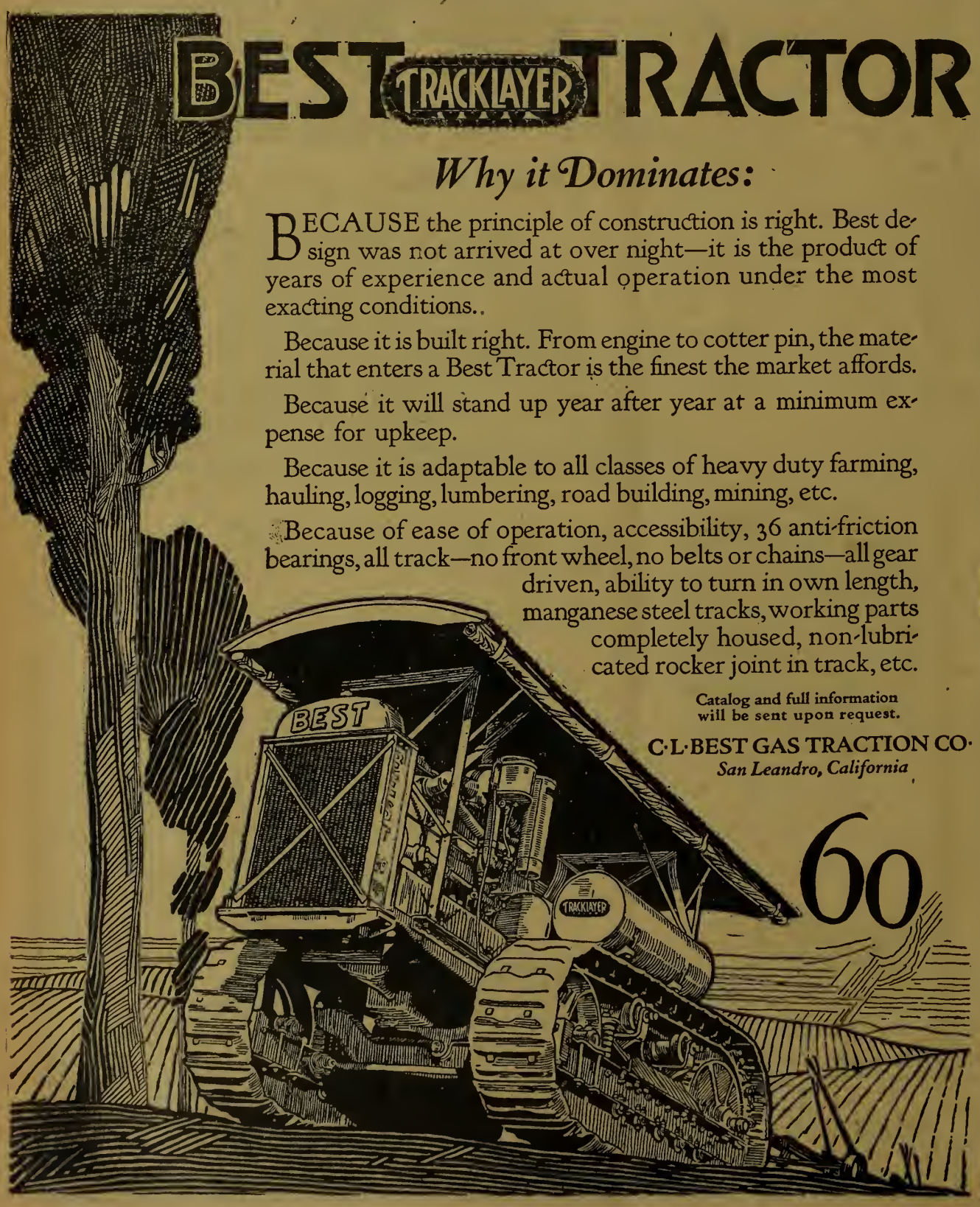
A method I use and recommend is to inject the shrunken muscle with an hypodermic syringe in several places, using equal parts of turpentine and alcohol and using 15 or 20 drops of the mixture in each place. This is a good treatment for sweeny in any stage of the trouble. It is a little severe, but will do no harm. It may have to be repeated in two or three weeks. The patient should be rested most of the time until fully recovered.

The reason for giving the several remedies is because you may not be able to follow one and then you may adopt the other. With the two latter methods you should employ a veterinarian, as you would not have the instruments to do the work properly.

If worked, it should only be with very light draft. Naturally, rest in pasture, with above treatment, would be best.

Alfalfa to Restore Soil

An Imperial Valley subscriber finds that where possible to incorporate more humus or vegetable matter in soils of that valley vastly greater returns may be secured. He asks as to advisability or profitableness of foregoing harvesting of crops for a year and devoting the year to building up the soil; that is, would it be wise to grow alfalfa during the entire sum-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mer, plowing under in the fall? If so, would it be best to sow the seed, irrigate, mow the crop as soon as it matures—that is, before the seed ripens—and allow it to lie on the ground, or would it be best to haul it off and return at time of plowing, or would it be still better to allow the crop to stand the entire summer, keeping the land well irrigated, encouraging all the growth possible?

This question was referred to Prof. R. S. Vaile of the university experiment station at Riverside. Prof. Vaile writes:

"It seems to me that the use of alfalfa on the compacted soil would be a very desirable thing. If the alfalfa is cut occasionally it will continue to grow more vigorously than if it is merely allowed to stand throughout the entire season. I believe the root development, particularly, would be better if it is cut at least three or four times during the season. The total tonnage of organic material that would be available for turning under in the fall would probably be greater than were it left standing through the entire season. The growth of the last two or three cuttings for the season would not be as great if the material is left lying on the ground as it would be if raked and hauled off each time, but the total amount to be plowed under would probably be more economically obtained by merely leaving the cut hay lie as it falls."

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Estate of Wife

Wife dies intestate, leaving husband and stepson, also brothers and sisters. Her estate is comprised of inherited monies with accumulations, said inheritance being acquired while living with her husband. What distribution will be made?—Subscriber, Los Angeles.

The estate being the separate property of the wife, one-half will go to the surviving husband and the other half in equal shares to her brothers and sisters and the descendants of any deceased brother or sister by right of representation; this distribution being made in the absence of any will. In the case of a will, property is absolutely subject to the disposition of the wife.

Estate of Husband

Husband has acquired estate during 25 years of married life. He dies leaving a wife and one son by a former marriage. What distribution is made of the estate?—Subscriber, Los Angeles.

This estate is community property; one-half goes to the wife and as to the other one-half she is entitled to one-half; the remaining half goes to the son. In such case, half blood inherits equally as whole blood.

Reciprocal Wills

A married couple have property, both real and personal, acquired during marriage. There are two children, one a son of the husband by former marriage and the other the issue of the marriage. It is desired to arrange the property so that upon the death of either, all property should go to the survivor. Will a will made out by each in favor of the other be sufficient? Would it be necessary to have an administrator appointed?—Subscriber, Arroyo Grande.

The suggestion as to the reciprocal wills is an excellent one. It will be necessary in each of those wills to mention the children and state that nothing is left them by reason of the fact that it is known that the survivor of the marriage will adequately care for them. It will also be well to name the survivor as executor or executrix of the estate, as the case may be, to act without bond. It will avoid unnecessary expense and will be the simplest and at the same time the safest manner of handling the case. It will be well, however, in drawing up any such will to go to an attorney in your locality and have it properly drawn.

THE FOLDING BED

Little Boy had returned from a week's visit to his aunt, and was trying to describe the folding bed he had been sleeping in.

"It lays down at night, mamma, and stands on its hind legs in the daytime."—Buffalo Commercial.

The average man marries with the view of settling down, but after the wedding day he is kept perspiring in wild efforts to settle up.

PRINCIPLES ENDORSED BY AGRICULTURAL LEGISLATIVE COMMITTEE

At the meeting held at San Francisco, May 25, the committee made the following statement of its principles:

Agriculture contributes so largely to the prosperity and well being of the public that whatever makes for the legitimate interest of the producer brings a corresponding benefit to the public. Federal and state laws should be enacted permitting bona fide producers of agricultural products to act together, either as corporations or otherwise, in producing, manufacturing, storing, distributing and selling their products.

Whether producers' organizations are formed with or without capital stock, have equal or unequal voting power of members, or pay interest or dividends on the capital employed, are details that should be determined in each instance by the members of the organization with due regard to the nature and extent of the industry itself and the necessities of production, storage, manufacture and distribution.

Any interest or dividends paid on capital, however, should be considered in the nature of a reasonable interest on the capital employed in furnishing the facilities through which the members transact theelr business; such interest or dividends should not be considered as a profit earned by the capital contributed but rather as a fair return to the members for the use of the capital which they contribute to furnish their own business facilities.

The same public concern which authorizes collective organization and action by producers, likewise requires provisions that safeguard the public against abuses by such collective action or producers, and should provide the machinery for such public protection, preserving at all times to the producers the legitimate benefits of their cooperative effort.

It should be understood that the right to organize collectively, under the laws referred to, should be restricted to associations or organizations composed exclusively of producers of agricultural or horticultural products.

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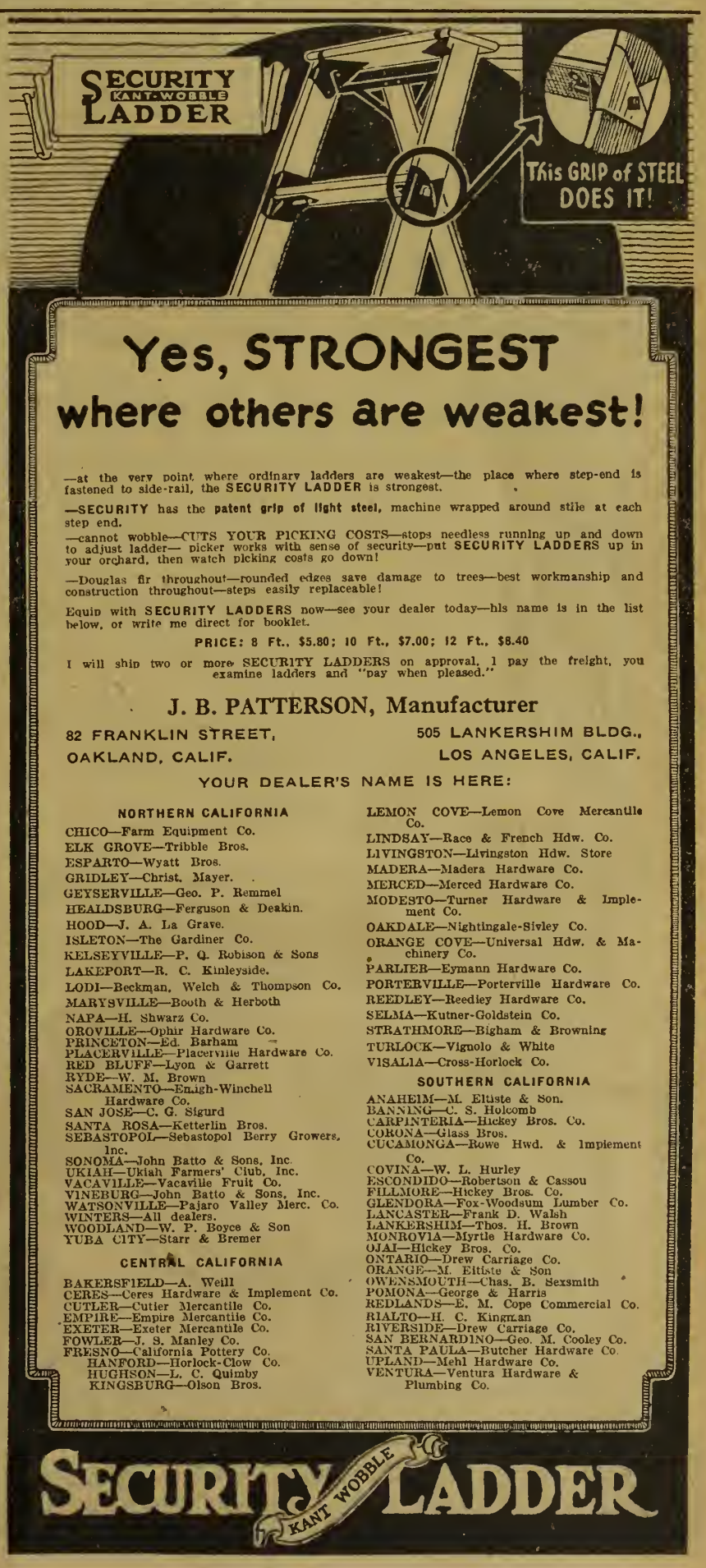

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FOWLER—J. S. Manley Co.
FRESNO—California Pottery Co.
HANFORD—Horlock-Clow Co.
HUGHSON—L. C. Quimby
KINGSBURG—Olson Bros.
LEMON COVE—Lemon Cove Mercantile Co.
LINDSAY—Race & French Hdw. Co.
LIVINGSTON—Livingston Hdw. Store
MADERA—Madera Hardware Co.
MERCED—Merced Hardware Co.
MODESTO—Turner Hardware & Implement Co.
OAKDALE—Nightingale-Sivley Co.
ORANGE COVE—Universal Hdw. & Machinery Co.
PARLIER—Eymann Hardware Co.
PORTERVILLE—Porterville Hardware Co.
REEDLEY—Reedley Hardware Co.
SELMA—Kutner-Goldstein Co.
STRATHMORE—Bigham & Browning
TURLOCK—Vignolo & White
VISALIA—Cross-Horlock Co.

SOUTHERN CALIFORNIA

ANAHEIM—M. Eltiste & Son.
BANNING—C. S. Holcomb
CARPINTERIA—Hickey Bros. Co.
CORONA—Glass Bros.
CUCAMONGA—Rowe Hwd. & Implement Co.
COVINA—W. L. Hurley
ESCONDIDO—Robertson & Cassou
FILLMORE—Hickey Bros. Co.
GLENDORA—Fox-Woodsum Lumber Co.
LANCASTER—Frank D. Walsh
LANKERSHIM—Thos. H. Brown
MONROVIA—Myrtle Hardware Co.
OJAI—Hickey Bros. Co.
ONTARIO—Drew Carriage Co.
ORANGE—M. Eltiste & Son
OWENSMOUTH—Chas. B. Sexsmith
POMONA—George & Harris
REDLANDS—E. M. Cope Commercial Co.
RIALTO—H. C. Kingman
RIVERSIDE—Drew Carriage Co.
SAN BERNARDINO—Geo. M. Cooley Co.
SANTA PAULA—Butcher Hardware Co.
UPLAND—Mehl Hardware Co.
VENTURA—Ventura Hardware & Plumbing Co.

SECURITY KANT WOBBLE LADDER

THE SEQUOIAN

A yearling of tbe most approved Poland China type and one tbat bids fair to develop into a remarkable sire. At present I can spare some choice young stock either sex at reasonable prices.

Z. M. Dickey **Dinuba, Cal.**

Lendorris Liberty Bond, Skyrocket and Lendorris Liberator,

Three good sons of three good sires are our herd boars, and are backed by a sow herd of such uniform excellence and approved blood lines as to assure satisfaction to the purchaser of Poland China breeding stock. We have some choice individuals of various ages for sale at all times. Write us for prices.

W. L. Haag and Son **Hanford, Cal.**

Do You Know?

That The Westerner is a half brother to the Junior, Senior and Grand Champion sows at the last National Swine Show.

That his half sister (the Junior Champion) sold for $5000, the record price for an open gilt.

Remember that The Westerner is from a family of "mighty good folks" and that we sell sows bred to him in our Sept. 27th sale.

ALEX. D. McCARTY RIVERINA FARMS MODESTO, CAL.

FORRESTVIEW BOB

A Son of the Grand Champion Caldwell's Big Bob

is the boar that is largely responsible for the number of satisfied customers who have purchased Poland Chinas from me.

Satisfied customers are my specialty. Write me. I will appreciate your inquiry.

J. H. Cook **Paradise, Cal.**

For easy feeding, early maturing Poland Chinas,

Secure the Get of Model Big Fellow

The Reserve Grand Champion of the last state fair, the strongest Poland show ever held in California. His pigs are the kind that satisfy the purchaser. Your correspondence will be appreciated. Write me.

J. F. McSwain **Merced, Cal.**

I AM ALWAYS PREPARED

to offer exceptional bargains in

POLAND CHINA

breeding stock and can fill your order whether it be choice pigs or mature animals. Write for information. I can please you.

Eugene Miner **Lodi, Cal.**

Aviator A strictly big type boar of the most approved ancestry that is siring an excellent class of progeny. We are sure he will help improve Poland China breed in the West. Satisfaction assured on any purchase you make of us.

CROSS BROS. **MERCED, CAL.**

Trewhitt's Big Type Polands

have been developed by a most careful selection of individual excellence and blood lines that have made good in Poland China history. Size and feeding ability have always been essential features demanded. Let your next purchase be a Trewhitt-bred Poland.

W. D. Trewhitt **Hanford, Cal.**

King's Big Bone Leader

Assisted by Giant Bob 2nd, a son of last year's champion, is siring a high grade of Poland Chinas. Remember my big August sale of bred sows featuring the above boars.

Les McCracken **Ripon, Cal.**

McCune's Quality Herd

of BIG TYPE POLAND CHINAS

attained their prominence by their individual excellence, necessary to constructive breeding.

A McCune-bred Poland China is backed up by generations of ancestry that have stood the test. Write for information and prices.

H. D. McCUNE, **Lemoore, Calif.**

1920 State Fair News

THE state fair premium list for the 1920 fair is in the hands of the printer. Secretary Paine expects to have it malled out about June 1. There have been quite a number of changes in the list of premiums and the offering as a whole is the most attractive ever presented to patrons of the California state fair.

In the pavilion classes the board has decided that associatlons of business organizations handling the products of more than one county will not compete with county or smaller subdivisions or otber producers and have offered a series of prizes for the best display of products by cooperative organizations. These cash prizes run from $250 to $50 and will be awarded on the basis of educational value as well as installation and perfection of exhibits. This offer affords lively competition between the fruit handling organizatlons such as the raisin growers, peach growers, prune and apricot growers, almond growers and milk dealers associations. The result should be some very attractive and instructive exhibits truly representative of these industries in California.

In the livestock department several changes have been made. A new class has been inaugurated for cross bred light horses. The animals shown must be by pure bred registered sires out of pure bred registered mares, and wbile not eligible to compete in any recognized pure bred schedules will be shown as representing the types for definite purposes as developed by cross breeding. It is expected that some very interesting experiments by leading breeders will be shown in this class. It will be remembered that Senator Stanford developed some of the greatest trotting horses in the country tbrough mating standard bred stallions with thoroughbred mares. The saddle horse of today is also the work of intelligent cross-breeding carried on during a series of years and there is no reason why similar experiments carried out under modern conditions cannot give equally valuable results, and tbe state board of agriculture in its new offer is showing definite appreciation of the efforts of those seeking to advance the horse breeding game through this means.

Tbe new schedule again places Shetland ponies in the classification of registered pure bred stock. Only those ponies showing registration papers will be eligible to compete in tbe breeding classes. There is also offered a series of prizes for ponies under the saddle and in single or double harness classes. Tbe animals in these competitions are classified by height.

In the horn stock department the board has made a substantial increase in the premiums for Hereford cattle, placing them upon the same plane as the Shorthorns. The premium list calls for $1,500 to the whiteface breeders and the national association agrees to pay an additional one dollar for every two dollars paid by the society, making the aggregate the same as tbe Shorthorn classes. In addition the Polled Hereford association has agreed to duplicate all special prizes won by animals recorded by their association.

The American Jersey Cattle Club, acting on the advice of tbe leading adherents of that breed in California, have increased their special prize offer to $500, placing this state on the same basis as New York, Wisconsin and the largest state fairs in the East. This is a substantial recognition of the efforts made in the past by California Jersey breeders and of the fact that California conditions assist in the development of dairy cattle to the higbest possible degree.

Some slight changes have been made in the sheep schedule. The California Wool Growers Association requested that Corredales be classified with medium wool breeds and also that the Delaines or American Merinos be dropped from the schedule as there are none now maintained in California. This has been done and a classification adopted for Karakules, a flock of these noted desert sheep having been established in the San Joaquin Valley.

The changes in the swine schedule will be very acceptable to representatives of the several breeds as an entirely new class for fat swine, regardless of breed, has been made. The total amount offered is $750 in this class, the largest offering being $300 for tbe best carlot of fat hogs. The carlot has been fixed arbitrarily at 30 head to tbe car. There will also be prizes for pens of single barrows and a grand champion barrow. In this competition the stock will be judged wholly from the butcher's standpoint, and it is expected that tbe very best barrows produced in the several breeds will enter in this competition. The animals shown in this class will not be eligible to show in the breed barrow competition.

Tbe futurities this year are the most attractive ever offered at the state fair. The Poland China Association has received more than sufficient nominations for its junior yearling and pig futurities and the fair management anticipates a wonderful showing of young stock because of this condition. The Duroc-Jersey breeders will have a futurity for fall and spring pigs, $400 in cash being awarded to each class. This offer is made by tbe National Association, in addition to which the American Association has arranged for a promotion club, offering substantial premiums for animals recorded in this association. Tbe Hampshire classification, which was raised last year as a result of a special offer by tbe National Association, has been placed on the same basis as other breeds.

The goat breeders' efforts to increase interest in this industry in the northern section of the state will receive substantial encouragement at this year's state fair. Tbe new classification offers premiums for Saanens, Toggenburgs and Anglo-Nubians in their respective classes. The cash prizes are more liberal than any offered heretofore and will be higber than those offered in any sbow beretofore given. The directors desire to give substantial recognition to the goat breeders and if the latter reciprocate with a good show, this department of the fair will doubtless be featured at future fairs.

Some slight changes have been made in the fruit schedules owing to the high price of fruit; the quantity of exbibits has been cut to five boxes of tbe several varieties named. This will make a suitable showing of the magnitude of the horticultural industries without the use of excessive quantities of fruit which have a high commercial value and which would deteriorate and entail considerable loss to the exhibitors.

DUROC BREEDERS MEET

On Friday night of May 21, the San Fernando Valley Duroc Breeders Association held its regular montbly meeting at the high school building, Van Nuys. President J. C. Craig had the meeting in charge; W. B. Hewitt, secretary. There were about 25 or 30 members present, including a few new ones.

C. R. Thomas, manager of the Los Angeles Livestock Show, addressed the meeting upon special invitation. Mr. Thomas covered the questions of show yard fitting and kindred matters, much to the satisfaction and edification of all present.

C. L. Scbufeldt also had the floor for an offhand exposition of matters pertaining to pig club work and progress in the valley. Mr. Schufeldt is at the head of tbat work in the valley, and among other things is putting on tbe boards a fair and market scbeme that is getting favorable attention over a wide scope of county tributary to Owensmouth as the proposed seat of such venture.

Tbe meeting was voted a big success, and special effort will be made to feature a few live topics for tbe June meeting.

Activities of the membership campaign of the California Cattlemen's Association will be shortly transferred from Inyo County, where results have been very satisfactory, into Zone 2. It is proposed to conduct a vigorous campaign for membership in all the counties of Zone 2, which includes the counties of northern central California. Itineraries of meetings are being arranged and will be announced as soon as they are approved by the officers of tbe various county branches.

The Pasadena Goat Show

By Jean A. Koethen

FIVE years ago a goat was a rare sight in Southern California in most of our suburban towns; now the vacant lots in every village are dotted with them and they browse by boulevard and railway track. It is said the 10,000 milk does reported last year in Southern California south of Santa Barbara have increased to 15,000 today. That is the number actually being milked and does not include bucks or kids or growing stock.

Such an increase is not to be wondered at when we consider that a goat staked on a vacant lot can be fed at a cost of three cents a day outside of what it gets on the lot and that a goat kept on a city lot where there is absolutely no chance for grazing costs but eight cents a day. The average cost of feeding a milk goat is said to be five cents a day. These figures were given me by a man who ought to know, and I have no doubt they are substantially correct.

It was a pity the whole 15,000 could not have attended the annual show of the California Milch Goat Association at Pasadena on May 22. Some of them were there, and there were a good many of the bucks and kids not included in the milk goat figures. Not a few of the milk does were too busy to come, and some, let us admit, were not stylish enough to be invited. For the 300 entrants at this show were the "cream" of the goat population of Southern California. They came from Pasadena and La Crescenta, from Azusa and Eagle Rock and Highland Park, from Lamanda Park and Huntington Park and Redlands. There were a few Los Angeles city goats, but for the most part the goat people stick to the hills. That is where goats belong, anyway.

Toggenburgs, Nubians and Saanens were the three breeds represented at Pasadena, and I am told the order in which I have given them is the order of their numerical importance. The Toggenburg may or may not give more milk or better milk than the others, but the very name is one to conjure with. I did not dare ask the price of many of them, but I was told that a certain Pasadena breeder could furnish absolutely pure bred doe kids at $10 apiece. "Isn't that too high a price to be maintained very long?" I asked the man who told me that. "Oh, no," he replied; "why, they're coming here from Oregon and Washington and all over the Northwest and buying up our goats. The price of grade does may go down but there will be a big demand for pure bred Toggenburgs for years to come." This man, I might add, was willing to sell me a fifteen-sixteenths Tog doe kid for $100.

Another breeder was offering two beautiful three-quarters Tog does about four months old, or maybe a little more, for $75 apiece, and would consider no offer except for the two together. Their names, I might add, were "Annie Laurie" and "Annie Rooney," and they looked the part.

Cunning Kids

One woman breeder (they are largely women, the goat breeders) had eight or ten glossy dark brown flop-eared Nubian kids all ranged about one crescent shaped trough eating alfalfa hay, and no other woman could pass that trough without stopping to look and pat and exclaim. They looked like little dogs, only prettier. And when the blue and red and green ribbons were tied to their collars, how the shiny brown of their big ears did gleam!

In one stall a little girl of ten cuddled a baby Nubian that was too scared to be left alone. In another a man shamefacedly held another, carefully explaining that it belonged to his cousin, and he had just come along to help her look after her charges. That is the best thing about goats—they think they're folks. They belong from the very first. It is no wonder, when we remember they lived with Abraham and Lot 6,000 years ago. They have all the other domestic animals backed off the map when it comes to length of domestication. In nearly every stall was some member of the family comforting and sustaining the timid does and kids.

Nubians and Saanens made a good showing, but Toggenburgs were the big majority. There were some splendid bucks, and not a few does of all three breeds showed immense udders, proof positive of their high production. Many of those exhibited were four quart does and some were six quart.

Goat Milk Products

Bottled goat's milk and frozen goat's milk were served at the milk products counter, and the latter, while it was not as rich as the conventional ice cream, was delicious. Any family owning a goat and an ice cream freezer could serve such a dessert as this every day in hot weather at an almost nominal expense.

The Kids and Goats at Pasadena Goat Show

A bunch of Toggenburgs which are proud of themselves. The picture at the right shows a bunch of prize winning Nubian kids.

Use Pure Salt on Hides

Hides should be salted only with clean, pure salt free from alum, according to a recent statement of the bureau of chemistry, United States department of agriculture. This bureau is making a study of the best methods for skinning farm animals and curing hides in order to produce a high grade leather. Salt containing alum partly tans the hide and sets the hair so that it cannot be removed. Hides which cannot be unhaired properly bring a loss to the tanner and prejudice him in future purchases against hides from the same source.

Tanners recently submitted to the bureau of chemistry green salted hides which could not be unhaired after liming in the usual way, in order to find out the cause. An examination showed that on the basis of the dry hide unhaired spots contained .8 per cent of alumina and the portions where the hair was not loosened contained 1.25 per cent of alumina. The portions of the hide which contained .8 per cent alumina unhaired with difficulty, while the portions containing 1.25 per cent could not be unhaired even on the beam. An inferior salt containing alum had been used

TESTIMONIALS

"Cows increased in one week 3 per cent in milk."
A. L. McCULLOCH, Alpaugh, Cal.

"I never saw hogs do so well or grow so fast as on this molasses ration." C. H. HARTWIG, Yuba City, Cal.

"It has enabled me to keep my stock in better condition at less expense." J. M. HENDERSON, JR., Sacramento, Cal.

"Have one calf that refuses to drink new milk—prefers skimmilk with molasses. What do you know about that?"
R. HECKLEY, Santa Rosa, Cal.

"It has been a great advantage in getting the stock to clean up the roughage." H. H. AMES, Chowchilla, Cal.

"One cow will turn down the choicest handfuls of alfalfa hay unless it has been 'Molassed'."
REDWOOD AYRSHIRE FARM, La Honda, Cal.

MOLASSES

cheaper than hay, but has same feeding value as corn or barley.

W. H. YOUNG COMPANY

58 Sutter Street San Francisco, Cal.

Does It Pay? Our Big Type Polands Give Handsome Returns

There's a reason why—not a single outcross of medium-type blood in the herd. Our customers build on a correct foundation—that of the big-type hog. One of our 1919 litters sold for above $1200.

Our fine fall yearling brood sow Mammoth Queen 851120 has farrowed 12 fine pigs by the grand champion El Profito. She has been pronounced one of the greatest big-type brood sows on the Coast—from the E. D. Frazier herd, Missouri. Write now if in need of foundation blood.

Viola L. Renwick Santa Barbara, Cal.

Sunny Side Farm

where efficiency is our watchword and the production of extra heavy milking Holsteins and big type Poland Chinas is our specialty. A few choice animals of either breed or sex for sale at all times at reasonable figures. Write for information.

R. F. Guerin Visalia, Cal.

Duroc-Jersey Registered Hogs For Sale

Bred Sows Sows with Litters Boars and Gilts

They are the large type and the best blood strains to be had anywhere.

Herd Boars—Lucy Orions Model, California's Defender, Diablo Orion Model, Defender Colonel 70th.

Some of the Sows—Lucy Orions Mayflower, Great Wonder I Am Gano, Pathfinders Queen, Prize of Tulare Belle, Twin Oaks Attraction, Lady Defendress 70th, and 50 others.

Weanlings, $15.00 each at Ranch—A large number always on hand to choose from. Crates $2.50 each, refunded when returned prepaid in good condition. Mail orders solicited.

Satisfaction or money back.

DIABLO STOCK FARM

E. F. Petersen, Supt., Danville, Cal. G. W. Emmons, Owner, Oakland, Cal.

Winsor's Giant Orion

The Greatest Proven Sire on the Coast
The Largest Duroc-Jersey Boar in the West
30 Sows Bred to Him Averaged 11½ Pigs Per Litter

We will hold a summer sale of sows bred to Winsor's Giant Orion and Great Sensation 3rd. Pigs by these boars will be the most profitable investment you can make in Durocs. Pigs by these sires will make your herd popular. They are the big type.

R. K. Walker, Hog Dept. WINSOR RANCH Morris C. Allen, Ranch Mgr.

BONITA, CAL.

Johnson's Defender Jr.

is some boar. As an individual he ranks as one of the best in the state. His get are the type that experienced breeders demand. Let me fill your order for anything in the Duroc line. You will be pleased with your purchase.

H. C. WITHEROW Live Oak, Sutter Co., Cal.

Arenal Ranch, Lankershim, Cal. Durocs Polands Hampshires

Our motto: The best is none too good. Visitors welcome every day.
One hundred and fifty spring pigs that are right.
See duplicate pedigree records for everything at ranch.
Note the fine alfalfa runs for growing pigs.
Extra fine September boars for the trade.

Address E. Avery Newton, 1026 Marsh-Strong Bldg., Los Angeles

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Facts in BLACK & WHITE

Purebred Holstein Cattle For Profit

"Both milk and fat are produced at lowest rate in general by the cows consuming the MOST FOOD." This conclusion reached by Prof. H. H. Wing, Professor of dairy husbandry at Cornell, after a year's observation of the herd at the University experiment station. Holsteins are large and healthy, capable of converting large quantities of coarse feed into the best of milk suitable for all purposes, particularly in demand for infant feeding and for cheese making.

If you are keeping cows for profit, investigate Holsteins.

Send for Free Illustrated Booklets. They contain valuable information for any Dairyman.

THE HOLSTEIN-FRIESIAN ASSOCIATION
120 Hudson Street
Brattleboro, Vermont.

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Venadera Herd
Register of Merit Jerseys
Senior herd sire Altama Interest sire of 12 cows in Register of Merit. Junior herd sire Jap's Perfection Owl, a line bred Spermfield Owl bull.
Guy H. Miller, Modesto, Cal.

Young Jersey Bulls
For Sale
One at the head of your herd will pay big dividends on his cost. Write to
W. J. Hackett
Modesto Cal.

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right.
S. F. Williams
Chico, Cal.
Member Orland Jersey Cattle Club

Bunting's Mission Herefords. Are Profitable
They will increase cattle profits by adding pounds of beef to every steer sold. For the best of breeding and individuality visit my herd and see the kind that win at the best shows. Prices reasonable. You'll be welcome.
JOHN A. BUNTING
Mission San Jose Calif.

DIAMOND G HEREFORDS
A few choice young bulls, Big, heavy-boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.
H. H. Gable Esparto, Cal.

Ormondale Ranch Shorthorns
Redwood City, Cal.
HERD SIRES
Boquhan Guinea Stamp, the great imported Young Broadhooks bull. Golden Goods Jr, sire of LITTLE SWEETHEART, Grand Champion International Show, Chicago, 1919.
Bulls and heifers for sale.
Duroc-Jersey hogs for sale.
James McDonnell, Supt.

Beef Cattle Specialist
For 30 years I have been devoting my entire time to pure bred beef cattle. I know where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited. R. M. DUNLAP, Hotel Land. Sacramento, Cal.

in salting the hides and had set the hair.

This incident illustrates the importance of attention to details in the handling and curing of hides and skins. Farmers, country butchers and dealers are advised by the department to use only clean, pure salt in salting hides. The presence of alum in salt is especially objectionable and as little as 5 per cent in the salt can be detected usually by its astringent, bitter taste.

Farmers' Bulletin 1055, which gives detailed directions for skinning, curing and marketing country hides and skins, may be obtained upon application to the United States Department of Agriculture, Washington, D. C.

Caledonia Shorthorns to New Buyers

The first public sale of Shorthorns from the Caledonia herd was held at West Sacramento, May 27, and furnished an opportunity for many beginners to secure foundation material for new herds at most conservative prices. It is doubtful if any sale ever held in this state has resulted in more real promotion for the breed than can be credited to the event mentioned. It has been known for some time that there existed in California a growing demand for Shorthorn females, but that few herds were in a position to go far towards meeting the demand. In view of the fact that the Caledonia herd is one of the largest herds in America, it was assumed that Caledonia Farms was the logical source to which these new men might turn.

In selecting the cattle for sale the owners had three objects in mind. It was necessary to reduce the herd somewhat and to afford a chance for California cattlemen to become better acquainted with the Caledonia herd and to enable beginners to secure foundation material. The fact that the entire offering was made up of females, many of which sold with calves at foot or heavy to the service of the well known herd bulls, Imp. Caledonia, Gainford Matchless and Pine Grove King was an attraction that served to bring out a representative crowd of buyers from California and Oregon.

Sixty-five lots were sold for an average of $421, a conservative, though satisfactory price in view of the feed situation in the Sacramento Valley. The strength of the Shorthorn demand in this state was further indicated by the fact that the sale was made without the active support of the breeding fraternity as a whole—the old breeders apparently being content to allow the new men an open field. The entire offering was absorbed by 20 buyers, 18 of whom can be rated as new breeders. Such a number of new herds cannot fail to mean much to the future of the breed. W. A. Heater of Sublimity, Oregon, made his initial purchases which consisted of a number of the better bred things. Heater secured one of the tops in Signets Memory 7th, a daughter of Roan Signet with a cracking good heifer calf by Pine Grove King and heavy to the service of Imp. Caledonia.

C. Harold Hopkins, of Woodland, whose recent purchases of Shorthorns have been notable, got the other top when he paid $1,000 for the Glennbrooks Memory 39th, an outstanding daughter of Glennbrooks Marquis, the bull that made such a record in that herd of cows.

William Bond of Newark selected two of the best Scotch lots, Whitehall Memory 5th, at $725, and Lavenderess 5th at $550. Both carry the service of Caledonia.

Geo. E. Dierssen of Sacramento, continued to add to his new herd, and many of the real bargains of the sale fell to his bid or to that of his sister, Miss Evelyn Dierssen, who made her first purchases. Miss Dierssen got a real bargain in Glennbrook's Memory 32d, with a slashing good bull calf at foot, and safe to the service of Gainford Matchless.

H. C. Muddux and Son, Sacramento, who made a start a few months ago were among the heavy buyers, getting nine lots, most of them with calves at foot.

The Jack London Ranch, Glenn Ellen, added seven of the good ones to their already good herd. Shorthorn interests are delighted to note that the manager, Mrs. Shepard, is going ahead with the work started by her author-brother.

Another new breeder from the Sacramento district to be among the larger buyers was Geo. J. Meister, who has been gradually and conservatively assembling a herd during the past year. Meister got seven head.

Other buyers include the Eder-Johnston Co., Hood; Thos. Harrison, Santa Rosa; J. J. Sumerfield, Santa Rosa; R. T. McGurk, Stockton; R. P. Cornell, Galt; Paul R. Sims, Elk Grove; Weber Bros., Davis; Geo. M. Haight, Montague; L. E. Middleton, Wheatland; W. K. Ford, Ukiah and J. M. Maxwell of Dixon.

The sale was managed by C. L. Hughes of the California Breeders Sales and Pedigree Co., Sacramento, Col. Ben A. Rhoades was the auctioneer and John A. Davis of Manteca worked the ring.

Following is a complete list of the sales:

1. Princess Archeress 2d, Nov., 1914; C. Harold Hopkins, Woodland, $650.
2. Pine Grove Belle, April, 1918; W. A. Heater, Sublimity, Oregon, $450.
3. Signets Memory 7th, Jan., 1915, and C. C. Nov., 1919; W. A. Heater, $1,000.
4. Whitehall Memory 5th, March, 1915, and B. C. May, 1920; Wm. Bond, Newark, $725.
5. Hollister Blossom, Feb., 1918; H. C. Muddux & Son, Sacramento, $200.
6. Champion's Queen, Jan., 1917, and C. C. Sept., 1919; W. A. Heater, $550.
7. Lavender of Countess, Jan., 1918; Geo. E. Dierssen, Sacramento, $485.
8. Viscountess 7th, April, 1912; W. A. Heater, $500.
9. Countess Winsome, April, 1917; C. Harold Hopkins, $475.
10. Lavenderess 5th, March, 1918; Wm. Bond, $550.
12. Blossom Duchess, Feb., 1918; Geo. E. Dierssen, $450.
13. Palmetto of Paicines, Sept., 1910; Jack London Ranch, Glenn Ellen, $375.
14. Verano's Countess, Oct., 1915; W. A. Heater, $450.
15. Pride of Paicines, March, 1911, and C. C. Sept., 1919; Jack London Ranch, $450.
16. Hollister Lady, Feb., 1918, and C. C. March, 1920; L. E. Middleton, Wheatland, $275.
17. Gloster's Memory, March, 1912, and C. C. Sept., 1919; Jack London Ranch, $650.
18. Spicyana, Feb., 1916, and B. C. Sept., 1919; W. K. Ford, Ukiah, $500.
19. King's Memory 16th, March, 1914, and C. C. April, 1920; Geo. M. Haight, Montague, $350.
20. Grenada Princess, Oct., 1914; Geo. E. Dierssen, $500.
21. Glennbrook's Memory 22d, Feb., 1914, and M. C. May, 1920; Geo. E. Dierssen, $525.
22. Grenada Countess 5th, Dec., 1915, and C. M. May, 1920; G. M. Haight, $300.
23. Glennbessie, Jan., 1916; G. J. Meister, Sacramento, $435.
24. Spicy Ramona, April, 1914; Thos. Harrison, Santa Rosa, $400.
25. Glennbrooks Memory 39th, May, 1915, and C. C. Sept., 1919; C. Harold Hopkins, $1,000.
26. Primula of Paicines, Sept., 1910, and B. C. Nov., 1919; H. C. Muddux & Son, $375.
27. Orange Violet, Oct., 1916, and B. C. March, 1920; G. J. Meister, $400.
30. Glennbessie 5th, April, 1916, and B. C. Jan., 1920; H. C. Muddux & Son, $450.
31. Pine Grove Countess, April, 1918; G. J. Meister, $425.
32. Hopeful Duchess 11th, Jan., 1910; R. T. McGurk, Stockton, $360.
33. King's Memory 19th, Jan., 1915; Thos. Harrison, $500.
34. King's Memory 12th, Jan., 1914; G. J. Meister, $400.
35. Petit Lady, March, 1915; Geo. E. Dierssen, $600.
36. King's Memory 20th, Jan., 1915, and B. C. March, 1920; H. C. Muddux & Son, $310.
37. King's Memory 23d, March, 1915, and B. C. Nov., 1919; J. J. Summerfield, Santa Rosa, $400.
38. Winsome Myrtle, Nov., 1916, and B. C. Dec., 1919; Geo. M. Haight, $275.
39. Whitehall Nanon, Jan., 1910, and B. C. March, 1920; Edith B. Dierssen, Sacramento, $300.
40. Violet of Paicines, May, 1911, and C. C. March, 1920; H. C. Muddux & Son, $310.
42. Junior Countess 5th, Feb., 1914; G. J. Meister, $385.
43. Lovely Council, Feb., 1912, and C. C. Sept., 1919; Evelyn Dierssen, Sacramento, $360.
44. Petit Duchess, Feb., 1915; Geo. E. Dierssen, $475.
45. Glennbrook's Memory, Dec., 1914; Geo. M. Haight, $525.
46. Lavender Coquette, March, 1918; R. P. Cornell, Galt, $350.
47. Mystery Countess, Jan., 1915; J. M. Maxwell, Dixon, $400.
48. Spicy Orinda, April, 1914, and C. C. Feb., 1920; London Ranch, $325.
49. Spicy Adelaide, Jan., 1914, and B. C. March, 1920; G. J. Meister, $300.
50. King's Memory 7th, Feb., 1913, and C. C. Oct., 1919; London Ranch, $400.
51. Grenada Princess, May, 1914; London Ranch, $320.
52. Harold's Countess, May, 1915; G. J. Meister, $275.
53. Lavender Pride, April, 1916, and B. C. April, 1920; J. J. Summerfield, $400.
54. Fifi of Paicines, Feb., 1918; R. P. Cornell, $300.
55. King's Memory 21st, Feb., 1915, and B. C. Jan., 1920; H. C. Muddux & Son, $310.

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Parasiticide. Disinfectant.
USE IT ON ALL LIVESTOCK
To Kill Lice, Mites, Fleas, and Sheep Ticks.
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Is a boar that is siring a high class of
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good enough for the most discriminating buyer. Come and investigate; can show you.
A. J. Van Cleef, Riverdale, Cal.

When Writing Advertisers, Mention The Cultivator.

56. Viscountess Grenada, Jan., 1912, and B. C. Jan., 1920, Weber Bros., Davis, $375.
57. Diana of Paicines, March, 1918, and B. C. May, 1920, Edinger-Johnston Co., Hood, $350.
58. Ameliana, Jan., 1917; R. P. Corneli, $300.
59. Spicy Countess, Jan., 1917; R. P. Corneli, $275.
60. Mary Countess, April, 1915; R. P. Corneli, $350.
61. King's Memory 10th, Jan., 1914, and B. C. Jan., 1920; H. C. Muddux & Son, $375.
62. College Memory, Feb., 1917, and B. C. Jan., 1920; Edinger-Johnston Co., $375.
63. King's Memory 5th, April, 1913, and C. C. Jan., 1920; Muddux & Son, $460.
64. King's Memory 7th, Dec., 1913; Paul R. Sims, Elk Grove, $325.
65. Promissa Lass, Nov., 1916; H. C. Muddux & Son, $335.
67. Spicyanna 2d, Feb., 1916; London Ranch, $275.
68. Bessie Danseuse, April, 1917; R. T. McGurk, $310.
69. Minerva of Paicines, Jan., 1918; R. T. McGurk, $300.
70. Glennbrook's Memory 32d, Dec., 1914, and B. C. Sept., 1919; Evelyn Diersen, $475.

STATE FAIR JUDGES ANNOUNCED

Secretary Chas. W. Paine has announced that the following men have been selected to act as judges at the 1920 California State Fair; Dr. C. M. McCampbell, head of the animal husbandry division, Kansas state agricultural college, beef cattle and heavy horses. Dr. McCampbell has officiated in like capacity at many of the larger eastern shows. L. A. Weaver, University of Missouri, will be one of the swine judges. Professor Weaver judged swine at the 1918 California state fair, and is recognized as one of the leading swine authorities of this country. Wilson Rowe of Iowa, will also judge swine, Berkshires, Chesters and Hampshires. John L. Smith of Spokane, one of the leading western Holstein men, will place the dairy classes. W. D. Lee, Mexico, Missouri, nationally known in the light horse world, will judge the light horses and the night horse shows.

Secretary Paine feels that he has secured as strong a list of judges as have ever worked at Sacramento and that this year's show promises to furnish plenty of work for them.

TULARE FAIR DATES ANNOUNCED

Word has just been received by the management of the Tulare County Livestock and Agricultural Show management, from Chas. W. Paine, secretary of the Western Fair Association, that the dates given this county for its fair follow immediately the state fair at Sacramento and precede the Fresno district fair by two weeks. The dates awarded Tulare are September 14, 15, 16, 17 and 18.

By becoming a member of the Western Fair Association and following directly after the state fair, the Tulare Livestock and Agricultural Show is assured of having in its exhibits the finest livestock in the state, as well as many agricultural displays that might not otherwise be available.

Farmers and breeders in the vicinity of Tulare have expressed themselves as pleased with the dates secured, not alone because of the benefit to be received from being in such close conjunction with the state fair, but because the climatic conditions of that time of the year are nearly perfect. They state that it will not be too warm nor will the nights be too cold. Furthermore, the harvest season will be at its height, making possible a wonderful agricultural show.

Among the stock exhibits already entered for the show will be the famous Tulare Holstein herds, whose fame have extended to all parts of the country. The herd sire of one of these herds last week brought the highest price ever realized for a Holstein bull in California, when it sold at a sale for $12,000.

COW TESTING INCREASES PROFITS

Cow testing lessens the cost and increases the profit by cooperative buying and selling of feeds, livestock, and their products. It stimulates farmers to be better dairymen and develop community spirit. By paying cash and purchasing feeds in carload lots members have been able to reduce their feed bills materially. The member who cooperates in the purchase of feed stuffs or in buying or selling cattle frequently may save the greater part of his share of the expense of conducting the assocaition work for the year.

BETTER THAN 36 POUNDS

R. F. Guerin of Sunnyside Herd, Visalia, writes regarding production of some of his pure bred Holsteins as follows:

"Last month K. P. Tola made 36.16 pounds for seven days and is still on test. I intend sending her to Burr Farm, Los Angeles, to complete her yearly record. Also have two heifers, S. V. K. P. Aaggie of Sunnyside, senior two year old that made 21.64 pounds in seven days, and 83.43 pounds in 30 days, S. V. K. P. Fidessa of Sunnyside, 21.85 pounds in seven days, 86.32 pounds in 30 days, also a senior two year old, that are now at Burr Farm to be tested for the year and to be bred to the $12,000 bull King Korndyke Pontiac 20th. I tested eight two year old heifers, daughters of Sir Veeman Korndyke Pontiac, now owned by Burr Farm, Los Angeles. This great sire, a son of Sir Veeman Hengerveld, has 14 A. R. O. daughters, all two year olds, and six have records of over 20 pounds butter in seven days, all made at Sunnyside Ranch. Other records are: Allenvail Clothilde Walker, seven days, 30.63 pounds, a six year old cow; Helena of Sunnyside, a junior three year old, 25.44 pounds; S. V. K. P. Miami of Sunnyside, junior two year old, 17.08 pounds; S. V. K. P. Lenita of Sunnyside, junior two year old, 15.50 pounds; S. V. K. P. Ada of Sunnyside, junior two year old, 14.05 pounds; S. V. K. P. Clarice of Sunnyside, junior two year old, 16.10 pounds; So Long Letty of Sunnyside, junior two year old, 15.26 pounds. K. P. Tola is by King of the Pontiacs.

K. P. Tola

Dispersal of a Beautiful Herd
70—Young Registered Holsteins—70

EDGEMONT FARM OWNED BY C. W. ANDERSON BURBANK, CAL.

Thursday, June 17, 1920, at 10 A.M.

Beryl Mortum Luecke De Kol
A 26.51 lb. three year old daughter of Beryl Luecke De Kol.

Mabel De Kol Niko 2nd
A 24.52 lb. four year old daughter of Roderick Lincoln out of a 30 lb. daughter of Piebe Paul.

This is widely rated as one of the choicest herds in California, and this rating is based upon an unusual combination of good breeding, good size, extraordinary average type, and a rare history of good health.

YOUNG FRESH COWS—HEAVY SPRINGERS—BRED AND OPEN HEIFERS

17 DAUGHTERS OF BERYL LUECKE DE KOL, a young proven sire with 19 A. R. O. daughters, the oldest one a 3 year old with over 26 lbs. butter in 7 days, and she is in this sale.

12 DAUGHTERS OF RODERICK LINCOLN, who has 37 A. R. O. daughters with records up to over 33 pounds butter in 7 days. The largest list of tested daughters credited to any bull yet developed on the Pacific Coast. His dam made 946.25 lbs. butter from 21628.4 lbs. milk in one year.

7 DAUGHTERS OF ABYLA WITKOP, a high class group of extraordinary type and splendid production.

13 DAUGHTERS OF DUKE BANOSTINE BUTTER BOY, his sire a son of Friend Hengerveld De Kol Butter Boy and a daughter of Pontiac Aaggie Korndyke, and out of a dam that made 623.05 lbs. butter from 15427.7 lbs. milk in 305 days.

A DAUGHTER OF KING SEGIS PONTIAC JANNEK, out of a half sister to the 34 lb. cow Jessie Fobes Bessie Homestead that made 932 lbs. butter in one year and sold for $4600 in the Detroit National Sale.

A DAUGHTER OF JULIANA KING REPEATER out of a daughter of a 3 year old that made 678.16 lbs. butter in one year.

A DAUGHTER OF KING SEGIS PONTIAC, bred to a grandson of Tilly Alcartra.

A GRANDDAUGHTER OF KING KORNDYKE SADIE VALE, out of an 18 lb. 2 year old granddaughter of Sir Fayne Concordia.

A DAUGHTER OF MERCI LAD KORNDYKE BURKE, son of the first cow to make 1200 lbs. butter in one year in California, out of a 24 lb. 4 year old whose sire is out of a three-quarter sister to the first 41 lb. cow, Valdessa Scott 2nd, second dam with 731 lbs. butter in one year, third dam with 716 lbs. butter in one eyar.

A DAUGHTER OF PRINCE GELSCHE WALKER, out of a 26 lb. daughter of De Kol Hengerveld Burke, second dam a 26 lb. 4 year old daughter of Johanna Rue 3d's Lad.

TWO DAUGHTERS OF RODERICK ARALIA DE KOL PONTIAC MEAD, who is by a son of De Kol of Valley Mead 2nd and out of a 33 lb. daughter of Roderick Lincoln.

A DAUGHTER OF ARALIA DE KOL PONTIAC MEAD, whose sire is a son of the former world's record cow Aralla De Kol, and whose dam is De Kol of Valley Mead 2nd, 1011 lbs. butter in one year as a 4 year old, she the dam of the 1113 lb. 3 year old Miss Valley Mead De Kol Walker, whose son King Korndyke Pontiac 20th sold for $12,000 in the W. J. Higdon sale.

DAUGHTERS OF HIGH RECORD DAMS, ranging up to over 30 lbs. butter in 7 days.

King Morco Alcartra 5th

The herd sire, King Morco Alcartra 5th, will be sold. He is by King Morco Alcartra, son of Tilly Alcartra, the world's greatest dairy cow, and is out of a 21 lb. daughter of Prince Gelsche Walker and De Kol of Valley Mead 3d, who made 845.11 lbs. butter in one year, and she is a full sister to De Kol of Valley Mead 2nd, 1011 lbs. butter in one year as a 4 year old, she in turn dam of Miss Valley Mead De Kol Walker, 1113 lbs. butter in 348 days as a junior 3 year old, and she is the dam of the $12,000 bull King Korndyke Pontiac 20th. Practically all of the females of breeding age in the sale are in calf to this sire, which should add much to their attractiveness and value.

K S P J COUNT, a son of Mr. James J. Jeffries' famous herd sire, King Segis Pontiac Jannek and the 29.48 lb. cow Agnes Canary Segis, will be sold. He is just ready for light service and should go to a good herd.

REMEMBER that every animal sold is positively guaranteed to be a breeder; that every animal over six months of age has been tuberculin tested by the subcutaneous method by Dr. Hurt, County Veterinarian of Los Angeles County, and is sold subject to retest by the buyer.

EDGEMONT FARM is for sale. If interested in one of the most productive, most profitable farms in Southern California, address the owner, C. W. ANDERSON, Burbank, Calif.

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BUNCHES or BLEMISHES,
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SAFE FOR ANYONE TO USE.

We guarantee that one tablespoonful of Caustic Balsam will produce more actual results than a whole bottle of any liniment or spavin mixture ever made Every bottle sold is warranted to give satisfaction Write for testimonials showing what the most prominent horsemen say of it. Price, $1.75 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use.

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Heve used GOMBAULT'S CAUSTIC BALSAM for more than 20 years. It is the best blister I have ever tried. I have used it in hundreds of cases with best results. It is perfectly safe for the most inexperienced person to use. This is the largest breeding establishment of trotting horses in the world, and use your blister often.—W. H. RAYMOND, Prop. Belmont Park Stock Farm, Belmont Park, Mont.

USED 10 YEARS SUCCESSFULLY.

I have used GOMBAULT'S CAUSTIC BALSAM for ten years; have heen very successful in curing curb, ringbone, capped hock and knee, bad ankles, rheumetism, and almost every cause of lemeness in horses. Have a stable of forty head, mostly track and speedway horses, and certainly can recommend it.—C. C. CRAMER, Training Stables, 990 Jennings Street, New York City.

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GOLDEN GLEN STOCK FARM

Breeders of high-class registered Jerseys—60 females in herd today. Our aim is to develop high record production. Many Golden Glen cows now regularly on official test.

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Renewed screw casing costs from one-half to two-thirds less than standard pipe. Large savings on standard pipe, fittings and valves, special fittings made to order. Pacific Pipe is thoroughly tested and guaranteed for 150 pounds working pressure; asphaltum dipped; serves every purpose. Let us save you money. Write

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California Cultivator

Costs $1 per Year

OUR COLLEGE OF AGRICULTURE

(Continued from Page 899.)

If the present plan of organization is the best possible solution, well and good. But if in order to give California boys as efficient training in agriculture as is possible in other states it appears necessary to make a change, then by all means let us consider proper and orderly ways and means for bringing about a more satisfactory organization. California agriculture is entitled to nothing short of the best agricultural college in the United States.

We know that there is a sentiment throughout the state that the college of agriculture is not rendering as practical service as is being rendered by other leading institutions. The writer is more familiar with the sentiment of the livestock interests than other branches of agriculture, and he therefore writes rather from that viewpoint. He also knows that the livestock interests have no criticism to make of any individual connected with the division of animal industry. For the most part it is appreciated that the faculty, like the Arizona fiddler, have been doing their "darndest" under the handicaps the system forces upon them.

In order to give a clearer idea of what these handicaps are, it might be well to direct attention to the difference in the working plan of the college of agriculture of University of California and the leading Middle West institutions. A student in any one of a dozen leading Eastern schools who enters upon a four year course in agriculture comes in contact with the "farm" in his freshman year and an effort is made to work into the course of study a proper balance between the recognized fundamental sciences and a direct application of those sciences to the more practical features of his training. For example, Cornbelt boys come in contact with livestock, field crops, orchards, farm mechanics, etc., from the time they enter until they graduate. There is perforce a distinct atmosphere and spirit about such institutions that is not noticeable around an institution organized as is the California college of agriculture. In this state the situation amounts to this: Boys enter the college of agriculture—and many are boys from towns and cities—they have no opportunity to catch the same inspiration as their Cornbelt cousins. For two years and a half they get their instruction in class rooms from lectures and text books, seldom having an opportunity to gain contact with fields, trees, crops and livestock. The last half of the third year they come to Davis for a few weeks. There they get their first contact with the practical side of agriculture. They again come to Davis the last half of their final year. The writer maintains, and the facts will bear him out, that it is absolutely impossible to turn out a graduate under such conditions with the expectation that he is as well trained as a boy who has had four years of training on the farm. In this connection we are reminded of an editorial that appeared in the May number of the Journal of Agriculture, the paper managed and edited by the students in the college of agriculture. The editorial, appearing under the heading, "Can the Curriculum Be Improved," apparently written as a reply to an article suggesting that there might be room for improving the courses, follows in part:

"What is the purpose of the College of Agriculture? Does it attempt to train men for manual labor on the farm, or to manage farms, or to advise farmers, or merely to discuss farm problems in a learned way? The answer seems to be none of these alone, but rather the following: first, to give its students a broad general knowledge of the academic sciences, such as economics, biology, history, English and other subjects that are the common knowledge of educated people—this is more or less obvious since a university degree is granted to graduates of the college; second, to give its students a knowledge of the sciences underlying the whole broad field of agriculture—that is the purpose of the prescribed under class courses and many of the upper division courses; third, to give the students a specialized training in his chosen major subject, such as citriculture or animal hubandry. It is believed that men so trained are ready to enter the agricultural profession and rapidly master its problems.

"Few people capable of serious and accurate thought question the value of either general academic or agricultural training, but many do hesitate to relegate the specialized training to third place. A college course is four years in duration, a brief time in which to expect to master any subject. The authorities of the college are of the opinion that in such a limited time it is impossible to do other than place specialized training third in importance.

"Returning now to the question of how much specialization the college of agriculture can and should offer, it can be said that wiser men than college seniors have failed to solve this problem. That this particular college of agriculture does not offer as great an opportunity for specialization as many others is an admitted fact. The division of animal husbandry, for example, is now severely criticized by many practical, successful stockmen over the state, because of this. Some of these men believe that the primary function of the college is to train milkers, herdsmen, or other types of skilled farm labor. A man who expects to farm is more efficient for knowing these details, but it is probably much better that he get this experience unaided by the college. Others expect that the college should train more businesslike farm managers. In this respect the more thorough a man's training the better, yet an agricultural college can go no farther than any other school in this respect.

"Law colleges do not graduate lawyers, nor colleges of medicine, physicians—merely the raw material from which lawyers and doctors are developed. Yet a college of agriculture is expected to graduate the finished product.

"Nevertheless it may be possible to give students of animal husbandry a more thorough training in fundamentals of the subject. The obstacles now encountered are the time taken by the more general training, and possibly a lack of equipment, and insufficient salaries to keep the teaching staff.

"We venture as a final conclusion that anyone having ah axe to grind will find upon investigation that the college of agriculture is accomplishing its purpose. It graduates the raw material from which the practical man, in any of the various agricultural pursuits, can be developed."

Without any desire to qualify as a critic, and at the same time declaring the nonownership of any axe that needs grinding, the writer has the temerity to offer a few personal opinions on the line of thought that runs through the editorial quoted. The writer believes that he entertains about the same idea as to what should constitute a course in agricultural instruction as is held by the average person, and that is that the primary function of an agricultural college is to teach agriculture, not to train milkers, herdsmen, etc. And believing thus it would seem that stress should be placed upon those fundamental sciences upon which modern agriculture is based rather than upon those "broad academic sciences such as economics, history, English and other subjects that are the common knowledge of educated people." We yield to no one in our appreciation of the value of such knowledge, but we believe that they should be given secondary importance in the agricultural course.

We do not agree with the statement that "law colleges do not graduate lawyers, nor colleges of medicine, physicians." It is true that graduates in those branches of learning lack the finish of experienced men, but they have been given the training that permits them to at once engage in the practice of their professions and furthermore no medical school that we are familiar with would attempt to give a course in medicine and surgery without the proper laboratory and clinical equipment corresponding to fields, orchards and livestock in agriculture.

Mind that what has been written applies more to training livestock men. It is possible that efficient men can be trained along other branches satisfactorily under the present system, but it would appear difficult. Not only is it difficult to graduate satisfactory men under present conditions, but it is certain that members of the faculty who are also members of the experiment

station staff could do a more useful type of investigation under a system that held out greater encouragement.

At the present time the institution is losing a number of the strongest members of the faculty. Some of these men are leaving because of greater financial inducements, but not a few are leaving because they feel that under existing conditions there is not much encouragement. At the same time, difficulty is being experienced in filling the vacant chairs. For one thing, more money is needed by the university in order to offer greater salary inducements—but it can not be doubted that on a number of occasions men have hesitated to connect themselves with the institution because of the rather limited opportunities under existing conditions.

The question of the desirability of making the change suggested, namely, centering the headquarters of the college of agriculture at Davis, presents many problems that will require careful and sound thinking. There are many advantages in having students in contact with university life. That is admitted. The question is: Is it better to continue furnishing that contact at the expense of an efficient course in agriculture or to recognize the unfortunate situation as regards the lack of a suitable farm at Berkeley and sacrifice the academic contact for a system that will give California boys as satisfactory training as the boys in other leading states receive?

Another problem that intrudes itself concerns the university farm school in the event that the college of agriculture was transferred to Davis. For some time there has been a question in the minds of many as to what real value could be attached to the farm school. As a matter of fact, the university farm school came into existence as a protest against the old type of instruction given at Berkeley without land, livestock or orchards. It was established with the idea of furnishing instruction in agriculture to boys lacking the necessary qualifications to enter the regular four year course.

The university farm school has pointed the way to a rational development of the college of agriculture. As stated above, much of the real agricultural advancement made in California dates from the establishment of that institution.

The Cultivator will welcome a frank discussion of this pressing problem in its columns. The question has been opened without malice and only with the hope that out of a sane discussion from all angles might come a constructive plan by which California boys will receive agricultural training the equal of any and that the college of agriculture will come to play a more important role in the agricultural affairs of this state.

RECLAIMING RANGE

The Chiricahua Cattle Company, which is the largest cow outfit in Arizona, has just completed one of the finest pieces of prairie dog extermination which has ever been accomplished in the United States. The area treated was one of the oldest established prairie dog towns in Cochise County and covered an area 12 miles long and four miles wide, or 30,720 acres.

Stockmen who are familiar with the area estimate that there were at least a million prairie dogs on the area before the work was started.

A crew of six to 12 men distributed the poisoned grain from February 26 to April 22, on which day the last dog was killed. Practically all of the prairie dogs were killed with the poisoned grain. but the few who refused it were located and exterminated with carbon bisulphide gas.

It is estimated that 35 per cent more grass will now be available for the cattle on the Chiricahua range.

ANNUAL MEETING AMERICAN GUERNSEY CATTLE CLUB

The Forty-third annual meeting of the American Guernsey Cattle Club was held May 12, in Chicago. The secretary reported that 18.8 per cent more Guernseys had been registered during the fiscal year 1919-20 thau during the previous fiscal year. The transfers show a gain of 35.8 per cent. A total of 167,458 Guernseys, 63,779 bulls and 103,659 cows, have been entered in the Herd Register. Seven hundred and eighty were imported during the year, 664 from the Island of Guernsey, 82 from the Island of Alderney, and 15 from England.

On May 1, 1920, 473 breeders in 33 states had 2,125 cows on official test, a gain of 74.2 per cent over the corresponding date one year ago. The Advanced Register contains 9,186 records that average 9.042.91 pounds of milk and 452.57 pounds of butter fat. One hundred and twenty-one names have been added to the list of Advanced Register bulls during the year, bringing the total up to 1,309. The membership list contains 931 names of active members, a gain during the year of 153. One hundred sixty-seven new members were added. Seven thousand two hundred and twenty-four breeders have registered Guernseys during the year. This figure does not include the large number of men who have purchased Guernseys and who have not yet registered the progeny. The members voted to increase the registration fees from $1.00 per animal for members and $2.00 for non-members to $2.00 per animal for members, and $3.00 for non-members. The increased revenue will be used for promotion work.

CALIFORNIA CATTLEMEN

A meeting of tremendous importance to the cattle industry was held Tuesday, May 18, at San Francisco. The price situation was discussed from every angle by prominent packers and representatives of the California Cattlemen's Association.

Here is a brief summary of statements made and conclusions reached at that meeting:

Prices are extremely low to cattle producers, while consumers are still paying the old prices.

To remedy this situation cattlemen should hold on to their stock as long as they have feed, and when feed runs short they should ship to other states where feed is available. C. N. Hawkins of Hollister, a director of the association, suggested that Montana was in the market for feeder stock, that state being 60 per cent short on its range cattle.

Packers urged that under no circumstances should cattlemen ship their stock to San Francisco on consignment because such shipments invariably pull prices down not only for that consignment but for all sales during that period. It was explained that the receivers of the consignment, having no interest in getting a higher price, let the stock go for anything they could get.

The sending of half fat cattle to market was deplored as a menace to the industry. This practice, it was declared, ruined the market for prime cattle. Such half fat cattle, it was agreed, should remain on the ranches or be shipped to Montana and other points needing feeder stock.

Fred H. Bixby, president of the association, said that in his opinion present market conditions were abnormal and he believed they would right themselves if cattlemen would refrain from glutting the market at this time.

Fred Washburn of the Western Meat Company said that the normal kill of cattle in San Francisco, Los Angeles and neighboring cities was about 36,000 head per month, that there had been no decrease in the demand and that it was up to the cattlemen themselves to remedy the present troubles, due to uncertainty of the supply. It was the opinion of all present that there was no oversupply of cattle on the all year basis, but that present troubles were due partly to the effort of too many producers to sell their stock at one season.

It was predicted that next fall would see a serious reduction in the number of cattle on hand in California and resultant shortage of beef during the fall and winter.

Packers asserted that they had lost from $5 to $35 a head on cattle killed during the first four months of 1920 and for this reason were somewhat wary of contracting now for cattle to be delivered in May, June and July. It was believed that better conditions would follow if cattlemen would hold on to their stock as long as possible, and where it was necessary to let go, ship them out of the state.

The cooperative buying proposition which has been outlined by the California Cattlemen's Association has been welcomed by the cattlemen in Inyo County, according to information received at the central office.

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There are a dozen reasons why this is so.

For three years it has not been possible to make enough De Laval machines to meet the demand. More than ever are being made this year, but the demand is still greater.

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Herd and range bulls reasonable. Largest Hereford Herd in California.
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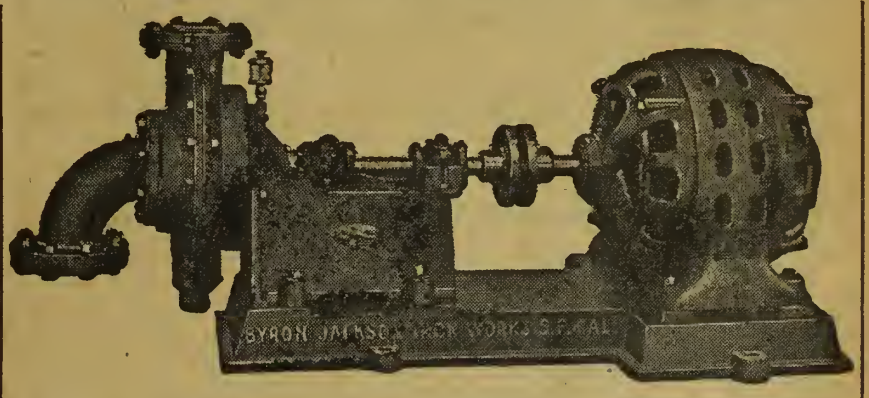

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

June 17, C. W. Anderson, Burbank. Dispersal.

Duroc-Jerseys

July 21, Elmer Lamb, Ceres.
July, Conejo Ranch, Newbury Park.
July, Diamond Bar Ranch, Spadra.
July, Winsor Ranch, Bonita.

Hampshires

July, Conejo Ranch, Newbury Park.

Poland Chinas

August 21, Merced County Poland China Breeders' Association, Merced.
September 27, Hugh C. Shinn, A. J. Elliott and Alex D. McCarty, Tulare.

Professor Miles B. Kennedy, formerly of the University of Nevada at Reno, recently joined the California department of agriculture as dairy chemist. Professor Kennedy graduated from Nevada University in 1907 and for two years was instructor and analytical chemist at that institution and subsequently was appointed chemist to the state food and drug laboratory of Nevada, in which capacity be served until coming to California.

In the L. R. Hitchcock herd of Durocs at Van Nuys it would seem that nature is playing a lavish hand toward multiplying and improving the breed. Last two litters of 11 pigs each showed up just 16 sow pigs, and 15 of them saved.

At the J. C. Craig Duroc Ranch, Owensmouth, are now to be seen some of the real aristocrats of the breed, direct from the Middle West breeding grounds. Spring litters all in shipshape.

Manager Thos. T. Dinsmore of the Ortega Underhill Rancho, Santa Barbara, advises us that he now has definite plans for holding a bred sow sale in February. This arrangement will enable the management to concentrate attention most effectively on the type and character of Hampshires bred and reared along scientific lines at the home ranch. There are exceptionally fine strings of fall gilts now at the ranch that will fit in most admirably with this idea of exploiting the real achievements of the ranch work in the way of constructive work the past two years toward improvement of the Hampshire under ideal California conditions in the matter of size, stamina, prolificacy, as well as in the development of finer breed character and clean cut markings. Meantime there will be the regular fine display of offerings in young boars and foundation stock in a general way.

The Eastman Ranch, San Fernando, is one of the valley's up to date pure bred swine enterprises, with Homer L. Graham as superintendent. Mr. Graham's specialty is the big type Poland China—big type in blood and in fact. There are nine big matured brood sows on the place, with some of the most promising litters of the season. There are likewise 15 toppy and "typey" fall gilts that are held in reserve for breeding in November for March litters. The herd is representative of standard big type blood direct from noted Iowa breeding herds. Sire now in service is the big 14 months old Regulator 110998, son of the noted Liberator. This fellow is an outstanding individual in every detail, with maximum of bone and size. Buster Bob 382581 is another big March yearling that will be seen in the fall shows. He is a grandson of Giant Buster and a true bred Big Bob on dam's side, and is being developed for keen competition in the show ring.

Sunshine Ranch is one of San Fernando Valley's largest and finest foothill and valley farming enterprises, situated five miles west of San Fernando. It has 700 acres in two year old citrus trees, with an additional 200 acres of this year's planting. The big aqueduct passes through the ranch. There are foundation herds of registered Holstein cattle and Hampshire swine now installed, with complete equipment. There are two 60 foot concrete silos. This 4,200 acre ranch is to be the base for a Hereford cattle breeding enterprise on a considerable scale. J. R. Muir is the ranch superintendent.

Harry Gantz of Fullerton owns and operates a livestock breeding enterprise at Solvang, Santa Barbara County. Pure bred Hampshire swine and Ayrshire cattle are factors in the ranch prosperity. Mr. Gantz proposes shortly to introduce the best foundation stock to be had direct from leading herds of pure bred Herefords in the Middle West. The environment favors the building up of a great beef cattle enterprise.

A fine herd of registered Galloway cattle is owned by George M. Young & Son at Ojai.

With no less than 140 spring pigs in sight Newton's Arenal Ranch at Lankershim is one of Los Angeles County's up-to-date breeding establishments. A leading attraction in the Duroc section is a pair of 13 months old boars got by Crimson Colonel, and descending on dam's side from the great show sow, Enchantress. One of these is to be retained in the home herd and shown at the fall fairs.

Ten of the leading Guernsey cows at the Elliott-Brant Rancho are on test at this time with some very excellent records in the making.

The American Shorthorn Breeders' Association will hang up $1,200 in prize money for the Los Angeles Livestock Show this year.

At the final closing out sale of registered Holsteins held by J. M. Henderson Jr., at the state fair grounds, May 29, a general average of $210 was registered on a bunch of yearling heifers. J. W. Crawford of Burrell was the heaviest buyer.

One of the largest deals in registered Herefords was recently consummated when the Finnell Ranch Company of Galt purchased the entire herd owned by the Kiesel Estate in Oregon. The deal included 177 head among which are over 100 females of breeding age and the bull Beau Blanchard 37th, a son of the noted bull Beau Blanchard. The cattle will be shipped to the ranch near Galt and it is the intention of the new firm to build one of the strongest herds of the West.

A. W. Morris and Sons, Woodland, have recently sold to the Los Angeles County Farm, a year old son of King Korndyke Pontiac 20th and De Kol of Valley Mead 2d. De Kol of Valley Mead 2d, with a four year old record of 1,011.71 pounds of butter, is the dam of Miss Valley Mead De Kol, the dam of King Korndyke Pontiac 20th. This youngster therefore has exceptional backing and it is expected that he will prove a sire of high order.

California livestock men will be interested to learn that the University of California has arranged for the return of Professor R. F. Miller, for a number of years with the animal husbandry division. Professor Miller is now at the Texas agricultural college. Upon his return to this state he will become acting head of the animal husbandry division during the year's leave of absence that has been granted Professor Gordon H. True. Miller was formerly secretary of the California Wool Growers Association.

There has recently been organized the Merced County Pure Bred Livestock Association that has for its aim the promotion of better livestock in that county.

A. E. Lawson, Northwest field representative of the American Shorthorn Breeder's Association, attended the Caledonia Farms Shorthorn sale at Sacramento last week. Lawson said that he was very much impressed with the California herds he had seen and gave it as his opinion that there was bound to be a very wide extension of the business in this state during the next few years.

Alex Chambers, Forest Grove, Oregon, one of the veteran breeders of Shorthorns, attended the Caledonia sale and visited with the California breeders.

A new record price for an Angus bull was established at the Kershaw sale in Oklahoma last month when John C. Simpson of Muskogee paid $40,000 for the noted bull, Plowman. Plowman was sired by Glowman, an international grand champion, and his dam was sired by Black Woodlawn, known as America's greatest show and breeding bull. Seventy-one head of bulls and females in the Kershaw sale averaged $1,942.

In the Lookabaugh Shorthorn sale, held at Watonga, Okla., May 14, four 1919 heifers sired by Imp. Caledonia, leading herd bull at Caledonia Farms, West Sacramento, sold for an average of $1,469, which was the average of the sale—a remarkable showing when it is considered that in the sale were a number of older cattle.

The J. S. Gibson Company, Williams, report that the senior two year old daughter of King Morco Alcartra, Lady Prilly Alcartra, has just completed a record of 20.92 pounds butter from 541 pounds of milk. The above record is a splendid showing.

R. F. Fisher, manager of the Riverview Farm, Carlotta, reports the following records made in their herd of registered Holsteins: Sequoia Snowflake Segis, a junior four year old, 19.17 pounds butter from 462.6 pounds milk; Sequoia Pontiac Bess, junior three year old, 25.56 pounds butter from 591.1 pounds milk. In addition to the above seven day records, the following cows are being carried on semi-official test with the following production to date: Sugar Queen Topsy has the splendid showing of 687.5 pounds butter from 15,682 pounds of milk in 216 days; Amy Veedam Pontiac, 402 pounds butter from 9,943.1 pounds milk in 142 days and Sequoia Sugar Queen Hengerveld, a junior four year old, 376 pounds butter from 8,622.2 pounds milk in 147 days.

The third promotion sale of the Western Berkshire Congress was held at Calistoga, May 29. The sale followed the "Pig-nic" held by the farm bureau celebrating the successful close of the pig club contest. The first prize

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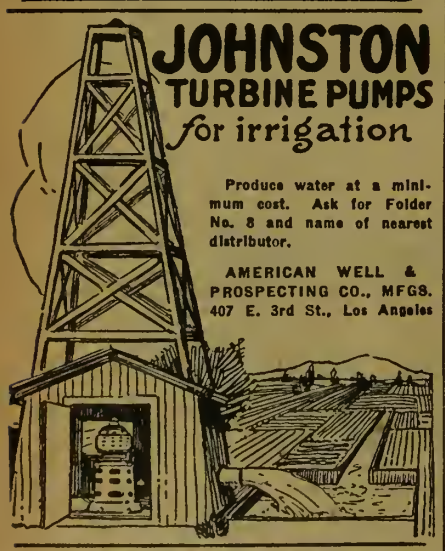

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Anita M. Baldwin, Owner Santa Anita, Cal.

in the contest was won by Ted Wright on a Berkshire boar. He was awarded a medal by the congress in addition to the prize offered by the farm bureau. In the sale 15 Berkshires were sold. The offering consisted of sow pigs and a few bred gilts. The top gilt was from the Grapewild herd of A. B. Humphrey, Escalon, and was sold to J. F. Ratto, Napa, for $130. The prices paid for the balance of the offering ranged from $50 to $90. This was the third sale held this spring by the Congress through which more than 40 Berkshires have been placed on farms in Northern California. The next sale will be held at Salinas during Rodeo week.

The following report from Anchorage Farms, Orland, proves that it is almost impossible to estimate the value of a good sire. Mrs. Hardy recently sold five weanling sow pigs by Natomas Baron Duke to R. P. McDonald, Potlatch, Idaho, for his ranch at Choteau, Montana. The price was $90 each. Also a weanling boar pig by the same sire to R. N. Blackmer of Medvale, Utah at $150.

J. H. Cook, Paradise, has sold his Forrestview Ranch and is soon to be located on his ranch in the valley north of Chico. As soon as convenient after getting established in his new location, he expects to increase the size of his herd by adding several very high class sows. A sow of Repeater, first prize junior yearling at the National Swine Show, is the latest addition to the herd.

W. F. Sandercock has purchased from Balley McFarland of San Mateo County, his entire herd of "Epochal" Berkshires. This consists of herd boar Steyhrae Epochal, eight mature sows, four fall gilts and 50 suckling pigs. This herd will be added to the herd which Sandercock is now carrying on his Natomas lands. The sows are all sired by the Champion of England, an imported boar that was grand champion of England. They are closely related to the sensational show herd which the Gossard Breeding Estates showed during the 1919 season. The herd boar has been pronounced as a very remarkable individual by those in authority and L. E. Frost, editor of the "Berkshire World" stated that he was one of the two best boars ever sired by Epochal. Interesting results should be secured by the judicious use of this English blood on the prize winning stock now on Sandercock's ranch.

The winning pig in the recent high school boys' feeding contest at Van Nuys was owned and fed by Edwin B. Angier. This September gilt was a pure bred Duroc, being one of a litter of 11, nine raised, and out of the fine brood sow Arenal Lady 775748, formerly owned at the Arenal Ranch at Lankershim. In this connection it is worth while to note that the duplicate pedigree record for every sow and litter at Arenal Ranch is kept on display at the ranch. Perfect system is the rule and the pigs will talk for themselves.

Secretary C. R. Thomas of the Los Angeles Livestock Show is recognized as a conservative authority in forecasting probabilities for the big October event. The promise for entries in all departments exceeds that for any previous year. The national Shorthorn, Hereford and Aberdeen-Angus Associations are all to take an active part. The swine show should be a big one, while the displays in goats and poultry will be quite up to the Southern California standard.

J. L. Stevenson at Van Nuys has at head of his Echo Ranch herd of Durocs one of the very excellent sons of Great Model. His dam is of Golden Model blood lines. This young boar was raised by Stevenson, and he is the pick of one of the best of litters seen in San Fernando Valley last year. He stands perfectly on legs and feet and his top line is without a flaw. Stevenson will show up a fine string of litters on the home stretch this fall.

The San Fernando Valley Fair and Market, Inc., is to be made an important factor in the development of the valley's livestock interests. A four day's fair is planned to be held at Owensmouth, September 15 to 18, with C. L. Schufeldt as manager. Public sales of pure bred livestock will be held during the week.

V. F. Dolcini, owner of the June Acres herd of Duroc-Jerseys, has recently sold two fall boars, both sired by Model Colonel, the boar formerly at the head of the university herd, to C. Signorelli of Guadaloupe, and a boar of like age but sired by Great Wonder's Model 3d to Lincoln White of Sacramento.

Professor F. W. Wilson of the University of Nevada, and Jos. Wilson, farm adviser of Lyon County, expect to leave shortly for New Zealand for the purpose of selecting 200 head of Corriedale sheep for Nevada sheepmen. The importation is expected to arrive in this country about August 1.

The Sonoma County farm bureau is arranging to hold a sale of pure bred dairy bulls in the near future. It is expected that the sale will attract consignments from each of the standard breeds and prove a means of distributing a better class of bulls in that county.

C. E. Howell, who has been assistant professor of animal husbandry at the state college of Washington, has resigned to take over the management of the J. J. Stevens Corporation Farms at Newman.

The Breeders Gazette published the following letter from their Glasgow correspondent: "Some excellent Aberdeen-Angus have recently been bought in Scotland for exportation to the United States. One of the principal lots has gone from the herd of James Kennedy, Doonholm, Ayr. Five have been acquired by James Marwick, Braemar Ranch, Santa Barbara, California. One of them is Belinda of Doonholm, a full sister of Biota of Doonholm, the champion of the 1919 Edinburgh show of the Highland and Agricultural Society of Scotland. Belinda is by Mondello, a son of the noted Evarra, and out of Belshan by Price List. A second heifer is Energica, by Matador of Bywell, which was first in his class and reserve champion at the show of the Royal Agricultural Society of England, out of Energea by Mondello. Equatora is another of the lot. She has for top crosses such sires as Matador of Bywell, Mondello, the great Evarra, and Prior of Bleaton. A fourth heifer is Eurugina, bred upon similar lines, with the famous Mailhag as her fourth sire. Along with these heifers there goes to Mr. Marwick the bull Electo by Elect of Doonholm, exported at a long price to the Argentine, and out of Elvega by Mondello.

The promotion sale held by the Western Berkshire Congress at the university farm, May 20, proved to be a bargain day for the few buyers who attended. A very satisfactory offering had been selected from nearly all of the principal herds of Northern California, and it had been hoped that greater appreciation would be accorded the efforts of the officers of the congress to give a wider distribution to Berkshires. Professor Thompson, buying for the Kamehameha School of Honolulu, topped the sale when he paid $125 for Rincon's Queen, a junior yearling gilt consigned by H. C. Muddux and Son, Sacramento. Professor Thompson secured two other gilts for the same school. Other buyers included J. Francis O'Connor, Santa Rosa; F. W. Sandercock, Sacramento; A. B. Humphrey, Escalon; H. C. Muddux and Son, Sacramento; A. J. Smittgen, Sacramento; Bruce S. Bennett, Sacramento; Ord. L. Leachman, Sacramento; George Murphy, Perkins. Cols. Leachman and Snook of Sacramento, were the auctioneers and the sale was managed by Bruce S. Bennett, field secretary for the congress.

SILO BUILDING TIME HAS ARRIVED

Before long the housewife in town and on the farm will begin to make plans for canning fruits and vegetables for next winter's food supply. Why shouldn't the dairy farmer make a similar provision for his cows by building a silo and planting a crop to fill it, asks the dairy department of the University of Missouri college of agriculture.

The silo can always be considered a sign of prosperity. Whenever one rides through any country community and finds the landscape dotted with silos, he immediately "sizes up" the community as a prosperous one because it indicates at once that large numbers of livestock are kept and it also shows that the farmers are far signted, looking to the future.

The silo is one of the most economical buildings on the farm and it gives excellent results. According to a recent issue of Hoard's Dairyman, "the silo is the best and cheapest form of providing succulent winter feed. It is the cheapest farm building we can erect. It will house feed nutrients at a lower cost per ton than the hay mow in the barn, will protect a like feeding value in the form of hay or other roughage from the weather. It increases the producing capacity of the farm at least ten per cent and will often increase the stock carrying capacity 25 per cent. It is the cheapest place to store the corn crop, for an acre of corn can be placed in the silo at a cost not exceeding that of shocking, husking, grinding and shredding and it will preserve more feed nutrients and produce more milk per acre than any other system of handling. It saves a third of the value of the corn that is otherwise largely wasted. It requires less labor to feed silage and there is less waste of fodder by the cows."

How to Select a Silo

Oregon Agricultural College Experts Give Advice

Seven Essentials from O. A. C. Bulletin No. 136.

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2 *Foundation should be of proper width to carry weight upon it.*
Indiana Silo foundation is concrete. Exact instructions mailed day order received.

3 *Inner walls should be smooth, perpendicular, free from corners; other than round types not satisfactory.*
Indiana Silo straight-edge staves finished both sides. Air-tight tongue and groove joints, beveled to fit curve. Factory built, bolted door-frame insures perpendicular wall. Indiana Silo is round.

4 *Inside should be painted with tar pitch, melted or thinned with gasoline before applying.*
Smooth finish, No. 1 Fir staves absorb protective coating. Indiana Silos are easy to paint.

5 *Doors should be of such construction as to be easily removed.*
Indiana Door-frame construction patented. Made-up air-tight doors interchangeable. Compression cam lock. No hinges.

6 *A ladder should be provided at such distance from silo wall as to permit easy climbing.*
Steel door-levers, 6 inches from wall, make ladder. Easy to climb. Indiana Silos have no expensive useless parts.

7 *A good roof adds to life of silo and adds greatly to appearance.*
Indiana Silos equipped with roof. Rafters and sheathing cut, cedar shingles. Door section made-up.

Indiana Silos meet the most exacting requirements.
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A herd where the individuality of the herd stock is right. The pigs developed carefully and the customers treated with that degree of courtesy and fairness that has made it possible for us to say "once a customer, always a customer." Let's get better acquainted.

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Damage by Rodents

By W. C. Jacobsen

THE rodent control division of the state department of agriculture is interested primarily in ground squirrels, pocket gophers, meadow and field mice and rabbits. We would be making a conservative estimate of all rodent loss if we placed it at $50,000,000 for California during the last year at present high prices of field and forage crops. There is no doubt in my mind but that it would be considerably more than this if we were inclined to go deeply into the subject to root out the actual losses occasioned. Unfortunately, California is so large that we cannot get actual figures for each locality.

In 1917 we made the statement that ground squirrels in California did approximately $30,000,000 worth of damage. Owing to the systematic and efficient work in many of the counties by county horticultural commissioners we have felt that it is quite possible to cut that loss down to $20,000,000 at the present time. Of course, there are localities where the residents would not agree with this, because they have not noticed the marked change, but take the state as a whole and we find that there has been a very considerable diminution in their numbers.

The museum of vertebrate zoology, after having taken a very careful mammalian census, placed the average number of mammals per acre in California at 20, 18 of which were rodents and at least one a ground squirrel. This does not mean our California digger ground squirrel but a representative of at least one of the 18 different species would be found on some one acre in California. The acknowledged damage by a good, healthy ground squirrel on range land is placed at between 25 cents and 35 cents per year. This covers not only the actual damage that is done by destroying food crops or forage plants, but by storing seeds which are prevented from germinating. In a grain field or an orchard the damage would run from $2 to $10 per head. Then again, there are ground squirrels in desert areas where the destruction amounts to practically nothing. For sake of convenience we have made this statement: should a single ground squirrel do but a penny's worth of damage once every 12 days, or approximately two weeks, in the course of a year that would mean 30 cents per head. There is no question as to the penny's worth in two weeks for this is ridiculously low. There being one ground squirrel to the acre, 100,000,000 acres at 30 cents would result in $30,000,000.

The estimated damage for pocket gophers is about $15,000,000 for this state. Last month I was witness to an area in Tulare County that was being flooded as a result of a freshet from the Kaweah River which normally has a very small stream of water in it, if any at all, where gophers had undermined a levee and the water was pouring in three or four feet from the base of the embankment on the open field side just as if it were coming out of an artesian well. Three such places (as there actually were) in the space of 20 feet meant that it would not be long before this field would be completely flooded. Fortunately, this particular area was not being cultivated but there were many fields adjacent that were. This is just an example of what damage a pocket gopher might do which ordinarily is not considered in the general run of destruction. When you can find 300 trees in their second or third year's growth completely destroyed by pocket gophers on a small area of 200 acres, being repeated not once but many, many times, you can readily understand how the damage by pocket gophers can be placed at that high figure.

It might be asked how the damage from rodents has increased so enormously in many of the localities in past years, and may be a word as to this reason would not be amiss here. In the first place, the natural enemies such as hawks, owls and snakes have been forced out by civilization and in many cases ruthlessly destroyed without adequate knowledge as to whether they were harmful or beneficial. This served to release a certain check that had been placed upon these rodents by nature. On the other hand, cultivation produced a food supply which was far handier and more readily available to the rodent. Increased food supply means increased rate of reproduction in the case of almost any mammal. Hence, these two factors have made things favorable for the rodent pest. Control of these pests is as much a part of farm work as is cultivating the land and putting in and harvesting crops. And perhaps the largest land holdings that are still allowed to remain vacant or those that are held for grazing where the stockgrower looks upon the presence of rodents as a sort of a necessary evil will eventually realize that in many instances 30 per cent to 50 per cent of the feed is taken by rodents. It is not the amount that is actually taken annually but rather the amount that is destroyed by preventing seeds of valuable forage plants from germinating over a period of years.

THE IRRIGATION OF POTATOES

By W. V. Shear

Proper attention to irrigation is a most important factor in the production of large crops of potatoes and also in the production of potatoes of high quality. "Hit or miss" methods of irrigating potatoes are responsible for great injury to the plants and hence affect the yield and character of the tubers. A common opinion prevails that potatoes will do well with a small amount of moisture. This is due to the fact that in some sections of California good crops of potatoes are produced without irrigation. These localities, however, are so located that irrigation is for the most part impracticable and does not prove that larger crops would not be obtained through the use of moisture. The potato plant can "get along" with a small amount of moisture in the soil in localities where the weather is cool and where fogs are more or less prevalent. In the warmer and dryer sections of the state, the plant should have an abundant supply of water to produce maximum crops. In such localities irrigation not only supplies the needed moisture for the plants, but it also keeps the soil cool, which is an important matter in the production of potatoes. However, good drainage must accompany the application of water, as the potato plant abhors a "soggy" soil.

No uniform rule can be laid down with reference to the length of time which should elapse between irrigations. The ideal condition is to furnish the plants with a uniform amount of water throughout the growing season and only by a careful examination of the soil can the potato grower determine when more water should be applied. It is not wise to attempt to determine by the appearance of the plants whether they need water or not. To wait until the foliage wilts and turns a dark green color is to wait too long. It must be remembered that it requires considerable length of time to irrigate potato fields properly, and often a couple of days of very warm weather will cause very great injury to the plants and an injury which can never be remedied. Of course if such an event takes place it may be wise to continue to give the plants water, but if the tubers have attained much of any size, water applied after this time is almost sure to result in uneven ripening of the plants and also in knobby and misshapen tubers. The potato grower should watch his field almost daily and determine by actual digging into the soil with his hands whether or not more moisture is required. It is best to irrigate with a very small stream through every furrow and allow the water to run perhaps 24 hours.

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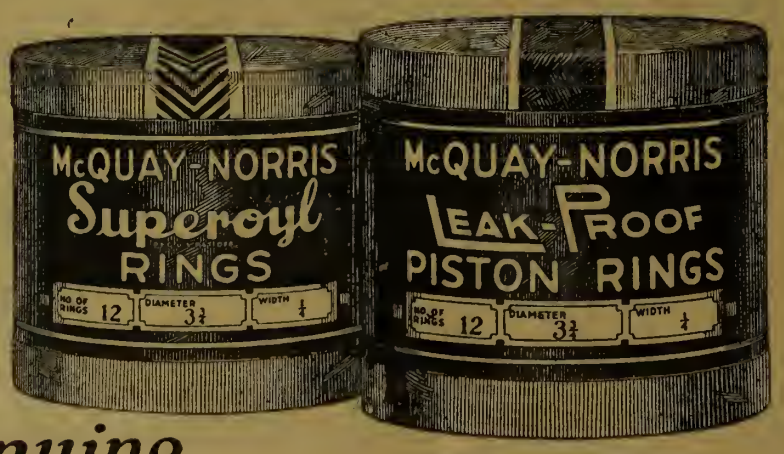

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rather than rush the water through rapidly. It takes a long time for many soils to absorb water laterally across a row of potatoes.

The proper irrigation of potatoes is an art rather than a science; that is, it is only acquired through experience. An attempt should be made to moisten all the soil to within two or three inches of the top of the ridges without saturating it. If for any reason flooding occurs anywhere in the field, every effort should be made to drain off the excess water as rapidly as possible, as it takes only a short time to drown a potato plant.

The stage in the development of the plants at which time irrigation should be discontinued depends upon when it is desired to market the potatoes. If the grower chooses to get a maximum crop by allowing the plants to mature normally, irrigation should continue as long as it is necessary to keep the soil moist until the plants show, by the yellowing of the foliage, that they are maturing. This should be done regardless of whether or not it is necessary to continue the irrigation after the plants are in bloom. In some localities where soils are very retentive of moisture and where the weather is cool, it may not be necessary to irrigate after the blossoming period, but on most of the soils of the state it is advisable to irrigate later than this.

If the grower desires to harvest his crop early in order to catch a better market, it may be wise to withhold the water when the potato reaches marketable size, in order that the tubers may mature more quickly.

LIMA BEANS

Manager R. L. Churchill of the California Lima Bean Growers Association writes: (Delayed from last week.)

Replying to your letter will say that regular Lima beans are being quoted and sold regularly by our association at price of 12 cents f. o. b. cars common shipping points in California with a bonus of 15 per cent of amount purchased free f. o. b. coast, making price equivalent to $10.43 per hundred weight. Independent shippers are quoting and selling at from $10.30 to $10.50 per hundred weight. We are selling Baby Limas at same quoted price as regular Limas but with bonus of 20 per cent instead of 15 per cent, making price equivalent to $10 per hundred weight f. o. b. coast. Only a few thousand bags of Baby Limas are now remaining in stock unsold in California although some sales have been confirmed for June shipment. It is now certain that all Baby Limas remaining will be sold and very probably be shipped out of California not later than the middle of July.

The stock of regular Limas remaining on hand here on the coast, while considerably larger than the Baby Limas is considerably smaller than the stock on hand last year at this time, and if the buying and shipping demand should continue even at the same rate that has been current during the past two or three weeks the greater portion of the stocks will be sold before the crop now being planted matures and there is a good chance that a better demand will develop in the next few weeks which may easily clean up the entire stock.

CONTROL OF WILD ANIMALS

By W. C. Jacobsen

We have on file in the state department of agriculture petitions from various localities requesting some assistance in the matter of predatory animal control where calves, sheep and all manner of poultry have been taken by coyotes and bobcats. Perhaps the largest source of damage from the mountain lion is the killing of deer in the mountain regions.

Within the last few weeks the rabies situation has developed in the south San Joaquin Valley, and while no predatory animals have been found infected with the disease, dogs and several head of livestock have succumbed to the disease and it is barely possible that it is being transmitted by coyotes. If not, there is no reason why it would not soon spread to those members of the dog family. If such be the case, the problem will be a far more serious one to deal with because control of these wild animals is far more difficult than with any domestic forms.

California has paid out countless thousands in bounties for these predatory animals, and if we could check up this sum in the various counties, I think that we would find that it would total millions. If such is the case, the damage occasioned by this pest would be found to multiply this amount actually paid out several times. For that reason we have ceased to look kindly upon this manner of attempted control, because it is partial at the best and in areas where the bounty has been prevalent for years reinfestation has occurred to such an extent that it is necessary to reestablish the bounty where discontinued or resort to other means. We have tried to present the seriousness of the situation to the legislature and last year were partially successful in that one bill was passed by the the legislature calling for a report to the governor in November, 1920, on predatory animal losses and methods used in other states for their control.

We hope by that time to have more definite and accurate information as to the actual losses. At present it is possible only to venture a guess and I personally would not like to do this even though I might have a fairly good idea of the losses actually occasioned. We have a plan to replace the county bounty system, and its success has been proved in other Western states and also in parts of California to such a degree that it can be established throughout the state. Rather than pay out the sum that has been expended annually in bounties, devote the same amount, together with state and federal appropriations for the same purpose to the inauguration of a systematic hunting, trapping and poisoning campaign.

THE RAT MENACE

Rats are almost entirely pests in centers of population where there is waste food and material for them to eat. This is rather a problem for the health officials in cities than it is for the farmer. Where grain is stored rats and mice do some damage and it often amounts to millions for agricultural products alone, but most generally it is the town and the city that must consider this problem The most serious problem that confronts us from these pests, particularly the house rat, is its habit of harboring innumerable fleas which can readily transmit bubonic plague. Not only have they been the source of this disease in the city of San Francisco, but they have transmitted it to the squirrels, against which the public health service is now carrying on a hunting campaign to determine how serious the infection is in the counties immediately surrounding San Francisco Bay.

LOSS FROM INSECTS

Insects are the most formidable enemies of the fruit grower. The horticultural department at Cornell University, Itbaca, New York, says conservative estimates place the annual loss to the fruit crops of the United States from insect pests at from 20 to 40 per cent of the total. Quaintance estimates the annual loss to the deciduous fruit interests of the country from insect depredations at $66,114,650. Of this amount codling moth was responsible for $16,716,667 and San Jose scale for $10,528,265. Other leading pests were plum curculio, $8,590,769, and peach tree borers, $6,000,000. The greatest loss falls on the apple growers, for in addition to the codling moth loss herein recorded, miscellaneous apple insects cause a further loss of $10,089,932.

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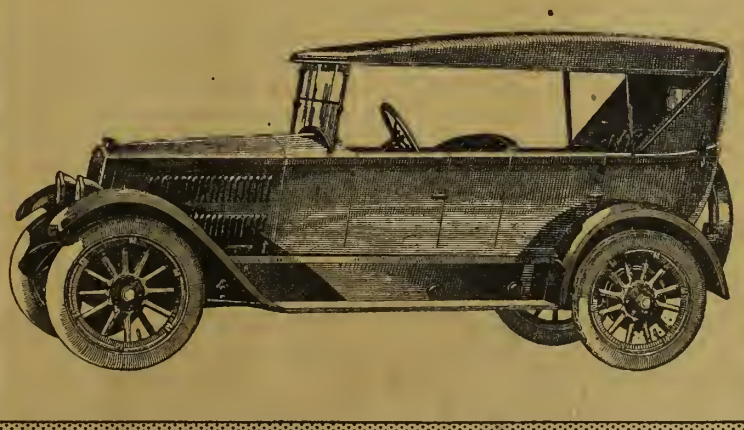

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For Sale—Completely stocked and equipped 20 acre poultry ranch, located 1½ miles from town and ½ mile from paved highway; 4-room California house with concrete lined cellar, barn, two 12x120 poultry houses, two brooding houses, tank and tank house, 12-inch well with good pump and 5 H. P. motor developing enough water for the whole 20 acres. Land all leveled and completely piped. Adapted for grapes or deciduous fruits. 1200 Leghorns, 1200 chicks, horse, cow, household goods, new International tractor, and all implements. Everything in first class condition. $13,000 for equity and assume $2000 Federal Farm Loan. W. S. Reeves, Bank Building, Terra Bella.

For Sale—$12,500; two acres all under cultivation; irrigation system throughout; 68 Citrus trees all bearing, ten Walnuts 6 bearing, two Peach trees, 3 Plums, one Japanese Persimmon, one Apricot, one Fig, one Nectarine, Blackberries full bearing, 6 young Raspberries, Grapes; beautiful lawn, flowers and shrubbery. Beautiful home of seven rooms and bath, solid panel walls and plastered, all built-in features throughout; one three-room California house, garage, tool shed, cement walks, curbs and driveway; two chicken runs, and other chicken equipment. Address Owner, C. W. Bean, San Gabriel, California, Box 65.

For Sale, Bargain — 245 acre improved ranche; 90 acres fine bottom land, 10 acres bearing orchard, peaches and prunes, 1 acre grapes, 1 acre melons and tomatoes, balance in corn, wheat and alfalfa; 156 acres level mesa land, fine soil, enough timber to pay for clearing; all well fenced; under fine gravity irrigating system; house, 2 barns and other buildings; drying trays, fruit boxes, all farming implements; horses, cows, hogs and chickens, furniture and crops. Everything goes, $20,000 (half cash). Good neighbors, no Japs; telephone, electric lights, near school, good roads; might subdivide. Address B. B., R. F. D. 1, Box 32-A, Redding, Shasta County, California.

For Sale—$14,000; a good house of ten rooms and bath, gas and electricity; nearly 4½ acres of best soil, all under cultivation and irrigation; main crop practically walnuts and figs. Family orchard with all varieties. Yard with barn and shade trees. Pecan tree, Black Walnuts, Mulberries, silk worm Mulberry trees, Lemon, Citrus and Blackberries. Place on Mission Drive Blvd. on southeast corner of Euclid Ave. and Mission Drive. This is an ideal place and must be seen to be appreciated. Torrens Title. Address Owner, E. Dondanville, San Gabriel, California, Box 107.

AN IDEAL DAIRY RANCH

The Redlands and Yucaipa Land Company is offering for a limited time, a 1250 acre Dairy Ranch in the famous Yucaipa Valley—two miles from Redlands city limits — on the Ocean to Ocean paved highway. This ranch is equipped with buildings; no better soil in the state; has 500 acres suitable for alfalfa; 750 acres grazing land with live oak trees and living springs; also 100 inches water. One of the best dairying and alfalfa locations in the state. Price reasonable and terms easy, Address, Dike & Logie, Sales Agents, Redlands, California.

For Sale—$10,000; in San Gabriel Valley, beautiful home of eight rooms and bath and toilet, screen porch; strictly modern with all built-in features, cement front and back porch; near school and churches. Up to date garage, cement walks and cement driveway to garage, fine water supply, and two acres of the best soil all under cultivation in fruits, walnuts, almonds, berries and vegetables, chicken run and corrals. Beautiful flowers and shrubbery. This is an ideal place and one must see it to fully appreciate its value. Address Owner, John Daveggio, San Gabriel, California, R. D. 1, Box 453.

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Only $1700, Easy Terms.
Oranges, other fruit trees, chance for big grove; delightful location on beautiful lake, short distance famous brick surface boulevard; 20 acres loam fields; lake-watered pasture, some timber; comfortable cottage, magnificent shade, superb view; barn, poultry house, other buildings; aged owner must retire; if taken now only $1700, part cash. Details page 55 Strout's Catalog Farm Bargains 33 States, copy free. STROUT FARM AGENCY, 503 E. J., 405 S. Hill St., Los Angeles.

For Sale—An Ideal Home Ranch — 340 acres Santa Barbara County; on the main county road in the loveliest part of Santa Ynez Valley near the old Santa Ynez Mission. Rolling land and mesa in connection with 100 acres of fertile bottom land. Would make excellent grain, bean or cattle ranch. Rich soil, abundant running water, beautiful location. Produces handsome yearly income. Combine aesthetic and utilitarian value. Would be difficult to duplicate. Apply "The California Cultivator," Box L. A. P., Los Angeles.

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10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.

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Buy cheap, good alfalfa and fruit land in the easy lift water district near improved dairy and hog ranches. $50 to $75 an acre, one-fifth cash. Send for circulars. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

For Sale—Five and 35-100 acres exclusive of roads three miles N. E. of Redondo Beach, California. Being the North six of lot 7 McDonald tract, San Pedro Rancho. Address Jas. T. McPherson, Box 686, Willows, California.

For Sale—Oxnard Suburban home site, 15 to 20 acres, good land, fine place for citrus, lemons, beans or sugar beets. Address Owner, W. R. Livingston, 426 B Street, Oxnard, California.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

Diversified Farming Lands—Unsurpassed irrigation system. Investigate. Now's the time. Alex Murdock, 38 S. Sutter, Stockton.

FARM LANDS FOR SALE

Small 400-acre Stock Ranch 15 miles west of Paso Robles; good almond land; $25 per acre; plenty good water. J. W. Lemen, Paso Robles.

For Sale or Trade—Ranch of 160 acres; good soil, plenty of water, etc. For full particulars address Chas. E. Johnson, P. O. Box 34, Yermo, California.

Twenty Acres of bearing oranges, close City of Oroville; good house. Route A, Box 107, Oroville, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

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Large Bulldozer, $135; No. 3 horizontal centrifgual, $65; No. 6 Gould hor. cent., $160; duplex boost pump, $49; No. 3 double-acting AMES, $375; rods, cylinders extra; many other snaps. Complete PUMPING PLANT, 15 h.p. Western gas engine with deep well double-acting AMES pump, rods, pipe, cylinder, belt, complete, $950; guaranteed good shape.
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For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—First class condition, used 26-inch Caterpillar disc plows; also a Holt land leveler. Apply Newmark Grain Company, 447 So. Los Angeles Street, Los Angeles. Ask for Krauss.

For Sale—One Ames deep well pump No. 30 head with 140 ft. of tubing and rods complete. Address Harry Putnam, La Verne, California.

For Sale — Largest size horse power Sorghum mill foundation; sixteen foot smoke stack; $80, f. o. b. here. S. F. Corum, Fertilla, California.

For Sale — 17x22 Sandwich Belt Power Hay Press in good order, $350. Ceres Hardware & Implement Co., Ceres, California.

Agency Discontinued—New floor sample S.25 Samson Sieve Grip Tractor 8 horse draw bar pull at sacrifice. Hickey Bros. Co., Carpinteria, California.

For Sale—Holt 45 Tractor, two engine plows and tank wagon, all in good condition. Price $2500.00. W. R. Mayo, Compton, California.

For Sale—Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

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LARGE FARM OR RANCH WANTED. Situated in any state. Will purchase place $20,000 to $50,000 value and will pay 20% per year for 5 years. Will expect you to deed farm to me immediately free of mortgage and I will turn over to you apartment house leasehold, income of which goes to you for 5 years or until you are fully paid. One property pays $5000 net per year, another $10,000. I am not trading my property but will pay for farm out of income as above provided. Do not answer unless you send details of your farm or ranch and are ready to do business. MACK, 44 Broad St., Room 509, New York City.

Situation Wanted by experienced agricultural graduate and licensed veterinarian. Ex-army officer overseas. Own ranch at present but am selling out. Will consider big proposition only. Salary and percentage basis. Stock preferred. I know registered stock thoroughly. Married with one child. Finest references furnished. Box 5, Cultivator, Los Angeles.

Married Dairyman desires position on ranch; purebreds preferred. Educated; lifetime experience. Box S. R., care California Cultivator, Los Angeles.

Mathers' Avocado Nursery—Seed wanted, any quantity. P. O. Box 585, Pasadena, Nursery Phone Colorado 6044.

Wanted—To hear from owner of land for sale. O. K. Hawley, Baldwin, Wis.

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Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beeching, 1578 W. 46th Street, Los Angeles.

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Pumpkin Seed — Mixed Pumpkin Seed, good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

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BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Next sale all breeds, second week in August at ranch. W. P. Dwyer and W. S. Gullford, Box C, Butte City, Glenn County, California.

Grape Wild Farm—Berkshires, Guernseys. Big Type Berkshire Boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

For Sale—High grade milk goats — two and three quarts. Swiss Bell Goat Ranch, Corning, Cal.

Carruthers Farms—Live Oak, California. Shorthorn cattle and Berkshire swine of quality and select breeding.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

Grade Toggenburg Does — Four — sixty dollars. Mrs. Guerard, Merced, California.

HOGS

Chester Whites—We are disposing of our entire herd of pure bred Chester White swine and have some very good prices to offer. Write for particulars and prices. FOSTER BROS., 2611 Belmont Ave., Fresno, California.

My Victor Herd — Headed by Billiken Chester Whites. For quality and big litters. E. E. Fulton, Box 7, Fair Oaks, California.

BACTERIAL WILT OF CUCURBITS

Infection with the bacterial wilt of cucurbits does not occur through soil or seed. The striped cucumber beetle and the 12 spotted cucumber beetle are both summer carriers, and probably the only means of summer transmission of the disease in the localities that have been studied. Introduction of virulent bacteria into the interior plant tissues is necessary for infection.

These points are given in a recent United States department of agriculture publication detailing the results of studies on the disease, which occurs in 31 states, including the territory from Vermont and Canada to Florida and west to Minnesota, Nebraska, Colorado and Texas. The disease also probably occurs in parts of California. Of the common domestic cucurbits the disease affects cucumbers, cantaloupes, summer and winter squashes and pumpkins, but not watermelons.

Control Measures Recommended

Spraying with strong Bordeaux mixture and lead arsenate paste (4-4-50 plus 2) is recommended where the disease is likely to be severe. Treatments should begin as soon as the cucumber plants develop their first true leaves and should continue at intervals of about a week until the cucumber beetles practically disappear from the field. In localities where downy mildew is also prevalent the treatments should be continued later as a partial insurance against this disease. The beetles prefer unsprayed plants as food, and undoubtedly the efficiency of wilt control would be enhanced if a slightly earlier trap crop, such as squash, were planted along the edges of the cucumber field. The beetles could be easily poisoned there with a strong insecticide.

Pulling of wilted vines during the first part of the season, or as long as it can be done without mechanically injuring the healthy plants, will greatly assist in controlling bacterial wilt if consistently done in all neighboring fields. The diseased vines should be buried or otherwise removed from access by the beetles.

Screening in Garden Plats

Where a few plants only are grown in garden plats, screening the hills with fine mosquito netting will prevent the appearance of the disease.

For control in greenhouses the beetles, in the first place, should be kept out. Do not grow cucurbits nor pile cucurbit refuse in the immediate vicinity of greenhouses, as this attracts the beetles and many will later find their way into the houses. If the beetles once gain entrance to a house filled with growing plants hand picking is the only remedy to be recommended until some fumigant is found that will kill the beetles without injuring the cucumber plants. Besides destroying the cucumber beetles, great care must be exercised in disinfecting all instruments used in pruning wilted vines before using them again on healthy plants. This may easily be done with a bottle of one to 1,000 mercuric chloride and a sponge.

NEW COTTON FIELDS

The London Morning Post of April 5 contained the following interesting item relative to the proposed large scale cultivation of cotton in Mesopotamia:

The British Cotton Growing Association recently sent a deputation to Mesopotamia to survey the country there and to report as to its value for cotton growing. The report was satisfactory, and it is now proposed to set up a number of model plantations which will serve the purpose of seed and demonstration farms.

The possibilities of Mesopotamia for cotton growing are said to be very considerable, but its potentialities have yet to be investigated and put on a test to decide whether cotton growing can be established there on a commercial basis. The rainfall is so small that the summer cultivation of the country must depend entirely upon irrigation. Mesopotamia, it is said, differs from Egypt as regards the conditions under which the work of irrigation will have to be carried out. The irrigation system is dependent not on a single river with a well defined and permanent course, like the Nile, but on two great rivers—the Tigris and the Euphrates—meandering through a wide plain in very ill defined and frequently changing courses, with many tributary branches and cross connections.

Sir William Willocks states that Mesopotamia is the home of perennial irrigation, and he emphasizes strongly the fact that at no period in its history has the whole of Mesopotamia been under irrigation at one time. "It does not seem likely," he says, "that more than 3,000,000 acres would ever be available for cotton commanded by summer irrigation. Cotton is a summer crop, and if the rotation adopted is one year's cotton in three that would mean about 1,000,000 acres under cotton."

Next year it is hoped, with government assistance, to begin work on cotton growing in Mesopotamia on a large scale.

IF THE PINK BOLLWORM INVADED CALIFORNIA

No better object lesson may be had of the value to agriculture of the California quarantine and inspection service than a brief recital of the havoc produced by the inroads of the dreaded pink bollworm of cotton. Conservative estimates of economic losses produced by the pink bollworm through reduced yield in lint, light seed and inferior oil may be understood better from the following:

Official reports from the Egyptian department of agriculture place their losses at 20 per cent.

Losses in Brazil are estimated variously at from 30 to 66 per cent of the crop, in some states running as high as 80 per cent.

In the Laguna in Mexico the estimated loss is placed at 30 per cent.

The cotton industry of Hawaii has been wiped out.

China reports the pink bollworm on the increase and to date no accurate figures as to losses are available.

U. S. Would Fare No Better

There is no reason to anticipate that the United States would be any better off than any of these other countries should this insect become widespread and fully established. On the other hand, cotton growers in the Southern states would have the additional disadvantage of the cotton boll weevil which does not occur in any of the competing cotton producing countries of the world other than Mexico.

The possibility of damage from this insect in this country is further indicated by the similarity of climate in the Laguna and in the central and northern ranges of cotton culture in China to that of our Southern states. This possibility is emphasized also by the actual abundance which this pest had reached in the worst infested fields in southeastern Texas in 1917 and in the worst infested fields in Cameron Parish in 1919, an abundance which had by no means reached its maximum but was yet sufficient to have occasioned a considerable percentage of loss to the crop. For example, in the worst attacked fields referred to in 1917 and 1919, approximately 75 per cent of the late and immature bolls were infested.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

Santa Cruz.—High pens for the week ending May 15: Geo. Gray, Santa Cruz, 55 eggs; Bellows Bros., Lakeside, 55; G. G. Barker, Santa Cruz, 55; S. L. Gibson, Santa Cruz, 54; R. C. Gibson, Newhall, 53; B. F. Rose, Santa Cruz, 52; D. B. Walls, Petaluma, 51; Theo. Clark, Santa Cruz, 51. The per cent of production for the flock was 64.

AN INTELLECTUAL STATE

"Father," said the boy, "what is an ignorant idealist?"

"An ignorant idealist, my son, is a man who gets his mind so set on what he is thinking about that he does not always see the necessity of knowing what he is talking about."—Washington Star.

How to Kill SCALE
All Summer

Scale hatches all the year and multiplies very rapidly. Soon after hatching it feeds, then attaches itself to the tree AND NOTHING TRIED SO FAR KILLS IT when at this age. Fumigation will kill the newly hatched scale for the fifty minutes, when being applied, but what about the unhatched scale? It takes an INSECTICIDE thoroughly covering the tree to keep the young scale killed. THAT IS WHAT T-I-Z-I-T SPRAY WILL DO.

It also controls Red Spider, cleans the tree of fungus growth, stimulates the tree and cleans the fruit. Write us so you can see how well T-I-Z-I-T works in the grove nearest to you where T-I-Z-I-T has been used. Interesting pamphlet on request.

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B. P. Rox, R. I. Reds, $18 per 100. Mottled Anconas, $17; W. Leghorns, $15. These chicks are from our very best Hoganized bred-to-lay stock. They are as good as the best, regardless of the price. Order direct from this ad and save disappointment.

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Feed and Eggs

By Jean A. Koethen

"I SHOULD like to see some discussion on the effect of various feeds on the quality of eggs," writes a Tancred subscriber. "One man who was shipping choice eggs to a certain firm had some cases returned with the complaint that the yolks were of a greenish color and was advised to take the hens off alfalfa or allow them less.

"Last season a neighbor shipped some eggs in my name. Word came to me that they did not seem like my eggs and suggesting that the shipper should shut his hens away from grass to make the quality as good as mine. The fact was that my hens had, if anything, more green feed than those of my neighbor. They not only helped themselves in fields and roads but I fed chopped greens daily. Both lots had about the same whole grain. The difference was that I fed Surelay and mill run, while he did not. Did this mash account for the difference in quality?"

In order to get at the effects of different feeds on eggs, or rather the purpose for which different feeds are used, we must remind ourselves that an egg is composed of four substances —protein, fat, water and mineral matter. Sixty-five per cent of the whole egg is water, and the protein content varies from less than 12 to more than 13 per cent. About ten per cent is fat and the remainder is mineral matter or ash. This latter includes the lime in the shell, sulphur, phosphorus and infinitesimal quantities of other mineral substances. These mineral ingredients are found to some extent in all grains and also in alfalfa and other green feed. Fat is also found in all grains. There is never any difficulty in supplying the hen with the necessary fat for the yolk of the egg. The problem is to keep down the amount of fat lest the hen put it on her own body instead of into the egg, and to supply sufficient protein for the white of the egg.

Can't Produce on Greens

Not only must the hen that is expected to produce heavily be a large eater, but she must be provided with the right kind of feed. Hard grain will not do. A diet of unground grain exclusively supplies too much starch and fat and too little protein. Green feed will not do. You might as well expect a farmer or mechanic to do a day's work on a diet of lettuce salad as to ask a hen to produce eggs from green feed. There is protein, to be sure, in green feed, especially in alfalfa and clover, but only a little, and the hen requires a good deal. In order to get any appreciable amount of protein from alfalfa, she would need to eat so much that the yolk of the eggs surely would be green, and even at that she would not produce many eggs. Hard grain and greens together are better than either alone, but the necessary amount of protein is still lacking.

In order to fill this protein requirement and to provide it in such form that it can be digested with ease, the mash has been devised. A hen can eat more ground grain than she can whole grain because the first step in digestion (i. e., grinding) has already been taken. If to the ground grain is added an animal meal with high protein content the hen has the materials for egg manufacture right at hand in shape for immediate and heavy consumption. On all commercial egg ranches where high production is the first aim a mash is kept before the hens, and they are encouraged in every way to fill their crops and keep them full. The general practice of turning on lights early in the winter mornings has just this one purpose, to induce the hen to begin eating a little earlier and to fill her crop a little fuller than she otherwise might.

Egg Material First

Now the point of all this is that the hen must be provided with material for eggs before she gets a chance at green feed. Very little hard grain, if any, is fed in the morning on a modern egg ranch. The hen scratches in the litter for any stray grains from last night's feeding, but the bulk of her breakfast is mash, and she is expected to eat mash till noon. By this time the edge of her appetite is dulled, and while she may attack vigorously the noon meal of greens she is soon satisfied. Turn her on the alfalfa, if you like, after three o'clock, and she will not eat enough to affect the eggs or her own production. Turn her out in the morning and she will fill up on alfalfa to the detriment of the quality of her eggs.

Green feed is for health, not for the manufacture of eggs, and I am constantly surprised to see how little green feed hens that have mash always before them will consume. They like to pick and taste and nibble, but they do not seriously devour it as they do grain and mash. A hen knows what she needs, but like a child that spoils its appetite with cake and candy if given a chance, she will eat too much green if green is offered first.

We are not told just how the mash and the grain were fed in the instance quoted, but unquestionably the hens that had no mash, even though they had all the whole grain they would consume, had less grain than the mash fed birds and hence were able to consume a good deal more green.

Generally speaking the grain a hen eats is used in the fat of the yolk and to a small extent in the white; the meat (protein) makes the bulk of the white; lime goes into the shell, and green feed tints the yolk. Strongly flavored feeds, like onions, will flavor the whole egg, if liberally fed, and green feed to the exclusion of mash makes a very dark yolk.

POULTRYMAN'S CALENDAR—JUNE, KEEP AFTER THE MITES

In no other month do mites breed so rapidly as in June. If they have been allowed to get a start during the foggy days of May they will be hard indeed to control in June.

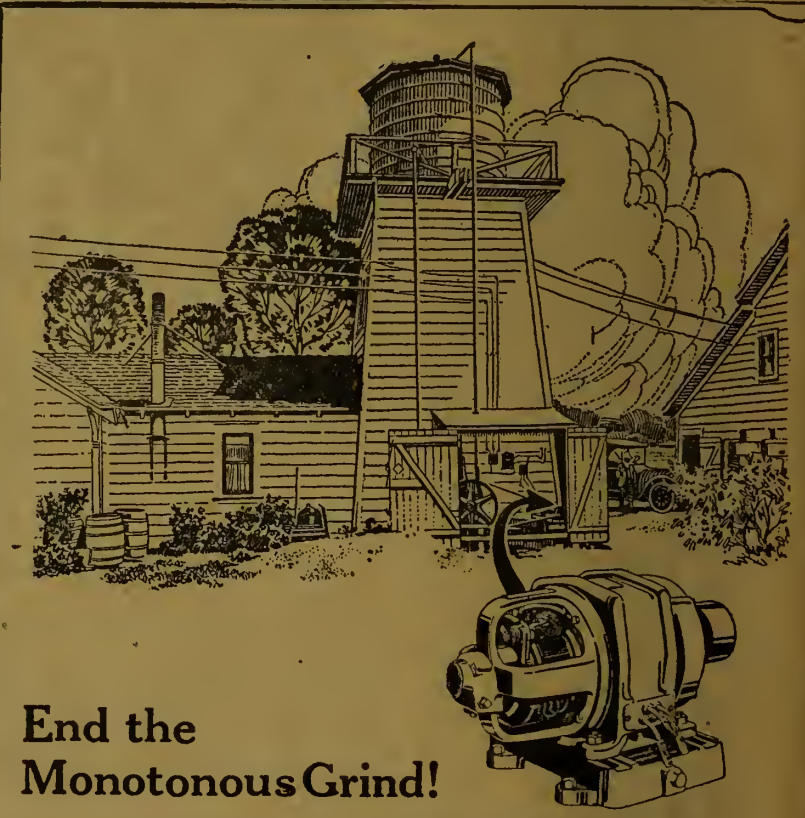
All coops, brooders and laying houses should be sprayed or painted with an insecticide during the spring. Go over roosts and adjacent walls and nest boxes, not once but three times a week apart. The second application gets the nits that have hatched since the first application, and the third finishes the job. Carbolineum, kerosene and crude carbolic acid, or even kerosene alone, will clean them out in three applications.

Coops in which the young stock are kept should be watched with special care. When the young birds stand around with drooping wings during the day it is amost certain they are suffering from the attacks of these blood sucking mites at night.

ALL NORTHWEST EGG LAYING CONTEST

Report of contest at Pullman, Washington, April, 1920.

The following gives the per cent production, feed cost and the return above feed cost for the average bird



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45-87

in each breed for the month of April, 1920:

White Leghorns, 38.3 per cent production; feed cost, 21.6 cents; return above feed cost, 18.6 cents; R. I. Reds, 22.6 per cent production; feed cost, 24.6 cents; 1.2 cents loss; R. I. Whites, 37.3 per cent production; feed cost, 27.9 cents; return above feed cost, 11.2 cents; Barred Rocks, 42.6 per cent production; feed cost, 27.2 cents; return above feed cost, 17.5 cents; Wyandottes, 30.3 per cent production; feed cost, 22.8 cents; return above feed cost, 8.9 cents; Orpingtons, 27.6 per cent production; feed cost, 28.7 cents; return above feed cost, .2 cents; miscellaneous, 24.3 per cent production; feed cost, 19.3 per cent; return above feed cost, 6.2 cents.

High hen for the month is a Rhode Island White owned by F. W. Frederick, Cassidy, British Columbia, with 26 eggs. Mr. Frederick's pen of Rhode Island Whites is also high pen for the month with 103 eggs. Second high hen is a Rhode Island White owned by the White Bird Poultry Yards, Vancouver, British Columbia, with 25 eggs. Second high pen for the month is Barred Rocks owned by Oregon agricultural college, Corvallis, Oregon, with 97 eggs.

High hen to date is White Wyandotte owned by A. Unsworth, Sardis, British Columbia, with 145 eggs. Second high hen is Barred Rock owned by Oregon agricultural college, with 132 eggs.

High pen to date, Barred Rocks owned by Oregon agricultural college, with 537 eggs. Second high pen, White Leghorns, owned by W. A. Ford, Umatilla, Oregon, with a record of 511 eggs.

A number of entries have been received for the Fifth All Northwest Contest. The fifth contest will commence October 15, 1920, and close October 14, 1921.

VARIATION IN COLOR OF EGG SHELLS

By Mrs. J. H. Getz

I have just received my Cultivator, May 15, and as I am interested in poultry, one of the first things I do when I get the paper is to look for the poultry news. I notice on page 835 a query from a Galt subscriber on the color of eggs. I hope I can help our friend out of her trouble. There is no poultry breeder that knows it all, we must live and learn.

It is impossible to have a uniform shade in your eggs in even a small flock. Even the white eggs are not all pure white, but I believe the variation is far more noticeable in the brown eggs. For instance you trapnest a certain hen for a month or so Put all of her eggs in a drawer together and you will be surprised at the variation in shade. The eggs will at first perhaps be almost white. They will gradually become darker and darker and some will be very dark brown. Of course some hens will lay a reddish brown egg while others will lay a sort of a tan colored egg, but it is just like a leaf. The leaves of an orange tree are green but all are not the same shade. Some are light and some are dark. The leaf of an olive tree is green but an entirely different shade of green from an orange leaf. Then we find different shades in the olive leaves but each olive leaf though of a different shade combines while the orange leaf color on an olive tree would be entirely out of place with the ollve leaves. So it is in every kind of tree or vegetable. The color of the leaves or flowers or fruit shades. from light to dark. So it is with the hen's egg. There is no hen but what will lay a very light colored egg. She will again lay a very dark colored egg. Each batch of eggs she lays will usually begin with elther very dark or very light eggs and gradually change in shade. I have raised S. C. R. I. Reds and know it to be a fact.

I now ralse White Rocks and sometimes I will get a mixture in shades while other times I will get many light eggs even almost white at times and again they will most all be dark brown. I have trapnested and I know this to be a fact. Of course in trapnesting a large flock one will not notice this unless he pays partlcular attention to the gradual change in each hen's eggs.

Some people ask me the why of the difference in color and I tell them my belief of the why. The dark shelled eggs generally contain pullets and the white shelled eggs generally contain the cockerels. If our hatcheries did not reject so many of the dark shelled eggs of the White Leghorns they would hatch far more pullets. When I was raising White Leghorns I used to select my eggs in the daylight the day they were laid. I always rejected the pure white eggs and I had very few cockerels in my hatches. You must of course know your hen and know the kind of egg she is accustomed to lay as some Leghorns don't lay a pure white egg at any time and their eggs are not dependable. I would not supply any customer with all dark brown eggs at the same price as the medium or light eggs for the pullets are what I am mostly after as my hens are the bred to lay hens. If a certain customer wanted all of one shade I would not object to sell them to him provided he were willing to pay the difierence in price for the uniform shade. I would not want the uniform shade if I were buying a setting of eggs unless my object was all cockerels or all pullets.

AT THE A. P. A.

At the annual convention of the American Poultry Association the succèss of California cooperating poultry people will be told by Manager Barber of the Poultry Producers of Central California. Chairman Quisenberry of the convention committee writes, calling our attention to the convention which will be held in Kansas City, August 10 to 13. He refers to the prosperity of poultry people and to the many problems of vital interest, especially high priced feeds and difficulty in marketing, and the success which has been secured by California cooperators, Mr. Qulsenberry writes:

"J. H. Barber, manager of the California Poultry Producers Association, has been invited to explain the methods of cooperation which are used so successfully in California, and which are pushing the poultry industry In that state to the front and making it profitable for all producers."

and again adds:

"The Cooperative Poultry Associations as they are conducted in California and some of the Pacific Coast states have proven a remarkable success. They have put the poultry industry in those states on a sound financial basis and insured profits to the poultry producers. The manager and organizer and some of the members of these associations will be here to tell the American poultrymen how they are doing the work, and plans will be worked out for organizing similar associations in the various states of the Union.

"Some method of creating a national advertisIng fund to advertise the food value of poultry and eggs, to encourage their consumption and to show their qualities compared with other food products will be proposed at this great convention. It may be that we can work out some method whereby our poultrymen will be taxed two cents per hen on each farm, or some other method of raising a national fund for this purpose. This has been done by the orange growers, the raisin growers, the National Dairy Association, the National Apple Association, the National Peach Growers, and many other agricultural products are being pushed and advertised and markets created through an advertlsing fund of this nature. There is nothing that will come before the association that will mean so much to the industry and that will help to hold up the price of eggs and poultry as will an advertising campaign of this sort. This question will be discussed and some action taken to organize the whole nation with this object in view. This work alone is worth your trip to Kansas City to attend this national convention."

THE REAL TROUBLE

"The pulling down of the temple was the cause of Samson's remarkable feat."

"Remarkable feet? I should call it a case of fallen arches."

For Dependable Threshing with the Fordson

Get the utmost efficiency from your Fordson by belting it to an individual thresher and handling your own small grain crops. The more belt work your Fordson does, the greater will be the return on your tractor investment. With an individual outfit you plan your work—you thresh when it is most convenient to *you*.

But dependable threshing and satisfactory belt work with the Fordson tractor is best assured when you use the Little Giant tractor belt—the belt specially designed for use with this tractor.

The Little Giant belt is endless so there are no belt ends to pull out and no stops for relacing.

It has a powerful clinging pulley-grip that not only conquers slippage but also overcomes any tendency toward throwing the belt off when a bunch of wet bundles goes through the separator.

It is unusually serviceable and withstands to a marked degree the effects of exposure to moisture, heat and all the ordinary enemies to belt efficiency in farming.

It is made of four plies of a single piece of best quality, heavy canvas, pressed, stitched, with double stitches at the edges to withstand edge wear. Its special design compels it to run straight and true always. You can get Little Giant belts in three lengths—50 ft., 75 ft. and 100 ft. from your Fordson dealer.

United States Rubber Company
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WM. L. HUGHSON CO., San Francisco, Calif.

For sale by all authorized Fordson Dealers

Los Angeles Markets

Los Angeles, June 2, 1920.

BUTTER

Butter, creamery extras. Produce Exchange price 54 cents.

Dairy Exchange prices last week on extras:

May	26	27	28	29	31	June 1
'20 ...	54	54	54	54	..	54

CHEESE

Brokers' prices:
California flats, 27 per lb.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 43 per dozen; case count Produce Exchange closing price, 41 per dozen; pullets, Produce Exchange closing price 38 per dozen; pewee pullets, 31.

Dairy Exchange prices last week on extras:

May	26	27	28	29	31	June 1
'20 ...	42½	42	42	42	..	43

POULTRY

Price to producers: Hens, lt., 21; heavy, 26@28, broilers, 26; roasters, 38; old roosters, 14; fryers, 33; ducks, old, 20, ducklings, 28; ducklings, Pekln, 3½ up, 25; others, 20; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 16; old, 9.

LIVESTOCK

Los Angeles, June 1 — Weighed and delivered off cars without food or water:

Hogs (hard-grain, 125 to 175 lbs., 15.50; 175 to 225 lbs., 16.50.

Cattle (on foot, gross weight)—Steers, good, 11.00@11.50; medium, 10.50@11.00; cows, good, 9.00@9.50; medium, 8.50@9.00; bulls and stags, 6.00; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, June 1, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Old Stock: Market firm. Stockton: Burbanks, fancy and special brands, 9.00. Idahos: Russets, fancy, 9.00@9.50. New stock: Market firm. Local Early and White Rose, No. 1's 3.00@3.50; No. 2's, 1.10@1.90 lug; sack, No. 1, 7.75@8.50.

Onions: Supplies of Wax, heavy; Yellow, moderate; wide range in quality; some slippery; demand and movement slow; market weak. New Stock: Imperial Valley and Coachella Valley: Wide range in prices. Bermudas, best, $1.25@1.50 per crate; lugs, 75@1.00. Crystal Whites, best, per crate, 1.25@1.50; lugs, mostly 75@1.00; poorer, slippery low as 1.00.

Garlic: lb., 40.

VEGETABLES

These are the actual prices obtained June 1, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., best, 65@1.00.

Asparagus: Supplies moderate. Delta section: Best, 10@12; local, 15@17.

Beans: Wax, lb., 5@6; Ky. Wonder, 7@10.

Beets: Doz., 40@50; sk., 2.25@2.75.

Cabbage: Market unsettled, movement slow; wide range in quality; best, 1@2 per lb.; per crate, best 1.25@1.50. Red cabbage, 4@5 per lb.

Carlots: Demand slow; movement limited; market unsettled. Few cars rolling on consignment. Few sales. Carloads f. o. b., usual terms. Cannonball and Winningstadt, per ton, mostly $20.00.

Carrots: Doz., 40@50; sk., 2.50@2.75. 2.75.

Stock: 1.40@1.70 per box.

Corn: Doz., 75@1.00.

Egg Plant: Best, lb., 20@25.

Lettuce: Supplies heavy. Crates, best, mostly 60@75.

Carlots: Few shipments; mostly on consignment; too few sales to establish market.

Parsnips: Lugs, 1.00@1.50; sacks, 3.00@3.50.

Peas: Local, lb., 5@6; poorer low as 3; Northern: lb., 7½@9.

Rhubarb: Strawberry, bx., 1.25@1.50; Crimson Winter, 75@1.00.

Spinach: Doz., 20@30; lb., 2.

Squash: Imp. Valley, summer, cr., 1.00@1.10; local, lug, 1.50@1.75.

Tomatoes: Imperial Valley Stock: Supplies liberal; market steady; per crate, best, 2.25@2.50; Mexican best, 7@10 per lb.

Turnips: Per dozen, 40@50; per sack, 2.00@2.25.

FRUITS

These are the actual prices obtained June 1, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Apricots: 12@14 lb.

Bananas, 10; Red, 10.

Blackberries: Supplies light; per crate, mostly 4.00@4.50.

Cherries: Black Knight and Black Tartarian, best, 14@16 per lb.

Gooseberries: lb., 10@12.

Cantaloupes: Imperial Valley: Standards, 7.00; ponies, 5.00@6.00; flats, 2.50

Carlots: Haulings moderate, slightly increasing. Track sales: mostly consigned, quality and condition generally good, size improving.

Loquats: Best, mostly 12@15; poorer low as 7 per lb.

Raspberries: cr., 4.00@4.75.

Strawberries: No arrivals. Local: Market firm. Per crate, 5.50@7.00; per tray, 2.75@3.50.

Grapefruit: per box, best, 4.00@4.50. Seedlings packed, 2.50@3.00; loose, 2.00@3.00.

Lemons: Market firm. Local stock: packed, 3.50@4.25; loose, 2.00@2.25; 2@3 per lb., juice, 2.00@3.00.

Oranges: No carlot arrivals. Supplies liberal. California Navels, best brands, packed, 80's to 100's, best, 4.00@4.75; 126's to 150's, best, 5.00@5.50. Local Market: packed, 80's, 3.50; 96's, 4.00; large sizes, low as 2.25; lugs, culls, mostly 1.50@1.75. Valencias: Packed, special brands, 5.00@5.50; local packed, 3.75@4.25.

HONEY

Demand exceeds supply, movement limited, market higher. Old honey practically exhausted, new supply not on market for about two weeks. Carloads f. o. b., usual terms. Light amber sags per pound, 18; light amber alfalfa, 17. Beeswax, l. c. l. lots, 40@42.

BEANS

California Lima Bean Growers Association:

Limas, 10.43 per cwt.; Baby Limas, 10.00 per cwt, f. o. b. coast.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	24.00@26.00
Barley	18.00@20.00
Alfalfa	23.00@27.00
Barley Straw	8.00@10.00

Alfalfa Growers of California, under date of June 2, say:

Receipts of alfalfa hay this week again light and prices poor. Spot lots are still at the same level. The demand for future shipments is gradually broadening and we have made further sales of round lots. Shipments within 30 days have equalled $30 to $31 per ton delivered in Los Angeles. Growers do not sell freely at these prices unless compelled to do so, as it is hard for them, if not impossible, to make both ends meet on this basis, especially in view of prospective light yield for the season in many sections. Farmers may not be accused of profiteering at these prices.

Los Angeles prices as named this week:

Rabbit Alfalfa	38.00
No. 1 Dairy	33.00
Standard	30.00
Stock	28.00

GRAIN AND FEEDS

Price bid local grain exch. cwt., June 1.
Barley: Carlots, 3.17½@3.20.
Corn: Sacked Yellow, 3.85@3.91¼.
Milo: 3.00@3.20.
Wheat, mixed feed: Utah-Idaho, 6.00.

San Francisco Markets

San Francisco, June 1, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	54½
Prime Firsts	Nominal

Extras past wk. and year ago:

May	25	26	27	28	29	31
'20 ...	54½	55	54½	54½	54½	..
'19 ...	..	59½	59½	..	61	..

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	28
Ore. Trips	32
Cal. Flats	24@27½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	46
Firsts	42
Extra pullets	39½
Undersized	32

Extras past week and year ago:

May	25	26	27	28	29	31
'20 ...	45	44	43½	44	44½	..
'19 ...	..	51	50½	..	51	..

POULTRY

Wholesale prices are:

Leghorn, 30@31; large, 37@39; roosters, young, 45@50; old, 18@20; broilers, 29@35. fryers, 45@50; turkeys, live, 37@40; dressed, 48@50.

Ducks, Indian Runner, 23@25; Pekin, 28@30. Squabs, 55@60; pigeons, doz., 2.35@2.50.

Belgian hares, live, 22@25; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Cattle—Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 9@10½; do, 1,200 to 1,400 lbs., 8½@9½; do, second quality, 7@9; thin, 6@7.

Cows and Heifers—No. 1, 7½@8; second quality, 6@7; common to thin, 3@4.

Calves—Light weight, 10@11; medium, 8@9; heavy, 7@8.

Lambs—Milk, 11@12; yearling, 9@9½.

Sheep—Wethers, 8@8½; ewes, 7@7½.

Hogs—Weighing 100 to 150 lbs, 15; 150 to 225 lbs., 16; 225 to 300 lbs., 15½; 300 to 400 lbs., 14½.

Virden Packing Company quotes prices on live stock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle: Good steers, 1000 to 1100 lbs., 10@10½; top steers, 1100 to 1200 lbs., 9@9½; good heifers, 1200 lbs. and over, market price; good cows and heifers, 7½@8; No. 2 cows and heifers, 6½@7; canner cows, 3½@4; good bulls, 4½@5.

Calves: Light, 13@14.

Hogs: Top packer, hard and well finished; 100 to 150 lbs, 15½; 150 to 225 lbs., 16½; 225 to 300 lbs., 15½; over 300 lbs., 15; under 100 lbs., 14.

Ewes: Full wool, 7@8.

Wethers: Full wool, 9½@10.

Yearlings: 10½@11.

Milk lambs: 60 to 70 lbs, 10@11; over 70 lbs., 9@10.

POTATOES

River, 7@8 per lb. Idaho Gems, .50@7.00 per 100 lbs.; new, 6@7 per lb.; new garnets, 6.00@7.00 per 100 lbs.; Turlock sweets, 10 per lb.

ONIONS

New Reds, 1.75@2.00; green onions, 1.50@1.75. Garlic, old, 30@35; new, 15@22½ lb.

VEGETABLES

Wholesale selling price:

Artichokes, 1.00@5.00.

Asparagus: lb., white, 6@10, graded, 10@12; gr, 4@7.

Beans: lb., string, 5@8; wax, 3@7.

Celery: cr., 3.00@3.75.

Cucumbers: Eng., doz., 1.50@1.75; hothouse, bx., 2.00@2.25.

Lettuce: L. A., 90@1.50 cr.

Peppers: Bells, 20@25 for large, 10@13 for small; chili, 12½@25.

Peas: lb., green, 3½@4½.

Radish, 7@9 doz. bunches.

Rhubarb: bx., 1.25@2.00.

Spinach: lb., 6.

Squash: Summer, cr., 1.25@1.65.

Tomatoes: Brawley, cr., 2.00@3.25.

DECIDUOUS FRUITS

Apricots: Imperial Valley, Los Angeles lugs, 10@15 per lb.; 2.50@3.50 per crate.

Bananas: lb., 7@9½.

Cantaloupes: Ponies, 4.00@6.00; flats, 2.00@3.00; standards, 6.50@8.00.

Cherries: Purple Guigne, 1.75@2.25 and drawers; loose, whites, 7@12; blacks, 10@15 lb., according to quality.

Figs: 1.00@1.25 for white and Brunswick per box of one layer.

Gooseberries: lb., 7@9½.

Loquats: lb., 6@15.

Pineapples: Doz., 3.00@5.00.

Raspberries: dr., 1.50@1.75.

Strawberries: Peninsula, dr., large, 75@1.00; small, 45@70.

Watermelons: Imperial Valley, lb., 12½.

CITRUS

Box:Lemons, standards, 2.50@3.00; lemonettes, fancy, 2.75@3.00; choice, 1.50@2.00; grapefruit, fancy, 2.50@3.50; choice, 1.75@2.25; limes, 4.00@4.50 crate.

Box: Lemons, standards, 2.50@3.00; lemonettes, fancy, 1.00@1.50; grapefruit, fancy, 2.50@3.00; choice, 2.00@2.50; oranges, navel, 3.00@6.50; limes, 4.00@4.50 crate; tangerines, 1.50@3.25 crate.

DRIED FRUITS

Prunes:

Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small-sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.

For "practically peeled" add 1½c per pound (any grade).

Prices above are all bulk basis.

For packing in 50 pound or 25 kilo boxes add 1 cent per pound.

25 pound or 12½ kllo boxes, all 1¼c per pound.

10 pound boxes, add 2c per pound.

Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.

Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.

Bakers' special "practically peeled," 16¾c per pound, bulk basis.

Apples:

Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:

White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:

Standard 20, choice, 22½; extra choice, 24; fancy, 26@27.

WALNUTS

Net prices have been named by California Walnut Growers' Association.

No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

BEANS AND PEAS

California Bean Growers Association, San Francisco:

The bean market has shown considerable activity during the past two weeks, particularly for California Large and Small Whites and Pinks. For the past few days, however, owing to car shortage and railroad strike conditions which are still an important factor in the East, there has been a slight easing up in orders on account of the difficulty in securing transportation. The market is firm, with an upward tendency, the following prices being quoted at this date:

Large Whites	6.50@6.70
Small Whites	6.10@6.35
Mexican Reds	9.40@9.50
Red Kidneys	14.00@14.50
Bayos	10.40@10.60
Pinks	6.60@6.80
Cranberries	6.50@6.75

Prices reported in daily papers:

Jobbing prices at San Francisco, per cental: Small white, 6.20@6.30; large white, Bayo, 9.50@9.75; blackeye, 8.40@8.50; red, 6.60@6.70; cranberry, 6.25@6.50; red Mexican, 9.00@9.25; pink, 6.60@6.70; California kidney, 13.00@13.15; lima, 10.90@11.00; Garvanza, 9.00@9.50.

Dried Peas: California, 5.00@5.25 cental.

Lentils: California, 11@11½ per lb.; Chile, 12 per lb.

HOPS

1919 crop, 1.00@1.05 per lb. Prices to growers for 1920 crop, 75@80 per lb.

HONEY

Old crop is scarce and hard to quote. New white orange extracted is 21, f. o. b.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

Hard White—	Per Bus.	Per Cen.
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.58
No. 3	2.00	3.48 1-3

The above are minimum prices.

For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.40@3.50.

Corn: California yellow, 3.70@3.75 per cental; Egyptian white, 4.10@4.25; California milo maize, 3.45@3.50; Eastern milo maize, 3.15@3.25.

Barley: No. 1 feed, 3.40@3.50.

HAY

Under date of May 29, Scott-Magner, Miller, say:

We quote today wholesale prices in carload lots (old crop) as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.)

Fancy wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat and Wheat and Oat hay	35.00@38.00
No. 2 Wheat and Wheat and Oat hay	32.00@35.00
Choice Tame Oat hay	37.00@40.00
Wild Oat hay	Nominal
Other Tame Oat hay	33.00@37.00
Barley hay	Nominal
Alfalfa hay new	25.00@30.00
Alfalfa hay, old	30.00@32.00
Stock hay	29.00@32.00
Oregon Cheat and Oat hay	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, California, June 2, 1920.

Delayed freights have resulted in serious decay. Some stuff has been sold at desperately low prices. Good stock is still commanding good prices. Valencias are now going forward rapidly. It is estimated that there are approximately 9,000 cars to be shipped before December 1. This is materially lower than last year's output which aggregated 15,457 between June 1 and December 1.

The demand for California lemons is only fair; buyers are waiting for a period of warm weather. Shipments going forward very light. The number of cars of lemons will greatly increase in a few days in order to throw a big bunch of stuff in Eastern markets for Fourth of July trade.

Shipments

Shipments of oranges to date from Southern California since November 1, 1919. Oranges, 20,078 cars; lemons, 4,373; total, 24,451. To same date last season: Oranges, 23,124; lemons, 2,795; total, 28,919. From Central California, to date this season: Oranges, 5,315; lemons, 288; total, 5,603. To same date last season: Oranges, 3,366; lemons, 251; total, 3,617. Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

May 26

New York: 32 or., 2 mixed, 1 grapefruit. Nav. 2.75-5.05, Val. 2.85-6.00, Seeds 2.95-4.00, St. Mike 4.40-4.65, Sweets 3.00-3.90. Bloods, halves 1.95-2.75, grapefruit, halves 80-1.20.

St. Louis: 8 or., 3 lem. Nav. 3.40-5.23. Val. 2.90-4.35, Bloods 3.25-3.75, Seeds 1.80-4.05, lem. 2.50-4.15.

Boston: 25 or, 3 lem. Nav. 3.10-5.75, Val. 2.85-5.45, St. Mike 4.30-4.95, Sweets 3.10-3.75, lem. 1.80-3.40.

May 27

New York: 48 or., 1 lem. Nav. 2.55-5.25, Val. 2.50-5.70, St. Mike 4.65-5.65, Sweets 2.95-4.05, Seeds 2.70-3.80, Tang. 4.00, lem. 3.95-4.65.

Philadelphia: 11 or., 2 lem. Nav. 2.65-4.05, Val. 3.40-5.05, Seeds 2.70-3.35, St. Mike 2.95-4.45, Bloods 2.65, Sweets 2.90, lem. 1.55-2.30.

May 28

New York: 45 or., 1 lem. Nav. 2.60-5.05, Val. 2.35-6.20, St. Mike, 2.50-5.10, Sweets 2.00-3.70, grapefruit, halves 1.40, Bloods 2.25-3.55, Seeds, 2.75-3.80

Boston: 18 or., 2 lem. Nav. 2.90-4.70, Val. 2.80-5.10, Sweets 2.70, St. Mike 3.30, Seeds 2.80, lem. 2.10-5.15.

St. Louis: 7 or., 2 lem. Nav. 2.25-4.95, Val. 3.55-4.75, Seeds 1.75, lem. 2.65-4.75.

June 1

New York: 64 or., 2 lem. Nav. 1.80-5.00, Val. 1.95-7.50, St Mike, 2.45-4.65, Sweets 2.20-3.75, Seeds 1.85-3.65, Tang. 3.40, Bloods, halves 1.85, Sweets 2.00-2.60, lem. 2.05-3.95.

Boston: 44 or., 7 lem. Nav. 1.35-5.00, Val. 2.15-4.80, Bloods 2.65-2.75, Seeds, 1.10-2.80, Sweets 1.95-3.05, St. Mike 3.60-4.30, lem. 1.90-5.00.

Pittsburgh: 12 or., 2 lem. Nav. 3.20-6.25, Val. 3.45-5.50, Grapefruit 45-70, lem. 3.90-4.60.

Philadelphia: 16 or., 2 lem. Nav. 1.80-4.40, Val. 2.25-5.65, Sweets 2.00-4.10, St Mike 2.55-5.90, Seeds 2.50-3.25, Bloods, 1.95-2.10.

YIELDS INCREASED BY USING STRAW

According to experiments made at the West Central Station, Minnesota, farmers who burn their straw or allow the stacks to stand for years in the fields are robbing themselves. Applying straw directly to the land has given good results.

Results of experiments conducted the last four years: For a four year average, one ton of wheat straw plowed under each year gave an increase of 6.2 bushels of corn to the acre the following year, while one ton of corn stover plowed under gave an average increase of 1.5 bushels of wheat each year during the same period.

Heavier applications gave smaller increases. Two tons of wheat straw gave an average gain of only 3.3 bushels of corn, while two tons of corn stover gave an average gain of only 0.4 bushels of wheat, compared with the untreated land.

This experiment was begun in 1916 and during the first two years there were no increases with wheat, but during the next two years wheat gave an increase each year with both the one ton and two ton stover applications. In 1916 there was no increase with corn, but in 1917 there was a very decided increase, and in both 1918 and 1919 there was a very decided increase from the one ton applications. It seems apparent that the cumulative effect, especially with an application of one ton, is having beneficial influence upon yields.

We are coming to the conclusion that straw in amounts of one ton per acre can be applied with benefit upon land which is to be used for corn or wheat. The results at this station seem to indicate that it will take at least two applications before noticeable increases in yield are obtained. Inasmuch as only a small part of the straw can be handled as litter, it would appear that spreading it directly upon the land is an easy and effective way of making use of it.

YES—FEED THE FISHWORMS!

You don't find many fishworms in a sand bank. There is nothing there for them to eat. Nor will you find many in a light, sandy soil. There is not much more to eat there than in the sand bank.

If you will put a thick layer of leaves on sandy soil and place a few fishworms on the leaves something is likely to happen. The worms will make their way through the leaves to the top of the soil. Then they will begin to eat the leaves and draw them down into the holes in the soil that the earthworms are always making. The small bits of leaves along with the small bits of soil pass through the bodies of the worms and are finally cast out as little pellets on the surface beside the holes. You can see such little piles of pellets almost any summer morning by looking in the garden.

This experiment shows what is happening all summer in every garden where leaves and fishworms are present. And it is not leaves alone that the fishworms eat. All kinds of plant materials soft enough for them to get hold of are devoured and the particles passed through their bodies to be cast out as pellets on the surface. In this way the earthworms have been very helpful in increasing the depth of soils. For while one worm alone may not do much in one year, a million worms in a hundred years will accomplish a great deal.

You will readily see that this grinding up of the leaves in the bodies of the worms makes them more useful in furnishing food to roots of plants. The tiny root hairs can penetrate all through the fine particles and absorb moisture and food. But the grinding up is also helpful in another way. The soil is full of minute germs called bacteria, which are always at work, producing food for plant growth. These bacteria can work much better in this finely ground leafy material than in coarse leaves. So the worms are of great assistance in making the soil richer in chemicals for plant growth.

Even the holes that the worms make in the soil are helpful. They permit air to penetrate and rain to run in, thus furnishing two of the most necessary things to keep the soil in action. On this account alone it is desirable to have earth worms in the garden.

Humus is called the food producer. When you feed fallen leaves to the fish worms they become producers of humus and enrich the soil by so doing. They help to make the soil better, but they must have plant materials to do it with. In general the richer your garden the more earthworms there will be.

So it all comes down to this: If you feed the fishworms the fishworms will feed you.

REDUCED ACREAGES IN POTATOES AND BEANS INDICATED

Reductions of five per cent in the acreage planted to potatoes last year and of 29 per cent in areas devoted to beans are indicated for this season in reports just received by the bureau of crop estimates, United States department of agriculture. The reports came through the field agents of the bureau who on May 1 inquired of growers in important producing states concerning their intended plantings. High prices for potato seed and the farm labor shortage are the principal reasons given for the reduction in potato plantings. The unsatisfactory market for beans is given as the reason for the smaller acreage planned for that crop. The reports show that for the states covered the potato acreage will be 95 per cent as large as last year, while the bean acreage will be 71 per cent of last year.

New York reports the intention to plant 97 per cent of last year's acreage in potatoes, Michigan 90, Wisconsin 95, Minnesota 89, Colorado 94, Idaho 95, and California 110. Aroostook County, Maine, which produces 60 per cent of the potato crop of New England, intended to plant as much or more, but deep snows, strikes and embargoes have delayed receipt of fertilizer, and plantings will depend upon the amount received in time.

THE HONEY LOCUST

The honey locust tree, Gleditschia triacanthos, is planted in every state, for it is native to the southern part of the United States. It is a common tree in California, but more popular in the central and northern counties where deciduous trees are more in demand than in the southern part. It is a hardy, long lived drouth resistant tree that will grow 40 or 50 feet high and three to four feet in diameter of trunk, and in favorable soils makes rapid growth, though growing in any.

Aside from its use in this country the honey locust has been very generally planted and appreciated abroad. The Australians have been loud in its praises for a variety of uses, using it for fence posts and fuel and the lumber for flooring where resistance to dampness is needed. It is also much used there and elsewhere, notably in Port Said and other Egyptian cities, for street planting, reveling in hot, dry, alkaline regions. In fact it seems to be best appreciated away from home. It bears heavy crops of beans that make excellent food for hogs, eaten at any stage, though generally allowed to drop from the trees at maturity. As a hedge to turn stock it has few equals, being armed with formidable spines or thorns two to four inches long. The tree may safely be pruned in winter to any size or shape, even to a low hedge, without in the least impairing its vigor. It would seem, from having so many good points, that it should be more extensively planted in California, especially in stock raising sections.—E. B.

DUST FANS FOR GRAIN THRESHERS

The frequency of dust explosions and fires in connection with threshing operations in the wheat producing section of the Pacific Northwest has led to the development of a dust collecting fan, a device designed and perfected by engineers of the United States department of agriculture in cooperation with the manufacturers of threshing machinery. This apparatus has proved so successful that many grain separators in the Pacific Northwest are now equipped with the device.

This device, when used in conjunction with a wiring system to carry off charges of static electricity developed by the thresher, and further aided by a fire extinguisher adapted to separators, gives the thresher a protection nearly absolute. Eventually this protection will greatly lessen the insurance risk, which hitherto has been at the prohibitive rate of $80 to $100 for each $1,000 of property insured. And this rate is only for a 20 day run.

Now it appears that the joint project of the bureaus of chemistry, plant industry and markets is to produce specific results in protection from fire and explosion and a decrease in insurance rates; the cleaning of grain, particularly of smut; and the checking of wheat smut through the collection of the smut spores by the fans at the time of threshing. This method reduces the wind dissemination of spores which otherwise would be blown out of the wind stacker to infest the fields.

San Joaquin Valley Orchard Scene

COULDN'T KEEP QUIET

He was driving a four mule team hitched to a ration wagon, and he lost his way in the night and mist and drove right through the American trench line, which was not continuous at that point, and started rumbling along an old road which led across No Man's Land. He had gone a few rods when a doughboy jumped out of a listening post and began to signal to him with both hands.

"What's the matter?" shouted the driver.

"Hush!" said the doughboy in a low and agonized whisper. "You're headed straight toward the German lines. For God's sake, turn around and don't speak above a whisper."

"Whisper, hell!" boomed the driver. "I've got to turn four mules around.—New York Tribune.

WEATHER REPORT
San Francisco, California, May 29, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.00	22.03	44.84	56	38
Red Bluff	.00	10.60	25.51	90	52
Sacramento	.00	8.85	19.91	90	44
San Francisco	.00	10.42	22.06	71	47
San Jose	.00	8.63	16.67	80	40
Fresno	.00	8.21	9.54	92	50
San Luis Obispo	.00	14.81	20.36	90	42
Los Angeles	.00	12.50	15.55	88	53
San Diego	.00	8.88	9.96	78	54

"SOME MILES"
SOME MASCOT!
WHO THS TH BLAME NOW DADDY?
HENRY BOUGHT AN AUTOMOBILE
HE THEN TOOK OUT INSURANCE,
HE BOUGHT A SET OF THE BEST TIRE MADE,
"HORSE SHOE CORDS" FOR ENDURANCE!
For a long hard run-use Horse Shoe Tires

Poisoning and Trapping Rats and Mice

One of the cheapest and most effective poisons for rats and mice is barium carbonate. This mineral has the advantage of being without taste or smell. It has a corrosive action on the mucous lining of the stomach and is dangerous to larger animals if taken in sufficient quantity. In small doses fed to rats it would be harmless to domestic animals. Its action upon rats is slow, and if exit is possible the animals usually leave the premises in search of water. For this reason the poison may frequentiy, through not always, be used in houses without disagreeable consequences.

Barium Carbonate

Barium carbonate may be fed in the form of dough composed of four parts of meal or flour and one part of the mineral. A more convenient bait is ordinary oatmeal with about one-eighth of its bulk of the mineral, mixed with water into a stiff dough. A third plan is to spread the barium carbonate upon fish, toasted bread (moistened), or ordinary bread and butter. The prepared bait should be placed in rat or mice runs, about a teaspoonful at a place. If a single application of the poison faiis to kiil or drive away all rats or mice from the premises, it should be repeated with a change of bait.

Strychnine Sulphate

Strychnine sulphate is too rapid in action to make its use for rats or mice desirable in houses, but elsewhere it may be employed effectively. Strychnine sulphate is the best form to use. The dry crystals may be inserted in small pieces of raw meat, sausage or toasted cheese, and these placed in rat or mice runs or burrows; or oatmeal may be moistened with strychnine syrup and small quantities laid in the same way.

Strychnine syrup is prepared as follows: Dissolve a half ounce of strychnine sulphate in a pint of boiling water; add a pint of thick sugar syrup and stir thoroughly. A smaller quantity may be prepared with proportional quantity of water and syrup. In preparing the bait it is necessary to moisten all the oatmeal with the syrup. Wheat and corn are excellent alternative baits. The grain should be soaked over night in the strychnine syrup.

Arsenic

Arsenic is probably the most popular of the rat poisons, owing to its cheapness, yet experiments prove that, measured by results obtained, arsenic is dearer than strychnine. Besides, arsenic is extremely variable in its effect upon rats, and if the animals survive a first dose it is very difficult to induce them to take another.

Powdered White Arsenic

Powdered white arsenic (arsenous acid) may be fed to rats and mice in almost any of the baits mentioned under barium carbonate and strychnine. It has been used successfully when rubbed into fresh fish or spread on buttered toast. Another method is to mix 12 parts by weight of corn meal and one part of arsenic with whites of eggs into a stiff dough.

An old formula for poisoning rats and mice with arsenic is the following: Take a pound of oatmeal, a pound of coarse brown sugar, and a spoonful of arsenic. Mix well together and put the composition into an earthen jar. Put a tablespoonful at a place in runs frequented by rats and mice.

Poison in Poultry Houses

For poisoning rats in buildings and yards occupied by poultry the following method is recommended: Two wooden boxes should be used, one considerably larger than the other and each having one or more holes in the sides large enough to admit rats. The poison bait should be placed on the bottom and near the middle of the smaller box, and the larger box should then be inverted over it. Rats thus have free access to the bait, but fowls are excluded.

Trapping

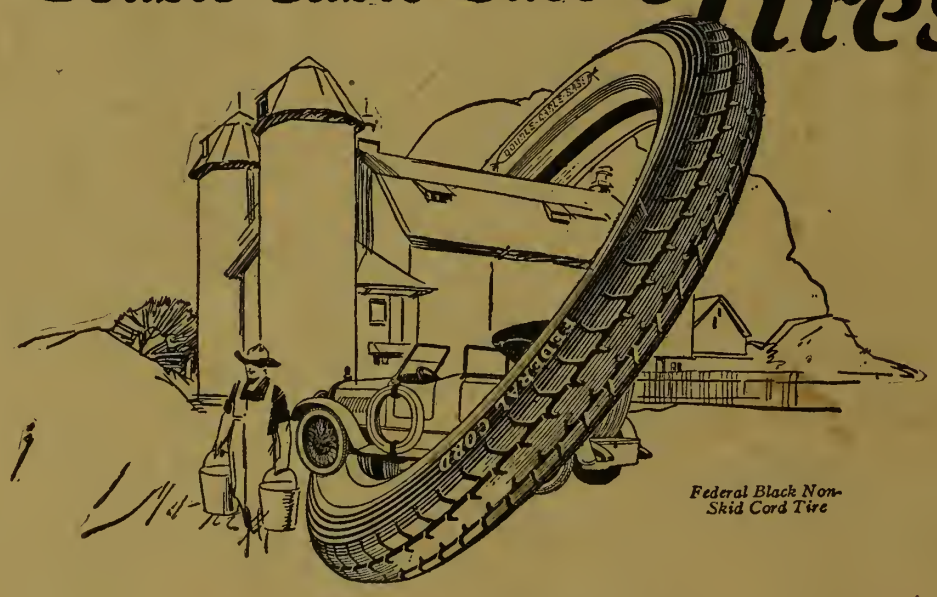
Owing to their cunning it is not always easy to clear rats from premises by trapping; if food is abundant it is impossible. A few adults refuse to enter the most innocent looking trap. And yet trapping, if persistently followed, is one of the most effective ways of destroying the animals.

For general use the improved modern traps with a wire fall released by a baited trigger and driven by a coiled spring have marked advantages over the old forms, and many of them may be used at the same time. These traps, sometimes called "guillotine" traps, are of many designs, but the more simply constructed are preferable. Probably those made entirely of metal are best, as they are more durable. Guillotine traps should be baited with small pieces of sausage or fried bacon. Other excellent baits for rats are oatmeal, toasted cheese, toasted bread (buttered), fish, fish offal, fresh liver, raw meat, pine nuts, apples, carrots, corn, and sunflower, squash or pumpkin seeds. Broken fresh eggs are good bait at all seasons, and ripe tomatoes, green cucumbers and other fresh vegetables are very tempting to the animals in the winter.

When rats are abundant, the large French wire cage traps may be used to advantage. They should be made of stiff wire, well reinforced. Cage traps may be baited and left open for several nights until the rats are accustomed to enter them to obtain food. They should then be closed and freshly baited, when a larger catch may be expected, especially of young rats. It is better to cover the trap than to leave it exposed. A short board should be laid on the trap and an old cloth or bag or bunch of hay or straw thrown carelessly over the top. If a single rat is caught it may be left in the trap as a decoy to others.

FEDERAL

Double Cable Base Tires



Federal Black Non-Skid Cord Tire

Tire and Wheel Are One

When you use Federal Tires, your power drives *the car*—it doesn't run a grist mill, of *wheel-rims against tires*.

Federal Tires are grappled inseparably to the rims by four steel cables—the Double-Cable-Base—exclusive to Federal Tires.

This is why Federal Tires do not come off, slip, slide or creep, rim-cut or blow out just above the rim.

Avoid rim-troubles—get the mileage that thousands of other Federal users are getting. Go to the Federal dealer and equip with Federals.

THE FEDERAL RUBBER COMPANY, *of Illinois, Factories, Cudahy, Wis.*

Manufacturers of Federal Automobile Tires, Tubes and Sundries, Motorcycle, Bicycle and Carriage Tires, Rubber Heels, Horse Shoe Pads, Rubber Matting and Mechanical Rubber Goods

FINLAND PINE TAR

The methods pursued in the past for obtaining tar in Finland have been very destructive to her pine forests and better methods are gradually being adopted. Fortunately, perhaps, since 1863, the boom year of the pine tar industry, iron and steel have largely taken the place of wooden ships and tar is in less demand than in former years.

The following primitive method of getting tar, which fortunately is being done away with, was used extensively. The bark is stripped off each pine tree to a height of seven or eight feet, a narrow strip being left on the north side, where the bark is strongest, in order to preserve the life of the tree. This stripping goes on for three or four years, or as long as the tree will stand it, each time a little higher, and a thick yellow resin oozes out of the peeled wood and forms a thick crust on the trunk. With the last treatment the narrow strip of bark that has been left on to preserve the tree is also removed, and when the snow is on the ground those trees which have had their final treatment are felled and carried on sledges to the tar kilns, which are huge, saucer shaped affairs constructed of wooden logs bricked over and cemented, and are usually built along the river banks.

The tree trunks are cut into pieces of about a yard in length and piled upon the kiln, then covered with turf and kindled at several points. The kiln smolders for a couple of weeks, the resin crusts of the trunks gradually melting and the tar flowing down the kiln to the hole in the center, with which pipes are connected that conduct the tar into barrels. Most of the kilns are large enough to yield more than 100 barrels, or 40,000 pounds, of tar at one burning. If the kilns are not situated near any waterway, the tar is transported to the rivers by fixing the barrels to axles held together by beams of wood, so that the barrels themselves act as wheels, and in this way the horses can pull them over the rough roads very easily.

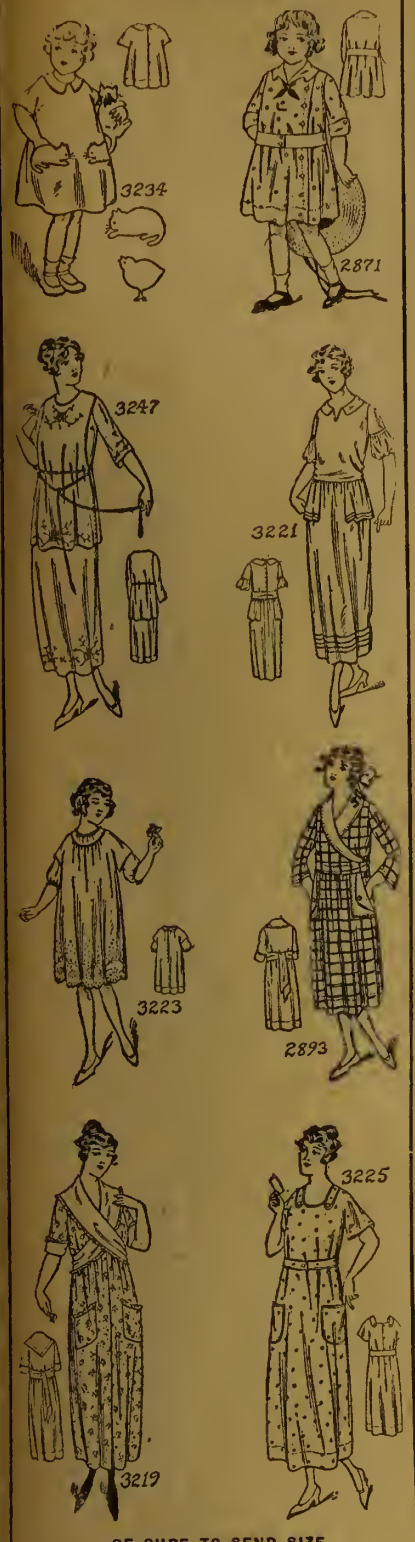
COTTON GOING AND COMING

Outgoing cotton bales please keep to the right. During March of the present year we exported 794,460 bales. We imported foreign cotton to the extent of 133,727 bales. And that is the program throughout the year, for in the eight months ending with March 1920, we imported 566,000 bales and exported 5,234,000 bales. During the same period we consumed 4,255,500 bales, exclusive of what was on hand in consuming estabiishments as storage, amounting to about 2,000,000 bales.

TESTING DANISH SEEDS

Near Copenhagen, Denmark, is the oldest and largest seed testing station in the world, and it is said "there is no country in the world where such care is exercised in the control of the seed used by the farmer, and this attention has been largely instrumental in the success of seed culture in Denmark."

The Cultivator Patterns



BE SURE TO SEND SIZE

3234. A New Play Apron. Cut in 5 sizes: 1, 2, 3, 4 and 5 years. A 4 year size will require 1½ yards of 36 inch material. Price, 10 cents.

3247. A Charming Gown. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 4⅜ yards of 36 inch material for the dress, and 1⅞ yards for the jumper or over-blouse. The width of the skirt at lower edge is 1¾ yards. Price, 10 cents.

3223. Girls' Dress. Cut in 4 sizes: 4, 6, 8, and 10 years. A 6 year size will require 2 yards of 27 inch material for the guimpe, and 2½ yards for the over dress. Price, 10 cents.

3219. Lounging Robe. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. A Medium size will require 7¼ yards of 36 inch material. The width of the skirt at its lower edge is 2 yards. Price, 10 cents.

2871. A Simple Dress. Cut in 4 sizes: 3, 4, 6 and 8 years. Size 4 requires 2½ yards of 36 inch material. Price, 10 cents.

3221. Misses' Dress. Cut in 3 sizes: 16, 18 and 20 years. For an 18 year size, 4¾ yards of 38 inch material will be required. Width of skirt at lower edge is about 1⅝ yards. Price, 10 cents.

2893. Girl's Dress. Cut in 3 sizes: 12, 14 and 16 years. Size 14 requires 4½ yards of 36 inch material. Price, 10 cents.

3225. Ladies' Apron. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; Extra Large, 44-46 inches bust measure. A Medium size will require 4 yards of 36 inch material. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS

10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest **NEW YORK** styles, all patterns ordered are filled in **NEW YORK.** Therefore, we promise to deliver all patterns ordered within **TWO WEEKS:** we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

Household Department

PRECEDENT

By Sam Walter Foss

(These verses have been printed in the Cultivator before, perhaps more than once, but are now reprinted by request.)

One day through the primeval wood
A calf walked home as good calves should,
But made a trail, all bent askew,
A crooked trail, as all calves do.
Since then three hundred years have fled,
And I infer the calf is dead.
But still he left behind his trail,
And thereby hangs my moral tale.

The trail was taken up next day
By a lone dog that passed that way,
And then a wise bell wether sheep
Pursued the trail o'er vale and steep,
And drew the flock behind him, too,
As good bell wethers always do.
And from that day, o'er hill and glade,
Through those old woods a path was made.

And many men wound in and out,
And dodged and turned and bent about,
And uttered words of righteous wrath
Because 'twas such a crooked path;
But still they followed—do not laugh—
The first migrations of that calf,
And through the winding wood way stalked
Because he wobbled when he walked.

This forest path became a lane
That bent and turned and turned again;
This crooked lane became a road,
Where many a poor horse with his load
Tolled on beneath the burning sun,
And traveled some three miles in one.
And thus a century and a half
They trod the footsteps of that calf.

The years passed on in swiftness fleet.
The road became a village street;
And this, before men were aware,
A city's crowded thoroughfare.
And soon the central street was this
Of a renowned metropolis!
And men two centuries and a half
Trod in the footsteps of that calf.

Each day a hundred thousand rout
Followed the zizag calf about,
And o'er his crooked journey went
The traffic of a continent.
A hundred thousand men were led
By one calf near three centuries dead.
They followed still his crooked way,
And lost one hundred years a day;
For thus such reverence is lent
To well established precedent.

A moral lesson this might teach
Were I ordained and called to preach;
For men are prone to go it blind
Along the calf paths of the mind,
And work away from sun to sun
To do what other men have done.
They follow in the beaten track,
And out and in, and forth and back,
And still their devious course pursue
To keep the path that others do.

NANCY'S EXPERIMENT

By Marjorie Sawyer, in Farmer's Wife

NANCY HENDRICKS, banker's daughter, stood at the front of the hayload, cheeks flushed and eyes shining. Her hands proudly guided the straining team as they marched up the ascent to the barn, clattered across the bridge and drew up triumphantly next to the haymow. Then she turned to her friends with head thrown back and arms outflung.

"I think the farm is the nicest place in the whole world!" she announced.

"That's because you don't have to live on it," commented Sally, sourly. Sally, by sheer perversity of nature, wanted to be a stenographer in a city office, and instead, here she was keeping house for her brother, who, nevertheless, was very dear to her.

Tom, however, gazed at Nancy with his heart in his eyes. In the dim barn a shaft of light came sliding down through a knot hole, filled with golden dust fairies, which came and rested on her wavy hair, turning it to gold too. Outside, a group of oaks left dark shadows on the golden landscape. Here was peace—not stagnant, but a live, glowing, active peace!

Nancy answered the look in Tom's eyes. "Isn't it wonderful?" she breathed.

Sally slid down the hay load with a grimace and went outside to see to the pulley rope. Then Tom jumped down too, and reached out his brown arms to his golden haired divinity, who descended demurely from her throne but could not evade his grasp.

"Would you be satisfied," he whispered, "to live on the farm here with me?"

Nancy looked all around the place as if cogitating, but dimpled at the little shake he gave her, and brought her gaze back to his eyes.

"I'd just—love—it," she answered.

A few minutes later Sally's footsteps resounded hollowly over the barn floor.

"Say," she called, "when are you people going to get that team out here?"

And Tom and Nancy came back to earth.

It was evening, after a long walk and talk together in the maple lane, when they broached the subject to Sally. She was sitting on the porch, gazing at the moonlight which made shadow lace on the carpet of grass before her. There was something restless, as of unsatisfied longing, about Sally, and tonight, as they approached, there was something wistful, too, Tom thought.

Then they broke the news. "And it's going to happen quite, quite soon, Sally dear," said Nancy, laying her head on her friend's knee a moment, "and you can make plans for your old commercial course right away."

"Do you really think you can manage the work, Nancy?" asked her friend, slowly.

"The work!" cried Nancy. "Why, dear girl, there's work anywhere and everywhere! I am young and strong, and why shouldn't I do it? How could I help but succeed with Tom here?"

"But—your folks—" continued Sally.

"I'm going down to see them right away, and I know they won't object. They never have refused me anything yet," she added, bubbling with laughter.

Sally only sighed and shook her head. But Tom and Nancy were undaunted, and she went home with high courage.

He waited a long time for her letter, however; but at last, after weeks, it seemed, he held it in his hand—his first love letter. His tanned face glowed with happiness as he read her simple words. But a page farther he commenced to frown.

"I can't understand the folks," he read; "they don't see it my way at all. Father and mother both say I know nothing whatever about the farm but its romantic side, and that the work would be too hard for me. 'n'everything. They say I can't cook—which is only too true, I'm afraid, boy dear—and that I simply don't know what I'm up against. But I don't care, Tom; I would do anything—" and here Tom was able to smile a little once more.

Thinking it over afterwards, however, he was chilled by the finality that seemed back of it all. So he decided to go and see her father about it at once.

That evening the train set him down in her city, and Tom walked boldly up the unfamiliar walk and rang her doorbell—or, more properly, her father's. And the next minutes he held a surprised but ecstatic Nancy in his arms.

"Tom! How did you happen to come?" she wispered.

"I came to see your father," he announced.

"My father?" she asked, her eyes widening in surprise.

"Yes," he said grimly; "where is he? Lead me to him." His voice was hard.

"Now?" asked Nancy, very doubtfully.

"Right away," he affirmed.

The next minute he was standing before a plump, bald headed man, with Nancy left firmly in the rear.

"My name's Tom Sherman," he said, with a little ring in his voice.

And then a long, earnest conference followed.

"I can't see it that way, my boy," said the banker, tapping his glasses on the polished table. "We have to look out for her happiness, and she was not brought up to be a farmer's wife. We have no objections to you, though—none at all. If you would go into some other business, now—" His eyes swept over the six feet of lean manhood, taking in the firm jaws and clear eyes—"a position in the bank now—perhaps I could manage that for you?"

The young man's eyes narrowed. He could see in vision the bank clerk's cage, and as that picture faded, dim purple hills rose before him, and golden fields, splashing brooks and soft eyed cattle. And there amid the fields was joy—freedom, independence. He turned to the older man.

"I'm sorry, sir," he said quietly, "but I can't give up my work.' And he turned and left the room.

"It's all coming out right, Nancy, dear," he said later, pressing her tear stained face to his shoulder, "but it all

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depends on you.' He held her at arm's length and looked her straight in the eye. "Are you a sticker, or not?" he questioned. "Remember, all the world loves a sticker."

She laughed once more and shook her yellow head. "Your courage is—superb," she flashed at him.

"And so is my faith in you," he murmured.

But after he had gone home, that faith began to ebb slowly. Her letters were growing cold, it seemed. Was the pressure getting too strong for her? Was she losing faith in herself? Or was he too far away? Yes, that must be it!

Later on he wrote that he was coming Sunday. Soon after he got a telegram:

"Don't come now. Explanation follows."

"She isn't playing fair," said Sally, fiercely, as she peered over his shoulder.

"Hush, Sally! She must have some good reason," he responded.

A letter came, but no promised explanation. "I couldn't see you just now," it said. And Tom was sick at heart.

But he kept on bravely, writing often in spite of Sally's remonstrances. Gay, gentle letters—letters full of the spice of summer apples and the gold of harvest fields and wayside blossoms. But the answers came fewer and fewer. And at last one came which shattered his hope into bits and his faith, too.

"I am going away," it said. "It is useless to try to write me, or to find me."

"It just isn't fair," sobbed Sally, her arms around her brother's neck. "It just isn't fair!"

"She may have her own reasons, Sally," he repeated patiently.

"I wouldn't stand it," burst out Sally, indignantly. "She means she's jilted you, but wasn't man enough to come out and say so."

"Love doesn't work that way, Sally," was his sober answer.

"And her father wanted you to give up the farm! Give up our father's farm that he got with his own work!"

"Why, Sally! I didn't know you cared so much for the farm!"

Her hands clasped and unclasped. "Yes—I—care," she said.

No answer to his next letter, nor the next.

Then one day came a postal—a stingy postal card: "I am staying with one of father's friends," she wrote. "I am near Mansfield, but don't try to write to me."

And Tom waited again. Why did she write at all? Did she care for him a particle? Was she trying to test his love for her, or, maybe, hers for him? What was it?

At last, late in October, came a letter, a thick one, and in it one cherished sentence: "If you really care for me, Tom, enough to marry a hired girl, perhaps you had better meet me next Thursday in B."

It didn't take Tom long to go; no, indeed. And quicker, it seemed, than it takes to tell it, and yet very slowly, the time came when he was sitting opposite her at a little flower decked table.

"Not now," she said, when he asked for her explanation; "not until after lunch."

When they had finished he leaned forward expectantly. She toyed a glass with agitated fingers.

"Well, Nancy," he ventured.

"Well, Tom—I've been working on a farm." She announced it breathlessly, her cheeks crimson.

"You've—what?" he blinked.

She laughed then, to watch the amazement in his face.

"I've been working on a farm, Tom; as a hired girl."

He imprisoned her hands swiftly. "Tell me about it," he commanded, the old look in his eyes.

"Well, you see—" She took a long breath and started again.

"You see father and mother didn't believe my going onto a farm was anything more than a mad impulse. And they said I couldn't stand it. I didn't know what any housework was, much less farm work. And I would be lonesome and homesick. I said I would," she added with shy coquetry, "if I were away from you. No, stop! And at last I said I would try farm work for myself and see how it was. And finally they agreed."

Tom made an inarticulate answer.

"Father knew some people in the country," she continued. "They were good, respectable young people, he said, and if I were bound to work out it would be a good place. Meantime I must stop writing to you." At the hurt look in his eyes she said slowly, "That was hard on me too, Tom." Then, continuing, "In the house there were Mrs. Sanders and her husband, and his brother, and the baby. And I swept and made biscuits and washed the separator and scrubbed the back steps, and it wasn't hard. It wasn't harder than at home—just different, that's all. Then Mrs. Sanders got sick." There was a pause.

"What did you do then?" asked Tom, in a curiously strained voice.

"Everything," she dimpled. "All I had done before, and more too. Mrs. Sanders had a fever, and I had to carry a drink to her every two minutes. And then the baby would cry. I didn't do much housekeeping during that time. If it hadn't been for Mrs. Sanders' brother I don't know what I would have done—he was so kind! What did you say?"

"Nothing," growled Tom.

"And when Mrs. Sanders got a little better the threshers were there. So altogether I thought I had a real taste of farm life, Tom, and I love it! That is—I'd love it under some conditions, Tom. And if you want to ask me again to marry you—I don't think—I shall say—No."

"I shan't ask you again," said Tom, gently but triumphantly, "for we were engaged all the time, Nancy—all the time; and we shall be married at once. It was the farm against the fates, Nancy—and the farm had to win. You know that, too!"

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THE HOMIEST THING

By Anna Lenington Heath, Pomona

The Cultivator asks, "What is it you would choose to keep, if you must forego all but one of the happy, comfortable things in your home?" In the speech of the hour, "That's some question, I'll say." If I lived all alone I might choose this typewriter—if it were not for the rosebush on the front porch, the greasy little engine that drives the washing machine on Mondays, grandma's dictionary and the clothes rack that will go in behind the stove.

But there are five other members of this household whose choice of "homiest" things ranges from the dog through a case of books, hand needlework and a violin to a bed of brilliant poppies. Then there's the piano with its music, its pictures and the two giddy kewpies who shimmy when a heavy truck goes by. And the couch whose faded, homely cover and pillows would probably give an artistic decorator a headache or something, but which fits a tired back well enough.

We could never decide on any one of these material things. But there is that intangible home spirit that enables six markedly different individualities to fit in. It gives a comfortable livableness to the whole place and adds zest to all trips abroad because it is so good to come home again. Veriily, I believe our homiest thing is just a happy appreciation of home.

WHAT IS THE HOMIEST THING?

By F. N. Reasoner, Guinda

To me, there could be but one answer, that is, the thing which would be impossible to replace, even though I might hope to some day have an inheritance of thousands.

When I read the above question, I stopped to think. Then I began to make an inventory of my assets. First was my old violin, inside of which is printed "Joseph Guarnerius fecit, Cremonae, Anno 17. I. H. S." It is considered a fine violin, but I could buy one that would make good music and so would not be missed if lost in any way, so much as some other things.

Then there is the old organ which is like one of the family, but that, too, could be easily replaced. But what is in my home that money could not buy?

Taken as a whole, it is the library. I have books I think could not be found anywhere. Some were out of print when bought 50 or more years ago. I just picked up one yesterday that was published in 1746, and there are some older—good, useful, readable books yet. There are medical works, also religious, scientific, historical, books of travel and research, as well as fiction and poetry; books to suit all classes, from the little tot with his picture book to the old grandpa with his Bible and commentary.

"Rich man, poor man, beggar, thief, lawyer, doctor, merchant, chief" could each find entertainment on our bookshelves, which happen to be lug boxes nailed up in our pioneer cabin. I do not say but that under certain circum-

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nces I might sell them, but there nothing else which would be so ich missed out of my humble dwell-g.

THE BATH ROOM

By Minnie C. Childs, Tustin

Taking for granted the absolute es-ntials of living, I would choose to ep the bathroom.

There is no question in my mind out it. The bathroom adds more mfort to the "homeness" of home an anything else. Every member of e family can enjoy its manifo'd essings.

The refreshing, regenerating, cleans-g power of a hot bath after a day toil cannot be overestimated. The vigorating tonic and afterglow of e quick cold plunge in the morning, llowed by a brisk rub that sends e blood tingling in healthful flow rough the veins, is something to be ankful for. It is luxury, happy ne-essity. "Cleanliness is next to godli-ss."

As a sedative for tired, jaded nerves, hot bath taken leisurely in a well lled tub, soothes, comforts and re-ores to normal, bringing a delightful nse of satisfaction, a quieting effect at induces sound healthgiving sleep, alns and aches disappear like magic the hot bath and the worldly cares nd frets melt away in the clean, self-especting feeling with which one merges from a good bath. It is a joy rever.

Some years ago a relative from the ountry visited me in my former city ome in Chicago. When the time came r her to return home, she said: "I ad such a good time—the opera, arks, plays, music, wonderful build-ngs and drives gave me so much leasure, but, My Dear, I believe I ave really enjoyed your bathroom ore than anything; the hot baths ere so restful."

I echo her words. In my home the athroom spells comfort.

THE HOMIEST THING

By Mrs. W. T. Newcomb, Santa Cruz

What is the homiest thing to me, he thing above all others that makes f my house a home? Well, though hey all contribute to the happiness of he home, we pass by the piano, the honograph, the roses, the view from he front, the grape arbor, the tele-hone and the auto, and there remain f the things mentioned by our editor, he two, the easy chair and the fire-lace. As there must be but one, we hoose the fireplace, which after all resupposes the easy chair.

I am nearing in years the three core and ten, but memory reaching ack through the years refutes the dea that age is the cause of my holce. The happiness of the present s always influenced by the associa-ions of the past, so though we are nly to write of the home of today, want to digress a little to speak of the old fireplace in the home that shel-tered my childhood and youth. If it is the center of cheer and comfort to-day what was it to the rural home of long ago? So many of the things in the home of today had not then been dreamed of. But while the broad old fireplace sent out its cheerful light and heat, to the childish heart, at least, there was no lack.

How many of the readers of the Cultivator can remember a fireplace so large that they rolled in the logs with hand spikes? I remember that the log was often covered with snow but it was soon crackling in its bed of coals. The broad hearthstone of real stone, so one could crack nuts on it, what a litter it held after an evening's revel! Sometimes we "sugared off" and waited patiently each with a pan of snow to try the wax. And any old person who had the experience will tell you that no confection ever equaled the maple sugar wax.

I shall never forget the winter my father taught me to sing by note. There was doubtless other light, but I think of the book as open across his knees while we read the music by the firelight. What a surprise it was when the sister who was too small to go to the village to singing school had learned a tune! It was a stately hymn and I hum it now sometimes.

But the old fireplace like the one I sit by today only represented the open fire of all the ages. Who shall ever analyze or define its charm! We close it up for long months while nature lures with a thousand wiles to the great out of doors, but like the friend in need it is ready with its cheer for the gloom and chill of winter. For long years, all of middle life, we lived where it was too cold to use the fireplace, and we often spoke of it as a distinct loss, but here on the sunset shores we have come into our own again. California with the timber and climate of the coast is truly the ideal home for the fireplace. So now while others may be busy with the tasks that come with the close of day we sit by the fireplace in the twilight with its dreams and memories.

THE FAVORITE PLACE FOR HOMEY COMFORT

By Florence Jane Garbutt, Princeton

We have a little court 18 by 20 feet opening from our little dining room. In one corner is a large fig tree, in another a climbing rose, and a grape arbor runs from its east opening to the kitchen garden. It has concrete floor. Little Lemonette trees bearing full sized edible lemons, with potted palms, suggest a tropical air. A cage of mocking birds is a most enjoyable attraction.

We have our hammock swing and lounging chairs here. A tea table also serves to make this a most inviting place for a social hour with family or friends.

The enticement of this homey corner is evidenced by finding this the favorite place for father to read the newspaper or mother to do the weekly mending and for the small members of the family to have their games as they run in and out among the trees and flowers in the yard adjoining.

What would we not give up rather than this quiet cozy place! We would forego the front porch and even front lawn or the fireplace if we were forced to sacrifice for it.

THE HOMIEST THING

By Helen Focht, Exeter

I always have loved to read stories and have a library with good books and literature in which to spend the warm vacation days. It is too far to any city or even friends and we are a long way from any company. This would be my greatest joy. Last summer at the age of 12 I spent most of my time reading and teaching my brothers and sisters, as they are smaller than I. I also love to write short stories and make up rhymes.

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Those who come to Los Angeles on their vacation during this Sale and Clearance will find the lowered prices—the savings to be enjoyed on merchandise throughout this store—of such extent and reality that it will be possible in many instances to pay the expenses of their vacation from the savings in cost on their Furniture purchases. Or these savings might mean a longer, better vacation.

Those who will not be in Los Angeles for their vacation this summer, who have decided instead to stay at home and create their own enjoyment by "doing over" some part of their home's furnishing, through a renewal of part of its Furniture, its Floor Coverings or its Draperies, have the same opportunity to SAVE, to enjoy the REDUCED PRICES of this sale. It is their privilege to BUY BY MAIL at exactly the same favorable sale prices and terms as those able to come to the store in person.

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — June 12, 1920 — No. 24

Evolution of Long Staple Cotton

By M. E. Bemis

SOMETIMES we wonder what some of the people who have been instrumental in developing the country would say if they could look back and see things as they are at the present time.

We, here in the Salt River Valley, sometimes wonder what Jack Swilling would say if he could take a look at the Salt River Valley and see what has grown from the little beginning which he and his band of pioneers made some half a century ago when they took the first water from the Salt River out on the desert and founded the city of Phoenix.

Arizona Cotton Field

Cultivation of cotton is now the principal work of the farmers of Arizona. All agree that cultivation is a prime requisite to growing a crop of cotton.

With the long staple cotton industry, however, it is different. We do not have to wonder what those who are responsible for its development think of it, for they are alive and for the most part participating in the prosperity which has come in consequence. There is nothing comparable to the development of the long staple cotton industry unless it be the achievements of those East Indian magicians who wave a wand and behold a tree grows before one's eyes.

It has been only a few years ago, seemingly, that the first cotton was grown in the Salt River Valley. The government had done considerable experimenting, beginning about 1900, the first planting being at the government station at Yuma. These experiments were not indicative of the success which has since been achieved, and in lieu of abandonment the experiments were transferred to the government station at Sacaton on the Pima Indian Reservation, about 50 miles south of Phoenix on the Gila River, but with practically the same soil and climatic conditions as in the Salt River Valley. Here under the direction of such men as Kearney and Cook of the United States department of agriculture, and under the supervision of E. W. Hudson, there was gradually evolved a plant which was adaptable to the climate and soil and artificial water conditions of the Salt River Valley and similar locations. This first variety in length of staple and quality of fiber very closely resembled the Egyptian from which it originated but showed qualities markedly superior to the original plantings. By 1912 this cotton had reached a stage where those in charge of the experimental work felt it could be safely tried on a commercial scale.

In the meantime Herbert Atha had been studying the possibility of growing cotton and was willing to plant a considerable acreage. This first planting was 200 acres and the same season a number of farmers in the vicinity of Mesa and Tempe planted a total of about the same acreage, making in all 400 acres of cotton. There was

(Continued on Page 950.)

A Little Fortune

A load of seed cotton that weighs 10,230 pounds. At a very conservative estimate this load of cotton would be worth $2,500. Note that cotton is hauled to market in trailers, behind trucks.

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Willard STORAGE BATTERY

California Cultivator

Vol. LIV, No, 24 | Los Angeles, June 12, 1920 | One Dollar Yearly

Make 1920 a Silo Year

By R. P. Royce

IN MANY sections of this state the present season is certain to be a trying one on the livestock producers, owing to the shortage and consequent high price of feed. Even now they are beginning to feel the pinch, and before winter is over the problem of feed is bound to loom large.

In many parts of California the grain crop has been seriously cut. Thousands of acres given over to grain hay production have yieided the shortest crop in years. In the big interior valleys the lack of water for irrigation purposes means a light alfalfa yieid. With the above condition staring us in the face, the big question is: What are we going to do about it? Which is the best way out? A number of plans suggest themselves—

A Sound Form of Insurance

A battery of six silos in use at the university farm, Davis. Every California ranch, carrying cattle, should have one or more silos. It is good business.

but standing out clear, the safest, sanest, soundest, surest and most practical relief is the silo and silage. If there ever was a time when a silo couid prove its value and economy, it will be this year. The man who owns a silo shouid make all his plans early to see that every inch of silo capacity is packed with the best available crop.

The man who owns no silo will be displaying the highest sort of common sense if he sets about now to build one. This year is no time for procrastination in the matter of silo building, and if there be a man who still is unconvinced of the value of silage, he had best lay his prejudice aside and seek a hasty conversion. A silo is a valuabie adjunct to any farm carrying cattle or sheep, in a good year; it is a life saver, a profit maker and a positive necessity in a year of short crops. The value of a silo is no longer questioned by any man. The value of silage has been proven in every section of the United States, and today no livestock producer who professes to be progressive and who is in the business with the expectation of making a profit from his investment and labor should be without one. The silo proposition from a "cold turkey" standpoint is a business proposition and nothing more and can very easily make the difference between success and failure.

We don't know how many silos there are in California, but, regardiess of the present number, there are not enough. Indeed, California will never have as many silos as are needed until there is at least one on every farm carrying cattle.

In planning a siio for a particular farm, the choice will be governed very largely by local conditions. In general, siios are constructed of wood, concrete, hollow tile, brick, stone and galvanized iron. In some localities the pit silo, an excavation in the ground, has proven satisfactory. Practicaliy the only type of silo now in use is round. The preference for the round silo is due to the fact that a circular siio is more easily filled and packed and the siiage keeps better.

The theory of siiage is but little different from the theory of canning or preserving vegetables and fruits. Silage makes availabie succulent feed at a time not otherwise possible. The keeping qualities of silage are dependent upon the exclusion of air. The more nearly air tight a silo the better the silage keeps, hence it is important that whatever type of silo is built it be as nearly air tight about the sides and doors as is possible. It is likewise important that the silage be firmly packed in order to exclude the air.

The majority of silos are constructed of wood staves. Generaliy speaking, the first cost of a wood stave silo is below that of other forms of construction. Siiage keeps quite perfectly in wood. In building a siio of wood, it is important that only good material be used. Our native redwood is among the most popular woods. Redwood is not subject to shrinkage and swelling and is but little affected by silage juices. Cypress, Oregon fir, tamarack, white pine and yellow pine are also used. Wood silos must be looked after with care when empty, as very often the staves shrink and unless the hoops are kept tight the silo falls down.

Silos of concrete, when properly reinforced, are in every way satisfactory. Such silos, while more expensive, have the advantage of durability over the wooden type. Occasionally some trouble has been experienced with silage acids attacking the walls, but that trouble can be overcome by painting the inside walls with a coat of tar. There are many types of cement silos in use. Some are made with cement blocks, either hollow or solid; others are made from cement staves. The latter type give fine service if properly erected. The hollow tiie silo is becoming very popular. Brick and stone are sometimes used but are not as popular as hollow tile. Silos made from galvanized iron are sometimes seen. They are entirely satisfactory but are not in common use.

As stated above, the type of construction will be governed by local conditions. The kind of silo built is not so important as the building of a siio.

The size of silo naturally follows the size of the herd. In this connection, however, one shouid make due allowance for possible increase in the herd, and it is always good judgment to buiid with a margin over actual needs. In determining the diameter and height estimate shouid first be made of amount of silage required. The builder should then keep in mind that the diameter shouid be such that during cool weather at least two inches of silage is removed per day and during warm weather at least three or four inches. The reason for removing such amounts daily is obvious. Silage exposed to air soon spoiis, and once the silo is opened it should be pianned to remove a depth sufficient to keep ahead of any deterioration. More silos are made too large in diameter than otherwise. The foilowing table should assist in determining the proper size and dimensions:

Data on silo capacity given in this table are based on the weighing of silage for five years in from three to five silos at the University of Nebraska Farm, and reported by Prof. L. W. Chase in Circular No. 1 of the University of Nebraska agricultural experiment station.

Inside Diam.	Height	Cap. Tons	Lbs. Fed Daily
10	25	31.8	525
10	30	46.6	525
10	35	60.7	525
12	30	58	755
12	35	73	755
12	40	88	755
12	45	104	755
12	50	120	755
14	30	80	1030
14	35	99	1030
14	40	120	1030
14	45	141	1030
14	50	164	1030
16	30	104	1340
16	35	129	1340
16	40	156	1340
16	45	184	1340
16	50	214	1340
18	30	132	1700
18	35	164	1700
18	40	198	1700
18	45	234	1700
18	50	271	1700

The approximate amount of silage required in feeding operations can be computed from the following prepared by the Iowa state agricultural college, giving daily ration in pounds:

Beef Cattle—Wintering calves eight months old, 15 to 25 pounds. Wintering breeding cows, 30 to 50 pounds. Fattening beef cattle 18-36 months old; first stage of fattening, 60 to 30 pounds, latter stage of fattening, 30 to 12 pounds.

Dairy Cattle—Cows, 25 to 45 pounds; heifers one to two years, 10 to 20 pounds; bulls, 10 to 20 pounds.

Sheep—Wintering breeding sheep, two to six pounds; fattening lambs, one to three pounds; fattening sheep, one to four pounds.

If other roughage is fed as in case of sheep or cattle, they will eat less silage. Two and one-half to three pounds silage replaces one pound hay and some grain in addition.

In this state there is a rather wide range of crops suitable for siloing, and the choice of crop will depend upon local conditions—location, soil, water, labor, etc.

Speaking generally, Indian corn has proven the most satisfactory ensilage crop, and in sections of California where corn can be successfuliy grown it will no doubt be advisable to use corn. Corn silage is so universally used that it is useiess to go into details concerning its value or method of production. The more common practice now is to permit the crop to become quite mature before cutting. In making silage it should be borne in mind that the greener the crop the more acid (sour) the silage and, conversely, the more mature the crop, the sweeter the silage. In siloing well matured crops it is a common practice to add water at the time of cutting. The amount of water to be added must of necessity be governed by one's judgment.

Next to corn, from the practical feeder's standpoint, the sorghums, milo maize and similar forage crops are preferred. Such crops can be grown in many sections of California with greater success than corn, especially where the securing of water is a factor.

The college of agriculture, University of California, has conducted numerous feeding trials with sorghum, milo and feterita silage, and the results are reported in bulletins that may be secured upon request to that institution.

Los Angeles County Farm Silos

A California Cultivator photograph taken at the time of the farm bureau meeting on the Los Angeles County farm near Downey, showing two types of silos in background which have added much to the profitableness of the Los Angeles County farm. Supervisor Dodge is making welcoming address. Advisors Hodgson and Gordon stand with back to the camera in foreground.

Sudan grass is a crop that can be successfully produced and siloed. Sudan grass returns a large tonnage per acre, and while of lower feeding value than corn silage, it has as an advantage the fact that it can be grown under conditions where corn production is not practical.

Legume crops, alfalfa, clover, cowpeas, soybeans, etc., do not make as

(Continued on Page 958)

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

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Saturday June 12, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

RENEWING PASTURES

Well toward middle June Humboldt receives the blessing of a great shower, 1.28 inches, according to the press, "estimated to be worth more than one million dollars." The great blessing of the shower is more appreciated than it would have been in any preceding year, for the reason that this has been a year of rather short precipitation. The shower touched all the northern end of the state and was especially heavy over western Oregon.

GOOD BUSINESS

The Republican convention is on in Chicago this week. It will be a most interesting week. It will be a week meaning much to the history of the world. We note that while one chairman and one secretary are deemed sufficient, a whole battery of chaplains is necessary—something over 57 varieties. It will later devolve on the Democrats to go at least one better.

REDUCING FOOD PRICES

Under the title of "The Remedy for Profiteering and High Prices," the Railroad Brotherhoods and Unions make a statement which shows how wonderfully easy it would be to reduce food and other costs if "all corporations and firms should be required to make restitution to the public of all excess profits which they have exacted." If the word, "labor," had been inserted after firms it appeals to us that high prices would sooner feel the effect of the pressure.

WINNING HONORS

The article on fifth page of this issue indicates the remarkable showing made by California in one of the greatest Holstein events of the country. California's pure bred Holsteins commanded highest prices in the great sale held at St. Paul. That great youngster of the Morrises, a photo of which was shown in the Cultivator of April 24, with his mother, Tilly Alcartra, went under the hammer for an even $50,000, two dairymen of Canada uniting in making the purchase.

Congratulations to Canada, though we wish the youngster had been returned to this state. But Tilly Alcartra and some of her best blood still remain.

FLAG DAY

Monday, June 14, is Flag Day. On the 14th of June, 1777, congress enacted "The flag of the 13 United States be 13 stripes, alternate red and white; that the union be 13 stars, white in a blue field, representing the new constellation." The number of these stripes and stars was increased to 15 because of Vermont and Kentucky becoming members of the American union, but in 1818 congress ordered that the 15 stripes be reduced permanently to 13 and that the addition of each new state be indicated by a new star in the union. The blue field has been filled with new stars until there are now 48, and the flag has become the symbol of the mightiest nation on earth. Let us all fling the stars and stripes to the breeze on June. 14. "May it greet the rising and salute the setting sun and float all day long from every church edifice, school, and building, public and private, however humble, through the entire land."

I pledge allegiance to My Flag and to the Republica for which it stands, one Nation indivisible, with liberty and justice for all.

FRUIT MEN CONCERNED

With the sugar shortage, car shortage, labor shortage, and other shortages too diverse to mention, the fruit grower has a problem. These various shortages have caused the canners to lose some of their interest and the fresh fruit shipper to refuse to speculate, so that there is an uncertainty in the air which causes the grower to ask: "Where are we at?" We believe the answer will come, and soon, and that it will be satisfactory to the grower. Prices as yet are holding up in all retail centers. The price cutting flurry of a few weeks ago seems to have ended, as it was predicted, merely as an advertising scheme. In any case, the wise grower is continuing the best care possible of his fruits and producing highest grades.

Quality always commands attention.

WAR BONUS

One of California's loyal sons, now living in Kings County, takes exception to our War Bonus editorial last week. Our subscriber writes:

As a regular reader of your paper and one who considers your stand on many of the most important questions before the nation today to be the very best, I am surprised at your "War Bonus."

Will mail you a copy of the "American Legion" and think it explains the feelings of the men better than I can. May I ask you some questions and if you wish further information on any of these subjects it could be gotten from any Legion post or the national headquarters at Indianapolis.

How many organizations are banded together "for God and country and to uphold and defend the constitution of the U. S. A.? In our present unsettled condition is this worth anything?

That the incapacitated who have received help and vocational training are only a fraction of what the people think and that orders were actually given to treat them rough and make them feel they asked charity instead of justice?

Of the unions who asked for increases that were not granted, who could not quit and whose every act was subject to court martial, which included death or such other punishment as might be directed?

As an enlisted man of 16 months service—and it included about everything from washing dishes to shining shoes—I could use a government loan to replace a bank loan, short term, eight per cent interest, on a farm, but if the people of the country feel this is asking too much, surely I can stand it, but think as others have said, if it is for the glory alone let some of the others have a chance at the glory next time. Very truly yours, Wesley G. Clark.

As to the first question: We hope there are many organizations banded together "for God and Country and to uphold and defend the constitution." Surely there is one, and that is the Legion of which Mr. Wright is a member. Its members are those who stood squarely by their duty when their country needed defenders They stood four square when a certain labor element in the Northwest was making every effort to vilify the flag. They have always so stood, and always will. for it is a worthy organization and will be supported as long as service men of the Great War live. But besides that one specific organization there is a greater and grander, with more than 100,000,000 of membership, the grand old U. S. A.

There were sacrifices made by so many at the front and at home in every section of our broad land that can never be recompensed excepting in the satisfaction of duty well done, that we regret to see any one body asking special reward. In the minds of the people of the country it is not a question of the service men asking too much; they could not do that; the service they have rendered is beyond compensation. The point is it is a physical impossibility to extend the rewards as far as should be. But by all means the country should care for those who in rendering the service became incapacitated and for the dependents of those who never came back.

FIRE PREVENTION SLOGANS FOR SMOKERS

Suggestions Which Secretary Meredith of the Department of Agriculture is Asking Tobacco Manufacturers to Pass on to Smokers

Don't drop fire when you smoke in the woods, nor throw it out along the road. Keep the forests GREEN!

Danger! Matches, pipe coals, cigar stubs, and cigarette ends start many forest fires. Help protect woods, streams, scenery.

Be Careful! Don't start a fire in the woods when you begin or end your smoke! Be sure your match, cigarette or pipe is OUT.

Don't Start What You Can't Stop! Be careful with fire in and near the forest.

Fire is Dangerous! Be careful when you smoke in the woods.

Look Out! When you smoke in the woods, don't start a forest fire.

Your cooperation to keep down forest fires is asked. Break your match in two. Knock out your pipe ashes into your hand. Don't drop a burning cigarette.

Forest fires cost millions a year. Don't start one.

Don't throw fire away in the woods or along the road.

HELP PREVENT FIRES

WHAT'S THE IDEA?

Congress has adjourned. It is but a few years since the first "billion dollar congress" adjourned and the country asked: "What is the world coming to?" With the war over—in fact, if not by treaty—the congress which just adjourned proved itself a five billion dollar congress, but with the enormous appropriations necessary to keep the great machine greased up it was necessary that there be economy somewhere. Naturally, the economy was practiced along agricultural rather than industrial lines. Agriculture asked for nearly 40 millions of dollars. It got 30, or a little better.

One-third of the population of the country is engaged in agriculture; one-fourth of the national wealth is invested in farm enterprises; yet out of the total of five billions agriculture gets 30 millions.

In appealing for fairer treatment for agriculture Senator Arthur Capper said in the senate:

"Mr. President, the young men of the farms are not fools. You can not hand them a further supply of inflated atmosphere about the beauties of farm life, and then ask them to produce hogs at a loss of $5 or $6 a hundred and make any impression.

"In my own state of Kansas the young men know that there was an increase of 190 per cent in the proportion of tenants from 1860 to 1910—and the census of this year is going to show a still more alarming condition. The farmers cannot continue to pull themselves up by the boot straps on this land question—especially with the price of hogs below production cost. There is one county in Kansas—Sumner—with 55 per cent of tenants; and you know what that indicates. And here is another example, in Lincoln township in Pratt County, where there were 13 per cent of tenants in 1880, there are now more than 60 per cent. And you will find the same conditions in Missouri and Illinois and Indiana and Ohio and all points east. Dekalb County, Illinois, for example, has 72 per cent of tenants.

"In order to get a nation wide view of the situation, let us consider for a moment the percentage of tenants for the United States as a whole, as shown by the census. This percentage in 1880 was 25.6; 1890, 28.4; 1900, 35,3; and 1910, 37. Many of the leading thinkers on agricultural economics believe that the census of this year will give a percentage of between 45 and 50 per cent, with hundreds of counties above 60 per cent, and perhaps some as high as 75 per cent.

"But as a start in a constructive program, let's first eliminate profiteering, encourage cooperation, and take up a study of the land question and taxation. Let's try to stop this landslide from the country into the cities. Let's get a vision of what this great nation can be, Mr. President, with its industrial and business life working in harmony and perfect cooperation with the agricultural interests, and with plenty of food for everyone at prices which the workers can afford to pay and yet which will supply modern country homes and other essentials for farmers. If we have the wisdom we can work this out. The food question is fundamental. The nation's future must be worked out with this in view."

Notwithstanding this and other equally as strong appeals, appropriations were shaved until the department of agriculture now reports that much of the experiment station service must be eliminated, its activities curtailed all along the line, that the bureau of markets will suffer and, in fact, that many other activities of the department will be eliminated because of the cutting off of some nine or ten millions actually needed in the department work.

California Holsteins Triumph at Eastern Sale

By R. P. Royce

THE most sensational event in the livestock history of California occurred last week when 11 head of California Holsteins, three bulls and eight females, from five California herds consigned to the National sale held at St. Paul, sold for $124,960, an average of $11,360—a world's record.

The grand total of this sensational sale for the 237 animals sold was $728,775, an average of $3,075. At the close California had the top individual of the sale and the high average for all states consigning. California won the first prize for consignments. The above average stands as a world's record.

Alcartra King Sylvia, the three months old son of the wonder cow, Tilly Alcartra, owned by A. W. Morris and Sons, Woodland, sold for $50,000, a world's record price for a calf of that age, to A. C. Hardy and W. R. Shaw of Canada.

King Korndyke Pontiac Acme, a 15 months old son of King Korndyke Pontiac 20th, the $12,000 bull recently sold by W. J. Higdon, Tulare, to Burr Farm, Los Angeles, and from Miss Aaggie Acme Burke, a world's record two year old, was sold by the Morris firm to Santa Anita Rancho, Santa Anita, for $41,000. Santa Anita Rancho bred King Korndyke Pontiac 20th and sold him as a calf to Mr. Higdon for the then California record of $6,500. King Korndyke Pontiac Acme has the distinction of being the highest priced bull of any breed owned in this state and has for a sire a bull that twice held the record of being the highest priced bull ever sold at auction in California.

Ruby Pietertje of Forest Hill 2d, the champion 30 day cow of the Pacific Coast and holder of the largest seven day record reported in the United States last year, was consigned by W. J. Higdon and purchased by Wheatfield Farms of Wisconsin for $10,500.

Moxee Johanna Korndyke Piebe, a three year old daughter of Sir Korndyke Ormsby Piebe and out of Cascade Fleta Johanna, that has a junior four year old milk record of over 30,000 pounds, consigned by Toyon Farms Association, Los Altos, sold for $10,000. Another consignment of Toyon Farms was Princess Jonge Buckeye, a mature cow with a 365 day record just completed of 1,051 pounds of butter from 27,906 pounds of milk, sold for $2,650.

Morris and Sons also consigned two heifers that sold for $3,300 and $1,700 respectively.

Bridgford Company, Patterson, and the J. S. Gibson Company, Williams, were also consignors, but at the time this is written it is not kuown the individual prices secured for their consignments. Full details of this epoch making event will be given next week.

Naturally the livestock breeders of California will be gratified over the prices paid. Each set of breeders, regardless of their breed affiliations, will join in whole hearted congratulations to the progressive Holstein breeders who have brought such distinction to our state.

But after all the greatest source of satisfaction lies not in the amount of money paid for the California productions, but rather in the fact that the exploit of the Holstein men has once again, and most conclusively, proven to the world that we have in this state every condition necessary to the production of the very finest quality of livestock, that our breeders are as capable as will be found in any section and that the past exploits of California breeders have been no happenstances.

From now forward California has a very definite and secure place in the livestock affairs of America. Such being the case, let all breeders take added heart and enthusiasm in their operations. Let breeders of every class of livestock resolve that they will not be content with less than what has been done. Let them base their operations on the solid rock of essentials. Let them not be discouraged with any temporary unfavorable conditions. Success will not come in a day. But success will come to other breeders just as certainly as it has come to these pioneers provided others will apply the same degree of persistency, hard work and constructive effort. The way has been blazed, and all can follow the path. Individual and collective cooperation among our breeders will make for that success that lies just ahead.

There is another point that should not be lost sight of by the rank and file of our livestock producers, the men who are not concerned in the production of pure bred livestock. That point is this: The basis for values in pure bred livestock of all breeds is the ability of well bred livestock to increase the efficiency of the common stocks. Men who breed the great producers are not faddists; with few exceptions they are hard headed business men. Men who pay long prices for such producers usually do so because they need those individuals to increase the efficiency of their herds—they, too, are level headed business men. The value of well bred livestock is very real.

Therefore it would seem that men who are trying to make their living from the handling of livestock of whatever kind would adopt with greater facility the methods of the successful breeders. Pounds of beef, pork, butterfat, milk and wool can be increased through the use of better bred sires and dams. It is just a business proposition—and nothing more. Are you, Mr. Livestock Reader, a good business man?

Dairy Branch of the Los Angeles County Farm Bureau Being Photographed

When the farm bureau recently met on the Los Angeles County farm near Downey, there were practical institute meetings in the corrals with the dairy cows, but the social side was not neglected, for at noontime the whole gathering was given a remarkably fine luncheon on the grounds in front of the home of Superintendent and Mrs. Harriman.

Practical Farm Bureau Work

Dean Van Norman at the farm bureau meeting discussing points indicating high dairy type.

Poultry Producers Confronted by Serious Situation

By M. A. Schofield in Address Before Poultry Institutes

The poultry industry in Southern California will be under heavy pressure for probably six months to come. In other words, the price of eggs has not kept pace this spring and summer with the increased cost of production. The number of eggs in storage this year is about three quarters of a million cases short of the holdings last year. Ordinarily this would indicate a condition favorable to the grower this fall and winter. We have to meet, however, the hostility of the consumer as regards high prices of eggs and dairy products. I believe that this comes from misinformation. Agitators have for some reason chosen eggs and dairy products as a point of attack. Not unlikely the reason for it is because there is available no means at present for combating the misinformation disseminated.

This opens up the question of an advertising compaign as a means of acquainting the public not only with the quality of the producer egg, but also the difficulties surrounding the poultry industry at present and explaining to the public why eggs must be high, present circumstances considered.

The American people as a whole aim to be fair, and the organized poultrymen have a great opportunity at hand for bettering the understanding between the producer and the consuming public. I believe that forthwith steps should be taken to provide a fund for advertising purposes. One-tenth of a cent per dozen and ten cents a case on all storage packed eggs would create a fund in the course of a year that would work wonders if judiciously used. The organized poultrymen should also keep in mind the benefits which come from marketing the by-products from the poultry ranches to the best advantage.

So far as broilers are concerned the problem is already handled successfully. The broilers under the producers' contract are moving to New York at a substantial profit to everyone concerned.

We are face to face with the sale of great numbers of Leghorn hens this fall. Some growers believe that there must be marketed this fall in the neighborhood of 800,000 hens south of Tehachapi. Probably one-third of these will not reach the ordinary channels of trade, but the marketing of the remainder seems a tremendous problem. If California continues to increase in the production of eggs, the Leghorn hens will naturally increase also, and the problem of the sale of these hens is one of the things that the organized poultrymen can still consider as a part of the service to their stockholders. The purchase of feed and supplies, confining their activities to a limited number of commodities, has long been considered, but up to the present no solution has been found.

Permit me to say in conclusion that in my opinion the organized poultrymen but faintly realize the tremendous opportunities which such an organization has for increasing the income of its members directly and building up the poultry industry as a whole. By lending the prestige of the organization, by extending a limited amount of credit to new enterprises judiciously, and working out constructive plans, I believe that the stockholders have scarcely dreamed of the possibilities of an organization composed of 530 active poultrymen and a paid in capital soon to be $100,000.

Agricultural News Notes of the Pacific Coast

Northern California

There is a good crop of cherries this year.

Solano County unveiled a monument to its soldier dead at Fairfield, May 30.

The annual Butte County farm picnic was held on May 29 at the Durham colony.

Stockmen of the Livermore section say that coyotes are being wiped out by disease.

Chico, Butte County, is planning for a big community picnic on July 5 at Bidwell Park.

It is reported that hydro-electric companies are using airplanes to scout for power.

Prune growers of Sutter County report several contracts made on a 12 cent per pound basis.

Roy McCune of Wyandotte has been elected president of the Butte County farm bureau by post card ballot.

Hot weather the last of May ripened strawberries very rapidly and owing to shortage of cars some fruit was lost.

Richfield and Proberta centers of the Tehama County farm bureau have discontinued meetings for the summer.

Los Molinos, Corning and Richfield farm bureau centers held poultry culling demonstrations the last part of this week.

Sutter County peach growers say they hear many rumors of offers of $60 to $100 per ton, but they don't see the buyers.

The state commission on housing and immigration is making inspection of living conditions in labor camps of the Delta section.

The cantaloupe crop of the Sutter basin district will be ready to move in July. Growers say they expect to get a car to the acre.

Plans are being made for Butte County's agricultural fair to be held this fall. The farm bureau will take a prominent part in the preparations.

The celery acreage in the Sacramento district, which includes Walnut Grove and Antioch, has been cut 700 acres from the previous estimate of 2,600.

Examinations for students not having high school education who wish to enter the farm school at Davis in the fall will be held at the school June 14.

The Tehama County farm bureau announces local meetings at Oak Park, June 17; Corning, 17; Bend, 18; Liberal, 24; Manton, 25; Bowman, 26; Los Molinos, 28.

The cattle protection office of the state department of agriculture is still occasionally making arrests because of slaughtering without inspection, also because of branding with unrecorded brands.

R. L. Nougaret of the office of viticulture of the department of agriculture says offers are being made of $50 to $70 per ton for fresh wine grapes and 16 cents per pound for the dried product.

The Humboldt County farm bureau is making a special membership drive and calling attention to the fact that in Iowa a farm bureau drive was made on the basis of every farmer paying annually five dollars per year for life.

Central California

Dates chosen for the Tulare fair, September 14-18.

San Jose held during the past week an industrial fair.

The Consolidated cannery at Reedley has begun on apricots.

The cannery at Porterville began operating on apricots, June 7.

Field men are busy signing up growers of peaches and figs in the new association.

A number of cantaloupe fields in the Turlock section have been destroyed by jackrabbits.

Farm bureau auction sales of livestock will be held at McFarland, June 12; Bakersfield, 19.

The various fire units of Modesto County have decided to organize a regular paid patrol force during May, June, July and August.

It is now thought that shipment of cantaloupes from Turlock will begin about the middle of July.

The farm bureau of Santa Cruz County held its annual picnic at Brighton Beach, Saturday, May 29.

Hot weather is melting snows in the Sierra so rapidly that Kings River is threatening to overflow grain lands about Tulare Lake.

The Tulare plant of the California Cooperative Canneries expects to employ about 200 men and women on the initial run next week.

The minimum wage for women employed in fruit and vegetable packing has been increased from $13.50 to $16.00, effective July 24.

Tivy Valley, Fresno County, has been fighting grasshoppers. Commissioner Roullard states that over 1,000 persons took part in the campaign.

The interstate commerce commission has issued priority orders to insure adequate shipment of tin plate to fruit growing sections of California.

Fruit growers of the San Joaquin Valley report great silence from canners and dryers who last year were keen competitors in buying offerings.

The Tulare plant of the California Cooperative Canneries will begin its season's run about June 15 and expects to be in operation for four or five months.

The chamber of commerce of Oakdale, Stanislaus County, is preparing an exhibit for the state fair. It is thought that almonds will be made an important feature.

Meetings of the farm home department of the Kern County farm bureau will be held at Weed Patch, June 15; Kern Delta, 15; Beardsley, 17; Wasco, 24; Edison-Fairfax, 25.

Santa Clara Valley dried fruit producers and canneries recently received notification that through bills of lading would be issued and that ocean rates would be materially reduced.

Tulare County grape producers are trying the sulphur cure for grasshoppers. Sulphur is placed on sacks, set on fire and dragged through the vineyards. It is declared the hoppers leave at once.

Merced County farmers have agreed to give aid so far as possible to the new settlers in the Delhi land settlement colony. The settlers are now holding bi-weekly meetings in addition to regular farm center meetings.

Southern California

The poultry institute at Van Nuys was well attended.

Bean planting is all finished and the crop coming on fine.

Many brush and hay fires are reported over Southern California.

Brawley, Imperial Valley, shipped out 108 carloads cantaloupes, May 30.

The bean warehouse at Smeltzer, Orange County, has been closed for the season.

Yucaipa Valley cherries are just beginning to ripen, some two weeks later than usual.

The state university will give a series of poultry culling demonstrations in Imperial Valley.

The sugar beet crop of Hansen Station, Orange County, is reported in better shape than last year.

Cotton ginners of the Imperial Valley have approved the contract of the Imperial Valley Growers Association.

Professor R. S. Vaile of the experident station at Riverside talked summer cover crops to the La Habra farm center last week.

The election held recently at Garden Grove, Orange County, to organize a drainage district shows only four votes in opposition.

C. B. McCall of Garden Grove sent samples of his milk to the National Competitive Dairy Show at Chicago and received a score of 98.

Farm Adviser Wahlberg of Orange County held on June 8 a drainage demonstration and field meeting on the Hellman estate west of Garden Grove.

Members of the Banning Fruit Growers Association recently held their annual banquet and discussed matters of harvesting and hauling fruits to canneries at Hemet, Ontario, or Riverside.

Los Angeles potato shippers are finding difficulty in getting sufficient cars to carry potatoes East. Growers have been paid as high as $7 per sack for spring grown potatoes for Eastern shipment.

Superintendent of Public Markets Boothe of Los Angeles says that an effort is being made to save the unmarketable cabbage of the San Fernando Valley by sending it to dehydrating plants.

Cabbage growers in the vicinity of Los Angeles, because of strikes preventing shipment in the height of season, are now selling cabbage at the roadside at one cent per pound and in some cases giving away.

The fifth annual poultry institute, conducted under the auspices of the state college of agriculture, is being held at Van Nuys school this week. It is under the direction of the Los Angeles County farm bureau.

The United States bureau of markets has located at Brawley, Imperial County, a field station for gathering and disseminating marketing information on potatoes, tomatoes, cantaloupes, watermelons and peaches during the shipping season.

The Orange County farm bureau will hold local meetings at El Modena, June 14; Yorba Linda, 15; Capistrano, 17; Buena Park, 21; West Orange, 22; Citrus Institute, Santa Ana, 24; Villa Park, 24; citrus institute, 25; La Habra, 25; Garden Grove, 28.

The Coast and General

June 6-11 was Rose Festival Week at Portland, Oregon.

Chautauqua sessions will be held at Pasco, Washington, June 13-18.

Farmers Chautauqua at Yakima, Washington, June 22-23; Spokane, 23-24.

Farmers of the Chandler district of Arizona have organized a farm bureau.

The Rocky Ford district of Colorado has about 7,000 acres planted to cantaloupes.

Eleven granges were organized in the state of Washington in the first three months of 1920.

A convention of the Inland Dairy Producers will be held at Spokane, Washington, June 15.

Congress has passed a bill taxing grapes which are to be used for making non-alcoholic juice.

Potato growers of Spokane County, Washington, have organized to secure more satisfactory prices.

The Farmers Union elevator at Palouse, Washington, has just been completed at a cost of $30,000.

Inland Empire Dairy Producers will hold their annual convention at Spokane, Washington, June 15.

The U. S. biological survey is leading in the campaign to kill off coyotes on sheep ranges of Arizona.

The Farmers' Union at Waitsburg, Washington, has purchased a 40,000 bushel lot of wheat at $2.50 per bushel.

Starting Sunday, May 23, the clocks of Vancouver, B. C., were set ahead one hour to save daylight, until September 18.

A two day dairy school was held recently at Medford, Oregon, under the auspices of the Jackson County farm bureau.

The University of Idaho is advocating dipping potatoes in a solution of corrosive sublimate to check development of disease.

The United States railroad administration issued a statement placing Yakima County, Washington, fourth among counties of the United States in crops produced.

The Pomona grange of Spokane County, Washington, has leased the warehouse in Spokane, where it will install a cooperative wholesale and retail store.

Federal grain grade demonstrations will be held at Pendleton, Oregon, June 14; Enterprise, 14; Imbler, 14; Baker, 17; North Powder, 18; Ione, 21; Grass Valley, 22.

Owing to unwillingness of Michigan farmers to grow sugar beets at prices offered by the factories, it now looks as if bean planting would be much larger than anticipated.

According to estimates of cantaloupe distributors at Phoenix there are 2,450 acres planted to cantaloupes in Arizona this year, as against 4,500 last year. The backward season is largely blamed for the shrinkage.

Dairy producers of Coos County, Oregon, shipped during the past year 3,500,000 pounds of cheese, valued at considerably above $1,000,000. Other shipments were nearly 1,000,000 pounds of butter and 40,000 cases of condensed milk.

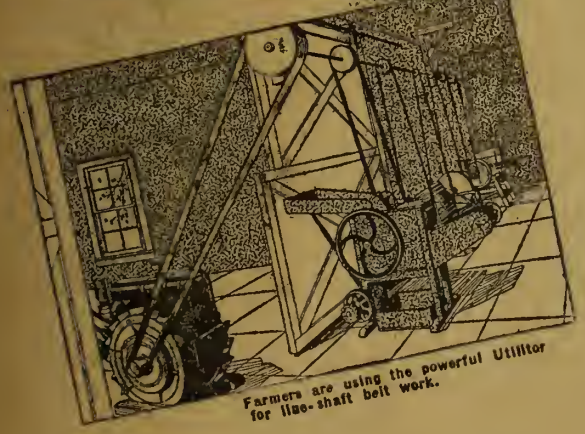
Discing in Indiana with 8 coulters.

Utilitor operating 8 row, gang seeder.

A Utilitor plows faster and better than a horse or mule.

Utilitor has ample clearance for straddle row cultivation.

For Truck Garden Work the Utilitor is unsurpassed.



Showing new corn planter attachment for Utilitor.

Farmers are using the powerful Utilitor for line-shaft belt work.

MIDWEST UTILITOR

DEPENDABLE POWER — TRADE MARK

The Men Who Sell It Wanted to Know So They Used 4000 Acres to Find Out

Your protection in buying a Utilitor lies in the fact that this machine has been forced to prove its own dependability and usefulness before any man would attempt to sell it to you.

Long before we attempted to establish a selling organization for the Utilitor, we sent our engineers and agricultural experts over the country and told them to stay until they had proved beyond the shadow of a doubt that the Utilitor would perform satisfactorily under the conditions placed upon it.

They tried the Utilitor in all kinds of soil breaking, cultivating, seeding, truck garden work, nursery work, fruit cultivation and last but not least they conducted an exhaustive test of the Utilitor on belt work from running a grindstone to cutting wood.

We found that in certain parts of the country for field work special rims were necessary; in other parts of the country we found that guards on the machine to protect the plants were necessary. In fact we found many things to correct and several things that the Utilitor could not do, such as working on steep hill sides and in swampy lands.

But we proved above all else that with the adoption of the changes found necessary as a result of the many gruelling tests, that the Utilitor was unquestionably a power farming utility that would appeal to the practical farmer and food raiser as a cost-cutting, profit-building piece of machinery.

* * *

We then told the selling field that we were ready to do business with them. Now here is where all this begins to concern you.

These hard-headed keen merchandisers had no trouble in seeing the necessity for such a machine as the Utilitor, but they were not content to accept our word alone for what the Utilitor would do—how it would hold up—how well it would work.

They readily saw that the resources and experience of the Midwest Engine Company were behind every Utilitor in the form of the most comprehensive service system to owners which they had ever seen instituted.

Still they were not satisfied. They wanted to know first hand what the Utilitor would do in usage, because THEY were the men who had to show YOU what the Utilitor WOULD DO.

So they conducted their OWN tests. It has been estimated conservatively that the Utilitor has undergone tests in the hands of salesmen and dealers involving practically every possible use—some 4000 ACRES having been used to PROVE to these men that the Utilitor IS BUILT RIGHT, STAYS RIGHT and is applicable to the work for which it is intended.

What happened is this—the Utilitor sold itself to the men who would SELL IT TO YOU.

Can you ask for a better, a safer method of investigating the Utilitor than to KNOW FIRST that the man who sells it knows that it thoroughly lives up to the expectations of EVERY man who sells it.

But Regardless of All This, Here is What We Want You to Do When You Are Ready

Don't accept anybody's word for the Utilitor's performance but your OWN. Let all that we have told you simply be an incentive to want to know more about this machine for YOURSELF.

Any Utilitor dealer in your vicinity will give you a demonstration of the Utilitor doing the sort of work done on your place. You can rest assured that he will tell you very frankly if the Utilitor WON'T do your work. You will be under no obligation to buy a Utilitor if you are not completely satisfied with the Utilitor in every respect — mechanically, economically and otherwise.

If you don't know the Utilitor dealer in your locality, fill out the coupon and mail it to us and we will send you his name. We will be glad to send you any special information on the Utilitor which you may require.

Midwest Engine Co.
226 Martindale Ave.
Indianapolis, U. S. A.

Cut around the dotted line and paste this address on a post card if you do not care to send coupon.

Gentlemen—Please send me without obligation on my part your booklet "BEATING THE GAME" and the name of your nearest dealer.

I am giving you the following information so that you can show me how I can use the Utilitor profitably on my place.

I own.....acres. I raise.....
My soil is..... I produced last year.....
sandy, marshy, rolling
Name .....
City .....
County ..... State .....

MIDWEST ENGINE CO.

Indianapolis, U. S. A.

Dependable Power

Add Miles to Your Rides

Extra Tested quality is built into Racine Multi-Mile Cord and Country Road Fabric Tires. That means every Racine Tire is perfect in workmanship—each manufacturing step guarded by

Extra Tests

Racine Tires have an exclusive development, the Racine Absorbing Shock Strip—an extra strip of blended rubber graduated in resiliency —welding tread and carcass perfectly.

As a car owner you will quickly realize the importance of this great feature. Racine Tires offer you real service and mileage economy.

Be sure every tire you buy bears the name

RACINE RUBBER COMPANY, Racine, Wis.

RACINE MULTI-MILE CORD TIRES

Plant Teague Trees

They Grow and Produce Valuable Crops

We can still supply Valencia Late Oranges, Eureka, Villa Franca and Lisbon Lemons for commercial planting.

AVOCADOS

Good thrifty field grown Fuerte and Sharpless Trees for immediate delivery.

FEIJOAS

Grafted from the best large fruiting varieties.

Write for our new descriptive price list describing forty-six varieties of Oranges, Lemons, Limes and Pomelos and seventeen varieties of Avocados and other Tropical fruits. It's free to those interested.

The R. M. Teague Nurseries

Box A San Dimas, California

Founded in 1889 by R. M. Teague

At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

Prices Named on Peaches and Figs

Manager Niswander of the California Peach Growers, Inc., in reporting naming of prices on peaches and figs, writes:

"The same benefits which were achieved for peach growers in obtaining higher prices it is purposed to obtain also for fig growers by coordination of the peach and fig growers in one large association. Immediately upon the announcement of the successful formation of the association, prices of peaches advanced and instead of three cents per pound, the price which prevailed for more than a year prior to organization, we are enabled to pay the grower an average price of six cents per pound the first year; that is, for the 1916 crop.

"For the 1917 crop we paid an average of 8.32 cents; for the 1918 crop an average of 11 cents, and for the 1919 crop an average of 14.52 cents.

"This advance from a starvation price to a fairly remunerative one was made possible only through the hearty cooperation of more than 80 per cent of the peach growers of the state, to whom we now appeal to continue the organization which saved the peach industry.

"The benefit to the grower was not alone in the advance in price from three cents per pound to 14½ cents, but during this period progress was made in standardizing your commodity and in establishing through international advertising the Blue Ribbon brand and by developing a mechanical device to remove the objectionable fuzz and peel from the peach; the device and the established brand being worth millions of dollars to the peach growers of California.

"All are familiar with the present deplorable condition of the fig market. Six months ago figs were commanding from 15 to 20 cents per pound. Today there are no buyers for figs at any price. This is a striking object lesson, when it is considered that prunes, apricots, raisins and peaches, being systematically and cooperatively handled by associations, remain firm at remunerative prices, while figs alone, not handled by growers associations, have declined from the high prices of a few months ago to a basis of less than cost of production.

"After thoroughly considering the fig situation, and at the earnest request of many fig growers, it has been decided by your board of directors and approved by your trustees, that this association undertake the receiving, packing and marketing of the fig crop. We feel confident that this information will be well received by every grower within the state, not only because of the unsettled condition of the fig market, hut because it is in harmony with the great cooperative movement so general at this time among the producers of the nation.

"We are entering upon the last year of the growers' contracts and in order that your board of directors may determine upon some points affecting the future policy of the association and in order to save a great deal of time and expense in securing the necessary acreage, it is thought advisable to go before the growers at this time and renew the peach contract at the time of signing up the fig acreage."

A Nevada County Pear Orchard

Scene on the land of the California Mountain Fruit Company four miles from Grass Valley. These are young trees just beginning to give promise of great production.

Prices Named

A minimum of five cents per pound for Yellow Freestone peaches, three cents per pound for Kadota and White Adriatic figs, four cents per pound for Calimyrna figs, two and one-half cents per pound for Black Mission figs, and such a minimum price per pound for White Freestone, Strawberry Freestone and Cling peaches as the board of directors shall direct before the first day of August of each year, are the prices set in contracts for 1921, 1922, 1923 and 1924 fig and peach crops.

Program for Citrus Institute

The directors of the California Citrus Institute announce the following program for their two day meeting June 24 and 25 at Santa Ana. In arranging this program emphasis has been laid upon the care of mature orange groves, including such things as pruning, cultural methods, and irrigation. A half day's session will be given to ranch labor problems. An attempt has been made in arranging the program to give ample time for discussing the various papers presented.

The meetings will all be held in the Elks Club Hall, including the informal banquet the evening of June 24.

While it is not essential that reservations be made for this banquet in advance, all who expect to attend it are requested to communicate with Orange County Farm Bureau, Santa Ana. The farm bureau is also desirous of aiding any from out of town who desire to reserve hotel accommodations for the night of the 24th.

The Program

Thursday, June 24, 9:30 a. m. Care of Mature Orange Groves: Results of Pruning, Fertilization and Soil Handling Methods on the Arlington Experimental Grove, Dr. H. J. Webber, Professor R. S. Vaile; Pruning Mature Orange Trees, Robert W. Hodgson, farm adviser, Los Angeles county; Methods of Applying Fertilizers, W. P. Kelley, citrus experiment station, Riverside.

2:00 p. m. Cultural Methods with Light Soils, H. F. Pressy, assistant manager Rancho Sespe, Sespe; Cultural Methods with Heavy Soils, I. G. McBeth, manager Leffingwell Rancho, Whittier; discussion by W. H. Fleet, manager Rancho Sespe, and R. S Thompson, Highland.

6:30 p. m. Informal banquet, Elks Club House, $1 per plate. Water Conservation, by W. S. Jones, Claremont.

Friday, June 25, 9:30 a. m. Irrigation: Duty of Water, Dr. L. D. Batchelor, citrus experiment station, Riverside; Irrigation Control Studies at Chula Vista, F. M. Eaton; Irrigation of Light Gravelly Soils, C. J. Booth, Chaffey Junior College of Agriculture, Ontario; Irrigation of Medium Loam Soils, J. D. Culbertson, assistant manager, Limoneira, Santa Paula.

2:00 p. m. Ranch Labor and Insect Pest Problems: Survey of Labor Situation, H. J. Ramsay or George B. Hodgkin, field department, California Fruit Growers Exchange; Labor for the Small Ranch, F. A. Pomeroy, man-

ager San Fernando Citrus Association, San Fernando; The Orange Tortrix, Professor H. J. Quayle, citrus experiment station, Riverside.

NEW PEACH GRADER

The U. S. department of agriculture reports that peach growers are displaying keen interest in the new peach sizing device perfected by the bureau of markets. Application for a public patent covering the sizer has been granted by the patent office, and many requests for drawings have been received.

The machines will be used in the peach belt during the coming season. The performance of the sizer will be carefully watched by peach growers and manufacturers generally, and if the device proves to be all that is claimed for it the next peach season will doubtless find a large number of the machines in practical operation.

The object sought by the use of the machine is to handle fruit more efficiently than heretofore and at lower cost. The over-all dimensions of the machine are 25 by 15 feet, and with from 10 to 15 packers working at one time, each machine permits a run of from two to three carloads a day. The device can be operated by an electric motor of less than one horsepower capacity, or by a small gas engine, and can be run at half capacity if desired. According to estimates of the designers, the machine should sell commercially at not more than $450.

It is thought that, in addition to sizing peaches, the machine has possibilities for grading fruits such as apples, pears and oranges. The device now is being tested for grading sweet potatoes.

PLANT PATHOLOGY CONGRESS

Porterville, through its chamber of commerce, has called a state plant pathology congress for June 25 and 26. Dr. P. A. Boncquet, county plant pathologist, whose investigations have been of great value to growers, will be in direct charge of the program. Addresses will be made by state and county horticultural experts and by practical growers of all kinds of fruits and vegetables. Because of the great diversity of production within a few miles of this city, opportunity is offered for a wide range of field demonstrations in the various sections into which the congress is to be divided. Invitations are being sent to chambers of commerce in all the producing sections of the state and provision will be made for caring for several hundred visitors.

WAGE FOR WOMEN WORKERS IN CANNERIES

A rise in the minimum wage of the 20,000 women employed in the fruit and vegetable packing industries of the state from $13.50 to $16 a week, effective July 24, has been ordered by the state industrial welfare commission.

An apprenticeship period of two weeks was ordered for beginners, during which they shall be paid $12 a week, a rise of $2.

A strict eight hour day was ordered for the packers of dried fruit and raisins, but the green fruit and vegetable packers will be permitted to allow overtime. In this event they must pay a "rate and one-half" wage for all extra work.

OFFICE OF STANDARDIZATION

Under the state department of agriculture Fred W. Read has taken charge of the office of standardization, with headquarters at Sacramento. He will have two assistants, both of whom will be experts in their line. It is thought one will be an apple specialist, with headquarters at Watsonville. The other may be sent south; full plans are not yet complete. The state and federal officials have a reciprocal agreement whereby state inspectors are also federal inspectors and their certificates of inspection will be accepted in other states. California officials have agreed, so far as their influence extends, not to have present state standardization laws changed without consulting the federal officials.

POISON BAIT FOR CUTWORMS

To control cutworms use poison bran bait. It is made by mixing 2 pounds of powdered white arsenic or Paris green, 50 pounds of bran and 3 finely chopped lemons. Moisten this with about 7 gallons of water sweetened with 2 to 4 quarts of low grade molasses. Sow this broadcast late in the evening over infested fields. Use it sparingly, as it does not take much to do the work. For a small truck patch prepare only a few pounds of the bait. It is the same bait used for grasshoppers and army worms. The pest is attracted to the flavored bait and will feed on it in preference to the crop. The arsenic serves as a stomach poison, quickly killing the worms. Do not wait until the damage is done but prepare and apply it before or just as the corn begins to come up.

CHERRY DAY

Southern California's cherry producing sections are very limited; in fact, the only production is in San Bernardino and Riverside Counties in the neighborhood of San Gorgonio Pass. Beaumont is announcing observation of Cherry Day in order to call attention to her great cherry growing possibilities. The day is to be observed Saturday of this week. There will be band concerts, ball games and sports during the afternoon, with ball in the evening.

Beaumont grows many varieties of cherries, but the chief ones are the Black Tartarian, Royal Ann, Bing and Lambert. The trees commence to bear when about six years old and at seven they begin to be profitable. The average yield of a tree eight years old is about 150 pounds.

NURSERYMEN TO MEET

The tenth annual convention of the California Association of Nurserymen will be held in Fresno, November 11, 12 and 13, 1920.

A program of unusual interest to nurserymen, fruit growers, seedsmen and florists will be provided, discussing such vital topics as certified bud selection from record bearing fruit trees, cooperation and collective action, plant production and the federal quarantine, California nurserymen of the fifth decade.

DRY RUBY BLOODS

In a citrus plantation near Corona, A. D. Shamel observed on a Ruby Blood orange plant (Citrus sinensis) a branch differing distinctly from all the others by its narrow, long shaped leaves, and still more by its thick rinded fruit (almost double the normal rind) and pulp which was not red and juicy, but straw colored and quite dry. All the 76 fruits borne by this branch had the same characters. It was obviously a case of bud variation (bud mutation).

Closer examination immediately showed the existence of not only over 100 of these mutation branches, but even of whole trees belonging to the dry type. On both the mutation branches and trees there were always found, together with a small number of contingently normal fruits of a mixed type, a large number of dry fruits which, at first sight, could not be distinguished from the others, so that they might be sent to market and cause the producer unjustly to be blamed. It is, therefore, necessary to choose grafting material with greater care and to take it only from plants which have been carefully observed each year. The haphazard taking of grafting material has done much to propagate these bud variations as well as other commercially useless ones.

Place Your Order NOW for Nitrate of Lime

Guaranteed not less than 13 per cent Nitrogen—almost 100 per cent Pure.

Nitrate of Lime supplies Nitrogen in the most available form. Packed in solid wooden casks about 240 pounds.

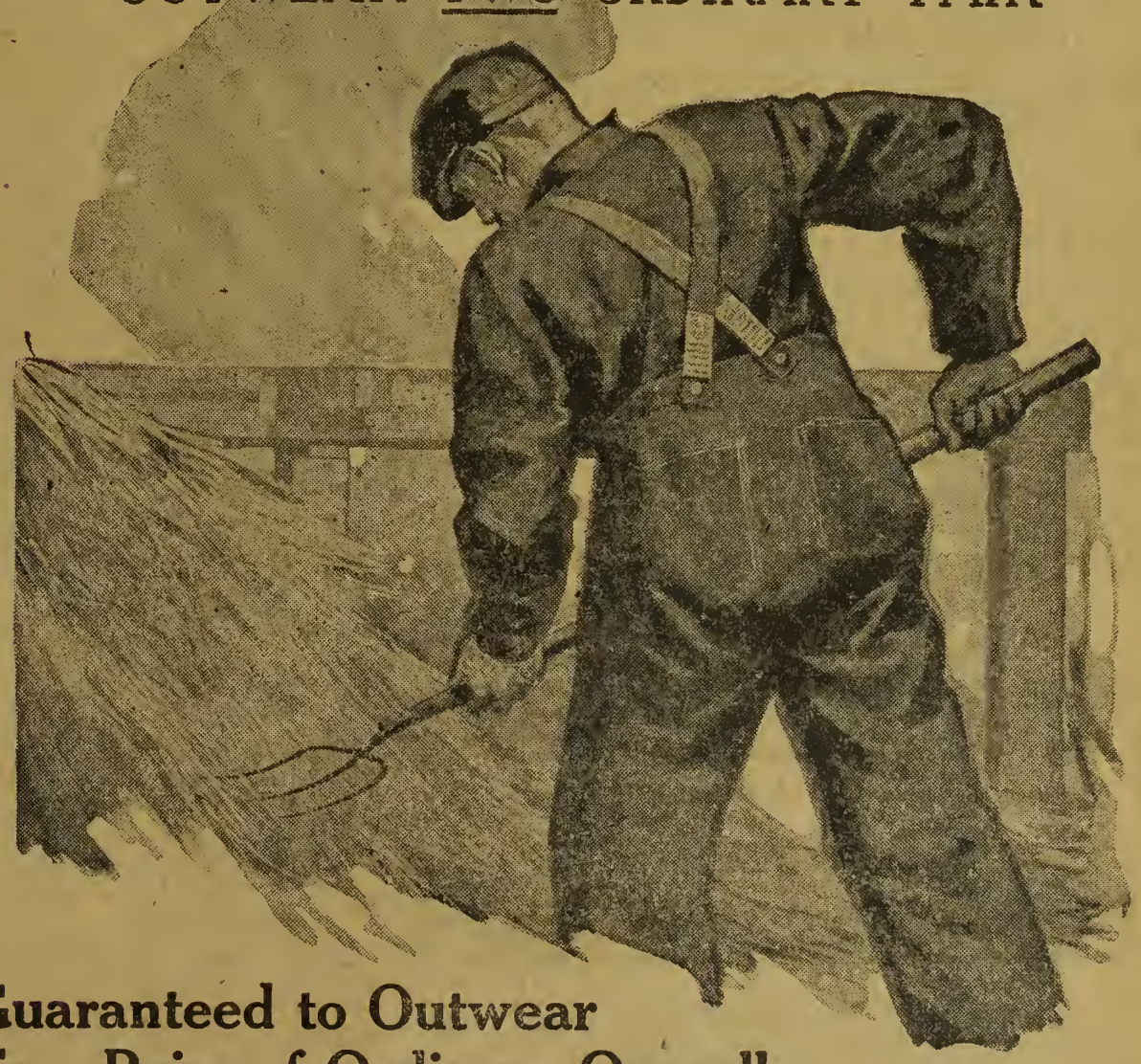
Ask for prices, delivery from warehouse, Los Angeles and San Francisco, or ex steamer to arrive.

C. HENRY SMITH, General Agent
Pacific Coast and Hawaiian Islands
811 California St., San Francisco.

HEADLIGHT OVERALLS

UNION MADE

OUTWEAR TWO ORDINARY PAIR



Guaranteed to Outwear Two Pairs of Ordinary Overalls

We know what goes into Headlight Overalls. That's why we cover their service with an absolute guarantee. The extra quantity and extra quality of denim in Headlights insure extra comfort and extra wear. If you don't get double wear out of Headlights, you get your money back.

LARNED, CARTER & CO., DETROIT
World's Greatest Overall Makers

Factories: Detroit St. Louis San Francisco Port Huron, Mich. and Perth Amboy, N. J.
Canadian Factory: Toronto, Ontario (42)

The Miskin Scraper

IS

THE BEST SCRAPER ON EARTH

And we can prove it. Write for circulars

The above is a cut of the Famous Miskin Scraper, which in operation, easy draft, greater capacity, and better work has many advantages over the common Fresno and wheel scrapers now on the market.

Made in 2-horse, 3-horse and 4-horse sizes. The four horse size can be operated by small tractors from the tractor seat, by the tractor driver.

Send for descriptive circulars, with prices. We pay the freight.

Miskin Scraper Works, Ucon, Idaho

Build Up Your Soil With Whip-Poor-Will Cow Peas

WHAT THEY WILL DO:

They make the best summer covercrop.
Maintain a moist surface mulch.
Will prevent June drop.
Require less irrigation than other crops.
Need no irrigation where soil moisture has been conserved.
Build up poor soils with more nitrogen bacteria and humus than any other covercrop.
Afford the best kind of pasture for cattle and hogs.
As a hay have a food value of 43% more than Alfalfa.
Will improve your silage.
There is no better Bee Pasture.
Thirty pounds of seed is sufficient to plant one acre.
Our seed germinated 96%.

PLANT WHIP-POOR-WILL COW PEAS

Buy Your Seed From

AGGELER & MUSSER SEED COMPANY

620 So. Spring St., Los Angeles, or
767 So. Central Ave. (There is no parking limit here)

Our Seeds are handled by your local dealer

Riveted Well Casing Corrugated and Plain Tanks
Riveted Water Pipe Galvanized Surface Pipe

MANUFACTURED BY

AMERICAN STEEL PIPE AND TANK CO.

354 Pacific Electric Bldg., Los Angeles

PACIFIC NEW AND RENEWED PIPE SAVES MONEY

Renewed screw casing costs from one-half to two-thirds less than standard pipe. Large savings on standard pipe, fittings and valves, special fittings made to order. Pacific Pipe is thoroughly tested and guaranteed for 150 pounds working pressure; asphaltum dipped; serves every purpose. Let us save you money. Write

PACIFIC PIPE CO. 237 HOWARD STREET SAN FRANCISCO

When Writing Advertisers Mention California Cultivator

South Africa's Citrus Industry

THE South African Journal of Industries recently contained an interesting discussion of the progress of fruit growing in the Union and the development of an export trade, with special reference to citrus fruits. Extracts from this article are quoted below:

The production of citrus fruits in South Africa was in the past confined to comparatively small areas and the annual income derived therefrom a matter of small moment. There was no inducement to plant large numbers of orange and lemon trees, because the total white population of the country was small and the demand limited. As soon as it was demonstrated that oranges could be successfully exported to the European markets the matter assumed another aspect, and it was gradually realized that here was a business which could be exploited to an almost unlimited extent.

Just as South African deciduous fruits arrive in Europe at that season of the year when the market there is bare and there is no competition, so do the citrus fruits arrive when the supply from Europe and North America has ceased, and South Africa has almost a monopoly of the orange business from June until October. This means that it is now possible to obtain in Europe South African citrus fruit of all kinds just at that period of the year when they are most appreciated and are most beneficial from a health point of view.

Export of Oranges

Oranges are grown principally in the Transvaal, Cape Province and Natal. Very few groves exist in the Orange Free State, its name notwithstanding, and from a commercial point of view these are negligible. The area of land suitable for citrus fruit is more extensive in South Africa than that on which any other fruit will thrive, and for this reason it will be readily seen that the orange will be the leading export fruit within a few years. The suitability of vast tracts of land in the Transvaal and Cape Province to the growth of the orange is demonstrated in the thrifty appearance of an occasional tree planted where there happens to be a little water available.

The exportation of citrus fruit commenced in a small way in 1907, since which time considerable though not uninterrupted progress has been made. Each of the three producing provinces is represented in the export figures. Very little difference occurs in the numbers shipped from the Transvaal and those from Cape Province. At one time the bulk of the citrus fruit exported from South Africa was grown in the Transvaal, then the Cape took a slight lead; now indications point to an increase in the Transvaal production.

Inspectors at ports and local shippers estimate the quantity of citrus fruits available for export in 1920 at 16,054 cases.

The varieties of oranges for export have in the past consisted of the ordinary seedling of the country, with perhaps half a dozen of what may be termed "popular standard varieties." About 75 per cent of the total have been seedlings. Future plantings, and consequently exports also, will undoubtedly, as has been the case in California, consist of standard kinds, and the favorites will be Washington Navel, Valencia Late, St. Michaels, Joppa, Jaffa, Mediterranean Sweet and Malta Blood, in approximately the order named.

Other Citrus Fruits

The demand for grapefruit is larger in America than in any other country. As South Africa has not hitherto grown any to speak of, the Union has not been able to tap this most profitable market. The few hundred boxes that have been exported from South Africa have been sent to London, where the demand is also good and prices equally so for the right article.

As an export fruit, the lemon has not hitherto proved a success. This is attributable to the simple facts that in the first place over-sea prices are too low to appeal to South African growers, and in the second, the supply of Mediterranean lemons is so large and the handling of the crop so economically done that there are few months out of the twelve during which the South African article has any opportunity of striking anything but a full market. During July and August lemons in London are a fair price, and although not so high as here, should later on appeal to the South African lemon man. At that time of year the local demand, owing to low temperatures, is slack, whilst in Europe the weather is hot and may also be described as "thirsty"—in fact, just right for lemon drinks.

The Seville orange, known the world over as the Bitter Seville, is the one orange which is preferred for marmalade. No other kind makes such a beautifully clear product, and although in California great efforts are being put forth to create a demand for marmalade made from the Washington Navel orange, the choicest marmalade is and will continue to be made from this fruit. The local demand for this fruit has been very small until the last few years, when a demand has arisen for better class marmalade, with the result that the Seville was more in demand. Possibly there are not more than 5,000 Seville orange trees in South Africa today and they are not worth planting to any extent, although good prices should be obtained for some years to come. The trouble is that the Spanish product is available in such huge quantities and at such low figures that prices are forced down below the limit which South African growers regard as profitable.

* * *

Regarding the Bitter Seville, often called in California the Florida Sour Orange, it is used to an extent in this country in the manufacture of marmalade, but the American taste has not taken to the bitter marmalade as has the European. Here even the bitter of the Navel, Valencia or other sweet orange is partially eliminated in order to give the flavor most preferred by the American consumer. The trade takes to this sweeter product, as is shown by great increase in the manufacture of California marmalade.—(Editor.)

APRICOT PACK DISCUSSED

Standardization of fresh shipping apricots was discussed at a meeting held recently by Director Hecke of the California department of agriculture to consider the advisability of special rulings in view of the serious infection of shot hole fungus. A number of growers in the affected districts met with the director of agriculture and the county horticultural commissioners, and it developed as practically the unanimous opinion that the standards as laid down in the existing law should not be changed.

There was some discussion as to whether or not a separate standard for apricots shipped in lug boxes should be considered, but it was brought out that such a change in the standards would result in irreparable loss or prestige for a pack which is just developing in popularity in eastern markets. It was felt that under any consideration the lug box pack should be equal in every respect in regard to quality of fruit to the crate pack.

After a very thorough hearing Director Hecke ruled that it was undesirable to lower in any way the standards as defined in the present law. This ruling met with the unanimous approval of the county horticultural commissioners from the counties affected. It is therefore understood that in the coming shipping season not over three per c nt of shot hole fungus will be allowed in any shipment of apricots.

PEACH LEAF CURL

In the peach orchard of J. C. Craig Owensmouth, the trees were sprayed in November for peach blight and shot hole fungus. In March all but one row was sprayed with Bordeaux for twig borer and curly leaf. The main orchard is nearly free from curl and the ground beneath clean. On the unsprayed trees there is much leaf curl still in evidence, though the disease has about run its course as it attacks only the earliest foliage. But the ground beneath is littered with dead curled leaves and some small peaches. As these diseased leaves were killed

when the trees had few and needed many it is easy to see how the vitality was lowered. This object lesson was an enlightenment to a small crowd of investigating growers who visited the orchard with Dr. Whitten and Assistant Farm Adviser Blanchard.

TREATMENT FOR CROWN GALL

Crown gall (usually called root knot by fruit growers) is one of the most serious diseases of deciduous fruit trees.

Nursery stock must be inspected with great care before planting and all infected trees rejected. Cutting the galls from the roots does not prevent the recurrence of the trouble when the trees are older. Orchard trees should be examined at the crown for the appearance of the growth or gall, which will eventually girdle and kill the tree if neglected. For treatment of orchard trees, Prof. Ralph E. Smith writes:

"The best thing to be done in the case of crown gall which you describe is to get the dirt away from the trunks down to the main roots, cut out all diseased growth as cleanly as possible and cover the exposed surfaces with Bordeaux paste. One time is as good as another for this work and there is nothing else which can be suggested.

"The following is the formula for Bordeaux paste as recommended by Professor Fawcett:

"One pound of bluestone (copper sulphate) dissolved in one gallon of water in a wooden or earthen vessel. This can best be done by hanging it in a sack in the top of the water. Two pounds of unslaked lime, slaked in about one-half gallon of water. Some variation from these proportions may be made without greatly changing the value of the paste. Stir the two solutions together when cool, making a light blue mixture about the consistency of whitewash. After applying the paste for crown gall I would not replace the dirt, but leave the cavity open until it gradually works in again."

A single cleaning out of the crown gall is not always sufficient. After a period of active growth has elapsed the wounds should be carefully inspected, and wherever any galls are appearing these should be dug out thoroughly, making a smooth, clean job, applying the Bordeaux paste again.—H. P. Stabler, Horticultural Commissioner, Sutter County.

DATES IN ALGERIA

The chief industries of the south territories are livestock, date culture, and raising of wheat and barley. Date culture constitutes the basis of agricultural production in the Sahara. The date is the principal foodstuff of the natives and an important article of commerce. The number of date palms in the south territories in 1918 was 5,758,537.

These figures show very slight increases over the preceding years, as war conditions were not favorable to extending plantations. However, the very high prices which dates brought in 1917, and particularly in 1918, when prices were five times as great as before the war, stimulated the effort to increase the existing areas and to create new plantations in Oued Rhir, the economic center of which region is Touggourt. Difficulty in the extension of this culture is caused by the lack of "djebars" or offshoots, the available supply of which has been insufficient for several years. Offshoots in 1914 cost 3.50 francs (about 87½ cents) and have since tripled in price. By a decree of December 31, 1915, the exportation of offshoots from Algeria was prohibited. The export of dates for 1918 was 2,030 tons.

THE LADY APPLE

By Joe Hooper.

At Coloma, where gold was discovered in 1848 and which has been shipping peaches to New York for over 60 years, the farmers are raising a new kind of apple called the Lady Apple which seems to reach perfection only in that locality.

The trees are secured from grafting the Lady Apple onto the large apple trees which have stood in the Coloma Valley since they were planted in 1850. The small seedlings can also be grafted. The trees grow to an immense height and it requires a 20 foot ladder to pick the fruit from some of them, and even then the limbs are ten feet higher. No trimming is

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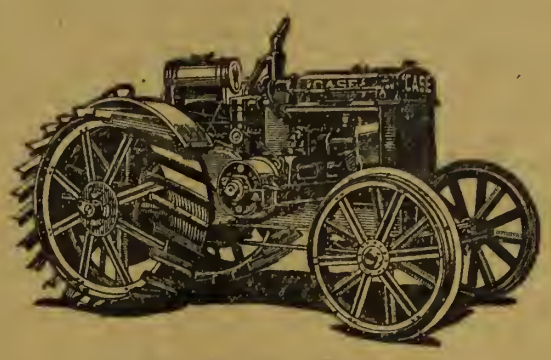

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done and the limbs grow like the willow or weeping willow tree. The fruit hangs in clusters on these limbs and they bend almost to the ground. When the trees are in blossom they resemble an immense rosebush and are a beautiful sight.

The Lady Apple is a small apple with with red cheeks, varying in size from one-quarter to two inches in diameter. When the trees are loaded with these apples they resemble the rosebush, the same as when in blossom. The apples are very firm and keep all winter. They are picked in November.

Spraying

The trees have to be sprayed at least three times each summer to control the codling moth, as this moth is very prolific due to the large number of apples on the trees.

The Market

San Francisco has bought all the apples the Coloma farmers have been able to raise so far. The output last year was 800 pear boxes, and these were all used in San Francisco or shipped to Honolulu which market uses many of them. These apples are packed one tier ten across on the top of the box and the balance filled in. When the boxes are opened they are in perfect condition for window display. These apples resemble the Christmas red candy and most of the fruit is used for this purpose, most of the apples reaching San Francisco for the Thanksgiving and Christmas trade.

Record Tree

One Coloma tree yielded 65 lugs at picking last year. This is an especially large tree, the trunk being over 12 inches in diameter and 35 feet high, but a number of the other trees have produced 40 to 50 lugs. The trees generally bear every other year, but these apples help to reduce losses on farming due to the severity of the climate on the Coloma peach crops.

Sunburn and Wood Decay

By Robert W. Hodgson

CALIFORNIA is preeminently great in the production of fruit and in many ways is her supremacy along this line shown; wealth returned from fruit crops, acreage devoted to orchards, number of persons engaged in fruit growing, extreme diversity of fruits grown, as well as in other ways. With the olive, the almond, the wainut, the apricot, and perhaps others of minor importance, this greatness amounts to virtually a monopoly, while with the more common sorts such as the peach, pear, plum and apple, her production constitutes an important part of that of the nation at large. The high position occupied by California among fruit producing districts of the world might naturally lead one to assume that such might be due to her growers having solved all their problems. But while California's reputation as a progressive fruit growing district is second to none in the world, her preeminence in this regard is not due to this reason. By no means have all the problems of fruit culture in this state been solved. Indeed, to those best qualified to judge it is apparent that we have but begun to recognize some of the major problems, not to mention solving them. California's greatness as a fruit growing state is not due in any great measure to superior knowledge; it comes as a result of our matchless and unrivalled growing season climate conditions, a gift of the gods, for which we can claim no responsibility whatever. Being so greatly favored by nature, California fruit growers should the more earnestly press toward the solution of these problems.

Among the most important of these may be considered the causes for the decline of the older orchards. On every hand are to be found evidences of deterioration in what were once prized orchards. The older prune orchards of the Santa Clara Valley are going back year after year. Many of the finest peach and cherry plantings in the state have been pulled out within recent years on account of their becoming unprofitable. Many of the older citrus groves are going back noticeably. And yet the remarkable and perhaps significant feature is that not all of the older orchards are doing so and in particular isolated trees favorably situated. Some of the original Sutter County peach trees from which came many of the great commercial orchards of the state are still standing and bearing big crops of fruit while the younger orchards are going to pieces. Splendid old cherry and prune trees are still to be found in the Vaca Valley and the Chico district, while patriarch citrus trees are by no means uncommon.

We know of no inherent fundamental reason why our commercial orchards should not last longer. Individual cases by the score can be adduced to show that there is no necessity for early decline. The old statement, "Fifteen years is the bearing period for the peach," so often quoted by commercial growers, is belied by the many fine old peach trees scattered about the state. One cannot but be led to conclude that in the care given the orchards lies much of the reason for early wearing out. And such we find to be the case.

Authorities now agree that sunburn and wood decay annually kill more trees in California than all other causes combined, and that these two troubles account for most of the early decline found in our commercial orchards. And the encouraging feature is that both of these difficulties can be very largely prevented by orchardists if they but care to.

Sunburn

The wondrously clear California atmosphere permits an abnormally large per cent of the sun's rays to reach the earth, including those most inimical to unprotected living substance. These are the rays supposed to produce much of the sunburn so prevalent on unprotected trees in this state. In the past we have been led to believe that sunburn occurred mostly during the hot growing season when day temperatures run high. We now know, however, that such is not the case. At this time of year the temperature within the trunk of the tree is apt to be somewhat lower than atmospheric temperature, on account of the tremendous evaporation. It is during the dormant period in the winter that the greatest injury occurs. At this season of the year the trunks are bare and unprotected by foliage and not cooled by evaporation. The sap is not in movement and the tree is in no way protected against the high temperatures which so frequently occur during clear winter days. The result is that the temperature inside a tree trunk on a bright winter day may be considerably higher than atmospheric temperature. Activity is started in the cells so heated and checked at night when the temperature falls. This alternate retardation and stimulation, with possible frost injury to the active tissue, starts the greater part of the cases of sunburn.

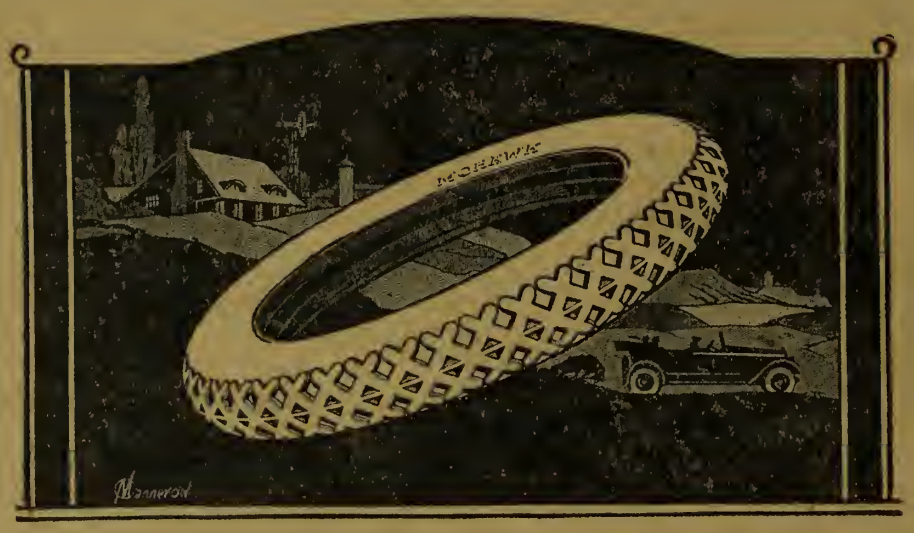
The cure for sunburn lies in prevention by means of tree protection. The best method for accomplishing this is through whitewashing, although tree protectors, either paper or yucca, are material aids. Trees should be kept whitewashed all the year round, starting in at the time they are set and continuing throughout their lifetime. Many different formulas for whitewash have been used with good success, but two of the best are as follows:

California tree whitewash—Quicklime 30 pounds, tallow 4 pounds, salt 5 pounds.

University formula—7 pounds unslaked lime, 2 pounds powdered sulphur, and 1 pound salt. Slake all together, the heat generated incurring a chemical reaction which makes the whitewash stick.

Wood Decay

Wood decay is caused by a half



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Experimenting with various kinds of brands may prove which is the best; but this is an expensive and troublesome method.

To know positively the kind of materials and workmanship which go into a tire—this is the safest method of choosing.

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dozen or so different genera of fungi which gain access to the tree through the medium of wounds made through sunburn, accidental scarring of trees in cultivation, severe pruning, or by the wind, and find lodgment in cracks or crevices in these wounds where they start growth. Once established they grow down through the heartwood, progressing in many cases clear down into the roots before the tree dies. The injury done to the tree lies in the absorption of the poisonous compounds given off by the decaying wood which causes the tree to finally die of toxic compounds. Wood decay may be almost entirely prevented by treating all wounds of an inch or greater diameter with a good wound dressing. The important thing is that the wound must be protected until it has healed over, which sometimes means several years. Many materials have been used in the past, including white lead paint, whitewash, shellac and others, but only one general class of substances seems satisfactory, that with an asphaltum base. Beeswax-rosin grafting wax is excellent but somewhat expensive. Ordinary asphaltum roofing paint has been used with good results. Grade D asphaltum heated and applied hot, is good. The same material dissolved in benzine or gasoline makes a good dressing. Grade B asphaltum, a liquid form, is also good. Several commercial preparations are on the market. With all of these however, large wounds at least must be followed up and retreated from year to year. With proper attention to whitewashing and treating wounds, there is no doubt but that much can be done to prevent decline in old orchards.

Undoubtedly a contributing factor in many cases is the burning out of the organic matter in the soil. While the evidence supporting the use of commercial and mineral fertilizers especially is entirely too fragmentary and conflicting for much reliance, everything points most conclusively toward the use of organic matter being followed by an excellent response on the part of deciduous fruit trees. The growing of cover crops therefore, as well as the application of manure, is to be advised as a practice calculated to materially improve the fertility of our orchard soils and thereby to prevent decline occasioned by exhausted organic matter.

U. S. DEPARTMENT REPORTS NECESSARY STEPS TO PREVENT BOTULINUS

The bureau of chemistry of the department of agriculture authorizes the statement that it has met with a gratifying degree of cooperation on the part of packers of ripe olives in improving methods to such an extent that danger from botulinus poisoning in future packs will be eliminated. Five groups of deaths traced to poison produced by the organism known as bacillus botulinus have occurred in New York City, Detroit, Michigan, Canton, Ohio, Memphis, Tennessee and Kalispell, Montana.

Very extensive investigations have been made by scientists from the bureau of chemistry with the cooperation of the packers, and the packers have also employed specialists to study the causes of botulinus poisoning and the precautions which should be employed to prevent further diffculty. The experts agree that the trouble is not inherent in the type of container used. Whether the olives be packed in glass jars or in tin cans they may be rendered absolutely safe if proper precautions are taken to prevent the infection with bacteria during handling and if the packages when filled are sterilized at a sufficient temperature and for a sufficient period of time. It is entirely practicable, say the specialists, to sterilize both glass containers and tin cans at a temperature high enough to insure absolute sterilization.

Lack of Precaution Responsible

Unfortunately some packs of ripe olives put up in glass as well as some in tin during past seasons were not prepared with all the precautions now known to be essential and were not sterilized at a sufficiently high temperature, and some of these goods in glass were responsible for the fatalities. It is probable that of all the ripe olives on the market but an extremely small number actually contained bacillus botulinus. Of more than 2,000 individual packages collected and examined in the bureau of chemistry but eight were found to contain bacillus botulinus, and seven of these were from the output of one manufacturer and from one batch of his output. In addition to these eight, the bureau has examined samples of some of the olives responsible for the fatalities and has also found bacillus botulinus in these specimens. There is no reason to anticipate danger from properly packed and processed ripe olives whether they be packed in tin or glass containers.

CLAREMONT POMOLOGICAL CLUB

The Claremont Pomological Club held its annual meeting at Claremont on Saturday, May 29. Mr. and Mrs. Pierson of La Verne were the hosts.

After the regular business the officers for the coming year were elected as follows: Chas. E. Needham of Glendora, president; Joseph S. Pierson of La Verne, vice-president; Mrs. W. O. Fritz of Pomona, treasurer; V. V. LeRoy of Los Angeles, secretary.

It was voted that the regular picnic meeting be held in conjunction withthe summer state citrus institute at Santa Ana on Thursday, June 24.

The first address was by Mrs. J. E. Hazzard of the Los Angeles County farm bureau on economic buying. In it she showed that much of the H. C. L. was the fault of ignorant buying Much that we buy is badly adulterated. In ten samples of taffeta silk obtained in our stores not one was of silk but of preparations of wood fiber. Out of 13 samples of other silks only three were real silk. Some had a few threads of silk, with prepared cotton. Some merchants are trying to have their clerks sell goods for what they are, but the clerks in most cases are as ignorant as the customers. You can't tell by prices any more. Expensive articles are not necessarily good or true to name. The telephone is an ahomination in buying and the greatest help to palming off any old thing on the person who orders with it. Don't object to high costs, if you insist on having a spool of thread delivered; a customer of a big city store did this last week. Never buy a table cloth or napkins for linen unles you test them.

Dr. J. G. Biller gave the first paper of the afternoon, on the citrus blast, which is doing much damage in the north. It is a bacterial disease, attacking the outer limbs of the trees until they resemble badly frozen orchards. The state and county horticultural commissioners are on the lookout to keep it from the south, where it would probably spread much faster. It requires both heat and moisture to make it active.

Prof. R. S. Vaile gave the last of a series of addresses on fertilization. He summarized his lecture as follows: Organic matter must be incorporated in the soil as deeply as possible. There is no probability of getting too much organic matter, even if you use barnyard manure also.

Summer cover crops are of doubtful value unless one has abundance of water and uses it.

The fertilizers must be placed as deep in the soil as possible. Most of the commercial fertilizers are drilled in and seldom go down to the root area. Cover crops should be plowed in as deeply as possible. Plowing is of little value except to get fertilizer deep into the soil. Cover crops become available when turned under green in about six weeks.

Never let your orchard get dry. It takes a long time for water to go any depth in dry soil, but if moist it will go down quickly. Dust mulch by numerous experiments in Utah and other states has been shown to be of little value in conserving moisture, but we must cultivate well in order to get our furrows deep enough to put the water where it should be. Don't try to cover your furrows too soon. Much harm is being done to the soil by working it too soon. Leaving the furrows open for several days will do no harm. Of course, the kind of soil must be considered, but don't think you are losing much water by not covering in at once.

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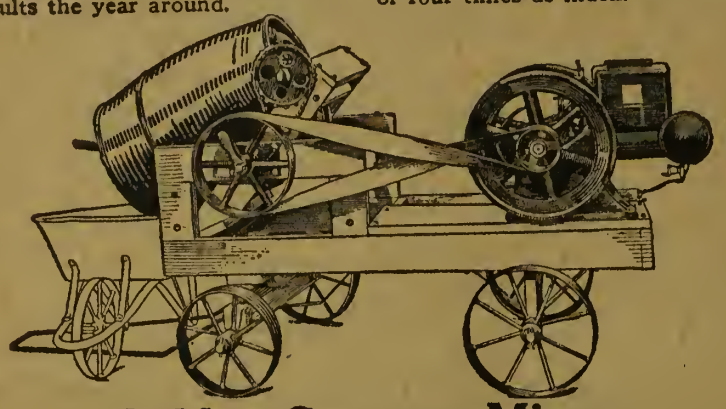

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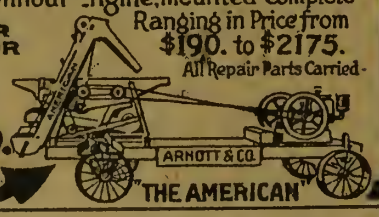

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EVOLUTION OF LONG STAPLE COTTON

(Continued from Cover Page)

not an over abundance of enthusiasm regarding this new crop. Governor Campbell said recently, "I will confess that I was not enough of a prophet twenty, or even ten, years ago to foresee the wonderful development of this locality. If I had been any sort of a prophet it would have been better for my bank account, though I am now ready to agree that the progress of the future very likely will be even greater than has been that of the past. Last season the cotton crop of the Salt River Valley alone would have paid the cost of two reclamation systems such as that which supplies it."

The success of the cotton growers was such this first year that more were anxious to try it the next. The acreage increased up to 1915. This was the year following the outbreak of the big war and cotton prices had dropped to a low level, but in the fall of 1915 prices again advanced and the acreage has been steadily increasing.

L. M. Harrison, field agent of the United States bureau of crop estimates, in his report for May 8 of this year says:

"Cotton prospects on May 1 were not very encouraging, due to the late season. While much replanting has been necessary, the crop shows about an 80 per cent stand with the condition rapidly improving as a result of more favorable weather. A preliminary estimate places the acreage of the American-Egyptian variety at 210,000 acres, which comparies with 87,000 acres one year ago, 72,000 acres two years ago, and 33,000 acres three years ago. Maricopa County reports 185,000 acres; Yuma, 13,000; Pinal, 10,000; and Pima, 5,000. The state acreage of short staple is estimated at 20,000."

Along with the increased acreage has come an increased price per pound, which is due in part to the general uplift of the cost of all commodities and also to the increased uses for the long staple cotton. Chief of these new uses is that of the fabric and cords for automobile tires. It is true that during the war the government found it could utilize the long staple cotton for making balloon fabric and also a cloth for aeroplane wings. Another use, recently developed, is for covering for insulated electric wiring, supplanting Irish linen.

Considering the demand for automobile tires and the other goods for which long staple cotton is used, such as thread, mercerized goods and some of the finer knit goods, it is not strange that the price has increased, especially when we consider that the acreage suitable for the production of long staple cotton in America is small as compared with Egypt. Our importation of Egyptian cotton is far in excess of its production in America, and the demands for long staple in England are such as would make possible the utilization of practically the entire product of Egypt, in fact, Great Britain's mills are sending out experts, hoping to develop new areas in Egypt. Africa and India where long or short staple cotton may be grown successfully. It will be, however, many years before any new areas can be brought into cultivation to successfully compete with America and Egypt as cotton growing sections.

The inroads of the boll weevil upon the Sca Island cotton, which was the only competitor of the American Egyptian long staple cotton, have wiped out this variety of cotton. There is a marked effort to increase the acreage throughout the Southwest. This year the acreage of long staple cotton has more than doubled that of last year in the Salt River Valley.

The increase of long staple cotton in the Yuma Valley over last year is considerable. There are also several other sections of Arizona where long staple is being grown to a considerable extent. In the Casa Grande Valley there is quite an acreage in the vicinity of Tucson. About 25,000 acres is being grown across the Colorado River in the Imperial Valley, some also in the San Joaquin Valley and some in the vicinity of Blythe. There is also a little cotton being grown in the Parker district on the Arizona side of the Colorado from Blythe, with a prospect that as more land is developed the acreage will increase considerably next year.

The average yield of long staple has been about one-half bale to the acre. It is quite probable that the late spring, which necessitated replanting and, where replanting was not general, has in some instances resulted in a poor stand, and that the yield this year will be slightly less than last year. This, of course, depends very largely upon the season, and the harvest may disclose the fact that the average of the past few years has been maintained.

Cotton has sold recently for $1.25 to $1.50 a pound. As to the probable price for the next five years I do not care to make any prophecy other than this, that the area of land which can produce long staple cotton is limited so that production is not likely to increase very materially. The uses of long staple are increasing much more rapidly than its production, so that regardless of whether other commodities are lower in price or not, cotton, and especially long staple cotton, should remain relatively high, although we are not optimistic enough to expect the price which prevails at present of from $1 to $1.50 a pound to obtain for an indefinite period. Yields as high as one and one-half bales have been obtained by a few growers. A bale to the acre is not particularly uncommon. Generally the better yields have been obtained upon land which has been in alfalfa and has thus been built up to a high state of fertility with an abundance of humus, although probably the best yields have been obtained upon fields which had been in alfalfa for about two years previous. An excess amount of humus frequently has a tendency to produce extensive vegetative growth rather than fruit.

There is still some discussion of the question whether or not the plants should be spaced close together or left two feet or so apart. Generally speaking, the successful growers are agreed that the rows four feet apart and plants 12 to 18 inches is about right. Some growers have been successful in planting two rows and leaving one row vacant, planting this later to cow peas, the primary object of this method being to introduce nitrogen and humus into the soil by the chopping into the soil of these cow peas when they were about to make seed. This has been said to result in an increased yield, but it is questionable whether the increased yield was not due to the wider spacing which permitted the sun to get into the base of the plants. If this theory is correct then the poorer stand which is characteristic of this season, theoretically, should not result in a greatly decreased yield.

There is also a little difference in opinion regarding the time and method of irrigation. Generally the best growers are quite well agreed that it is better to hold off the water until about the time the plants begin to blossom and then supply it only as the condition of the plant indicates the need. This is determined by the wilting of the plants during the early part of the day; as long as the plants do not wilt until late in the afternoon it is assumed that water is not needed. Practically all growers are agreed that success in cotton growing calls for the most careful preparation of the land. It must be plowed (and many insist upon cross-plowing), harrowed and made as nearly level as the slope of the land will permit, then the land saturated thoroughly with water and seed planted about one to one and one half inches deep.

To handle this acreage in cotton requires an enormous amount of labor and were it not for the fact that Mexican labor has been easily obtained it would not have been possible to produce this crop. It is estimated that the labor requirements for harvesting the present season's crop will be between 15,000 and 20,000 people.

The southwestern country where long staple cotton is grown, including all of Arizona and California, is peculiarly fortunate in having had no serious insect enemies. Owing to the isolated condition of the Salt River Valley and some of the other sections where cotton is grown, quarantine regulations are more successful, and it is hoped that they will continue to be successful in keeping out the pink boll worm and the Mexican boll weevil. It is not believed that the boll weevil in the dry climates would be as serious a menace as it is in the more humid sections; nevertheless every effort is being made to keep i

out. The pink bollworm would be a more serious matter, but with the quarantine regulations as they exist there is a reasonable assumption that we may be spared the affliction of this insect enemy.

There is every reason to believe that the long staple cotton industry is permanent, although it is probable that the acreage in the Salt River Valley is as large or larger this season than it ever will be again, as in order to grow this successfully it will be necessary to practice a rotation of crops and we expect to see some little of the acreage now in cotton plowed up this fall and planted to alfalfa. Diversification of crops and a rotation which will bring in alfalfa are absolutely essential to maintaining the permanent success of this industry.

One of the factors which has contributed no little to the success of the cotton growing industry has been the thorough manner of seed selection. The difficulty which Egyptian growers have experienced has been the deterioration of the several varieties grown. It has been found difficult in Egypt to select in such a manner as to increase the quality, while just the reverse has been true in the Salt River Valley. Under the direction of government experts, fields of cotton have been planted with the best of selected seed. These fields have then been grown and the seed saved for planting selected areas.

Inasmuch as no short staple cotton is being grown in the Salt River Valley, and only the one variety of long staple (which is known as Pima), it has been possible to continually improve it by selection. The Pima variety is a mutation from the Yuma, which was the first grown and distributed through government agency. At the present time a greater effort than ever before will be made under the supervision of Mr. Hastings, formerly in charge of the Sacaton experiment station, now employed by the Southwest Cotton Company, to select the best plants for seed purposes. A larger acreage will be grown and the seed improvement will continue.

It is predicted that Egyptian cotton growers may eventually send to this country for seed. The long staple cotton industry has meant much to the Salt River Valley of Arizona and will probably be the means of developing many other sections equally as much as the Salt River Valley has been.

As an illustration of what this means, it might be said that the population of Phoenix in 1912 was 18,400; at the present time approximately 40,000. The population of the country tributary to Phoenix in 1912 was 50,000, and at the present close to 100,000. Deposits of Phoenix banks in December of last year totalled $23,559,026.15; deposits of these same banks at about the time of the beginning of the long staple cotton industry amounted to $7,068,551.33. The building permits for the month of March of this year were twice those for the entire year of 1912.

The acreage in the Salt River Valley has been increased from 200,000 to 300,000, and within the next year or two at the outside, 100,000 acres more will probably be added. These figures are tangible facts which show what the cotton industry has meant to the country where it has been developed to its highest stage of perfection.

More pleasing to the people of the Salt River Valley are the things which these figures mean, such as the paved streets in the cities; $4,000,000 bond issue for the roads throughout the country districts; splendid schools and school buildings; many public buildings that would be a credit to towns of larger size; and that general spirit of contentment and satisfaction which comes to a prosperous people.

HOME AND FARM FOOD PRESERVATION

"Home and Farm Food Preservation," by William V. Cruess, published by The Macmillan Company, New York, at $2.00. There is no more competent authority on food preservation than Professor Cruess of our state university, who has given years of careful investigation and through the university has issued many bulletins which have been of great value to fruit producers and home makers. In this book he has gathered much of this information in such form as to make it a fine reference work, likewise text book on food preservation. Of the volume the publishers say: "This volume tells the 'why' of the various methods of food preservation, presents labor saving devices and gives simple and explicit directions that may easily be followed. There are three main divisions in the text—first, the Principles of Food Preservation; second, Methods of Food Preservation; third, Food Preservation Recipes. The reading of the first two sections will make clear the fundamental principles and will give the student an understanding of the general application of these principles. This will be of assistance in carrying out the specific instructions in the third part." The 35 chapters touch on practically everything from why food spoils to recipes for dairy products which are included in the last chapter. These touch on canning fruit, vegetables, meats, juices, syrups, jellies, jams, marmalades, butters and preserves, fruit drying, vegetable drying and vinegar making. The text is made more complete by a large number of half tone engravings and line drawings. It is a valuable publication and should be in every home library.

CHEAP MONEY

It is a bit discouraging these days of extremely high priced money. Interest rates are vaulting beyond reason and the farmers are deprived of the federal farm loan bank services by the attack which has been made by large mortgage concerns, which is preventing the sale of farm loan bonds. There is a little relief being given by the joint stock land banks which are still operating, but necessarily compelled to reduce their loaning by reduced sale of their bonds. However, we have asked the California Joint Stock Land Bank as to the situation, and Vice-President Hendrick writes:

"This bank is still loaning money to farmers to the extent of its ability. The practical suspension of the federal land banks has resulted in an inordinate demand on this bank to loan money, and we are not able to take care of the immense volume of business that is offered us, but we are doing the best we can. Of course, it is a little discouraging in these times to attempt to market bonds when the interest rates on good paper are so high. We have not felt, however, like deserting the farmer entirely, believing that now is the time that he needs the assistance of the banks even more than he needed them some years ago, and we are endeavoring to be of every assistance we can."

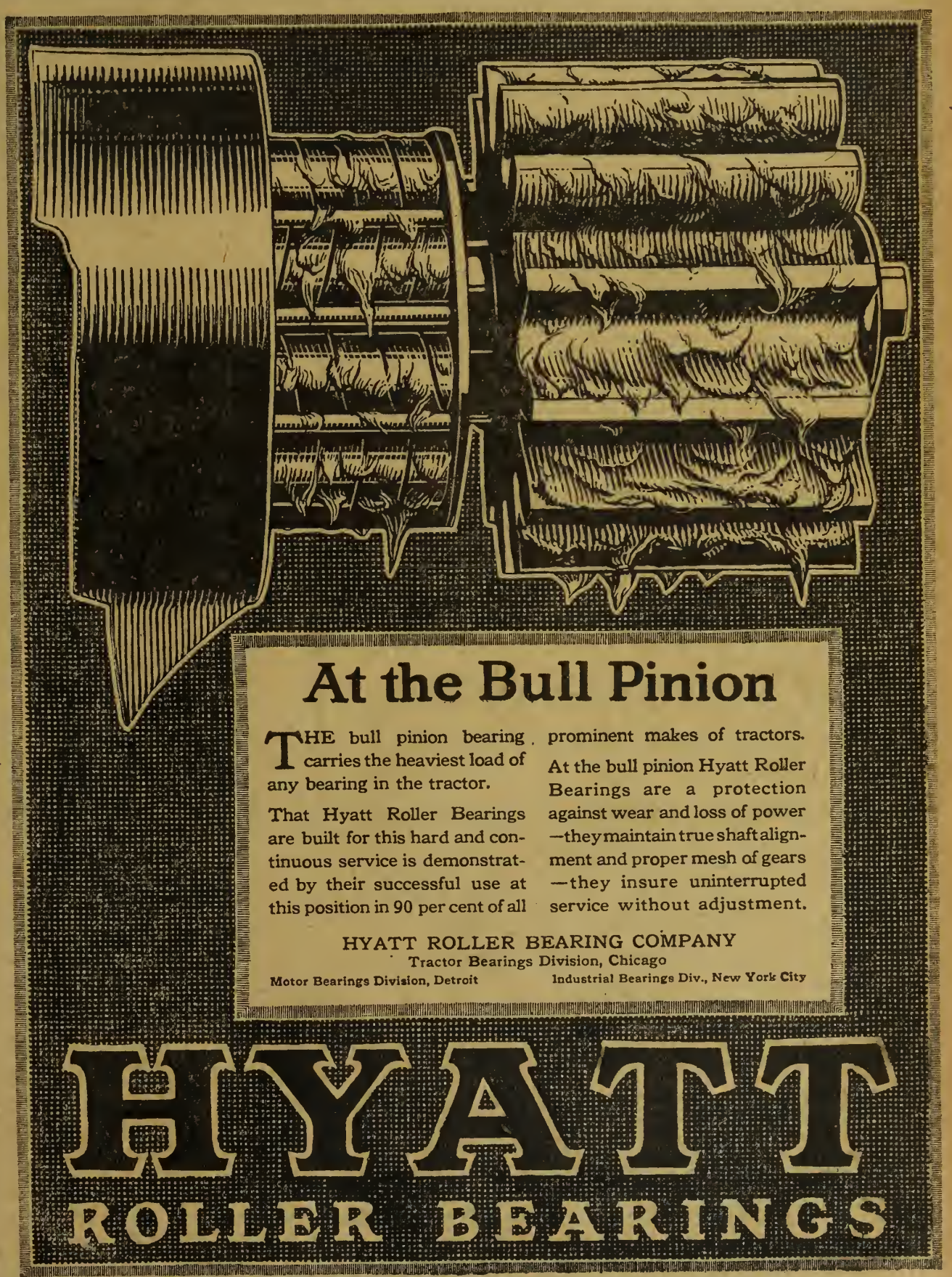
SUGAR CANE IN PERU

The area officially reported as now producing sugar cane in Peru is almost 100,000 acres, but the actual area is slightly larger. According to official returns the various districts produced 253,176 tons of sugar in 1917, and unofficial figures place the 1919 production at 300,000 tons. It is estimated that the 1920 crop will approximate 2,500,000 tons of cane, or 325,000 tons of sugar. This average per acre appears low and may be accounted for by inefficient cultivation on many plantations and an inadequate water supply. Land with sufficient irrigation and proper cultivation should produce 50 to 60 tons of cane per acre.

NEAREST AND DEAREST

Baggs—I see old Turpin, the millionaire, is dead. Who are his principal heirs?

Boggs—Dr. Smithson and lawyer Ellington.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SUGAR CANE SORGHUM (Early Amber). Quick maturing, so best for late sowing. Several cuttings possible in long season. Nutritious; heavy cropper. Makes excellent fodder if cut when heads form, or good silage when full grown. Syrup can be made from this variety.

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Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Fungus on Loquat

Dry spots appear in my loquat leaves and soon the whole leaf dries up. Can you suggest a remedy?—Subscriber, Oxnard.

This question was referred to Professor H. S. Fawcett, citrus experiment station, Riverside, and he replies:

"The specimen of loquat leaf sent in from Oxnard is affected with scab due to a fungus known as Fusicadium eriobotrae. This fungus also sometimes attacks the fruit. It is somewhat similar to the fungus causing apple and pear scab and the same treatment that is used for scab on apple and pear trees ought to give control also upon the loquat."

Moles

What is a good process for the elimination of moles? Our back lot is infested with them and as they work entirely underground there seems no way of reaching them with poison.—Subscriber, San Francisco.

The only way of satisfactorily controlling the mole pest is by trapping. There are regular mole traps which work very successfully once one learns the mole's habits. One type of trap consists of sharp prongs which when sprung penetrate the runway and possibly spear and kill the mole. The more satisfactory trap is the one with two pairs of jaws and with a trap which is sprung when the mole comes back through his former runway over which the trap is placed. If needed, oil the trap, but in any case secure quick and easy springing, then when set press down lightly and over mellow portion of the runway which the mole has made. Use care not to press down or close the runway over the side of the trap. Then when trap is set and the mole approaches either side he is under the pressed down portion of the runway, forcing the dirt up, and in doing this the jaws on either side close instantly. The mole does not eat or destroy the roots, so it is almost impossible to trap with vegetable or other poison baits. He lives almost exclusively on live insects. Mr. Stevenson of Gardena says he has had success by using the ordinary gopher trap, setting it at the end of the runway which has been cleared out.

Ground Beetles

Something is eating the outside and sucking the juice from our strawberries, both green and ripe. Thinking it might be snails, we looked at the plants after dark and found a bug smaller than a roach. They do not bother in the day time. What can be done?—H. W. H., Stockton.

These "bugs" are known as ground beetles; to the scientist a species of harpalus. They hide during the day under mulches, weeds, etc., and come out at dusk to feed on both ripe and green berries, though mainly after the seeds. Whether this is your particular pest or not, beetles of all kinds are hard to deal with and no method of control is known. It is said that in England, where a closely related species attacks strawberries, the growers endeavor to protect the fruits by sinking dishes in the ground baited with pieces of meat. This is too much trouble for us, and such bait at present H. C. L. outvalues the berries.

Economical Transportation of Hay by Trucks

A load of wealth in the form of alfalfa hay on truck and trailer. Recently exhibited at the Dairymen's Institute on the Los Angeles County Farm.

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All Summer

Scale hatches all the year and multiplies very rapidly. Soon after hatching it feeds, then attaches itself to the tree AND NOTHING TRIED SO FAR KILLS IT when at this age. Fumigation will kill the newly hatched scale for the fifty minutes, when being applied, but what about the unhatched scale? It takes an INSECTICIDE thoroughly covering the tree to keep the young scale killed. THAT IS WHAT T-I-Z-I-T SPRAY WILL DO.

It also controls Red Spider, cleans the tree of fungus growth, stimulates the tree and cleans the fruit. Write us so you can see how well T-I-Z-I-T works in the grove nearest to you where T-I-Z-I-T has been used. Interesting pamphlet on request.

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Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Moving Bees

Is there any law governing the bringing of bees into any certain locality? We have been informed that residents of a certain locality will get up a petition and prevent our bringing in bees. —Subscriber, Downey.

There is no state law in reference to the bringing of healtby bees into any certain locality. Bees are, of course, subject to state inspection laws, but that refers only to diseased bees. In many counties and many cities throughout the state there are local ordinances pertaining to keeping bees. It will be necessary for you to consult tbe board of supervisors of the county in which you live.

Claiming Inheritance

What is the limit of time in which one may claim heirship property in the state of New York?—Subscriber, Azusa.

To answer any such question would probably fill a large book, by reason of the different statutes and limitations which might be encountered. If you will state tbe concrete case, an answer may be readily given.

Keeping Roads Open

After a colony has been laid out, surveyed, roads graded and surveyed, placed on record, can anyone representing the owner of the colony or lessee prevent travel over the roads? I own a tract of land in the colony and live on it.—Subscriber, Sheridan.

Under tbe facts stated it would seem that the roads have been dedicated to the public and that they are, therefore, open to travel by anyone, whether tbat person be a resident of tbe colony or an entire stranger. Any interference with travel over such roads might render persons attempting to make such interference liable for serious penalties.

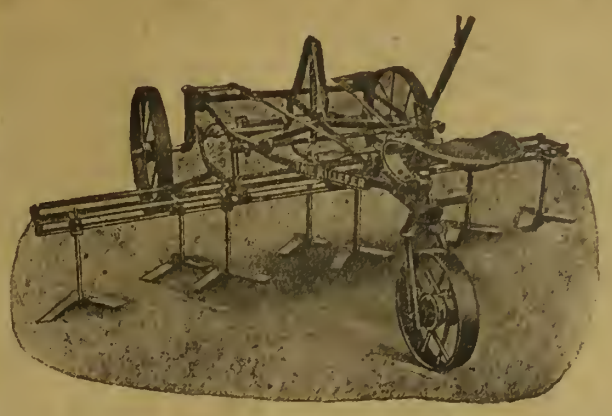
THE ENTERPRISING AMERICAN

An enterprising American bas secured from the Italian government a concession for the utilization of 800 horsepower of the waterfalls at Terni, about 70 miles from Rome, and maintains that he can turn out nitrogenous plant food for the Italian farmer at a cost as low as one lira per kilo (equivalent to $0.088 per pound, with the lira taken at its par exchange value of $0.193). An inspection of this plant from the standpoint of a layman serves to justify, in a large measure, the high hopes of the promoter of the project.

It may be said tbat the process has passed beyond the experimental stage, inasmuch as ammonia from this plant has already been put upon the market on a paying basis. There is, however, but one complete unit in operation, whereas the plant is designed to accommodate 12 producing units.

The subject is one of more than ordinary interest because it has a direct bearing on increased production of food in Italy. Italy's population has outrun its food supply, and one of the weakest points in the country's economic situation is the necessity of ekeing out home grown supplies through purchases in the United States and Argentina at adverse exchange rates. The production of cheap synthetic ammonia by means of mountain torrents which are now running to waste would prove an economic advantage of the first magnitude. It represents all the difference between freighting nitrates many thousands of miles from Chile and making something just as good at less than one-half the cost at home.

FOUR ROW BEAN CULTIVATOR



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One man with two good size horses or small tractor, can cultivate four rows of beans with this cultivator. This, like most of our implements, has been developed at the request of ranchers, for a strong, simply controlled cultivator, capable of doing their work better than would be possible with a lighter made tool.

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All repair parts are carried in stock so there will be no long waiting in case of a break down. We make this cultivator in two weights, four row regular and four row extra heavy. We also make a two row cultivator.

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BEET CULTIVATORS		BEAN CULTIVATORS	
Four Row, Regular	$145.00	Two Row, Regular	$145.00
Four Row, Extra Heavy	155.00	Two Row, Extra Heavy	155.00
		Four Row, Regular	160.00
		Four Row, Extra Heavy	170.00

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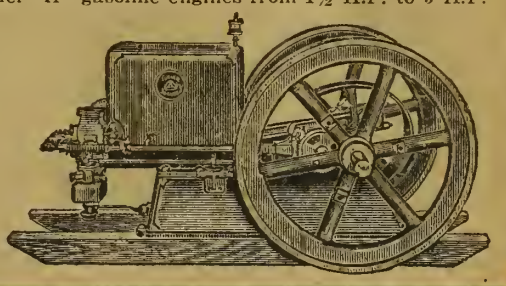

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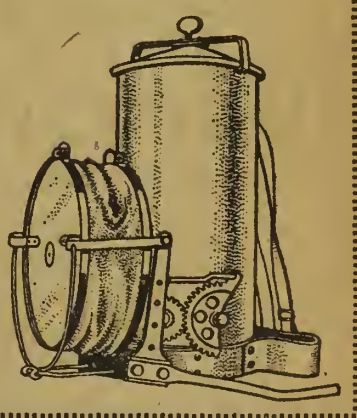

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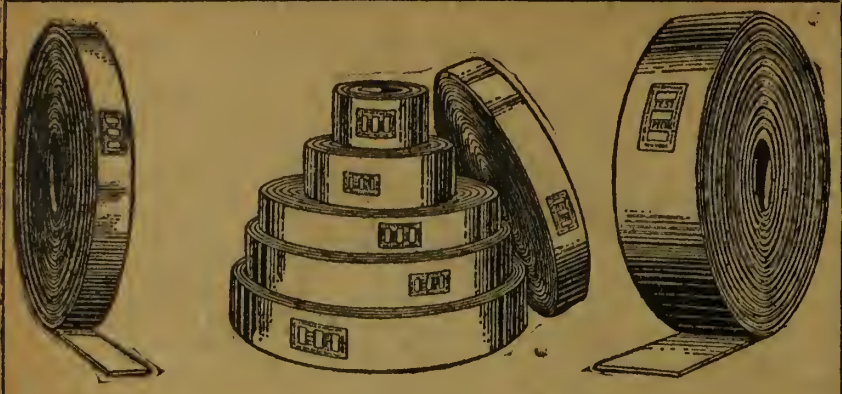

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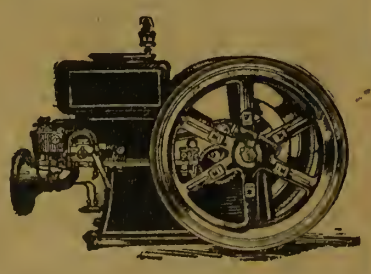

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Bugs, Cabbages and---Forests

By Charles H. Shinn

SINCE most of us, not being Fabres, call every insect a "bug of some sort," this article begins with what a bright Californian girl of 40 years ago said, noting her father's troubles with insect pests in his orchard: "Man's existence may at last depend upon but one crop—say cabbages—to the protection of which from 'bugs' all human energies will be directed." Not even Wells in his "Time Machine" ever imagined a more forlorn end of civilization, in a universal cabbage field long after orchards and forests have perished!

What is the heart of the "bug problem" of today in American forests? Let us try to sum up the technical results so far obtained by the busy field entomologists who are at work with the bug destroying crews. One of these entomologists is John M. Miller, a graduate of Stanford, then a ranger on the Sierra national forest, and now for years with the bureau of entomology, with headquarters first at Corning, then at Yreka, then at Ashland, Oregon. He will now spend several years in the Sierra, with headquarters at Northfork, Madera County, and his immediate objective the clearing up of the insect infestation in and near the Chiquito Basin. His title is "assistant forest entomologist" and he is assigned to "forest insect investigations."

A forester's "bug problem" is very different from that of the horticulturist. One reason for this comes from the fact that the small beetles of the genus Dendroctonus, which do most of the damage, are as old as the forests themselves and have certainly survived all the fires of every sort in all seasons for many centuries. At times the timber loss from their depredations has exceeded the annual growth, has not been fully restored by reproduction and has thus eaten into our forest capital.

The first of our problems, therefore, is to keep this annual loss as low as possible; the second, but closely related, problem of forest management is so to "open up" all the forests that insect infested mature trees can be utilized for lumber, though if such trees can be kept alive for 20 years it seems likely that market demands will make all of them available.

The third problem is to study, reduce and finally prevent those occasional large scale attacks of these beetles which one might call forest epidemics.

How are such problems met? Directly, by constant warfare upon the insects, and indirectly by the steady improvement of forest theory and practice. The notion, however, that fire, the greatest enemy of the forest, can be so used as to destroy these beetles without damaging the trees is contrary to the facts. Fires, large or small, attract the insects and greatly increase local infestations both of young growth and of mature timber. As the entomologists declare after years of field work, "controlled fires"—if such exist—can do no more to eliminate these beetles than could complete control of the beetles do toward the elimination of forest fires. Such is the definite conclusion after some 15 years of practical work with fire and insect problems in American forests.

Sweet Potato Flour

By Z. B. Wales

Mr. Kimball of the Beales-Kimball Manufacturing Company, Van Nuys, is the progressive citizen who is introducing this commodity to California.

In an enlightening chat with him the other day he told me sweet potato flour is not new to the South, the Tuskegee Institute, for instance, having manufactured it quite extensively for some time. So far as he knows, however, his is the first attempt to make it in this part of the country. The location of the plant at Van Nuys is entirely logical for the sweet potato grows splendidly in the sandy soil of that vicinity.

The process of preparing the potatoes for grinding into flour is simply one of perfect dehydration. As Mr. Kimball puts it, they must be absolutely "bone dry." The potatoes are first peeled in a circular, fast revolving peeler that really does not "peel" them at all, as we use the word in our own kitchens. It only rubs off the outer skin, thus saving to the final product what everyone knows is the best and most nutritious part of any potato, the part immediately next to this outer skin and which usually goes into our garbage cans.

After coming out of this machine every individual potato is gone over by hand and any discoloration or other imperfection cut out. After a steam bath of high temperature the thinly sliced potatoes go on large wire trays, a dozen or so of them being put on one dolly which runs on a tiny track into the dehydrating machine. To my unmechanical mind this huge machine loomed up as a gigantic mystery, but I do know that within its cavernous depths, guided always by the master hand of the scientist, takes place the vital process of making sweet potato flour, and that through its little glass windows may be ascertained at any moment of the five hours the process requires the exact temperature and moisture within.

The dehydrated sweet potato looks like fine chips and does not proclaim the promise of the lovely yellow flour, the making of which bids fair to become one of our big new industries.

This flour is not intended to be used alone, but in combination with other flour in the proportion of not more than one to three. To me the very name, sweet potato flour, sounds good, and it is good, for proof of the pudding is in the eating and I have eaten it raw and cooked.

The very evening of the day I called on Mr. Kimball I entertained two guests at dinner, the piece de resistance being hot muffins made of three-quarters whole wheat flour and one-quarter sweet potato flour, a part of the generous sample I had brought home with me. They were delicious, and only a polite reluctance to record the quantity of food my guests consumed makes me refrain from stating just how many each one ate. Still, at my house we make them fairly small as we like plenty of nut-brown crust, so perhaps half a dozen isn't so very many after all.

The next day came a cake! Mr. Kimball had told me some of the wise bakers were using a small quantity of sweet potato flour and were able, because it is so sweet and rich, to use one egg where formerly they had needed four. Our usual little every day loaf cake calls for three eggs. This one was made with one egg, shortening and sugar a trifle under measured, and about five parts white flour to one of the yellow. Even our cake connoisseur couldn't tell the difference and not one last crumb of that loaf went begging.

It is proposed to use the flour in making a prepared pancake flour. The very thought brings to me a mental picture of every one of the family calling for more.

As I write these words there comes floating in to me a most delicious odor. "What smells so good?" I call out kitchenward. Promptly the answer comes back, "A loaf of nut bread made with your sweet potato flour, one to six."

SUGAR BEET PRODUCTION

Heaven may temper the wind to the shorn lamb, but does not always add sweetening to the pulp of a sugar beet during a sugar famine.

Figures compiled by the bureau of crop estimates show a slight falling off in the amount of sugar extracted from the sugar beets in 1919 when

compared, pound for pound, with the crops of preceding years. In the United States, and including the beet crop from 850 acres in Ontario, 5,887,557 short tons of beets produced 726,451 short tons of sugar in 1919, while 5,577,506 tons of beets from the same sources in 1918 gave us 760,950 tons of sugar.

In 1919, moreover, the average production of beets per acre was 9.27 tons, while the average in 1918 was 10.01 tons.

The 1919 crop sold for $11.74 per ton of 2,000 pounds as against $10 for the 1918 crop, and the total value of the two crops was $75,420,000 and $59,494,000, respectively.

GRASSHOPPERS GET OUR PROFITS

Director Hecke of the department of agriculture has issued placards which are being posted over the state, "Grasshoppers Get Our Profits." Spread grasshopper poison and prevent this loss.

Formula

Paris green (or white arsenic), one pound; molasses (cheap black strap), two quarts; lemons(ground very fine), one-half dozen; water, four gallons; wheat bran (or alfalfa meal), 25 pounds.

Add the molasses, poison and ground lemons to the water first. Stir thoroughly, then slowly pour this solution over the bran and stir until an even mixture is secured.

Spread the wet poison bran mixture very finely by hand from a bucket or with an end-gate grain seeder attached on the rear of a wagon.

The above amount is sufficient to cover four or five acres.

In orchards and cultivated fields spread the poison in the forenoon. On alfalfa and grassland spread it in the heat of the day and before cutting the crop.

Keep livestock away from bags containing the poison mixture.

BEETS UNDER IRRIGATION

"Sugar Beet Growing Under Irrigation," issued originally in 1914, is now revised and reprinted as Farmers Bulletin No. 567, United States department of agriculture, and may be obtained by writing Division of Publications, United States Department of Agriculture.

Sugar beets are grown commercially in 17 states. In ten of these states the growers depend upon irrigation for a part of their moisture in producing this crop. The successful production of sugar beets under irrigation depends not only upon an adequate supply of irrigating water, but upon a suitable system of crop rotation, a thorough preparation of the seed bed, careful blocking and thinning, timely and thorough cultivation, and a supply of livestock which will balance with the crop production of the farm and include the utilization of beet tops, pulp and waste molasses. In addition to a suitable irrigating system the land should be provided with a satisfactory system of drainage, which may be either natural or artificial. Furthermore, the soil should be well supplied with humus, which may be furnished either in the form of stable manure or green crops plowed under.

Efforts are being made to relieve the labor situation by the construction and utilization of labor saving devices, such as hill planters, beet toppers, beet harvesting machines and unloading devices, and by distributing the beet plantings and so adjusting the crop and livestock production on the farm that the labor is distributed over the season. This bulletin should be of interest to farmers in the Northern and Western states who depend in part upon irrigation for the water necessary for crop production.

STATE FAIR PREMIUM LIST

Secretary Chas. W. Paine is mailing a very complete premium list of the California state fair to be held in Sacramento, September 4-12. In addition to the complete premium list there are lists of other fairs, information regarding the shipping of stock and other exhibits, rules and regulations of the association and illustrations including portraits of the governor and board of directors. This premium list is by far the most attractive ever issued by the state board of agriculture, the cover design being both striking and artistic. The list requires 250 pages and is most complete as to every department. The board consists of John M. Perry, Geo. W. Pierce, E. F. Mitchell, T. H. Ramsay, E. Franklin, Fred H. Harvey, H. A. Jastro, I. L. Borden, E. J. Delorey, Geo. C. Roeding, T. H. Dudley and Ralph W. Bull. The president is Geo. C. Roeding and the secretary, Chas. W. Paine.

BLASTING SANDY SOILS

The quickest way of telling how to blast ordinary loose sandy and gravelly soils is to say "Don't." If they are not cemented or unduly compacted, to break them up will actually reduce their productiveness rather than increase it.

The reason is easily understood when we reflect on the fact that any soil holds its useful moisture in the form of films about particles. The more particles there are to the cubic inch, providing they all lie loose enough to permit of holding the moisture films about them, the more moisture the soil will hold. To spread the particles by blasting is to reduce their number per cubic inch, hence to reduce the moisture holding capacity. The drainage of free water in these open soils needs no improving.

What is needed is to provide the material which organizes the grains of sand into the granular condition required for best feeding of plants—humus. Sandy and gravelly soil well filled with the remains of plant leaves and roots is exceedingly productive and will withstand much dry weather. The best reliance for humus is not the portion of crops which we can plow down, though that is indispensable, but the roots which penetrate the deeper soil and thus need no plowing down.

FAIR DATES

Sonoma County Fair, Santa Rosa, August 25-29. Secretary J. Francis O'Connor.
Patterson Fair, Patterson, August 26-28. Secretary T. J. Moe.
California State Fair, Sacramento, September 4-12. Secretary Chas. W. Paine.
Tulare County Livestock and Agricultural Show, Tulare, September 14-18. Secretary John A. Rollins.
San Fernando Valley Fair and Market, Owensmouth, September 15-18, Secretary Chas. L. Schufeldt.
Kings County Fair, Hanford, September 21-25, Secretary Frank C. Russell.
Ventura County Fair, Ventura, September 22-25, Secretary L. P. Hathaway.
Glenn County Livestock and Agricultural Association, Willows, September 27-October 2. Secretary E. A. Kirk.
Fresno District Fair, Fresno, September 28-October 2, Secretary Walter C. Ficklin.
Los Angeles Livestock Show, Los Angeles, October 2-10, Secretary C. R. Thomas.
Siskiyou County Fair, Yreka, October 5-9, Secretary Claude R. Gillis.
Southern California Fair, Riverside, October 13-19. Secretary W. W. Van Pelt.
Western Royal Livestock Show, Spokane, Washington, November 1-5. Secretary Bert L. Hilborn.
Pacific International Livestock Show, Portland, Oregon, November 15-19.

The only sandy soils benefited by blasting are those which have cemented. Once in a while a silty sand will do this, particularly if tramped or allowed to become low in humus, and the result is not much different from hardpan. Blasting them will break up the compacted layer. Immediately after the blasting the effort should be, first, to fill the broken soil with organic matter, and, second, to work it together into a close, granular condition.

FORESTS

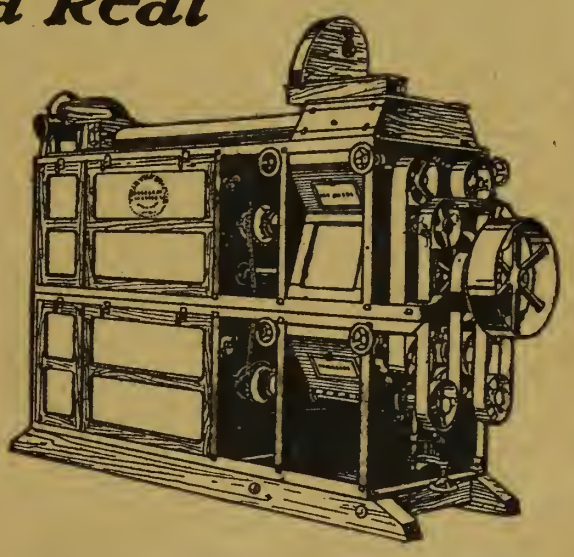
The quantity of lumber cut every year in the United States is three times the natural growth. At the present rate of destruction the forests will have disappeared in less than a generation. The center of the lumber districts has been pushed rapidly westward until today it has reached the state of Washington, and is approaching the Pacific coast. The most serious drain upon the forest resources is for railroad ties.

GENERAL INFORMATION

"This 'ere is a husking peg," explained honest Farmer Corntosell, who was showing his city nephew round the farm. "We use it to husk corn with."

"Well! well!" was the surprised reply. "I always supposed you kept bees to do your husking for you. I remember reading something about husking bees—they had red ears, if I recollect correctly."

This Money-Making Mill
Will Make You a Real Money-Maker



Be the all-year-round money maker in your section for the rest of your life by getting into the flour milling business with this XXth Century money making flour mill. It will make you more money from the very start on less capital and less labor than any other high class business you could go into. We start you right. And there is no better time for you to start than right now as the country needs and must have more flour mills. There is only one mill to every 15,000 people and the population is growing fast. So is the demand for more flour mills. The real all-year-round money maker is

The XXth Century

Ball Bearing Roller Flour Mill
"Less Power - More Flour"

It is the very latest word in the highest perfected flour milling machinery. It affords men of moderate means a chance to get into one of the very best paying businesses in the country for the money invested. And without having been in business before. It is so compact and so complete in its construction that it takes up but very little space and requires but very little power to run it. It can be looked after by one man. It makes, according to size, from 25 to 50 barrels of the very finest roller flour a day with all the natural flavor and essential food elements intact as nature put them in the grain. Being a complete roller mill system all in one machine, it gets out all the flour that is in the wheat grain and a flour that will compete with any other flour made by any other mill anywhere.

Not only is this XXth Century Mill perfection the very latest word in the science of flour making machinery, but it is the product of the very finest workmanship. Every part is milled and fitted with the skill and care of the watchmaker's art.

It is ball bearing throughout which not only insures better results in the milling of flour, but a saving of at least one-third in power, as well as adding greatly to the mill's durability.

The XXth Century can be run by any kind of power, water, gas, steam or electricity. Many use a small size gas engine.

Look into this XXth Century money making flour mill proposition now as a steady continuous lifetime paying investment for you or for yourself and friends in your community who go in with you. Many make it a neighborhood proposition for the accommodation of the community as well as a big profit paying investment for themselves. Get this mill yourself and be the miller for both the dealer and consumer for miles around. You will command their trade with the high grade flour you make with this money making XXth Century Flour Mill that is making so much money for others just as it will make it for you. Fill out and send in this coupon for further information, prices, terms, etc. Get in on it before somebody else in your territory does.

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51 per cent of all hogs marketed in the United States in 1918 were Duroc-Jerseys.

Duroc-Jersey hogs have proved themselves in championship shows as well as on the market.

Duroc-Jersey hogs raise large families and put on weight quickly. They are hardy, easy feeding animals that mature at an early age, and are uniformly red in color.
Write for our Free booklet "*Duroc-Jersey Hogs Are Prolific and Profitable.*"

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Jumbo Sensation

The largest boar of his age of any breed in America. He cost $15,000, record price for a junior yearling boar.

JUMBO SENSATION is a son of Mammoth Sensation, the largest boar of the breed. He was 44 inches tall and 10 feet 6 inches in length tip to tip.

Good judges who have seen Jumbo Sensation declare that he will make a larger boar than his sire.

JUMBO SENSATION comes to California. He was the outstanding Duroc boar of the East. In fact, he has created a tremendous sensation in Eastern Duroc circles where big Durocs are common.

He comes to California to head a herd that will not be famous for the great numbers bred, but to a herd that is built on foundation stock, backed up by the greatest sires and dams of the breed.

JUMBO SENSATION will weigh 1100 lbs. when matured. He will produce many big Durocs that will help put California on the livestock map.

Come and see this giant of the breed.

JUMBO SENSATION was selected for the TU-TOC-A-NU-LA Ranch by R. K. Walker.

Tu-Toc-A-Nu-La Ranch

Mrs. R. E. Whitley, Owner

Van Nuys Phone 160J **Cal.**

Lamb's Complete Duroc Dispersion Sale
Wednesday, July 21st, 1920

Principal blood lines, Pathfinder, Orion Cherry King and Golden Model. Write for catalog and information. A few weanling pigs, both sexes, at private treaty prior to sale day.

ELMER LAMB, Ceres, Cal.

THE VICTORY HERD——Holsteins and Duroc-Jerseys

Holsteins of known value, headed by Sir Plebe De Kol Segis Pontiac, a son of King Segis Pontiac Count, acknowledged one of the breed's greatest sires. A young bull from this herd is bound to prove a profitable investment.

HILLCREST FARM, H. E. Spires, Mgr., Caruthers, Cal.
Duroc-Jersey Swine of Highest Quality

When Writing Advertisers Mention California Cultivator

The Passing Show of 1920 in Cattle Prices

By A. L. Spellmeyer

JUNE opened with fine weather, lower beef prices, called loans, and panic stricken cattle producers in many parts of the range country. The bogy worked its will and cold finance added its chill.

Of all the foolish reports rampant with the cattle producers of Arizona hurrying to meet the call of dangerous six months paper, none was more wild than appeared in a great daily, the friend of the people, stating that 200,000 head of fat Arizona beef were ready to be shipped at once. The estimable reporter, granting his excellent intention to always assist cattle production, has been "bulled," but many California men who have beef to sell naturally assume they must go to eight or nine cents to meet all this eager horde of great beef cattle waiting to be absorbed by a reluctant people of Los Angeles on the 50 cent steak basis. From what we infer the tallow is dripping from the sides of these very fat animals offered in such great numbers at such low prices.

There are many cattle for sale, but alas and alack! it's the same old story—a glut stimulated by controlled financing, and every hoof that comes from Arizona this year over last year's calf crop numbers means drawing upon the capital of that state of producing cattle and less stock for the future.

Now Arizona has 1,100,000 total cattle, according to the Year Book of the department of agriculture, 1919. Any man who could get together spring and fall both in central and northern Arizona 30,000 steers, twos and threes, would be a great close comber, and as much more in the south would be a greater task. Arizona has only a short time each spring and each fall to work; cattle must be held in herd and driven long distances and then shipped for three to six days on a train. Any cow which ends in fair condition is lucky, as any buyer of a packing house is afraid of bruised cows. To get Arizona twos and threes steers in the spring buyers must purchase yearlings, as the larger steers are merely mixed in. As far as the great state of Arizona supplying countless hordes of fine fat beef for healthy Los Angeles epicures, it's a dream not far to go and in permanenec or percentage negligible. Everyone is glad Arizona has had a fine year, and with all its called loans money is needed, but it's a feeder state and supply point for young cattle. Its total output of all grades, yearling steers, heifers, old cows and aged steers, does not average over 250,000 yearly shipped out, and that supply is absorbed from Texas to Kansas and from Colorado to Montana. The last authentic sale I heard of for fair yearlings was on 38.50 basis Arizona, ten months up yearlings, or equivalent to eight cents a pound f. o. b. Arizona.

California slaughters over a half million cattle yearly. As to the multitude of California beef, it does not exist. There are some fat cattle on the Coast and around San Jacinto and some left around Porterville and Visalia, but I have seen San Francisco drawing some bum half fat steers at 9.50 and cows at eight cents.

There is right now more beef than can be assimilated, but the fall and winter of this year will tell a different story, and people who have feed and money are foolish if they don't buy cattle priced on 1915 valuations while they have the chance.

In various other districts there are a few, hut they are not here in a countless multitude. And one local San Joaquin butcher has contracted 125 top grass steers at 11 cents for his needs to August. Would he have done this if stock were plentiful?

There is no sale for anything, as we know, at any prices for feeder or stock cattle within last year's cost and expense price, but the buyers trying to fill up on eight cent feeders don't seem to make much headway.

Cattle may come to lower levels, but when cows and calves together are priced at $80 in the San Joaquin, all risk and expense a passed incident, stock is at a low valuation.

When one hears how the men in the Northwest are short of cattle and can't borrow money to restock, and when we hear that Texas is crying for stock for its grass and can't get money, and Kansas has its many thousands of unfed and unstocked acres, and that corn is lower and more farmers want to feed, one begins to feel better.

Down in the spring and up in the fall! Who would feed next year if the present levels continued? Where are men who would try to feed any grain or hay at present prices into nine cent beef? Cheaper hay and corn and higher beef would mean the greatest rush for cattle in this fall of 1920 this nation has ever known. With people talking about the great cattle surplus, where are the big steers of Nevada, Oregon, Utah or California? Killing cows always in such proportion as at present will bring its own answer and remedy. Why is the country shorter by 10,000,000 beef type cattle than some 12 years ago, according to the Year Book of the department of agriculture?

According to the Year Book our slaughter is greater than during those years we went behind. Cattle are safer than safe deposit vaults if a man has the money and can hold, but if he can't he has to sacrifice. The present play has been sudden, decisive and has gone the limit, and although it may be an unpleasant medicine, it's going to hurry the result and end uncertainty. The more I hear from various men from various states how bad cattle conditions are now, the more cheerful it makes me and the more certain that cattle production is about to come into its own.

BUTTER AND CHEESE SCORING CONTEST

The first of California's Educational Butter and Cheese Scoring contests for 1920 is being held at the university farm, Davis, this week.

The butter is scored by the double standard. The regular commercial score card will be used for judging quality and the plan below for judging composition and color followed: Color, 35; moisture, 25; salt, 30; curd, 10; total, 100.

There will be two classes of butter, gathered cream and whole milk. Any factory making half or more of their butter from cream skimmed from whole milk at the factory will be considered in the whole milk class.

There will be three classes of cheese—Cheddar, California (granular) and Jack.

Express on entries will be paid by the creameries and cheese factories. All entries will be sold to the highest bidder and the money returned to those taking part.

Each individual entry will be scored and criticized and a detailed score sent to those making entries.

There will be three scorings. Notice of each will be published in the trade papers and entry blanks sent to butter and cheese makers desiring to participate.

Butter and cheese makers taking part are requested to give a full report of the methods employed in making each entry to the contest.

The contest is under direction of G. D. Turnbull, assistant professor of dairy industry of the university.

CONTEST IN PURE BRED SWINE

Auction sale of extra high class pure bred registered gilts and young boars is to be conducted on the public school grounds at Owensmouth, Friday, June 18, at 2:30. Following are some of the offerings in Duroc-Jerseys:

One eight months open gilt, the choice of ten litters at Diamond Bar Ranch; three fine gilts from Pathfinders Model II, the wonderful boar at the Tu-toc-a-nu-la; one gilt, eight months old, 61 inches long, 32 inches high, weighing 360 pounds, pick of the Conejo Ranch. There are some weaned pigs offered from high class Eastern bred, Orion blood lines. Several ranchers are entering pure bred gilts for the sale. Thirty of the finest gilts in the state will be judged in a "Growing Out" contest as directed by United States department of agriculture The auctioneer comes from Sacramento to conduct the sale and help judge the contest. Many prizes and awards are being worked for. The San Fernando Valley Duroc-Jersey Breeders Association offers a silver cup val

THE BEST LINIMENT
OR PAIN KILLER FOR THE HUMAN BODY
Gombault's
Caustic Balsam
IT HAS NO EQUAL

For the Human Body — It is penetrating, soothing and healing, and for all Old Sores. Bruises, or Wounds, Felons, Boils, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

A Perfectly Safe and Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Strains, Lumbago, Sore Lungs, Rheumatism and all Stiff Joints

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. BEYER.

Price $1.75 per bott'e. Sold by druggists, or sent by us express prepaid. Write for Booklet B.

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Kreso Dip No. 1
(STANDARDIZED)
Parasiticide. Disinfectant.
USE IT ON ALL LIVESTOCK
To Kill Lice, Mites, Fleas, and Sheep Ticks.
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USE IT IN ALL BUILDINGS
To Kill Disease Germs and Thus Prevent Contagious Animal Diseases.
EASY TO USE. EFFICIENT. ECONOMICAL.

FREE BOOKLETS.

We will send you a booklet on the treatment of mange, eczema or pitch mange, arthritis, sore mouth, etc.

We will send you a booklet on how to build a hog wallow, which will keep hogs clean and healthy.

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Write for them to

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CATTLE FOR SALE
95% Whitefaces
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Heavy Boned Hereford Steers
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100 Heifers and Cows
Inspect Cattle at Howard Ranch
12 miles Southwest of Chowchilla, Madera County, Cal., or write
A. L. SPELLMEYER
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USE SHIRE STALLIONS BREED ALL DRAFT MARES

SHIRE MARES will furnish your farm power and raise colts. Breed all of your mares to Shire Stallions to increase the size of your colts. Horse power is proving to be the cheapest and large horses are fast increasing in value.

For information on the Shire write

W. G. Lynch, Secretary American Shire Horse Association, Tonica, Illinois.

The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

ued at $75. Jay C. Craig and other breeders are offering prizes. Prof. J. B. Lillard, state supervisor of agricultural education; Prof. Gordon of the Los Angeles County farm adviser staff, and Glenn Waterhouse, assistant farm adviser will act as judges.

TYPES OF SILOS

There are many types of silos in use at present and they are built of many different kinds of materials. Most of them are good. Most of them give perfect satisfaction to the users, and the average farmer, if called upon to rebuild, would put up a silo of the same general type as the one he is now using.

The silo question is a vital one, yet it is one that is a long way from being solved. The silo agents have added to the confusion by assuming that their own particular type is far ahead of all others, and perhaps the silo agents should not be criticized for this attitude, because one of the requirements of a good salesman is a firm belief in his goods. At any rate, the farmer is often confused. He is likely to think that there is some one silo which is the only one for him to build, just as he often feels that there is some one breed of cattle which is a "cure all" for his troubles and which will bring success where others fail. Now there is no one and only breed of cattle, and there is no one and only type of silo. They all have a place, says W. W. Swett of the Missouri college of agriculture.

One of the oldest and most common types is the ordinary wood silo, held together by large adjustable iron hoops or bands. Such silos have been in use for years and have given satisfaction in most cases. Arguments against them are that they are not durable, that they are easily blown over and that it is a serious job to keep the hoops adjusted. As a matter of fact, while they will not last as long as some other types, they are as permanent as the other wooden buildings on the farm and are somewhat cheaper than some of the other types of silos. In some cases they will blow over, but when properly built and anchored they are not troubled except by a very severe wind which might play havoc with other farm buildings. The hoop adjustment is not a serious problem. There is no question but that the wood silo will burn if exposed to fire.

The hollow tile silo is popular in many localities. When properly built and reinforced it is very satisfactory. The desirability of building one will be determined largely by relative cost as compared with cement and cement blocks. The importance of reinforcement must not he overlooked.

The reinforced solid cement silo is probably most permanent, but it is rather expensive. If properly constructed it will last a lifetime and is fireproof. It will keep silage in excellent condition, in spite of arguments which some salesmen and others register against it. If sand and gravel and proper labor are not too hard to secure it is a good type of silo to huild.

The cement block silo is made use of in some places with good success. It must be reinforced, but when properly put up gives good satisfaction. It is sometimes to be chosen over the cement silo because of absence of sand and gravel for constructing the cement silo.

It is always advisable to hire a man who knows his business to build any one of the latter three so-called "mason constructed" types, as their construction is going to determine whether they are entirely satisfactory or utterly worthless.

A silo popular in the North is made of two hy four studding and shiplap inside and out. Then there are a number of other types such as the cement stave silo, steel silo, and ground or pit silo. There are still others.

Any silo which has good air tight walls that are smooth on the inside will usually keep silage in good condition if the silage is put in in good condition, sufficiently moist and well packed. Complaints are sometimes made that silage will not keep in some types of silos. In practically every case investigation shows that failure to keep is due to poor condition of silage, insufficient moisture, poor packing or poor construction of the silo rather than poor type of silo.

Feed less Grain—
Get more Milk—

Feed less grain and still increase milk production. You can do it with an Indiana Silo. Succulent, nourishing silage reduces rations of $60-a-ton grain.

"No other food," says the U.S. Dept. Agr. Bul. 855, "will combine so well with dry hay and a *little* grain to produce maximum economical results. A silo at all times, particularly now, offers to the farmer the best means of reducing his feed bills."

20,000 Indiana Silos

Twenty thousand Indiana Silos sold on the Pacific Coast. Manufactured from select straight-grain, knot-free Fir, logged in our own woods. Staves accurately matched. Air-tight tongue and groove joints. No spoilage. No leakage. No waste.

A Sound Invesment

Feedmen's profits will pay for an Indiana Silo. Siloing fodder saves 40% wastage. Butterfat costs have been reduced 10 cents a pound, beef production $2.50 per 100 pounds by feeding silage. Write for free book on Silos.

Chas. K. Spaulding Logging Co.
Salem, Oregon

INDIANA SILO

MAIL COUPON TODAY
DEPT. G CHAS. K. SPAULDING LOGGING CO.
SALEM, OREGON
Name Address

Duroc-Jersey Registered Hogs For Sale
Bred Sows Sows with Litters Boars and Gilts

They are the large type and the best blood strains to be had anywhere.

Herd Boars—Lucy Orions Model, California's Defender, Diablo Orion Model, Defender Colonel 70th.

Some of the Sows—Lucy Orions Mayflower, Great Wonder I Am Gano, Pathfinders Queen, Prize of Tulare Belle, Twin Oaks Attraction, Lady Defendress 70th, and 50 others.

Weanlings, $15.00 each at Ranch—A large number always on hand to choose from. Crates $2.50 each, refunded when returned prepaid in good condition. Mail orders solicited.

Satisfaction or money back.

DIABLO STOCK FARM
E. F. Petersen, Supt., Danville, Cal. G. W. Emmons, Owner, Oakland, Cal.

A-1 Duroc Ranch

Where one of the state's greatest herds of Duroc-Jerseys is maintained. For years our Durocs have proven profitable to farmer and breeder alike. Better place your order now for spring pigs as what we will be able to spare will go quickly. Remember, this is the home of the state's highest priced ($1500) and most valuable Duroc-Jersey sow.

J. P. Walker, RFD 1, Box 40½, Visalia, Cal.

The Greatest Duroc Boar of His Age!
Choice Wonder 3d

a winner at the 1919 Iowa State fair, sired by the great boar, Mahaska Wonder, and a litter mate to the first prize junior boar of Iowa, heads our herd. He is the largest, heaviest boned, best footed boar in the state and he is being mated to the sows that have made this herd famous for futurity winners. Get your order in early for his pigs. Prices are most moderate. Satisfaction guaranteed.

JUNE ACRES STOCK FARM V. F. Dolcini, Davis, Cal.

Sows and Gilts---GET ONE

Bred to farrow next two months. We are making an extremely low price on these to reduce our herd. At the price we won't keep them long. Write today. Quick. before they are all gone.

H. P. Slocum, Willows, Cal.

MAKE 1920 A SILO YEAR

(Continued from Page 939)

satisfactory silage crops as the ones first mentioned. Better results have usually been obtained where the legumes have been mixed with corn and the sorghums. It is quite feasible to make ensilage from alfalfa, but ordinarily it will be found more satisfactory to use only the first cutting that is more or less foul with foxtail. The better practice is to grow other crops for silage and use such feed as a supplement to alfalfa hay.

In sections where sugar beets are produced in quantities a satisfactory and cheap silage can be made from the tops. In Colorado thousands of tons are stored in pit and trench "silos" and feeders assert that a ton of beet top silage is worth a half a ton of alfalfa hay when fed as a mixed feed—some feeders even claiming it to be almost equal to good hay, ton for ton.

In considering the question of a silo, California ranchers can look upon a silo as the safest sort of investment. A filled silo is a most practical form of insurance against short feed and high prices, and in a year when the price of feed is certain to be above normal—and hard to get—the silo can be made to provide an economical and valuable feed.

Now is the time to plan for a silo and no time should be lost in planting a crop to fill it.

The men who take time by the forelock, who are forehanded, are the men who will make the profit—and most of the best livestock men will own a silo.

John Donaldson, Perris, was a buyer at the sale of Berkshires held recently at Hood Farm, Lowell, Massachusetts, and secured the boar, Baron's Successor Pluto and the sow, Wendover Gredle 2nd.

Range Cow Man Gives Methods

Range cattlemen will be interested in the following interview with a cattleman of Southern Arizona. We quote the entire story as given by members of the animal husbandry division, University of Arizona:

"Of course I wean calves. It is the only way. In September I take the calves away from the cows, or gather up the weak cows and give them special feed. It is not long before these thin cows pick up on good feed when the calves are weaned and they are sure to get with calf. It is important to wean in September, for I take away the bulls shortly after that and the cows should get with calf that fall. Any cows that fail to get with calf get fat and I sell them for they are poor breeders.

"I also have a special breeding season. From June 1 to September 30 the bulls are left with the cows, but after this time they are separated. The fat cows will breed soon after turning them together after June 1 and these cows calve in early March. The thin cows that are good milkers may calve as late as the end of June, but most of the calves come in April and May and are ready to wean in September. If the feed is good I wean the strong calves from thin cows as early as four and one-half months old. It is better for the cows and it does not hurt the calves to be weaned then. I get a late calf from that cow next year and she will get fat and strong. I do not believe in allowing the calf to injure the calf that is coming by keeping the cow thin up to calving time. Weaning the calves will increase the calf crop 20 per cent in any outfit. It will reduce the number of bulls required, cut loss in old cows in half and make cows last two years longer.

"The range cow that has been properly cared for until ten years old and not allowed to nurse big yearlings but put on a big range, will make as much money as a three or four-year old. I believe I make just as much money from my cows when they are eight to twelve years old as from the younger ones from four to eight years old. A thin cow that has developed good habits of calf raising will breed when young cows in the same condition would fail to bring a calf. Of course, cows begin to go down when ten years old; some of them younger, but if they have been maintained on brush range it is time to begin to get rid of them when they are ten years old. Cows that have been compelled to eat browse will usually play out two years sooner than those that have been on a good grass range.

"Speaking of pastures, I believe in having as many of them as possible. Every outfit should have at least four pastures. One of these should be allowed to go to seed every year and if possible two of them. This will greatly improve the quality of the range and a fellow needs the pasture in the winter time and early spring. It does not hurt one bit to pasture these fields after they have gone to seed, because after this time the roots are strong and contain an abundance of reserve to force growth for a year or two.

"A pasture should also be available for keeping heifers in, for weaning calves, maintaining horses, gathering beef, etc. Breeding pastures are mighty useful. It is also necessary to have a separate pasture for the bull from October 1 to June to keep the bull away from the cows.

"I have been watching this cattle business for a good many years and the more I know about it the more convinced I am that we have got to adopt new methods of management. The old way of rounding up cattle, roping them and injuring the stock won't do any more. Three years ago I was at the stockyards where an outfit of about 300 head was sold. In counting them the cowboys were so rough that they injured 15 cows. This is surely a great mistake. Not only were 15 cows injured, worth, say $40 or $50 a cow, when not one of them should have been injured in any way but quite a number of the cows were not much better off. Salting cows abundantly, supplying them with feed during the short range period, managing the business in a thorough up-to-date way will do much to make the business a success."

WELL BRED HOGS MAKE GAIN MOST RAPIDLY

That blood will tell in hog feeding has been established to the satisfaction of W. H. Harper, a Missouri farmer, who, under the direction of the Missouri college of agriculture, has been conducting a hog feeding experiment to determine the results of feeding various grades of hogs. He used thee lots—one of scrubs, one of half breeds, and one of pure breeds. The experiments, after running about 200 days, showed striking results. The lot of pure breds weighed about 350 pounds, the half bred lot about 300 and the scrubs about 160. These lots had all had the same care and treatment. Another experiment will be begun soon and records kept to furnish definite information.

Dispersal of a Beautiful Herd
70—Young Registered Holsteins—70

EDGEMONT FARM OWNED BY C. W. ANDERSON BURBANK, CAL.

Thursday, June 17, 1920, at 10 A.M.

Beryl Mortum Luecke De Kol
A 26.51 lb. three year old daughter of Beryl Luecke De Kol.

Mabel De Kol Niko 2nd
A 24.52 lb. four year old daughter of Roderick Lincoln out of a 30 lb. daughter of Plebe Paul.

This is widely rated as one of the choicest herds in California, and this rating is based upon an unusual combination of good breeding, good size, extraordinary average type, and a rare history of good health.

YOUNG FRESH COWS—HEAVY SPRINGERS—BRED AND OPEN HEIFERS

17 DAUGHTERS OF BERYL LUECKE DE KOL, a young proven sire with 19 A. R. O. daughters, the oldest one a 3 year old with over 26 lbs. butter in 7 days, and she is in this sale.

12 DAUGHTERS OF RODERICK LINCOLN, who has 37 A. R. O. daughters with records up to over 33 pounds butter in 7 days. The largest list of tested daughters credited to any bull yet developed on the Pacific Coast. His dam made 946.25 lbs. butter from 21628.4 lbs. milk in one year.

7 DAUGHTERS OF ABYLA WITKOP, a high class group of extraordinary type and splendid production.

13 DAUGHTERS OF DUKE BANOSTINE BUTTER BOY, his sire a son of Friend Hengerveld De Kol Butter Boy and a daughter of Pontiac Aaggie Korndyke, and out of a dam that made 623.05 lbs. butter from 15427.7 lbs. milk in 305 days.

A DAUGHTER OF KING SEGIS PONTIAC JANNEK, out of a half sister to the 34 lb. cow Jessie Fobes Bessie Homestead that made 932 lbs. butter in one year and sold for $4600 in the Detroit National Sale.

A DAUGHTER OF JULIANA KING REPEATER out of a daughter of a 3 year old that made 678.16 lbs. butter in one year.

A DAUGHTER OF KING SEGIS PONTIAC, bred to a grandson of Tilly Alcartra.

A GRANDDAUGHTER OF KING KORNDYKE SADIE VALE, out of an 18 lb. 2 year old granddaughter of Sir Fayne Concordia.

A DAUGHTER OF MERCI LAD KORNDYKE BURKE, son of the first cow to make 1200 lbs. butter in one year in California, out of a 24 lb. 4 year old whose sire is out of a three-quarter sister to the first 41 lb. cow, Valdessa Scott 2nd, second dam with 731 lbs. butter in one year, third dam with 716 lbs. butter in one eyar.

A DAUGHTER OF PRINCE GELSCHE WALKER, out of a 26 lb. daughter of De Kol Hengerveld Burke, second dam a 26 lb. 4 year old daughter of Johanna Rue 3d's Lad.

TWO DAUGHTERS OF RODERICK ARALIA DE KOL PONTIAC MEAD, who is by a son of De Kol of Valley Mead 2nd and out of a 33 lb. daughter of Roderick Lincoln.

A DAUGHTER OF ARALIA DE KOL PONTIAC MEAD, whose sire is a son of the former world's record cow Aralla De Kol, and whose dam is De Kol of Valley Mead 2nd, 1011 lbs. butter in one year as a 4 year old, she the dam of the 1113 lb. 3 year old Miss Valley Mead De Kol Walker, whose son King Korndyke Pontiac 20th sold for $12,000 in the W. J. Higdon sale.

DAUGHTERS OF HIGH RECORD DAMS, ranging up to over 30 lbs. butter in 7 days.

King Morco Alcartra 5th

The herd sire, King Morco Alcartra 5th, will be sold. He is by King Morco Alcartra, son of Tilly Alcartra, the world's greatest dairy cow, and is out of a 21 lb. daughter of Prince Gelsche Walker and De Kol of Valley Mead 3d, who made 845.11 lbs. butter in one year, and she is a full sister to De Kol of Valley Mead 2nd, 1011 lbs. butter in one year as a 4 year old, she in turn dam of Miss Valley Mead De Kol Walker, 1113 lbs. butter in 348 days as a junior 3 year old, and she is the dam of the $12,000 bull King Korndyke Pontiac 20th. Practically all of the females of breeding age in the sale are in calf to this sire, which should add much to their attractiveness and value.

K S P J COUNT, a son of Mr. James J. Jeffries' famous herd sire, King Segis Pontiac Jannek and the 29.48 lb. cow Agnes Canary Segis, will be sold. He is just ready for light service and should go to a good herd.

REMEMBER that every animal sold is positively guaranteed to be a breeder; that every animal over six months of age has been tuberculin tested by the subcutaneous method by Dr. Hurt, County Veterinarian of Los Angeles County, and is sold subject to retest by the buyer.

EDGEMONT FARM is for sale. If interested in one of the most productive, most profitable farms in Southern California, address the owner, C. W. ANDERSON, Burbank, Calif.

Catalog of Sale Free on Request

MANAGEMENT

California Breeders Sales and Pedigree Company

J M. Henderson, President. C. L. Hughes, Manager, Sacramento, Calif.

Auctioneers—Col. Ben A. Rhoades; Harold B. Rhoades, Los Angeles

Record Duroc of California

California is importing some remarkably fine livestock. Feeds are at prices almost prohibitive, while prices paid to producers for the hogs that consume the feed are far from satisfactory. Hence, only high quality stuff which utilizes every ounce of the feed can be handled with profit. Duroc-Jersey breeders are doing their best in meeting the difficulties by importing some of the greatest producing blood. F. F. Devore, who is thoroughly conversant with Durocs and who has shown great foresight in selecting high producing boars, writes regarding a recent importation:

"The best and largest junior yearling boar I have seen this year has just been purchased by Mrs. R. E. Whitley of the Tu Tock A Nu La Ranch, Van Nuys. R. K. Kalker selected this boar after he and I had looked over all the good boars of Nebraska, Iowa, Minnesota, Illinois, Ohio and Kentucky. Jumbo Sensation is a March yearling and is sired by Mammoth Sensation, he by Top Sensation, a litter mate to Great Sensation, and they by Great Wonder I Am, the only boar of the breed that ever weighed 1,100 pounds. Mammoth Sensation was the largest Duroc that ever lived, weighing in thin flesh 1,050 pounds, standing 44 inches high and 84 inches long. He attained this size at two years of age, at which time he was killed by heat. Now Jumbo Sensation was purchased from I. J. Swain and Sons of Malvern, Iowa, for $1,500. He is the highest priced junior yearling in the breed's history and is closely related to the champions at the Iowa, Minnesota, South Dakota, Idaho, Nebraska, Missouri, California, Utah and National swine shows. He is the largest boar of his age I have seen and would defeat any boar of his age I know of. Mrs. Whitley has in Jumbo Sensation one of the greatest boars in America, a boar that will make Duroc history on the Coast. He looks like a real champion and I say to my friends in California that if you want to see a genuine big type boar, the biggest there is in America, go see Jumbo Sensation. I understand Tu Tock A Nu La Ranch is going to put in a small but very high class herd of Durocs; they certainly made a ten strike in sending Bob Walker back here and getting a boar of this caliber. I say he is the best boar that was ever shipped out of Iowa."

Tentative Wool Grade Types

Tentative types representing various grades of wool have been prepared by the bureau of markets, United States department of agriculture, in connection with its investigational work looking toward the ultimate establishment of uniform wool standards. The types decided upon by government experts have been prepared after careful examination of thousands of samples that represent the opinion of the trade generally as to what should comprise wool standards, and which now form the basis of commercial transactions.

It is proposed to demonstrate these types to wool growers for the purpose of determining the practicability of their application upon a commercial basis. These demonstrations will be conducted by wool experts sent out from Washington to assist the bureau of markets field agents.

There are now no fixed wool grades in universal application, with the reign countries with regard to the producer's product is based upon arbitrary standards fixed by individual buyers. It is therefore obvious that to place the business upon a uniform basis would be decidedly advantageous to all concerned.

For several years the bureau of markets has been conducting investigations and making a study of wool samples collected from all states and foreign countries with regard to the possibility of establishing uniform wool standards, and the work has now reached the point where the wool experts in charge feel warranted in submitting their findings to wool growers for consideration. Of course, it must be understood that the work is still at an investigational stage. It would be unjust to fix grades without first securing the views of the wool growers themselves, and the types to be demonstrated are simply intended to form the basis of further investigations in the field. At the same time, the types prepared represent the consensus of opinion of experts who are practical wool men, and it may very well be that but slight changes will have to be made in these types in order to produce grades acceptable to wool growers generally.

The cooperation of all wool growers is urged in connection with this work. Those interested in the demonstrations may secure full information by writing the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

Save Waste of Pure Bred Calves

Nature has her own percentage rules which are as infallible in the long run as the dealer's margin at a Monte Carlo gambling resort. According to this inflexible law of averages, there are about as many bull calves born each year as there are heifer calves.

Every good dairyman knows the value of a pure bred sire of good record and what such an animal may accomplish in the way of improving a grade or scrub herd. Despite their acknowledged value it appears that 73,000 pure bred bull calves of dairy breeds were killed for veal or were fattened for beef in 1918.

A chart has been prepared by the dairy division, United States department of agriculture, which furnishes a graphic illustration of what happened to the pure bred bull calves in 1918.

The line representing pure bred Holstein-Friesian cows registered in 1918 runs out to 80,000. The line for the bulls of this breed registered during the same year extends only to 30,000. The difference, 50,000, represents the approximate number of bull calves not registered. Presumably most of them were either vealed or fattened as steers.

The Jersey breed in 1918 registered 30,000 cows and about 12,000 bulls—a loss of 18,000 pure bred sires, many of which might be more profitably employed in the work of improving scrub herds.

Guernsey and Ayrshire totals are less, but the percentage of loss is heavy there also.

In the face of this waste it is estimated that five grade or scrub bulls are in use for every pure bred bull. According to experts of the United States department of agriculture the replacement of scrub and grade bulls with good pure breds would quickly and materially raise the average production of dairy herds. One of the reasons for the surprising situation outlined is probably an underdeveloped system of distribution.

$15 HOGS

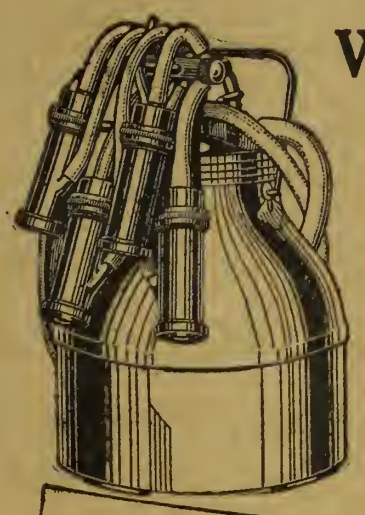
The California farm bureau marketing association reports as to sales recently held in San Joaquin Valley: McFarland, May 24—Toppers were a bunch of 85 averaging 220 pounds, $15.40; another bunch averaging 186 pounds, $15.25; another averaging 178, $14.90; low prices secured by 350 pounders, $12.90.

The Tulare sale on May 25 reached a still higher mark with one bunch averaging 195 pounds, which commanded $15.70; others at $15.40 and down as low as $12.50. The low priced ones, as before, averaged about 314 pounds.

Other sales held at Visalia, Hanford and Porterville were around the same figures, all showing the favorite weights to be around 200 pounds.

The De Laval Milker

What users say



The De Laval Milker was easily installed and the cows took very kindly to the change from hand milking to mechanical milking—all but one, so I sold her.

I milked 15 cows in from 30 to 35 minutes. It would take two men an hour to milk the fifteen cows without a machine. If I had to go back to hand milking at the present time, when it is so hard to get good hired help, I would sell the dairy at once.

A. E. BAIRD,
Valparaiso, Ind.

I was the first farmer in this part of New York State to put in the De Laval, and I bought it without seeing it or knowing anything about the way it operated; but I knew The De Laval Separator Company.

With the De Laval my wife and I milked 37 cows in 59 minutes with the three units and had only a few pounds of strippings.

The Udder Pulsator, with the alternate action and the master control on the Pulsator Pump, is certainly a great idea.

(Signed)
JAMES S. MORROW,
Richville, New York.

The De Laval Milker we purchased in August, 1917, has given us complete satisfaction. During this time it has never failed us.

We have a herd of 50 head of purebred Jerseys. Through indifferent hand milking, the udders of some of these were a little out of shape, but since milking these cows with the De Laval Milker, the teats and udders have improved and all trace of garget has disappeared.

The machine is simple, substantial, reliable and easy to operate. It is being operated by Mrs. Brook, the wife of the foreman.

WALKER'S DAIRY,
Bloomington, Ill.

The De Laval Milker has been in successful use for over three years, milking cows of every breed. It has been used to especial advantage on purebred cows and where certified milk has been sold at advanced prices, and also in A. R. O. work, because of its sanitary, easy to clean features.

Many farmers have installed the De Laval after careful investigation and comparison, which convinced them that it provided the best-known means of milking cows quickly and safely. Its positive, gentle and unfailing action pleases the cows and in many cases induces increased production—at the same time reducing the labor of milking and making it easy and pleasant.

The De Laval Milker is a distinctly different type of machine, positive and uniform in action, and it is faster, more reliable and more sanitary than any other method of milking.

Write to nearest De Laval office for Milker Catalog, mentioning number of cows milked

De Laval Dairy Supply Co.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

61 Beale Street San Francisco, Cal.

TESTIMONIALS

"Cows increased in one week 3 per cent in milk."
A. L. McCULLOCH, Alpaugh, Cal.

"I never saw hogs do so well or grow so fast as on this molasses ration." C. H. HARTWIG, Yuba City, Cal.

"It has enabled me to keep my stock in better condition at less expense." J. M. HENDERSON, JR., Sacramento, Cal.

"Have one calf that refuses to drink new milk—prefers skimmilk with molasses. What do you know about that?"
R. HECKLEY, Santa Rosa, Cal.

"It has been a great advantage in getting the stock to clean up the roughage." H. H. AMES, Chowchilla, Cal.

"One cow will turn down the choicest handfuls of alfalfa hay unless it has been 'Molassed'."
REDWOOD AYRSHIRE FARM, La Honda, Cal.

MOLASSES

cheaper than hay, but has same feeding value as corn or barley.

W. H. YOUNG COMPANY

58 Sutter Street San Francisco, Cal.

The Bargain of the Entire Year

Owing to sickness in the family of my partner, I am forced to dissolve the business, and am offering without reserve my entire herd of

Big Type Poland Chinas

Including My 1920 Show Herd

Among the individuals offered are the following: Black Beauty C., first prize Jr. yearling and Reserve Grand champion sow at Sacramento in 1919, with futurity litter of nine pigs sired by Long Big Bone Jr., the junior champion in 1918.

Perfect Beauty, by Long Big Bone Jr., and out of Black Beauty C. This is one of the most promising yearling sows in the state.

Whizzer, a litter mate to Perfect Beauty and my boar candidate for junior yearling honors.

A junior yearling sow sired by Orange Boy, that cost me $500 in the East last winter.

Tim Jones by Fissy's Tim and out of an F.'s Big Jones sow. This is one of the best individual and breeding boars I ever owned.

This ad will only appear twice, so act at once if interested. Now is the time to build for the future.

W. A. YOUNG

LODI, CAL.

BERMA RANCH

Size and quality predominate in our big type Poland Chinas. No better big type sows are found in the state. Buy Berma Poland Chinas and you buy wisely.

C. E. DACK R. H. Box 196 Fresno, Cal.

TWO PREMIER SIRES

are found at the head of our herd. Caesar's Buster and Rosebud's Jumbo are siring the type of Poland Chinas you want. Get them early.

THOS. CAESAR & SON, Reedley, Calif.

BERNSTEIN'S RANCH

Home of King's Big Ben, where he is siring those early developing big type Poland Chinas that are ready for the market at 6 mo. They have size, bone, quality and are from the easy feeding families.

W. Bernstein Hanford, Cal.

Rastanchury Better Berkshires
LA HABRA, CAL.

Bred Gilts, Open Gilts
Young Boars
Young Sows
At Reasonable Prices

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

June 17, C. W. Anderson, Burbank. Dispersal.

Duroc-Jerseys

July 21, Elmer Lamb, Ceres.
July, Conejo Ranch, Newbury Park.
July, Diamond Bar Ranch, Spadra.
July, Winsor Ranch, Bonita.

Hampshires

July, Conejo Ranch, Newbury Park.

Poland Chinas

August 21, Merced County Poland China Breeders' Association, Merced.
September 27, Hugh C. Shinn, A. J. Elliott and Alex D. McCarty, Tulare.

California breeders will be interested to know that a young bull, King Prilly Segis Alcartra, bred, raised and sold by the Bridgford Holstein Company, Patterson, was recently made first prize senior yearling and junior champion at the Waukesha dairy show. This is but added proof that California Holsteins are ready to go anywhere and meet any kind of competition.

On Monday, May 31, the home of Frank L. Morris on the old ranch of A. W. Morris and Sons, Woodland, was destroyed by fire. The house was a total loss. It will be remembered that last fall the large barn and silos on the same ranch were destroyed by fire. Mr. Morris and family were away at the time of the fire.

Old Man Hardluck continues to camp on the trail of H. P. Slocum & Son, Duroc breeders of Willows. Closely following the loss of their herd boar, Sensation Wonder 1st, they have reported the loss of a junior yearling boar that they have been keeping under cover. This youngster was a very strong prospect for high honors at the fall shows and his death is a severe setback to the operations of the Slocums, but it is safe to lay a small bet that the Slocums will come back—they always do.

The Italian Vineyard Company, Guasti, has 35 young pure bred Berkshire barrows on feed that will be shown in the car lot division at the leading fairs this fall.

W. W. Coates is proprietor of La Pomona Goatery at Watts. There are 30 does in the herd with the fine Toggenburg buck Tyltyl 1402 in service.

R. M. Dunlap, well known cattleman of Sacramento, has just returned from a five weeks trip through the Middle West in search of registered milking Shorthorns for J. E. Jargers of Clarksville. In the shipment were 13 young cows of splendid breeding and proven production. Seven of the cows have calves at foot and a number carry the service of the bull, Dairy King's Cyrus, that will head the herd. Dairy King's Cyrus was bred in Pennsylvania and was sired by the noted May and Otis bull, Glenside Dairy King. His dam, Hattie Belle, is a straight Constance bred cow with a fine yearly butterfat and milk record. According to Dunlap this bull is of show yard caliber. He likewise testifies that the cows are exceptionally heavy milkers and declares that he ought to know, as he acted as milker and left a "milky way" half across the continent. The cattle were unloaded at Truckee, where Jargers maintains his dairy herd during the summer months. Dunlap also brought out a choice yearling Hereford bull for F. H. Scott of Folsom.

Dr. H. W. Hand, well known Jersey breeder of Orland, has decided to retire and has announced that he has entered practically his entire choice herd in a sale to be held in the near future at Salem, Oregon. The loss of Dr. Hand to the Jersey interests of this state will be keenly felt. He has at all times taken a most progressive stand and has assembled a herd of many outstanding cows, including the former world's champion, Goldie's Nehalem Beauty.

Professor Gordon H. True, head of the animal husbandry division of the University of California, has been granted a year's leave of absence in order to regain his health. The last few years have been very strenuous ones for True. During the war he was chairman of the livestock committee of the state food administration, and last year much of his time was devoted to the management of the San Francisco livestock show. True expects to spend part of the summer at his old home in Wisconsin and later go to Hawaii.

Plans have been made public for organizing a Shorthorn calf club at Brown's Valley, Yuba County. This will be the second Shorthorn calf club to be organized in this state. The first was organized last spring in Shasta County by County Farm Adviser Parker H. Talbot.

At a meeting at Willows, Duroc-Jersey swine breeders from all parts of Glenn County organized the Glenn County Duroc-Jersey Breeders Association and elected: F. H. Hurni, Orland, president; C. N. Slocum, Willows, vice-president; C. D. Bright, Glenn, secretary-treasurer; B. Hollingshead, C. N. Slocum, D. F. Small, J. E. Bogue and E. D. Connolley, directors. The new organization expects to stage a futurity show at the Glenn County fair.

Hollywood Farm announces the sale of Hollywood Lilith Adventuress to J. J. Rupp of Tillamook, Oregon, one of the progressive dairymen of that section. Hollywood Lilith Adventuress' six nearest dams average 30.9 pounds butter in seven days. His four nearest dams tested semi-officially, including his own dam's two year old 305 day record, average for 365 days, 850 pounds of butter. His own dam is now on test and is very sure to go over 1,000 pounds, in which case these records will be materially increased. The granddam on the dam's side as a two year old made the wonderful record of 19,954.9 pounds milk and 874.9 pounds butter. The great-granddam made as a four year old 30 pounds butter, and in 365 days produced 891.4 pounds butter from 21,860 pounds milk. This young bull is sired by Hollywood Lilith Palmyra, whose dam produced 1,077 pounds butter in a year from 26,135.9 pounds of milk; also a 32 pound four year old daughter. Two daughters of Hollywood Lilith Palmyra hold state records, one in Washington, the other in California. Half of his daughters show an average of 30.6 pounds butter, at an average of three years. He has one 38 pound, one 36 pound three year old, one 35 pound four year old, and two 31 pound three year old daughters. One daughter, Hollywood Lilith Pontiac, sold in the recent Higdon sale to F. F. Pellisier of Whittier for $1,900. Mr. Rupp's bull has a 31 pound three year old full sister. This pedigree shows extremely heavy production throughout. The fact that Hollywood Farm has kept this youngster for its junior herd sire, until the recent purchase of King Lyons 3rd, who fits the scheme of mating Judge Segis' daughters better, goes to prove what they thought of him. He was not for sale until King Lyons 3rd was purchased.

W. A. Young, Lodi, informs that owing to sickness in his partner's family, he is forced to sell his entire herd of big type Poland Chinas. For a number of years the Young herd has been among the heaviest winners at the state fair whenever shown. Mr. Young is advertising his herd without reserve and expects to soon be an exbreeder. We hate to see this herd dispersed and especially at a time when it would have figured very strongly at any fairs where shown this fall.

One of the most important deals made in Duroc circles was consummated recently when P. E. Thorp, Lodi, sold his yearling herd boar, California's King of Orions, and ten sows to The Boston Land Company of West Haven, for the sum of $4,000. The lot included several individuals. Mr. Thorp expected to show this year at the state fair. However, he will be represented very strongly in the futurity classes.

RICE TO SUMATRA

For the first time in the history of the Sumatra east coast, rice is being imported from the United States, the first cargo of 4,000 tons arriving at Belawan the first week in March. Later shipments of 8,000 tons have been contracted for and are expected to arrive in the spring and early summer. The price paid is approximately $13 c. i. f. Belawan per 100 pounds.

Merci Lad Korndyke Burke

When Buying Registered Livestock

IT IS IMPORTANT that one makes selections from herds, not only noted for the quality and blood lines on which their claim for patronage rests, but it is equally important that one looks to the stability of the herd itself.

FOR OVER 45 YEARS SANTA ANITA RANCHO has existed as a source for the best in livestock and today this ranch stands as a California institution. This fact, aside from the freely admitted quality of the Santa Anita herds and studs, should mean much to prospective purchasers.

FIRST, it means that buyers are getting the cumulative results of a generation of sincere efforts towards better livestock.

SECOND, it assures the buyer a selection from long proven blood lines.

THIRD, buyers can feel certain that they are making selections from herds that will be of increased importance five, ten and even twenty years hence.

FOURTH, because of the character and importance of Santa Anita Rancho activities, buyers are assured of values based on sound and conservative methods.

FIFTH, because it is the established policy of Santa Anita Rancho to lend every possible and reasonable aid to our customers, because it is realized that their success measures our own success.

SIXTH, because it is our aim that the name Santa Anita Rancho as applied to livestock shall have the same significance as the word "Sterling" stamped on silver.

Holstein-Friesian Cattle

In the foundation and development of this herd we have endeavored to select and breed the blood lines that make for real improvement in dairy production, keeping in mind always the individuality to conform most closely to the standards of the breed.

Our female herd contains a large number of daughters of PRINCE GELSCHE WALKER, whose sons and daughters have placed him among the breed's greatest sires, and the public estimate of his blood has been repeatedly demonstrated in the public sale rings of the West, where his sons and daughters, grandsons and granddaughters, have outsold the offspring of any other bull.

MERCI LAD KORNDYKE BURKE, senior herd sire at the head of these females, is a son of the first cow in California to make over 1,200 pounds butter in one year, and she is one of the only two cows in California to make over 31,000 pounds milk in one year.

PRINCE WALKER CORNUCOPIA, the junior herd sire, is by Prince Gelsche Walker, and out of the 36 pound cow Alba Sadie Cornucopia Creetia, who is a yearly producer and of most substantial breeding, being by Sir Sadie Cornucopia, one of the breed's best proven sires.

Both of these bulls are high class as individuals, and their offspring show the inheritance of correct type in a marked degree. No females are for sale, but we are in position to furnish young bulls by these sires and out of high record, well bred dams.

Every Female in This Herd Will Be Given a 305 or 365 Day Record

Poland China Swine

Our registered Poland Chinas represent the most approved breeding and type, the sort that are proving the most profitable producers on Western farms. Orders can now be filled for young boars of most desirable quality.

The Well Known Guarantee of Satisfaction Goes With Every Animal That Leaves the Rancho

Correspondence Invited **Visitors Welcome**

Santa Anita Rancho

Anita M. Baldwin, Owner **Santa Anita, Cal.**

ROSS

For BETTER Silage--at LOWER Cost. Flywheel and Cylinder Types--and sizes to match your present power--Kerosene, Gasoline or Steam--from four H. P. up.

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HERE'S a suggestion that will mean money in your pocket if you follow it out. Just write, asking "Who sells Ross Cutters in my locality?"

We will send you *facts that will open your eyes* on this silo-filling proposition. We will prove to you that the Ross will not only *save* you money, time and trouble, every fall, but will *earn* you bigger profits every winter by furnishing more succulent, more palatable and more nutritious silage for your stock. We will explain why *the Ross cuts clean always*--keeping the natural juices in every slice of silage.

A one-cent stamp is all it costs to get the facts before you. Your name on a postcard will bring you the story of the simple, powerful, smooth-running and clean-cutting Ross. Write today. No obligation. We'll send Catalog and the name of nearest dealer.

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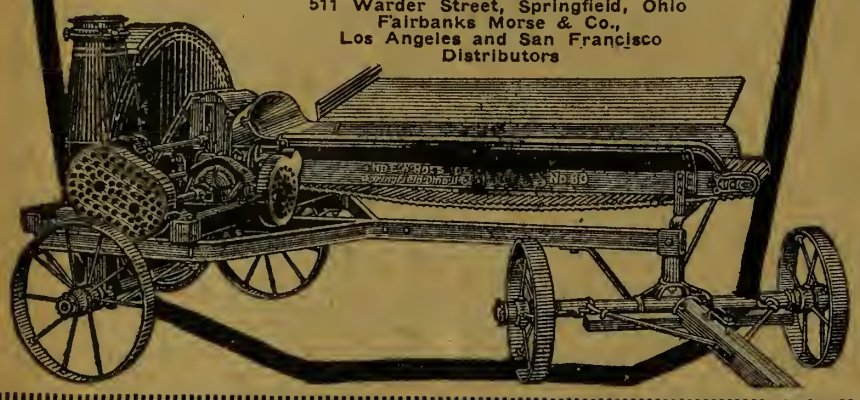

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The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows.

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Grand Champion Boar
at Los Angeles 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair
SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale.

A. E. Harvey, Manager Redlands, Cal.

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Buy Your Foundation Hampshire Stock Now

Our brood sows are prolific, so we have the pigs in numbers to satisfy many customers. Can suit you likewise in bred sows or sows with litters at foot. Best families of the breed.

WE BREED THE MILKING STRAIN OF SHORTHORNS.

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Perris, Cal.

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Thos. T. Dinsmore, Mgr., Santa Barbara, Cal.

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By buying fertilizers on a unit basis and not a cost per box basis, you are losing a money making, labor saving, crop increasing advantage.
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Swine Association Has Program

The National Swine Growers Association was organized in 1914 and was incorporated, not for pecuniary profit, under the laws of Illinois in 1916. It has a membership at present of about 3,500. Membership dues are $5 a year.

The principal function of the organization is the "promotion of the swine industry." Thus far the work has been done in a modest and very conservative manner. The work has had the support of breeders, swine recording associations, swine papers, the agricultural press, state, county and district breeders' organizations, and from some commercial concerns.

As a form of concrete evidence that this association was in favor of a greater cooperation and more complete harmony of the men interested in the hog business, and to further the cause of the right kind of pure bred hogs of all breeds, the annual National Swine Show was inaugurated in 1916 and is being continued with greater success every year. This show is being financed by the breed record associations and the local interests in the city in which the show is held each year. (The show will be held in Des Moines, Iowa, October 4-8, 1920.)

A view herd of about 60 head of hogs will be taken to South America this summer in order to build a stable basis for foreign trade with those countries. This project will be financed by the record associations and breeders of the breeds sent in the view herd.

The railroad claim department of the association is in a position to handle all claims against carriers for loss or damage of hogs in transit. It also offers information relative to rates on shipments, and the handling of claims for overcharge on shipments.

As a whole, the work of the association has given breeders and others information or service which they were unable to get elsewhere. It has been the aim to get correction of laws and regulations which militate against the success of the swine industry; to work for appropriations such as the federal appropriation for the investigation of the soft pork question; to secure adjustment on irregular charges or treatment of members in deals in connection with the industry; to increase and develop foreign trade; and to give publicity through the press to matters of general interest in the swine industry, and to be of general service to hog men and others interested in the industry.

It is now planned to enlarge the work in an attempt to maintain greater stability of the swine industry and to overcome the present difficulties under which hog men are producing and marketing. Many pork producers are now operating at a loss, and have been so doing for some time in the past. This is due, in many cases, to conditions over which they have no control. There have been very violent fluctuations in the market price of hogs which have been very disconcerting. Then, too, lard is selling, for the first time in history, at a lower price than the lard substitutes are bringing, and without any real economic basis.

The plans for the increased work of the association include the collection and dissemination of information relative to the swine industry with a view of increasing pork consumption without injustice to any and with positive benefit to the hog raisers and those engaged in allied industries. There is no doubt but that conditions can be materially changed if the right influence can be brought to exert its power. If the hog business can be made more stable and profitable—and we all know that it has been an almost insoluble enigma in the past few months, or even years—men in allied industries will profit in almost the same proportion as do the hog men.

The overhead expenses of the association are amply provided for at present, and there are limited funds available for constructive work. However, there is a need for increased revenue at the present time if we are to accomplish our purposes and make the association what it should be. If each present member will get one more to affiliate with the association, and if each commercial firm which serves the livestock man will but realize that it is to its interest to further this work—morally and financially—the results will be remunerative to all concerned.

The association and its officers are ready to serve at any time and will always gladly receive suggestions for the good of the swine industry. Any additional information will be cheerfully given by the secretary, W. J. Carmichael, 37 W. Van Buren Street, Chicago, Illinois.

HEREFORD BREEDERS OUTLINE PROGRAM

A special meeting of the board of directors of the Pacific Coast Hereford Cattle Breeders Association was held at the animal husbandry building, university farm, Davis, on Thursday, June 3. At this meeting it was decided to hold the regular fall sale of the association in connection with the California International Livestock Show which it is assumed will be held this year in Oakland, and the regular spring sale will be held during Stockmen's Week at the university farm the last week in February. Steps were taken toward securing the services of a field man for the western territory. It is the aim of the association to put itself in a position for cooperation with other agencies in the matter of the establishment of calf clubs, and the determination was expressed that the white faces should be represented at every county fair in the state this fall. The broad minded and progressive attitude taken by the members of this association toward the problems confronting them as breeders indicates a most rapid and healthful development of Hereford interests on the Pacific Coast. The establishment of at least three new herds in that part of the state which is coming to be recognized as the livestock center of the West was announced.

OAKLAND WANTS A LIVESTOCK SHOW

At a meeting held at Oakland, June 3, at which representatives of many of the livestock organizations were present, as well as a number of the leading civic organizations of that city, plans were discussed that will more than likely materialize in a livestock show to be held at Oakland this fall. Since the indifference of the business interests of San Francisco to aid in establishing a permanent livestock show in that city, the Oakland people have realized the great opportunity and have gone after the show in a way that gives every assurance that they mean business. It is stated that the various organizations of Oakland have agreed to duplicate the prize list offered last year at San Francisco and that an offer has been made to hold the show in the Oakland Auditorium, which is admirably suited for it. The Auditorium is centrally located, is convenient to shipping accommodations and is of ample size.

For a time it was feared there would be no fall show in the Bay section. Apparently San Francisco failed to appreciate the value of such a show to the state and community, and the livestock interests were about to give up hope when Oakland came with an offer. If the show becomes a fact the livestock interests of this state should lend every support and encouragement to those who will make the show possible. Oakland will be a greater city some day because of such a show.

WINSOR BRED SOW SALE

R. K. Walker is enthusiastic over the high quality of some of the youngsters which will be offered at the bred sow sale to be held in Los Angeles, July 28. He writes: "There will be 40 head best spring yearlings and tried sows which have ever left the ranch." They were sired by such boars as Great Orion Sensation, Pathfinder, Orion Sensation and Great Model. These sows will be bred to Winsor's Giant Orion, the largest boar on the Pacific Coast, and part of them will be bred to Giant Sensation 3rd, a son of Giant Sensation on the biggest and best type yearlings in the West.

The two boars represent the best in modern big type Durocs. The results obtained from sows sold in the

sale held last winter by the Winsor ranch justify the belief this sale will be a record breaker. A great many pigs out of the sows sold in last winter's sale will be exhibited at the leading fairs on the Coast this fall.

The Winsor Ranch sale precedes the Conejo sale, which will be held on July 29.

THE ANDERSON SALE OF HOLSTEINS

The Edgemont Holsteins are absolutely to be dispersed. There was a misunderstanding by the printer of the catalogue, and the sale is announced as "Semi-dispersal." Mr. Hughes of the California Breeders Sales and Pedigree Company writes: "This is an error, as the sale will be an absolute dispersal of the herd. Mr. Anderson is offering his ranch for sale and is selling every animal he owns."

HORSE AND MULE POPULATION INCREASING

This estimate of the federal department of agriculture for January 1, 1920, shows an increase of 1,276,000 horses and 785,000 mules over the 1910 census. Besides, from January 1, 1910, to June 30, 1919, 1,149,763 horses and 376,836 mules were exported, and the end is not in sight, for predictions by good authorities are for a steady rise in prices.

SOUTHERN CALIFORNIA HOLSTEIN-FRIESIAN ASSOCIATION

A meeting of the Southern California Holstein-Friesian Association will be held at the Los Angeles Athletic Club on Wednesday, June 16, 1920, at five p. m. At this meeting a permanent orgnaization will be formed and a constitution and set of by-laws adopted. Earl Sturgis of the Santa Anita Rancho will give a report on the meeting of the National Holstein-Friesian Association held at St. Paul, June 3. He will also speak of his visit to the Holstein breeders in the East. There will be a banquet in the evening.

According to H. J. Baade, farm adviser of Napa County, about 100 boys in that county will organize a pig club.

The "Life History" of the IDEAL GREEN FEED SILO

THE ENCYCLOPEDIA AMERICANA, under the subject of "Redwood," says: "It resists decay so well that trees which have lain in the forest for 500 years have been sent to the mill and sawed into lumber."

The remarkable durability of California Redwood is a part of the Ideal Green Feed Silo. Added to it is absolute correctness of design.

The Ideal Green Feed Silo is air-tight, not only through the use of tongue-and-groove staves but because it is also equipped with beveled refrigerator doors which establish a three point contact on all four sides, making leakage at this point impossible.

Strength and stability are gained by heavy, round steel hoops, placed with mathematical precision where pressure is the greatest.

These characteristics are responsible for the long life of the Ideal Green Feed Silo. And because it continues to give profitable service long after it has paid for the initial cost, the Ideal Green Feed Silo accomplishes the purpose for which it was built—real savings.

You are interested in silos for this very reason. An investigation of the Ideal Green Feed Silo will be to your advantage.

The saving capabilities of a silo depend upon how long it will last after it has paid for itself. The Ideal Green Feed Silo is built primarily for year after year of profitable service.

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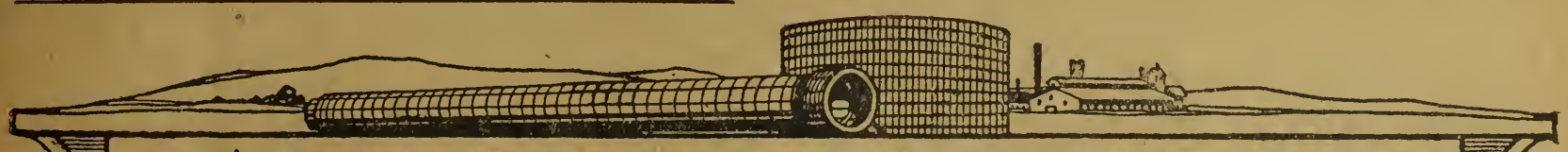

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We are offering to the California public the Reliable Blue Flame Brooder. It has a capacity of one thousand chicks. Burns one gallon of common kerosene oil in twenty-four hours, without gas, soot or odor. The most perfect brooding device yet placed on the market. In use, and indorsed by the Oregon Agricultural College, and the Western Washington Experiment Station, and two hundred other satisfied users in and around Seattle. We are western distributors. Have some good territory open. Write for circular. Queen Hatchery, 89 Pike Street, Seattle, Washington.

BABY CHICKS

FREE! FREE!

A Fireless Brooder with every order of one hundred chicks. We ship in the brooder, thus there is no chance of chilling in transit and you have an excellent way to raise them.—We have the following varieties of thoroughbred chicks every week: Anconas, Barred Rocks and R. I. Reds, $20.00 hundred. Extra fancy dark R. I. Reds and White Rocks at $25.00 a hundred. White Leghorns $17.50. We guarantee safe delivery. Every one a strong, healthy chick. Orange County Hatchery, 403 E. Santa Clara, Santa Ana, California.

Spring Baby Chicks For Sale—400,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) Stock. Price during May and June, 25, $5.00; 50, $9.00; 100, $14.00. Special prices 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition; no money in advance, pay on delivery. Shipped safely anywhere west of the Rockies. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., PETALUMA, CALIF., 438 Seventh St.

Barred Plymouth Rocks—"Nothing Better in Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Vodden, Los Gatos, California.

White Leghorns — From the home of heavy layers. Buying carefully selected spring cockerels now is economy. We have them from our choicest pens. All breeders have orchard range. Fall chicks pay big. Free folder tells why. Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, California. Phone 492.

Can Furnish large or small lots, next two Tuesday's hatches; Parcel Post or express, C. O. D. if desired, White, Brown, Buff Leghorns, R. I. Reds, Black Minorcas, Barred Rocks, 13 to 18 cents each. We hatch until October. Pullets for sale. Mission Hatchery, Campbell, California.

Baby Chicks from my carefully selected, thoroughbred flock of S. C. White Leghorns. May, June and July delivery at $13.00 per 100. Good, strong chicks at this reasonable price. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Baby Chicks—Pure bred S. C. White Leghorns, bred from our own stock. Best strain. Folder and price list mailed to you for the asking. Order now for fall delivery. Buena Vista Poultry Yards, Sonoma, California.

Thoroughbred B. P. Rocks, Trapnested Cock and Cockerel matings, 250 egg record and better, mine 210 and better. Fertile eggs, $2.50 15, chicks, 25c. Phone 5599, Mrs. M. A. Warren, 36 Little Delmas Ave., San Jose, mornings only.

"Watch Us Grow" Baby Chicks. Booking orders now for Brown and White Leghorns, R. I. Reds and Barred Rocks. Safe delivery guaranteed. Order early. E. W. Ohlen, Campbell, California.

Goldcroft Ranch—Buff Orpingtons, fine breeders and sturdy growing stock for sale. Eggs $3.00 per setting after April. Box 13, Los Altos, California.

Breeding Cockerels—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Day old chicks in season. Enoch Crews, Seabright, California.

White Wyandottes, heavy laying, prize winning stock. One and two year old breeding stock, $4.00 up. R. W. Stawetski, Route B, San Jose, California.

Buff Orpington, Buff Ducks, Bourbon Red Turkeys, White Guineas. The Ferris Ranch, S. Reservoir, Pomona, California.

White Minorca Baby Chicks and Hatching Eggs — Dark Cornish and Silver Campine eggs. Folder Leech Poultry Yards, Baldwin Park, California.

For Sale—S. C. White Leghorn chicks, $11.50 per 100 from Hoganized stock. We ship by Parcel Post C. O. D. Welty's Hatchery, Petaluma, California.

Baby Chicks from selected egg type S. C. White Leghorn hens. Tupman Poultry Farm, Box 7-C, Ceres, California.

MISCELLANEOUS

For Sale — 16 James Stanchions, Milk Cooler and Can, Milk Separator and other dairy utensils, good as new. J. W. Off, 5960 Carlton Way, Hollywood, California.

Parties Interested in Securing Plans for the best and cheapest Evaporator of large capacity on the market will find it to their interest to communicate with F. C. Chapman, Modesto, California.

For Sale—Two good work horses and new Hoover Potato Digger, 7710 Towne Ave., Los Angeles, South 6605J.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

TREES

Valencia Oranges, 3 or 4 year, heavy, balled, $2.00, $1.75 and $1.50. Seedless Grapefruit, extra heavy, good, $2.25 and $2.00. Eureka Lemons, strong trees, $1.75, $1.50 and $1.25. Washington Navals, medium, $1.60 and $1.50. All varieties, smaller or imperfect trees, 75c to $1.00. Avocados, Rey, Spinks, Knight, Queen and Fuerte, 18 in. to 3½ ft., at $3.00 to $5.00. 6 foot trees, Linda, Rey and IXL at $7.50. Cocos Plumosa, the favorite street and lawn palm, 6 ft. at $3.50; 8 ft., at $5.00. Everything else for the home grounds and garden. Pioneer Nursery, Dept. A., Box 278, Monrovia.

For Sale—Placentia Perfection and Eureka walnut trees, also Eureka Lemon and Almond trees. These are all high grade stock. Ketscher's Nursery, 1101 E. 4th St., Santa Ana, California. Phone 572WK.

50,000 Florida Sour Orange Seed Bed Trees; 100,000 California Sweet Seedling Seed Bed Trees; Valencias, Eureka Lemons; Supply Co. buds. SOUTHLAND NURSERIES, 1941 East Colorado St., Pasadena, Cal. Phone, Colorado 6352.

For Sale — Valencia Orange and Eureka Lemons for fall and spring planting; all A-1 yearling buds selected from best bearing trees. Order early, good trees are scarce. A. R. Thurston, Montebello.

For Sale—1000 performance record Eureka Lemon Trees, two year buds. Nursery Colorado and Huntington Drive, Lamanda Park. Paul B. Magee, R. D. 2, Pasadena.

Capri Figs—Ready about June 25th. Lasts till August. Price $1.75 per 100; $6.50 per 500; $10.00 per 1,000. Tribble Bros., Elk Grove, California.

Fine Stock Valencia Orange trees, budded Placentia and Eureka Walnuts on black root. A. R. Marshall, 1212 Ross St., Santa Ana, California.

Fine Straight Rooted Florida Sour Seed Bed Stock, 6 to 10 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

For Sale—Sacks and Burlap for bailing trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—4 Year Old Manzanillo and Mission olive trees. E. E. Barnes, Highland, California.

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Toyon Farm Association,

UNDER STATE AND FEDERAL

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Small foundation herds, Heifers and Bulls.

PERFECT IN HEALTH, RIGHT IN TYPE, PRODUCTION AND BREEDING.

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FARMS AT

BRENTWOOD AND LOS ALTOS

350 HEALTHY HOLSTEINS.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—Entire herd of A-1 Jersey dairy cows, about 33. Address Perry Dresser, Rt. C, Tulare, Cal.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Jersey Bull Calf, 3 months old, out of the imported bull Helen's Oxford. J. R. Carhart, Fullerton, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Wineville, California. E. R. Stalder, owner.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys — No females for sale. Bulls from high testing cows for sale. E. E. Greenough, Merced.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California

WANTED

Situation Wanted by experienced agricultural graduate and licensed veterinarian. Ex-army officer overseas. Own ranch at present but am selling out. Will consider big proposition only. Salary and percentage basis. Stock preferred. I know registered stock thoroughly. Married with one child. Finest references furnished. Box 5, Cultivator, Los Angeles.

Wanted: Up to 5,000 or Any Part: Three to four months old White Leghorns; 1,000 turkey chicks, eight weeks and up; also young goslings and ducks. Give quantity, price and location. Postoffice box 252, Pasadena, California.

Married Dairyman desires position on ranch; purebreds preferred. Educated; lifetime experience. Box S. R., care California Cultivator, Los Angeles.

Wanted—To hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

Wanted—Immediately, experienced budders and tiers. Address or phone Kirkman Nurseries, Fresno.

BERKSHIRE

BERKSHIRE GILTS

BRED FOR EARLY FARROW TO

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CASTLEVIEW RANCH,

SANTA ROSA, CALIFORNIA.

ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

Two Sows and an Unrelated Boar for $100.00. These are pure bred registered Berkshires sired by Grand National boar Baron Duke 201st and Rincon's Rival 2nd, also a Grand Champion. Baron Duke 201st is dead and this is the last opportunity to secure pigs from one of the greatest boars of the breed. The pigs are from 700 pound sows. They are guaranteed to please or your money refunded without question. Sandercock Land Co., 703 Market St., San Francisco. In charge of Natomas Land Sales.

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Pure Bred Berkshire Pigs at weaning age, either sex. J. D. Rodolf, Sunshine Ranch, Yuba City, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calaveras Orchards, Martinez, California.

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Duroc-Jersey Sow Pigs sired by grandson of Pathfinder from Gold Model sow. Moving and must sell. One for $25, two for $22 each, six at $20 each. Fine individuals now 9 weeks old. First check gets them. Dr. L. J. Anderson, Placerville, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bargains in Bred Sows and Gilts—Pathfinder and Great Wonder I Am blood. Derryfield Farm, Capitol National Bank Bldg., Sacramento, California.

L. & M. Ranch, Van Nuys — Buy our young boars by such sires as May Rose King, Winsor's Giant Orion, Orion's King Gano, Top Sensation 3rd.

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The most popular herd in the West. Winsor Ranch, Bonita, San Diego Co. Address: R. K. Walker.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

For the Best In Durocs write Tune Acres Stock Farm, Davis, California.

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Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

The Big-Type Polands direct from Iowa. The best blood lines in the game by the Iowa man. J. L. Dunlap, Pomona, California.

The Grand Champion El Profito heads our big type Poland Chinas. Letters promptly answered. Viola L. Renwick, Santa Barbara, California.

Guaranteed growthy big type Poland Chinas, not pampered, selected for general farm conditions. Stock all ages. Walter Ficklin, Box 946, Fresno.

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White Pekin Baby Ducks—White Pekin Duck Eggs for hatching. 152 East Spruce St., Inglewood.

Mammoth Muscovy Ducks, Ducklings and Hatching Eggs; heavy fowls and great layers. Woodland Hatchery, Woodland, California.

Mammoth White Pekin Duck Eggs, $1.00 per dozen. A. Surtman, Petaluma, California.

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Wanted — Salesman who can sell high-grade, dependable nursery stock; exclusive territory; outfit furnished and cash advanced weekly. Commission basis. Address Albany Nurseries, Inc., Albany, Oregon.

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Pedigreed Flemish Giants; also utility stock. No fancy prices Maud Beechling, 1578 W. 46th Street, Los Angeles.

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Tulare Co.

(7 miles south of Porterville)

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ONLY $2,000 CASH REQUIRED

250 valuable bearing orange trees, many young trees coming on; near packing house, close city, main improved road; 2½ acres fine soil, 7-room house, piazza, fireplace, good water, magnificent shade, big barn, garage, poultry houses, other buildings, excellent condition; owner throws in cow, 5 hogs, poultry, wagons, etc. only $6,500, $2,000 cash, balance easy terms. Details page 55 Strout's Catalog Farm Bargains 33 States. Copy free. STROUT FARM AGENCY, 503 E.J. Wright-Callandar Bldg., Los Angeles, California.

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The Redlands and Yucaipa Land Company is offering for a limited time, a 125 acre Dairy Ranch in the famous Yucaipa Valley—two miles from Redlands city limits — on the Ocean to Ocean paved highway. This ranch is equipped with buildings; no better soil in the state; has 500 acres suitable for alfalfa; 750 acres grazing land with live oak trees and living springs; also 100 inches water. One of the best dairying and alfalfa locations in the state. Price reasonable and terms easy. Address, Dike & Logie, Sales Agents, Redlands, California.

For Sale—$10,000; in San Gabriel Valley beautiful home of eight rooms and bath and toilet, screen porch; strictly modern with all built-in features, cement front and back porch; near school and churches. Up to date garage, cement walks and cement driveway to garage, fine water supply, and two acres of the best soil all under cultivation in fruits, walnuts, almonds, berries and vegetables, chicken run and corrals. Beautiful flowers and shrubbery. This is an ideal place and one must see it to fully appreciate its value. Address Owner, John Daveggio, San Gabriel, California, R. D. 1, Box 453.

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FOR SALE

Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

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For Sale—Oxnard Suburban home site, 1 to 20 acres, good land, fine place for citrus, lemons, beans or sugar beets. Address Owner, W. R. Livingston, 426 E Street, Oxnard, California.

44 Acres dry land, producing 90 tons oat hay in Orange belt between Riverside and Bloomington, 40-inch well guaranteed. Address Box 633, San Jacinto, California.

A-1 Lands, Natomas Irrigated, Sacramento County. Terms ten years. Investigate. Alex. Murdock, 38 S. Sutter, Stockton.

If Interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

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WHY PAY MORE?
REBUILT WINDMILLS.
8, 10, 12-ft. sizes, with or without towers.
Used Redwood TANKS: 2000-gal., $38; 5000, $68; 6000, $78; 30,000, $245. Many others, used GALV. TANKS; 8,000, $195; corrugated, 16,000 gal., $325; 5,000-gal. with top, $100; 3000, with top, $75; 2000, with top, $52.50; 1500, with top, $38; new 1000 gal., $43.75; 2000 gal., $59.75.
PUMPS
Large Bulldozer, $135; No. 3 horizontal centrifgual, $65; No. 6 Gould hor. cent., $160; duplex boost pump, $49; No. 3 double-acting AMES, $375; rods, cylinders extra; many other snaps. Complete PUMPING PLANT, 15 h.p. Western gas engine with deep well double-acting AMES pump, rods, pipe, cylinder, belt, complete, $950; guaranteed good shape.
SPECIAL BARGAINS
5-ton wagon scales, $75; 4-gang Stockton plow, $28; potato planter, $65.00; 4-row beet planter, $25; 2-row bean cultivator, $35; 3 four-gang disc plows, $85 to $140.
WHY PAY MORE?
IRRIGATING PIPE.
3-in., 15½c; new light weight, 4-in., 18½c; 170 ft. 8-in., steel riveted with flanges, 50c. We don't keep material; we SELL IT. Material guaranteed as represented or money back. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

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10 H. P. International
20 H. P. Simplicity
25 H. P. Fairbanks N Type
25 H. P. White & Middleton
7 H. P. Waterloo
12 H. P. Western
Fordson tractor, slightly used.
20 H. P. Type Y Fairbanks (new)
3 H. P. Lambert
2½ H. P. Gilson
2 H. P. Fairbanks
2 H. P. International.
5 H. P. Electric Plant
7½ H. P. Electric Plant
10 H. P. Electric Plant
Case Steam tractor
32 inch Case thresher
10 H. P. Raleigh-Schyer
8 H. P. Samson
15 H. P. Samson
25 H. P. St. Marys
25 H. P. International
2 H. P. Vertical Fairbanks.
Notify us ahead if possible when we may expect you. Phone at our expense. Phone 90. Crowe Hardware & Electrical Works, Tulare, California.

For Sale—York 2 cylinder 3 ton ice machine with 30 one hundred pound ice cans, freezing tank, coils, cold water tank, direct expansion coils, etc. Two Studebaker low down milk wagons. Copper pipe milk cooler, 30 to 150 gal. per hour Davis Watkins hand power bottle filler for quarts and pints. 6 H. P. horizontal boiler, built to order, 6 H. P. Baker & Hamilton Horizontal Steam Engine, Combined Churn, 25 to 150 lbs. capacity. Sandwich Belt Power hay press. 16 H. P. Western Gas Engine. All the above in excellent condition. Bargain prices. Geo. A. Smith, Corcoran, California.

For Sale—Empire outfit complete, consisting of two double units, Vacuum pump, tank, gauges, and relief valve, One double 12 inflations and four long tubes never been used, balance used three months, but all in first class condition. First check for $150.00 takes this entire outfit.

A Bargain in new six horse power Z-type Fairbanks Morse Engine. C. L. Russell, 3055 Telegraph Ave., Berkeley, California.

For Sale—One Holt Caterpillar Tractor, 65 H. P., good running order. Also two Four Gang Holt Engine Plows, 4 gang 14-inch Mould Board Plows. Ben F. Thorpe, Mgr., C. A. Canfield Ranches, Bonsall, California.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—First class condition, used 26-inch Caterpillar disc plows; also a Holt land leveler. Apply Newmark Grain Company, 447 So. Los Angeles Street, Los Angeles. Ask for Krauss.

For Sale—One Ames deep well pump No. 30 head with 140 ft. of tubing and rods complete. Address Harry Putnam, La Verne, California.

For Sale, bargain, Utilitor Tractor and implements, practically new, used only one month. A. P. Fransen, Route A, Box 171, Burbank.

For Sale — 17x22 Sandwich Belt Power Hay Press in good order, $350. Ceres Hardware & Implement Co., Ceres, California.

For Sale—Holt 45 Tractor, two engine plows and tank wagon, all in good condition. Price $2500.00. W. R. Mayo, Compton, California.

For Sale—Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

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BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. Next sale all breeds, second week in August at ranch. W. P. Dwyer and W. S. Gulliford, Box C, Butte City, Glenn County California.

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Carruthers Farms—Live Oak, California. Shorthorn cattle and Berkshire swine of quality and select breeding.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

Dr. A. S. Alemida, Dixon, California, Reg. Shropshire Sheep.

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For Sale—Burbank's Early Mortgage Lifter Blackberry Roots. Earliest Blackberry on the market brings big prices. Ripens in March and April. Price $1.00 a dozen. $7.50 a hundred. Address D. A. McAleese, 1000 W. Broadway, Whittier, California.

Rhodes Grass—Is making Imperial Valley famous and will make any other section famous, if it is planted, especially if the soil is hard or alkali. Write Imperial Valley Seed House for Literature. El Centro, California.

For Sale—Sweet Potato Plants. Downey and Los Angeles Road, at Baker and Wilcox Streets, ½ mile east of Bell on Rubio Ranch. McCarley, Los Angeles Telephone South 3649-J1

All Kinds Seeds — Plants and Nursery stock. No. 1 Alfalfa 35c. Sudan 8c and up. Dwarf Milo Maize, Honey Sorghum, Amber Cane. Box 501, Fowler, California.

For Sale—Yellow sweet potato plants, strong stock, $3.00 per thousand, f. o. b. Santa Ana, California. S. D. Teel, R. D. 3, Box 8.

Sweet Potato Plants—Yellow Jersey. V. Imbert, Norwalk, Cal. Tel. Downey 1186.

Sweet Potato Plants—Yellow Jersey, $3.00 per 1,000, f. o. b. E. W. Van Gorder, R. 5, Box 91, Santa Ana, California.

Pumpkin Seed — Mixed Pumpkin Seed, good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

HOGS

My Victor Herd — Headed by Blillken Chester Whites. For quality and big litters. E. E. Fulton, Box 7, Fair Oaks, California.

GOATS

For Sale—A foundation stock of 12 gentle goats. I took them on a debt and must sell goats. Can be seen at M. E. Dillingham Ranch. Make offer. E. S. Abbott, Box 776, San Gabriel.

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Has the endorsement of the ENGINEERS of all the Large Fruit Growers Associations of California—Therefore

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CALIFORNIA BREEDERS SALES AND PEDIGREE CO.
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Household Department

THE FLAG

By Arthur Macy In Youth's Companion

Here comes the flag.
Hail it!
Who dares to drag
Or trail it?
Give it hurrahs—
Three for the stars,
Three for the bars.
Uncover your head to it!
The soldiers who tread to it
Shout at the sight of it,
The justice and right of it,
The unsullied white of it,
The blue and the red of it
And tyranny's dread of it!
Here comes the flag!
Cheer it!
Valley and crag
Shall hear it.
Fathers shall bless it,
Children caress it
All shall maintain it.
No one shall stain it.
Cheers for the sailors that fought on the wave for it,
Cheers for the soldiers that always were brave for it,
Tears for the men that went down to the grave for it.
Here comes the flag!

CAPTAIN HAYDEN'S SUNDAY EXCURSION

By Margaret Condon

IN the three years that John Hayden and Robert Barton had been next-door neighbors they had been warm friends as well. This condition might have continued indefinitely had not Mr. Barton's chayote vine in its erratic wanderings encroached upon Captain Hayden's favorite rosebush.

The Captain, a bluff old sea dog, had brought with him from the bleak coast of New England a love for dogs and a passion for growing roses. His especial pet this season was a beautiful climbing La France, which he had trained on the high board fence between his yard and that of his neighbor. It grew and flourished in a manner that delighted his heart, and when the wonderful blooms opened and the fragrance from their waxy pink petals was borne by the morning breeze through the windows of his sleeping room the Captain was happy.

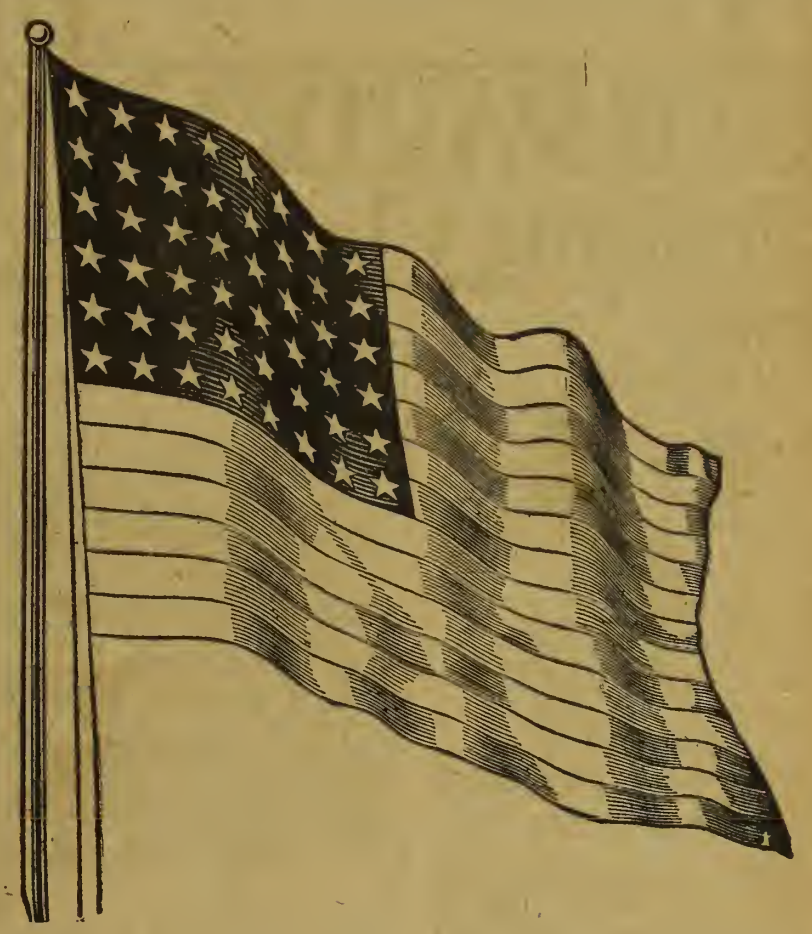
Then Mr. Barton, to checkmate "Old Man Hi," started a vegetable garden. This of itself would hardly have disturbed the even tenor of their way had not some one in an evil moment suggested to Neighbor Barton that the high board fence was an excellent place to train a chayote vine, and the innocent looking gourd with a green sprout at one end, which Mr. Barton planted carefully, gave no hint of the tragedy that lurked in its future development.

The summer was well advanced when Captain Hayden came out one morning to enjoy the sight and fragrance of his favorite hush. For several days the long tendrils from the chayote vine had been annoying him by creeping over to his side of the fence, and he had thrust them back where they belonged, but while he slept they had more than regained the lost ground and some of his choicest roses were now imprisoned in the toils.

"I say, Barton," the Captain called to his neighbor in the adjoining yard, "how much farther is that vine of yours going?"

"Doing fine, Captain, isn't it?" Mr Barton returned, a knowing grin expanding over his countenance.

"Fine!" the Captain snorted, in dis-



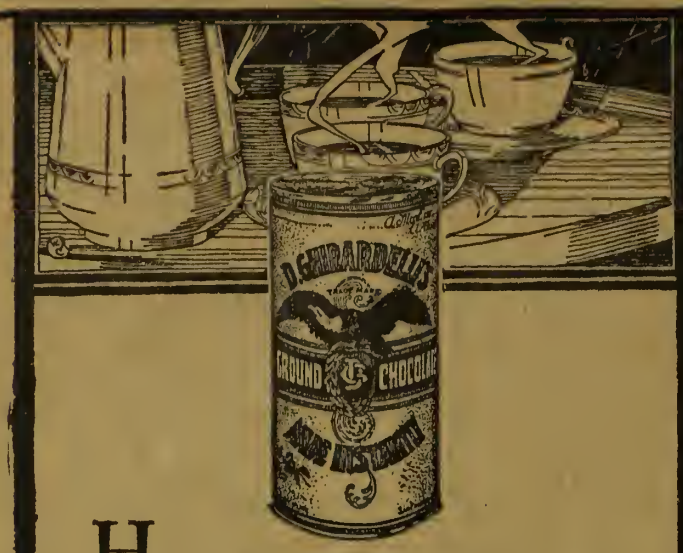
Flag Day---June 14

The Star Spangled Banner

Oh, say, can you see, by the dawn's early light,
What so proudly we halled at the twilight's last gleaming,
Whose broad stripes and bright stars, thro' the perilous fight,
O'er the ramparts we watched were so gallantly streaming?
And the rockets' red glare, the bombs bursting in air,
Gave proof thro' the night that our flag was still there,
Oh, say does that star spangled banner yet wave
O'er the land of the free, and the home of the brave.

On the shore, dimly seen thro' the mist of the deep
Where the foe's haughty host in dread silence reposes,
What is that which the breeze, o'er the towering steep
At it fitfully blows, half conceals, half discloses?
Now it catches the gleam of the morning's first beam,
In full glory reflected, now shines on the stream;
'Tis the star spangled banner, oh! long may it wave
O'er the land of the free and the home of the brave!

Oh! thus be it ever when freemen shall stand
Between their loved homes and the war's desolation;
Blest with vict'ry and peace, may the heaven-rescued land
Praise the power that hath made and preserved us a nation;
Then conquer we must when our cause it is just,
And this be our motto, "In God is our trust."
And the star spangled banner in triumph shall wave
O'er the land of the free and the home of the brave.



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Never sold in bulk—but in cans only.
In ½ lb., 1 lb. and 3 lb. sealed cans—
at the store where you do your trading.

Say "Gear-ar-delly"

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OF ANT EXTERMINATION -IS SOLVED BY KELLOGG'S ANT PASTE

-Makes Ants Disappear

All Druggists 25¢

Kill All Flies! THEY SPREAD DISEASE

Placed anywhere, DAISY FLY KILLER attracts and kills all flies. Neat, clean, ornamental, convenient and cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed.

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RHUBARB 90% of the Rhubarb grown in Southern California is Wagner's Improved Giant—Growers making over $1,000 first year. Splendid results in 6 months from planting. May, June and July best months to plant for crop next winter. Get plants true to name from the originator. J. B. Wagner, Pasadena, California.

The Stephenson Patent Cooler

No Ice Required

Absolutely Sanitary Perfect Ventilation

Awarded first prize wherever exhibited
If not for sale at your dealer's
Write for particulars and prices

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Martinez, Cal.

Save 1-2 on Fuel

CHEAPEST HEAT YOU CAN BUY

The Sievert Oil Burner burns either distillate or kerosene oil in cook stoves, heaters, furnaces, pasteurizers, boilers, prune dippers, dairy sterilizers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Install it yourself. Write for circular and prices on different sizes. Address Sievert Oil Burner Co., 710 North Main St., Los Angeles.

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

gust. "The danged thing is all over creation now. Why, man it grows yards in one night."

"Well, what do you expect in California?" was the rather crusty retort. "This isn't New England."

"Keep it on your own side of the fence then," the Captain responded, his wrath beginning to rise.

"I don't see that it's doing much harm, is it? That useless posy of yours takes up a lot of room too," returned Mr. Barton.

Captain Hayden's temper was getting beyond his control.

"Useless, is it?" he growled. "At least it stays where it belongs and doesn't annoy the neighbors. The devil! Look at that!"—as a long green tendril swaying in the breeze reached out under the Captain's nose and uncannily wound itself about a spray which bore several beautiful, half opened La France buds that were just peeping above the fence.

"Look here, Barton," the Captain continued, in emphatic tones, "I warn you I'm going to cut every one of your blooming sprouts that comes above the fence."

"I say you'll do nothing of the kind," retorted Neighbor Barton, getting wrathy in his turn.

"I say I will, and you can go to the devil, sir," Captain Hayden flashed back, and after some further exchange of personal remarks two estimable but childishly angry old men turned their backs upon each other.

In the weeks that followed the chayote vine grew and flourished like the proverbial green bay tree and went straying beyond control of its owner over into Captain Hayden's domain, to be angrily thrust back, often bearing decapitated pink roses in its grasp. The friendly intercourse that had existed between the heads of the two families was a thing of the past, but the destiny that dominates the affairs of men had to be reckoned with.

Robert Barton had a son of 23 and Captain Hayden had a niece a year or two younger, who had developed a fondness for each other. Since the depredations of the chayote vine had disrupted friendly relations the Captain had forbidden his niece, Cynthia, to hold any further intercourse with Fred Barton. But the young people laughed at the attitude of their elders, met when possible, and bided their time. The elder Barton was fond of Cynthia, and prior to the little unpleasantness with her uncle had come to look upon her as his future daughter-in-law. He entered no objection now, but stubbornly refused to make any friendly advances to the grouchy Captain. To all Fred's pleadings for an immediate marriage Cynthia turned a deaf ear, until some way could be found to placate her gruff but kindly old uncle of whom she was genuinely fond.

(Continued next week.)

ETIQUETTE OF THE FLAG

There are many citizens who are not familiar with the rules governing the use of the stars and stripes. To them the following hints on flag etiquette will be of interest:

The flag should not be hoisted before sunrise nor allowed to remain up after sunset. It should not be displayed upon stormy days.

When the flag is displayed at half staff for mourning it is to be lowered to that position from the top of the staff. It is afterward hoisted to the top before it is finally lowered.

When the flag is formally raised all present should stand at attention, with hand raised to the forehead ready for the salute.

When our national flag and state or other flags fly together or are used in decoration together our national flag should be on the right.

When used on a bier or casket at a funeral the stars should be placed at the head. In no case should the flag be allowed to touch the ground.

It is an unwritten law in the navy that the flag is never to be washed; it is always to be considered immaculate.

For indoor decorations the flag can only be used as a drapery; it cannot be used to cover a bench or table, desk or box where anything can be placed or set upon the flag.—Daughters of the American Revolution Magazine.

IF MOTHER IS THERE IT IS HOME

By Kate Price Powell, Highland

The Cultivator household department has received several tributes to "Mother" as the heart of the home from readers who did not see our announcement of the contest subject, wherein Mother and the the family were conceded to be everyone's first choice of the one thing essential to a home. From the contest were eliminated the family, the house, necessary furniture, food and clothing, and we were to discuss the little additional comforts and conveniences dear to our hearts.

Below we give one of these beautiful tributes to "Mother," which will strike a responsive chord in every memory.

The Cultivator page on "Homiest Homes, What Makes Them?" is one of deep interest. I read it today with enjoyment. But may I not add still another word, even though it involves a few personal lines?

When I was a little girl a great day came to our family, the day my older sister was to graduate from college. The family drove to town to witness the event, but my slightly older brother and I were thought too young to enjoy the occasion, so we were sent to spend the day with near by relatives. In the afternoon we grew tired of visiting and so set out for our walk home a little early.

To our dismay we arrived there an hour or so before the return of the rest of the family from town.

I can still remember the surprise and perplexity with which we regarded the comfortable farm house, set round about with giant locusts, which had always been our home. The door was closed, and it was a June day! We opened it timidly and looked in—there was the open fireplace with its wonderful dragons and witches chasing each other across the cool gray panels just below the mantelpiece. There was the easy chair on the side next the clothes press where the mending basket was kept. There was the light stand with the lamp and books and papers, the "singing book" from which a grown up brother taught us tunes and showed us how to keep time with him while we sang "Fair as the morning, bright as the day, visions of beauty fade not away." All, all inanimate things were there, yet we turned and fled into the apple orchard, down to the Red June tree, where we waited until we heard the noise of the family's arrival.

What was it that made home seem strange, and not home? It was because it was the only time in our childhood life that we had ever been there and Mother was not. Father can leave when business calls him; Sister can go away to school; Brother be off on a trip; the place may be rented or owned; children's voices the only music; but if a roof and Mother are there, it is Home—and Mother is the homiest thing in it.

THE HOMIEST THING

By Norma Marvin, Sacramento

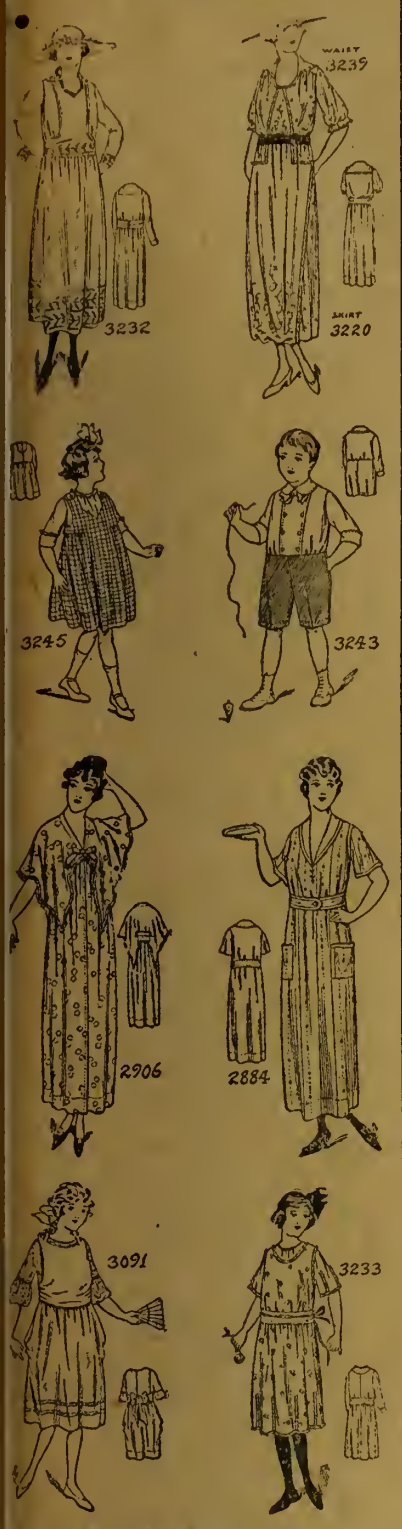
The one thing in my home which I take much interest in and get a great deal of pleasure from is my aunt's cabinet of pretty chinaware. It is in the living room. The whole front of the cabinet is made of glass and it has five shelves which are full of chinaware.

One reason why I think so much of them is because of the curiosity of them. Many of them were given to her by friends. I remember well how she got a cute little cream pitcher that I always thought so much of. My aunt was invited to a sewing bee, and the one that could thread the most needles in a certain length of time was to get a pitcher as a prize, and my aunt won it.

On top of the cabinet is a beautiful cut-glass punch bowl and 12 little cups that go with it. I always like to help shine them when they get dusty. Another odd set she has is a tankard and six steins, each with a different kind of dog's head.

She has a platter and six plates with different kinds of birds on them, and a beautiful hand painted sandwich platter. There are many more things, but I will not mention them. Once in a while we take the dishes all out and dust or wash them. I always like when that time comes. We use the dishes only on holidays such as Christmas, Thanksgiving, or New Years, or on special occasions. Then I like to set the table and wash the dishes. I always think it brightens up the home to see the pretty dishes and shining glass.

The Cultivator Patterns



BE SURE TO SEND SIZE

3232. Misses' Dress. Cut in 4 sizes: 14, 16, 18 and 20 years. A 16 year size will require 5⅛ yards of 36 inch material. The width of the skirt at lower edge is 1¾ yards. Price, 10 cents.

3245. Child's Dress with Guimpe. Cut in 4 sizes: 4, 6, 8 and 10 years. For a 6 year size 1½ yards of 27 inch material will be required for the guimpe, and 2⅛ yards for the dress. Price, 10 cents.

2906. A Comfortable Lounging Robe. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. Size Medium will require 5¼ yards of 36-inch material. Price, 10 cents.

3091. A Pretty Frock. Cut in 4 sizes: 8, 10, 12 and 14 years. Size 10 requires 4¾ yards of 27 inch material. Price, 10 cents.

3239-3220. An Attractive Costume. Waist 3239 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3220 cut in 6 sizes: 22, 24, 26, 28, 30 and 32 inches waist measure. A medium size will require 6⅜ yards of 38 inch material. The width of the skirt at its lower edge is about 1¾ yards. Two separate patterns, 10 cents for each pattern. Both, 20 cents.

3243. Boy's Suit. Cut in 5 sizes: 2, 3, 4, 5, and 6 years. A 4 year size will require 2½ yards of 27 inch material. Price, 10 cents.

2884. Ladies' Apron Dress. Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. A Medium size will require 4½ yards of 36 inch material. Width at lower edge is 2⅛ yards. Price, 10 cents.

3233. Girls' Dress. Cut in 5 sizes: 4, 6, 8, 10 and 12 years. A 10 year size will require 2 yards of 27 inch material for the guimpe, and 3 yards for the dress. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS: we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

THE HOMIEST THING IN OUR HOME

By Reader, Escondido

We are a family of six, living on a California ranch where all share work and pleasure alike. I think the thing that makes our home the "homiest" is the after supper hour when the family linger round the table and talk over the happenings of the day, tell new stories, or read something especially good and of interest to all. It takes something special to draw the boys away from home in the evening. (We have no girls.) When our eldest boy finished school and went away from home to work, he invariably walked home after supper and stayed until bed time. Now he is in Uncle Sam's employ and writes lovely long letters home from foreign shores, seldom referring to his troubles, but giving interesting descriptions of his work and experiences. These letters are much prized by the family and are read aloud after supper. Although he is thousands of miles away he seems very near at this time. Our pleasant hour usually breaks up with something like this: "Well, come on Dad, let's get our algebra." So while fireplace and music and auto and bathtub all fill a big place, I have a feeling that our "after supper hour" has done more toward "making ties that bind" than all the rest.

PLANT FLOWERS

By Mrs. Wm. Wright, Orland

I, too, remember with a thrill of pride the new piano and the other new furniture with which we furnished our first real parlor. Then the open fireplace, around which the family gathered on cold wintry evenings and made merry as only large families can make merry. But that which above all others I believe brings the air of "home" to a mere "house" is flowers, and by that I mean vines and shrubbery too.

In city or country, whether it be a mansion or cottage, if it be in a setting of flowers and vines it invariably brings forth an exclamation of delight from those who pass by. The hands of man may tend and care for them but we are amazed at the miracles which unfold before our eyes day by day. We are brought to realize that a higher power than mere man first made these things possible.

But all these gifts from God are for rich and poor alike, and no one need be without them for lack of money. So let us plant flowers and more flowers and thus bring peace and contentment to our homes.

THIS WEEK'S PATTERNS

The warm days bring out the cool clothes, and if the supply is short—as it generally is—one begins to think of selecting some cool lawns, pulling out the machine, oiling it and putting it in order and making a dainty dress or two for mother and girls.

3239 is an exquisitely dainty affair of embroidered batiste and lace that any girl or woman would love. Note that it requires two patterns, one for waist, one for skirt, the two costing 20 cents.

The cool looking negligee 2906 with its butterfly cape or collar will make the rest hour a time of dainty delight. Made of easily laundered soft material it will be a joy forever.

3245 is the ever practical guimpe style for little girls. The jumper made of blue and white checked gingham with guimpe of white can be kept fresh and dainty looking very easily.

The pattern 3243 for practical little boy's waist and trousers will be needed to replenish Small Brother's supply of well-worns.

Still another of the Cultivator's practical house dresses is shown in pattern 2884. Easily made, easily laundered, easily worn—try it.

HOUSEHOLD QUERIES

A Flower Hint

Sometimes in arranging iris, gladiolus and other stiff stemmed flowers in vase or jardiniere, they will all fall to one side. It is difficult to find a flower holder with large enough holes or of small enough bulk to fit the case. Here is a solution:

Crush together into a ball a piece of ordinary chicken wire fencing, place in jardiniere and in it thrust stems of your tall stiff flowers. It works! —Cultivator Reader.

1880-1920 **Barker Bros.'** 1880-1920

Fortieth Anniversary Sale
And Annual
Midsummer Clearance

which opened Tuesday, June 1st, with $1,453,000 worth of Furniture and Home Furnishings offered at most decisively lowered prices involving

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These two classes are: 1, Those who plan to come to Los Angeles to enjoy their annual vacation in the city or at the near-by beaches; and, 2, Those who plan to stay home and enjoy a vacation under the roof of their own home.

Those who come to Los Angeles on their vacation during this Sale and Clearance will find the lowered prices—the savings to be enjoyed on merchandise throughout this store—of such extent and reality that it will be possible in many instances to pay the expenses of their vacation from the savings in cost on their Furniture purchases. Or these savings might mean a longer, better vacation.

Those who will not be in Los Angeles for their vacation this summer, who have decided instead to stay at home and create their own enjoyment by "doing over" some part of their home's furnishing, through a renewal of part of its Furniture, its Floor Coverings or its Draperies, have the same opportunity to save, to enjoy the reduced prices of this sale. It is their privilege to buy by mail at exactly the same favorable sale prices and terms as those able to come to the store in person.

Barker Bros.' Mail Order Department serves thousands every month who find it impossible or impractical to come to Los Angeles. It brings this great, interesting store right to your door—it serves you with the same consideration and courtesy as though you were here in person—it brings you the benefits at this time of reductions in price on more than ten thousand pieces of furniture.

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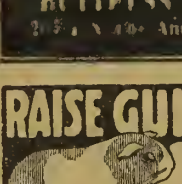

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Los Angeles Markets

Los Angeles, June 9, 1920.

BUTTER

Butter, creamery extras. Produce Exchange price 54 cents.

Dairy Exchange prices last week on extras:

June	2	3	4	5	7	8
'20 ...	54	54	54	54	54	54

CHEESE

Brokers' prices:
California flats, 27 per lb.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 44 per dozen; case count Produce Exchange closing price, 41 per dozen; pullets, Produce Exchange closing price 37 per dozen; pewee pullets, 31.

Dairy Exchange prices last week on extras:

June ..	2	3	4	5	7	8
'20 ...	43	43	43	43	45	44

POULTRY

Price to producers: Hens, lt., 21; heavy, 26@28, broilers, 24; roasters, 38; old roosters, 14; fryers, 33; ducks, old, 17, ducklings, Pekin, 3½ up, 20; others, 17; gecse, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 16; old, 9.

LIVESTOCK

Los Angeles, June 8 — Weighed and delivered off cars without food or water:

Hogs (hard-grain, 125 to 175 lbs., 15.50; 175 to 225 lbs., 16.50.

Cattle (on foot, gross weight)—Steers, good, 11.00@11.50; medium, 10.50@11.00; cows, good, 9.00@9.50; medium, 8.50@9.00; bulls and stags, 6.00; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

Shippers predict an early slump in potato prices. So far the heavy lots of old potatoes expected have not reached the Eastern markets, being 15,000 cars less than at same date last year. This has kept prices up. But at same date in 1919 but 3,998 cars of new potatoes had been shipped as against 6,145 cars this year. As shipments of new potatoes are daily on the increase it is not thought present prices can hold. Added to heavy receipts the bureau of crop estimates reports an increase in acreage of early potatoes of 52,000 over that of last year, or about 26 per cent. Two-thirds of this increase comes from Virginia alone, and the crop is late, owing to cool weather. But as Virginia shipments will be active by June 15, present prices must tumble.

These are the actual prices obtained between 7 and 8 o'clock, June 8 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Old stock, practically no supplies; too few sales to establish market. New stock, market slightly weaker; local Early and White Rose, No. 1's, 2.75@3.25; No. 2's, 1.00@1.90 lug, according to size; cwt. sacked, No. 1's, 7.50@8.00; mostly 7.75@8.25.

Carlots: Old stock: Supplies practically cleaned up. Too few sales to establish market. New stock: Sales to jobbers, mostly 2.75 per lug; sacked, mostly 7.50@7.75.

Onions: Supplies of Wax, heavy; Yellow, moderate; wide range in quality; some slippery; demand and movement slow; market weak. New Stock: Imperial Valley and Coachella Valley: Wide range in prices. Bermudas, best, $1.25@1.50 per crate; lugs, 75@1.00. Crystal Whites, best, per crate, 1.25@1.50; lugs, mostly 75@1.00; sunhurned and decayed at all prices.

Carlots: Demand and movement slow; wide range in condlton; many sunburned; market weak. Coachella Valley. Standard crates, Yellow Bermudas and Crystal Wax; sales to jobbers, best, 1.00; poorer, low as 25.

Garlic: lb., 40.

VEGETABLES

These are the actual prices obtained June 8 by the Los Angeles wholein their sales to retallers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., best, 1.00@1.50.

Asparagus: Supplies moderate. Delta section: Best, 10@12; local, 15@17.

Beans: Wax, lb., 5@6; Ky. Wonder, 7@9: few 11.

Beets: Doz., 40@50; sk., 2.25@2.75.

Cabbage: Supplies heavy; market weak; movement slow; wide range in quality; best, 1@1½ per lb.; per field crate, best, 75@1.00; others, low as 35. Red, 4@5 per lb.

Carlots: Few sales. Carloads f. o. b., usual terms. Cannonball and Winningstadt, per ton, mostly 20.00; mixed cars, 20.00@25.00.

Carrots: doz.,40@50; sk., 2.50@2.75.

Stock: 1.40@1.70 per box.

Corn: Valley, 2.00@2.50 box; local, 3.00 box.

Cucumbers: Market steady; local, best, box 1.40@1.70.

Egg Plant: Best, lb., 18@25.

Lettuce: Supplies heavy. Crates, best, mostly 60@75.

Carlots: Few shipments; mostly on consignment. Few sales, straight and mixed cars, 1.50@1.60 per crate.

Parsnips: Lugs, 1.00@1.50; sacks, 3.00@3.25.

Peas: Local, lb., 5@6; poorer low as 3; Northern: lb., 8@10.

Rhubarb: Strawberry, bx., 1.00@1.25.

Spinach: Doz., 20@30: lb., 2.

Squash: Imperial Valley, market steady, local summer, large lugs, 75@1.00; smaller boxes, 65@75.

Tomatoes: Imperial and Coachella, supplies heavy; market weaker; cr., best, 1.25@1.50.

Carlots: Supplies heavy; demand and movement moderate; market weaker. Sales to jobbers: 4 basket crates, mostly 1.25.

Turnips: Per dozen, 40@50; per sack, 2.00@2.25.

FRUITS

These are the actual prices obtained June 8, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Apricots: 8@12 lb.

Bananas, 10; Red, 10.

Blackberries: Supplies light; per crate, mostly 4.00@4.50.

Cantaloupes: Market lower; supplies light. Imperial Valley: Standards, 3.75@4.00; Ponies, 3.00@3.25; flats, 1.75@2.00.

Carlots: Haulings decreasing on account of car shortage. Cars insufficient to handle today's offerings. Demand moderate, quality and condition good, constantly improving. Carloads f. o. b. cash track, very few sales; standard crates, 45's, 2.25@2.50, mostly 2.25; crates ponys, 45's, salmon tints, 1.75@2.00; some sales on wire orders; crates, stds., 45's, 2.75@3.00; crates, pony's, 45's, salmon tints, 2.25@2.75.

Cherries: Supplies liberal; market strong; various varieties; best, mostly 18@20 per lb.; few high as 24; poorer, low as 8.

Gooseberries: lb., 9@12.

Loquats: Best, mostly 12@15; poorer low as 7 per lb.

Raspberries: cr., 3.50@4.00.

Grapefruit: No carlot arrivals; California: per box, 4.00@4.50; Seedlings packed, 2.50@3.25; loose, 2.00@3.00.

Lemons: No carlot arrivals; market firm; local stock: Packed, 3.40@4.25; loose, 2.00@2.25; 2@3 per lb.; juice, 2.00@3.00.

Oranges: No carlot arrivals; supplies liberal. California Navels, best brands, packed, 80's to 100's, best, 4.00@4.75; 126's to 150's, best, 5.00@5.50. Local market; packed, 80's, 3.50; 96's, 4.00; large sizes, low as 2.25; lugs—culls—mostly 1.50@1.75. Valencias; packed brands, 100's, 4.50; 126's, 5.00; 150's to 176's, 5.25@5.50. Local packed, 3.75@4.25.

Strawberries: No arrivals. Local: Market firm. Per crate, 3.50@5.00; per tray, 2.00@2.50.

Watermelons: lb., 3½@4.

lliberal. California Navels, best brands, packed, 80's to 100's, best, 4.00@4.75; 126's to 150's, best, 5.00@5.50. Local Market: packed, 80's, 3.50; 96's, 4.00; large sizes, low as 2.25; lugs, culls, mostly 1.50@1.75. Valencias: Packed, special brands, 5.00@5.50; local packed, 3.75@4.25.

HONEY

Demand exceeds supply, movement limited, market higher. Old honey practically exhausted, new supply not on market for about two weeks. Carloads f. o. b., usual terms. Light amber sags per pound, 18; light amber alfalfa, 17. Beeswax, l. c. l. lots. 40@42.

BEANS

California Lima Bean Growers Association:

There is not much new information relative to the lima and baby lima bean market, with the exception of a very small amount that may be returned as unused seed. The baby limas are completely sold nearly two weeks ago, although part of these sales were for last of June shipment. The selling of the last of the baby limas has not appeared to materially stimulate the market price.

The association's price on regular limas has for two weeks past been on the basis of 12 cents coast, with 12 per cent bonus in beans, or equivalent to about $10.71 per hundred weight, f. o. b. coast. Sales were very free during the last half of May with the expected result of lighter demand during the first week of June, but buying still continues and the stocks have not been reduced to a point where it seems certain that all will be sold and shipped before harvest time.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers t. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	25.00@27.00
Barley	18.00@20.00
Alfalfa	23.00@27.00
Barley Straw	8.00@10.00

Alfalfa Growers of California, under date of June 9, say:

"The market for alfalfa hay this week continued firm with very good demand at full previous prices for spot lots, while prices for shipment within 30 days advanced fully $2.00 a ton; they are now almost up to the prices for spot lots.

"We referred in our last week's report to the tendency among growers in many parts of the state to reduce their alfalfa acreage in favor of better paying crops. That this tendency is not confined to California is evidenced by a press dispatch from Pheonix, Arizona, a few days ago, telling of the shrinking of alfalfa acreage and of the serious plight into which the dairy industry of Salt River Valley has been thrown by the spread of cotton growing. The article then gives particulars about the closing down of the largest creameries there on account of the inability to secure the milk supply from a valley that, only two years ago, had 60,000 milk cows, most of which are now gone.

"We have been asked to state the position of the Growers Association in relation to the hay dealers. The association is not antagonistic to the dealers; these middlemen are necessary as distributors of the hay and the association has no intention to attempt displacing them by undertaking the retail distribution, excepting in so far as existing local conditions make it logical and necessary to do so.

"The dealers, in order to be able to carrry on their work of distribution successfully, are of course, entitled to a corresponding profit and the association does not begrudge them this profit as long as the grower also gets a square deal on basis of live and let live. We believe that the middleman is an enemy to the grower only when he is fattening himself by starving the grower and even then the dealers as a class, are probably not as much to blame as is the competitive system to which we are all subject; this system compels the dealer to buy as cheaply as he can regardless of cost of production, in order to meet competition. and it is therefore, the task of an association like ours to prevent that grower from being the helpless victim of these conditions."

Prices on hay in southern districts:

Los Angeles prices as named this week:

Rabbit Alfalfa	38.00
No. 1 Dairy	33.00
Standard	30.00
Stock	28.00

GRAIN AND FEEDS

Price bid local grain exch. cwt., June 8:
Barley: Carlots, 2.72@2.75.
Milo: 2.70@3.11¼.
Wheat, mixed feed: Utah-Idaho, 6.20.

San Francisco Markets

San Francisco, June 8, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	54¼
Prime Firsts	52½

Extras past wk. and year ago:

June	1	2	3	4	5	7
'20 ...	54½	54	54½	54½	54½	54½
'19	57	57	55	56	57½	

Rcts. wk. ending June 8, 6,657 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	28½
Ore. Trips	32
Cal. Flats	29

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	45½
Firsts	41
Extra pullets	37½
Undersized	32

Extras past week and year ago:

June	1	2	3	4	5	7
'20 ...	45	46½	46½	45½	45½	45½
'19	49	49	47½	46	49½	

Rcts. wk. ending June 8, 598,478 dozen

POULTRY

Wholesale prices are:

Leghorn, 28@30; large, 33@35; roosters, young, 45@50; old, 18@20; broilers, 29@31, fryers, 33@35; turkeys, live, 37@40; dressed, 48@50.

Ducks, Indian Runner, 23@25; Pekin, 28@30. Squabs, 55@60; pigeons, doz., 2.35@2.50.

Belgian hares, live, 22@25; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Cattle: Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 9@10½; do, 1,200 to 1,400 lbs., 8½@9½; do, second quality, 7@9; thin, 6@7.

Bulls and stags—Good, 4@4½; fair, 3@3¾; thin 3@3½.

Cows and heifers: No. 1, 7½@8; second, quality, 6@7; common to thin, 3@4.

Calves—Lightweight, 10@11; medium, 8@9; heavy, 7@8.

Lambs: Milk, 10@10½; yearling, 8½@9.

Sheep: Wethers, 8@8½; cwes, 6½@7.

Hogs—Weighing 100 to 150 lbs., 14¾; 150 to 225 lbs., 15¾; 225 to 300 lbs., 15¼; 300 to 400 lbs., 14¼.

Virden Packing Company quotes prices on live stock, weighed and delivered off cars at their plant, South San Francisco, as follows:

Cattle: Good steers, 1000 to 1100 lbs., 10@10½; top steers, 1100 to 1200 lbs., 9@9½; good heifers, 1200 lbs. and over, market price; good cows and heifers, 7½@8; No. 2 cows and heifers, 6½@7; canner cows, 3½@4; good bulls, 4½@5.

Calves: Light, 13@14.

Hogs: Top packer, hard and well finished: 100 to 150 lbs., 14¾; 150 to 225 lbs., 15¾; 225 to 300 lbs., 14¾; over 300 lbs., 14; under 100 lbs., 13½.

Ewes: Full wool, 7@8.

Wethers: Full wool, 9½@10.

Yearlings: 10½@11.

Milk lambs: 60 to 70 lbs, 10@11; over 70 lbs., 9@10.

POTATOES

Potatoes: River, old stock, 9½@10 per lb.; new rivers, in boxes, 8.00@8.50; new garnets, 7@8 per lb.; whites, 8@9 per lb.; Turlock sweets, 10 per lb.

ONIONS

Onions: New reds, 1.25@1.50; white the same: green onions. 1.50@1.75. Garlic old, 20@25; new, 15@17½.

VEGETABLES

Wholesale selling price:

Artichokes, 1.00@5.00.

Asparagus: lb., white, 6@10, graded, 10@12; gr, 4@7.

Beans: lb., string, 5@6; wax, 7@8.

Celery: cr., 3.00@3.75.

Cucumbers: Eng., doz., 1.50@1.75; hothouse, bx., 2.00@2.25.

Corn: doz., 50@70.

Lettuce: L. A., 90@1.50 cr.

Peppers: Bells, 20@25 for large, 5@10 for small; chill, 12½@25.

Peas: lb., green, 3@5.

Radish, 7@9 doz. bunches.

Rhubarb: bx., 1.25@2.00.

Spinach: lb., 6.

Squash: Summer, cr., 1.25@1.75.

Tomatoes: Brawley, cr., 1.50@2.25.

DECIDUOUS FRUITS

Apricots: Imperial Valley, Los Angeles lugs, 7@11 per lb., 1.75@3.25 per crate.

Bananas: lb., 8@9½.

Cantaloupes: Ponies, 3.50@4.25; standards, 5.00@6.00.

Cherries: Black, 1.00@1.50 per drawer; loose, white, 5@11; blacks, 8@14 lb., according to quality.

Figs: 1.00@1.25 for white and Brunswick per box of one layer.

Gooseberries: lb., 7@9½.

Loganberries: Red, dr., 85@1.15; Black, 85@1.10.

@1.10; small, 45@65.

Peaches: 1.75@2.00 per crate; boxes, 1.50@1.75; Tulare, 2.00 per crate.

Pineapples: Doz., 3.00@5.00.

Raspberrics: dr., 1.40@1.70.

Strawberries: Peninsula, dr., large, 65

Watermelons: Imperial Valley, lb., 12½.

CITRUS

Box: Lemons, standards, 2.50@4.7; lemonettes, 1.00@1.25: grapefruit, 2.00@3.50; navel oranges, 4.00@6.50.

San Francisco, June 1:

DRIED FRUITS

Prunes:

Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to size, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On small sized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade: September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.

Stifel's Indigo Cloth
Standard for over 75 years
Ask for
OVERALLS and
COVERALLS
made of Stifel Indigo Cloth.
It's the brawny, "muscular" material that is made into color-fast, wear-ever work clothes. The dots and stripes of Stifel's Indigo Cloth positively will not break in the print.
This little STIFEL mark on the back of the cloth inside the garment is your guarantee of the genuine

Your dealer can supply you. *We are makers of the cloth only.*
J. L. STIFEL & SONS, Indigo Dyers and Printers
Wheeling, W. Va. 260 Church St., N. Y.

BETTER SHORTHORNS

Among Shorthorn cattle breeders there has been a general effort to obtain still higher class bulls, the purpose being to produce still better Shorthorns. Already the results are in evidence and next year there will be a more marked improvement. Price hasn't been considered. The best this country affords and the best obtainable in the British Isles have been secured. Shorthorn men are getting ready for a world-wide demand which is in prospect.

Ask for Literature

AMERICAN SHORTHORN BREEDERS' ASSOCIATION
13 Dexter Park Ave. Chicago, Illinois

Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.
For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special "practically peeled," 16¾c per pound, bulk basis.
Apples:
Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.
Figs:
White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.
Pears:
Standard 20, choice, 22½; extra choice, 24; fancy, 26@27.

WALNUTS

Net prices have been named by California Walnut Growers' Association.
No. 1, 31½.
No. 2, 26.
Diamond Brand Buds, 34.
Golden State Buds, 34.
1918 No. 1 price was 28; fancy budded, 31½.

BEANS AND PEAS

California Bean Growers Association, San Francisco, June 1:
For the past month the general market for California beans has been quite active, although within the last ten days there has been a slight cessation of buying, due principally to the unsettled condition of the money market. The banks have again increased their interest rates and are not making loans for speculative purposes on any food products. This has had the effect of preventing eastern buyers from purchasing for August and September shipments.
Michigan beans are selling at $8.00 f. o. b. Michigan and there is every indication that this price will remain firm as their stocks are not large and will be moved before the new crop comes in.
There is a general feeling that in August and September there will be a heavy demand for California beans, as it has become pretty generally known that the 1920 crop is likely to be unusually short on account of decreased acreage planted.
Kotenashis have been held fairly strong until the past week when several of the importers who had sold short endeavored to break the market by offering out at low prices and not confirming. Kotenashis are selling at the present time at $5.15 to $5.25 in bond, San Francisco.
California beans are being offered at the following prices for shipment:

Large Whites	6.30@ 6.60
Small Whites	6.00@ 6.25
Mexican Reds	9.00@ 9.50
Red Kidneys	14.00@14.50
Bayos	10.25@10.50
Blackeye	8.25@ 8.50
Pinks	6.50@ 6.75
Cranberries	6.50@ 7.00

Dried Peas: California, 5.00@5.25 cental.
Lentils: California, 11@11½ per lb.; Chile, 12 per lb.

HOPS

1919 crop, 1.00@1.05 per lb. Prices to growers for 1920 crop, 75@80 per lb.

HONEY

Old crop is scarce and hard to quote. New white orange extracted is 21, f. o. b.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

	Per Bus.	Per Cen.
Hard White—		
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51½
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.58
No. 3	2.00	3.48 1-3

The above are minimum prices.
For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.
Oats: Red feed, 3.10@3.20.
Corn: California yellow, 3.70@3.75 per cental; Egyptian white, 4.25@4.35; California milo maize, 3.45@3.50; Eastern milo maize, 3.15@3.25.
Barley: No. 1 feed, 3.00@3.10.

HAY

Under date of June 5, Scott-Magner, Miller, say:
Miller, say: Receipts past week, 749 tons. Receipts have consisted principally of old grain hay and new alfalfa. The car situation is bad, there being a shortage noticeable already. Railroad authorities say there is no prospect for some time to come of anything other than severe shortage of cars. Cutting and baling is progressing in nearly all sections and considerable grain has been cut for hay in some places through the fear that it might not fill if left for grain. This will materially increase the amount of hay on hand when a general summary is taken. Very little general buying has been done, farmers holding for prices far in advance of most dealers' and consumers' ideas for new crop. New first cutting alfalfa probably will be ready for market within the next two or three weeks. First cutting has been practically disposed of. We are only quoting old crop as yet because the new crop has not come to hand. During the coming week some will probably come to market and quotations will be made. Country trade is practically nominal as most districts have more or less local hay which is traded before buyers come into the open market for supplies.
We quote today wholesale prices in carload lots (old crop) as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.)

Fancy wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat and Wheat and Oat hay	35.00@38.00
No. 2 Wheat and Wheat and Oat hay	32.00@35.00
Choice Tame Oat hay	37.00@40.00
Wild Oat hay	Nominal
Other Tame Oat hay	33.00@37.00
Barley hay	Nominal
Alfalfa hay new	25.00@30.00
Alfalfa hay, old	30.00@32.00
Stock hay	29.00@32.00
Oregon Cheat and Oat hay	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Citrus Markets

Los Angeles, June 8, 1920.

Valencias are commanding a higher price and meeting exceptionally rapid sale. There is an occasional car of Navels still offered. These are usually pulled from cold storage.
Grapefruit is keeping badly and commanding exceptionally low returns. Lemons are bettering slightly.

Shipments

Shipments to date from Southern California since November 1, 1919: Oranges, 20,848 cars; lemons, 4,755; total, 25,603. To same date last season: Oranges, 2,4106; lemons, 6,130; total, 30,236. From Central California to date this season: Oranges, 5,338; lemons, 288; total, 5,626. To same date last season: Oranges, 3,590; lemons, 251; total, 3,841. Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

June 3

New York: 42 or., 1 lem. Nav. 2.50-5.60, Val. 3.20-7.50, Sweets 3.25-4.18, St. Mike 2.45-5.40, Seeds 3.20-3.95, Grapefruit, 2.00-2.75.
Pittsburgh: 9 or., 2 lem. Nav. 4.50-4.60, Val. 3.30-5.60, Sweets 4.05-4.45, Seeds 2.30, lem. 1.30-3.30.
Boston: 20 or., 3 lem. Nav. 2.60-4.95, Val. 3.40-4.85, Seeds 80-2.95, Sweets 1.55-3.70, lem. 2.40-5.45.
Philadelphia: 15 or. Nav. 2.70-3.40, Val. 2.65-4.95, St. Mike 2.50-4.95, Sweets 2.20-3.30, Grapefruit 1.30.

June 7

New York: 54 or., 3 lem. Nav. 3.54-6.00, Val. 3.10-6.65, St. Mike 3.85-5.85, Sweets 3.15-4.65, Seeds 2.65-4.40, Tang. 3.55, lem. 1.75-4.50.
Boston: 31 or., 7 lem. Nav. 2.60-5.70, Val. 3.30-5.60, Sweets 2.40-3.65, Grapefruit 1.85-2.30, lem. 1.65-5.00.
Pittsburgh: 17 or., 5 lem. Nav. 2.75-5.00, Val. 3.95-6.10, Seeds 3.10-4.80, lem. 1.90-4.30.
Cleveland: 15 or., 3 lem. Nav. 2.75-5.35, Val. 3.95-6.85, lem. 2.45-4.10.
Cincinnati: 6 or., 3 lem. Val. 2.50-4.70, Sweets 2.60-7.05, lem. 1.85-3.50.
St. Louis: 8 or., 3 lem. Val. 2.80-4.10, Sweets 2.05, lem. 1.60-4.55.
Philddelphia: 12 or., 2 lem. Nav. 5.15, Val. 3.00-6.00, St. Mike 6.35-7.00, Grapefruit, .60-.70, Seeds 3.85-4.75, lem. 2.25-3.90.

June 8

New York: 29 or., 2 lem. Nav. 4.10-5.60, Val. 3.50-8.65, St. Mike 3.60-6.65, Bloods 3.35-3.90, lem. 4.15-5.00.
Philadelphia: 9 or., 2 lem. Nav. 2.55-4.80, Val. 2.70-6.25. Sweets 2.75-4.00, St. Mike, halves, 3.10-3.45, Seeds 3.00-4.50, lem. 1.30-2.10.
Pittsburgh: 6 or., 1 lem. Nav. 2.70-4.95, Val. 4.65-5.90, Seeds 3.10, lem. 2.90-3.65.
Boston: 20 or., 5 lem. Nav. 2.65-5.50, Sweets 1.95-3.75, Seeds 3.65-3.90, Grapefruit .90-1.25, lem. 1.10-2.45.

MARKET NOTES

Commercial acreage of early potatoes in the United States, as reported by the bureau of crop estimates, shows an increase of about 52,000 acres, or approximately 26 per cent more than last season. Two-thirds of the increase is supplied by larger planting in Virginia. The crop in that state and in Maryland is backward on account of cold, dry weather, and movement will probably not be active until after the middle of June. The estimate for 1920 of 253,037 acres is above normal as compared with an average crop of 234,940 acres during the previous five years.
Onion markets in cities of the East and Middle West are heavily supplied. Bureau of markets reports under date of June 8:
Eastern markets, weak and unsettled, and the general price range lost about 75 cents to a close of $1.25-$2.00. Middlewestern markets dull and weak, losing 50 to 75 cents, closing at $1.00-$2.00 per standard crate. Sales to California shipping points were at $1.15-$1.50 per standard crate, carloads f. o. b., cash track, with demand poor. Values in consuming markets ranged $1.50-$2.25. The heaviest movement is from Texas, and is slightly below 500 cars per week. This is about twice the rate of movement from California. Indicated total acreage of onions is 40,160, compared with 39,785 acres last year."

MORE AND BETTER POTATOES

The potato growers of San Bernardino County recently met at the farm bureau office and organized a San Bernardino Valley Potato Growers Association to operate under the auspices of the San Bernardino County farm bureau. As to marketing the crop, arrangements were made to handle entirely through the California Vegetable Union. Other organizations affiliated with the marketing association are the San Gabriel and San Fernando Potato Growers Associations and the association at Shafter, Kern County.

WEATHER REPORT
San Francisco, California, June 5, 1920.

Stations	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	.00	22.03	45.24	68	42
Red Bluff	.00	10.60	24.07	94	56
Sacramento	.00	8.85	19.99	92	54
San Francisco	.00	10.42	22.15	82	49
San Jose	.00	8.63	16.74	90	42
Fresno	.00	8.21	9.64	96	55
San Luis Obispo	.00	14.81	20.47	82	44
Los Angeles	.00	12.50	15.57	78	56
San Diego	.00	8.88	10.01	70	58

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on Labor Saving Implements

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MEYERS HAY UNLOADERS
Double track, pulleys, jacks, forks, complete. Equip your harn now and save labor. Regular price $18. Sale Price only $12. (This is the 1917 price).

WARD FORCE PUMPS
for power or hand. Fit any well, regular price $24; sale price $12.25.

CUT PRICES ON GASOLINE ENGINES
1½ H.P., One Minute. Regular price $100, sale price only $50.
3 H.P. Greyhound with Hurst Spray Pump attached. Regular price of the two, $185; sale price, $110.
Other Engines to be sold on the same basis.

SPRAYERS REDUCED
20 gallon wheel driven Hurst Tree, Vine and Vegetable Sprayer, list price $52.50; sale price only $32.50.
50 gallon barrel Sprayer, No. 14 wheel driven, including pump, barrel and cart complete. Regular price, $82.50; sale price $50.

PRICES ON WALKING PLOWS ADVANCED 25% TO US MAY 1ST
We have a few on hand at the old price—the genuine South Bend Co. Implements and WE CARRY REPAIRS. No. 40, 10 inch, price cut from $31.50 to $18.50. Steel Beam, $19.50. All sizes in stock.
Pilot No. 4 South Bend Riding Sulky Plows, regular price, $140; sale price only $65.

MOWING MACHINES
5 ft. and 6 ft. Plano Mowers; sale price, $65 and $70. Regular price $112.

CAST ANVILS AT 15C PER POUND
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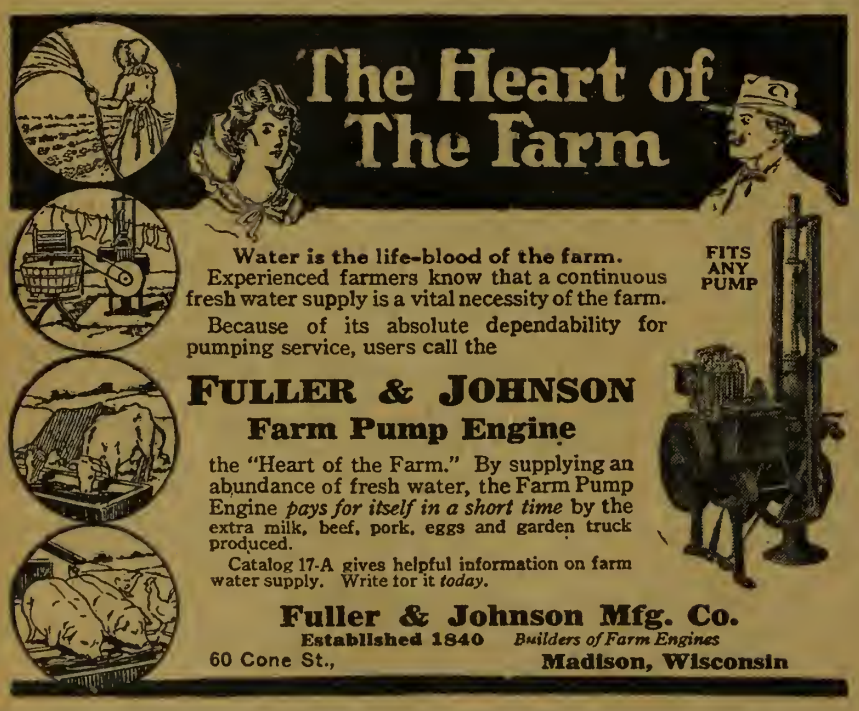
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It's the Cockerels That Count

By Jean A. Koethen

PEDIGREEING cockerels, Mr. James Keppie believes, is the only way to make progress in building up a high producing strain of fowls. Mr. Keppie is manager of the Waldeck Ranch at Burbank, and has spent 16 years studying the principles of breeding, 14 at Petaluma and two in Burbank. For a time he was associated with Walter Hogan, and while he acknowledges that the Hogan system has its merits he will not admit for a moment that it can take the place of trapnesting.

Trapnests Pullets Only

On the Waldeck Ranch all promising pullets are trapnested for a year. A year's record is considered sufficient and the pullets that make good during the pullet year are put into the breeding pen at its close. Last year all pullets averaged 180 eggs for the year and 115 eggs for the first six months. The highest hen laid 282 eggs in 12 months.

A hen is expected to do more than half her year's laying the first six months. Hen No. 8, the highest pullet, and the one that reached 282 eggs by the end of the year, laid 160 eggs in six months. Hen No. 78 laid 139, Hen No. 32, 129, and Hen No. 23, 131 eggs.

Pays to Trapnest

Five hundred pullets hatched last March (1919) were in the trapnest house the day I was there, and 800 hens that had made their record last year were in the breeding house. The income from these 800 hens for March and April was $30 per day, an average of $1.12 per month for each hen. This income was not from commercial eggs but from hatching eggs at eight cents apiece. Thirty-five thousand chicks were shipped the past season.

Hen Hatched Cockerels

All cockerels intended for breeders are hatched under hens and a special yard is set aside for the 80 Rhode Island Red mothers. Male birds hatched and brooded by hens show stronger vitality than those hatched and reared artificially. The difference may not be apparent at first, but the hen hatched males hold out better and are in better shape at the end of the season. Incidentally the hen raises a larger per cent of the chicks hatched. On the Waldeck Ranch 96 per cent of the hen brooded chicks live to maturity, as against 85 per cent of those artificially reared.

All eggs from hens that have laid 260 eggs or over during their pullet year are hatched under hens, and the cockerels are kept for the breeding pen. These cockerels are mated to the high record hens of the year before and the daughters are expected to show higher fecundity than their mothers. In order to effect real improvement Mr. Keppie believes high producing mothers as well as pedigreed cockerels should be used. Mating these pedigreed males to low producing females will never raise the standard of the flock.

In order to secure cockerels of still better pedigree eggs were bought this year from the Tancred ranch in Kent, Washington, at $30 per setting. The cockerels from these eggs will be mated to the highest record hens from the hatch of March, 1919.

Clabbered Milk for Chicks

Two cows are kept mainly to supply the little chicks with sour milk. This milk, when it is clabbered, is put before them in water fountains and is kept before them every afternoon from the very first. A commercial chick mash is the first feed. After four days on mash commercial chick grain is placed before the chicks, but whatever else they have, they always have milk. No moist mash is fed to chicks, but the older hens are given during part of the season a mash moistened with milk. Breeders receive dry mash only

Wide Ration for Breeders

The mash kept before the breeding stock has a wider nutritive ratio than that given the layers. One commercial mash is bought for all, but to this laying mash is added about eight per cent oat chop. This addition reduces the proportion of animal food to ten per cent, which is high enough for breeders. Eighteen per cent is allowed the layers.

Kale for Greens

The main difference between poultry methods in Petaluma and those in Southern California, Mr. Keppie says, is that in Petaluma kale is the main dependence for green feed while in the south barley and alfalfa are relied on. Mr. Keppie brought his Petaluma habits with him and finds a half acre of kale will feed his 1,500 hens, even in this dry land. Of course it has to be watered well, one good irrigation monthly, not just a sprinkle, but a regular citrus irrigation, four days running. This, with all the manure from a horse and two cows, keeps the kale growing and brings it often to a height of six feet.

Menu at American Egg Laying Contest at Kansas City

By Russell F. Palmer

To make poultry pay in these days, it is important that every ounce of feed be assimilated and put to work profitably by the hen. Feed for laying hens should contain certain proportions of grains and animal feeds to insure the possibility of hens turning it into an equal number of eggs yolks and egg whites. For example, if we feed a mixture so proportioned that the hen can turn it into ten yolks and only four whites, she could ony manfacture four complete eggs. The feed she consumed that made the extra six yolks would be wasted. She would absorb those extra yolks into her system, usually causing her to become overfat inwardly. This condition will shorten her activity as a layer, and loss is sure to result.

From time to time we have told how to mix and proportion a balanced ration of scratch and mash feed to insure increased egg production. We realize there are thousands and thousands of poultry raisers living in towns and cities with whom it is unprofitable and impracticable to purchase raw products in large quantities and to even attempt to mix their own feeds.

For this reason we made a careful study and careful tests of different manufactured feed. This year in the American Egg Laying Contest we are feeding a mash feed manufactured by the Blatchfords Calf Meal Factory. From November 1 to May 1 this mash has been used and results to date are more than satisfactory.

We keep this mash continually before the hens in self feeding hoppers. At noon a moistened mash is given in clean troughs. Care is taken not to provide more moistened mash than the hens can easily clean up in 30 minutes. The same mash as that provided in dry form is used, except that it is moistened with hot tea made by steeping dry alfalfa or clover leaves. One hour before roosting time we scatter a mixture of hard scratch grains into ten inches of dry litter. We provide about one and a half pint to each 12 females for supper, and afterward we scatter one pint of the scratch grain in the litter for each twelve females for the early breakfast the next morning.

By placing the breakfast grain in the litter at night we find it induces the habit of vigorous exercise early in the morning. This is good for them.

About 10:30 each morning we feed one inch square of green succulent feed to each female. This is a great help toward good physical condition and keen appetites.

In ten pens 50 hens produced a total of 5,955 eggs during the six months of

Coulson's
Baby Chick
Milk Mash

The Best Feed
for first six weeks

Write for particulars
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time from November 11 to April 30. These particular six months are the months including our coldest winter and our windy and rainy periods. This is an average of 119 eggs per hen for the first six months of their laying year.

Beginning early in June every yard will again be limed, plowed, and sowed to oats, rape, rye or wheat. We will keep the hens off these yards for ten days to two weeks until the seed has made a growth of six to ten inches.

Every house will be thoroughly cleaned, scrubbed, and very thoroughly sprayed with a solution of crude carbolic acid and coal oil. This treatment is given to the floors, walls, ceilings, nest boxes, dropping boards and every bit of interior equipment.

Particular attention is given to the house ventilation system, windows will be opened wide and every thing possible done to increase the changing of air within the house. More harm often results from hot weather and warm, impure air than from the coldest weather.

The following tables are records of the ten highest pens for six months: S. C. White Leghorns, Texas, 671 eggs; S. C. White Leghorns, Pennsylvania, 653; Rhode Island Whites, Kentucky, 611; White Wyandottes, Pennsylvania, 607; S. C. White Leghorns, Iowa, 587; S. C. White Leghorns, Missouri, 582; White Orpingtons, Ohio, 578; S. C. White Leghorns, Washington, 566; S. C. White Leghorns, England, 563; S. C. White Leghorns, Illinois, 557.

Ten highest pens for April: S. C. White Leghorns, Michigan, 129 eggs; S. C. White Leghorns, Kansas, 120; S. C. White Leghorns, Ohio, 118; Rhode Island Whites, Kentucky, 118; S. C. White Leghorns, Kansas, 115; S. C. White Leghorns, Ohio, 116; S. C. White Legborns, Texas, 109; S. C. White Leghorns, Iowa, 108; S. C. R. I. Reds, New York, 108; S. C. White Leghorns, Pennsylvania, 105.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, May 31, 1920. Report for the week ending May 28, 1920:

The agricultural college at Storrs has announced the tenth annual international egg laying contest to begin November 1. Before the announcement was made, however, the management of the contest had already received applications for 20 per cent of the available pens from breeders in Connecticut, Rhode Island, Massachusetts, Vermont, New York, New Jersey, Pennsylvania, Ohio, Illinois, Michigan and British Columbia. Rules and regulations that will govern the tenth annual competition are now nearly ready for distribution. Meanwhile it may be added that the college intends to follow its usual custom of considering the old contestants preferred applicants until the first of August.

In the thirtieth week of contest now running Jules F. Francais' pen of Barred Rocks from Westhampton Beach, Long Island, was not only an easy first, but these ten birds, with a yield of 65 eggs, tied the highest weekly record of the year.

With the exception of the Rhode Island Reds the leading pens in each class are so close together that a let-up for a fortnight, or in some cases for even a single week, is likely to lose the best pen its place. Thus among the Plymouth Rocks the second best pen is 31 eggs behind the leaders. In the Wyandotte group the second pen is only 16 eggs behind. In the Leghorn class there is a difference of 38 eggs between the two best pens.

The three best pens in each of the principal varieties are as follows:

Plymouth Rocks

Jules F. Francais (Barred), 1,265; Oneck Farm (Barred), 1,234; Merritt M. Clark (Barred), 1,132.

White Wyandottes

Mrs. R. W. Stevens, 1,039; Herbert L. Warren, 1,023; Applecrest Farm Company, 996.

Rhode Island Reds

Pinecrest Orchards, 1,255; Charles H. Lane, 1,130; Jacob E. Jansen, 1,125.

White Leghorns

George Phillips, 1,219; Glenhope Farm, 1,181; E. A. Ballard, 1,141.

Miscellaneous

A. L. Anderson (R. I. Whites), 1,152; A. E. Hampton (Black Leghorns), 1,111; H. P. Cloyes (Buff Wyandottes), 1,024.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

By Max Kortum

For the past seven days ending with Saturday May 29, the contest flock averaged 61 per cent in production. In considering this average a person should bear in mind that it is based on a flock from which there has never been any culling. According to the present record sheets the contest is carrying 34 hens that are not laying. Some of these are real culls that would, under ordinary circumstances, be discarded; others are moulting and broody. The hens that are laying are producing as an average within a fraction of 70 per cent.

Pens laying 70 per cent and better for the week are: Gibson, 53; Barker, 53; Bellows, 53; Enterprise, 50; Wilson, 50; Gibson, 50; Stalling, 50; Rose, 49; Amsbaugh, 49; Tullet, 49.

FEEDING YOUNG TURKS

In "Turkey Problem from a New Angle," given in the Cultivator of May 22, Mrs. Koethen outlined method of feeding, using special johnny cake and reducing usual amount of greens, feeding no sour milk whatever. This has caused a Cultivator subscriber, Mrs. J. L. B. of Sonoma County, to give her method of feeding turkeys. She writes:

I am an enthusiastic turkey raiser and have had much success, raise nearly every turk I hatch. I wish you would print my way of raising turkeys which is the simplest and I think best. Mrs. Koethen says "no sour or clabbered milk, very little grain." I now have 43 little turks nearly two months old from 45 that were hatched, and my little turks are raised only on clabbered milk warmed till it becomes cheese, chopped onion tops and lettuce three to four times daily, all they will eat up. Now I have them on scratch feed, cheese, chopped onions and lettuce in the morning, cheese and chopped lettuce at noon, chopped lettuce and scratch feed at night. My turks are strong and healthy looking and we certainly do get some very severe winds in this valley of the moon.

My turkey hens hatched my poults and when all were hatched I gave the whole 45 birds to two mother turks and the other has gone to laying and setting again. I expect her second batch next week.

I have a large coop of wire to accommodate the two mothers out in the open with a large canvas on the windward side over the top and around. In front is an opening in the wire large enough to let the little poults out to run on an alfalfa patch and I feed poults separately from the mothers. The mothers get scratch feed and greens only. I use about five gallons of skimmed milk weekly for my poults and I have hundreds of heads of lettuce and my own raised green onions, so you see how cheaply I raise my stock. When the poults are large enough to be taken from the mothers I am going to turn them into a large grain field which will be threshed this summer and the cost of raising my stock is indeed very small.

I've raised turkeys for three years only, hatched and raised eight the first year, bought the eggs from a friend and set them under a turkey hen. That gave me my start as I traded one of my young gobblers with a neighbor so I did not inbreed and last year changed again.

The field work for the gravity irrigation project in the Parker Indian Reservation on the Arizona side of the Colorado River, which has been going on for the past six months, has been completed. This will provide for the irrigation of 115,000 acres of land and the complete plans will be submitted to the department of the interior about July 1. The work of enlarging the canals of the present pumping system at Parker and the construction of new waterways to supply the additional 6,000 acres recently released to white settlers is advancing rapidly, and it is expected that the work will be completed by July 1.

Cotton growers in the Salt River Valley report a new trouble, which is designated as "sore shin." Fortunately, it is not probable that this disease has resulted in very much damage to the crop.

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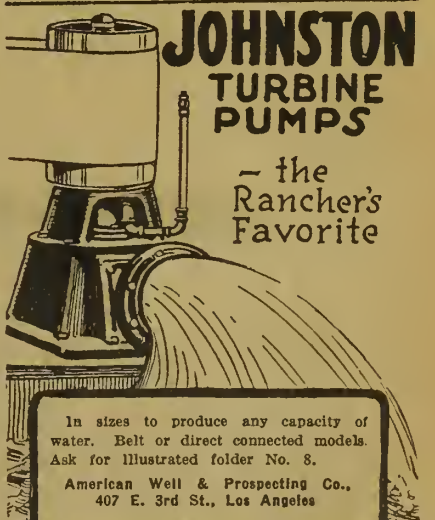

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LIV — June 19, 1920 — No. 25

Keep Out the Ills We Know Not Of

WE once heard an attendant at a state fruit growers convention express heart-felt thanks that there were scale and other bugs infesting orchard trees because of the fact that it took energy and hard labor to control and keep them down and this gave to the energetic fruit grower a certain advantage over the shiftless or indifferent. Hence, good return because of insect pests.

This type of reasoning may be satisfactory to some but the millions of dollars required to purchase supplies, to purchase labor, and to pay for inspectors to see that the labor is applied at the right time and in the right manner all make a terrible drain on the industry. What is more, the producer of poor fruit or a poor product of any kind instead of being an advantage to the producer of good fruit, is a menace and a disadvantage to the industry. Hence, not only standards must be kept up but methods of work must improve.

There was a time when "Conscience did make cowards of us all," and we decided to bear the ills we had—even welcome others we knew not of. Now it's different. Prevention through quarantine is universally recognized as essential to the producing industry. There are most disastrous insect and fungous crop enemies clamoring at every port of entry. California and the Pacific Coast have lead in the fight to keep these pests out. National quarantine now established and under direction of Dr. Marlatt has done most effective service. Some importers have been injured, more have feared they might be and have opposed quarantine measures, but the interests of the industry are greater than individual interests, even greater than the advantage which is secured by the introduction of new forms of plant life, from every part of the earth.

Growers and nurserymen on the Coast are unanimous on "Keep 'Em Out." There is a strong Western Plant Quarantine Board. All western states united. Director Hecke at the recent annual convention made an address from which we quote:

"To those in our western states who would question the necessity and ultimate value of our plant quarantine work, I say: Lift your mental vision over the Rocky Mountains and consider the calamity that has overtaken the forests, farms and fields of the great territory that reaches to the Gulf of Mexico and to the broad Atlantic, a part of our country that did not until very recently attempt to protect its crop producers by the exercise of proper inspection upon arrival, and which now finds itself in the grip of several drastic federal quarantine regulations. There is blister rust in the pine woods, gipsy moth, brown-tail moth and chestnut bark disease creating havoc in the hardwood forests, potato wart in Pennsylvania, cotton boll weevil busily at work in practically all cotton fields, pink bollworm in Texas and Louisiana, European cornborer in Massachusetts, New Hampshire, New York and Pennsylvania, Japanese beetle in New Jersey and the Oriental peach moth well established in Massachusetts, New York, Connecticut, Pennsylvania, New Jersey, Delaware, Maryland, Virginia and the District of Columbia. All these are introduced crop pests, all constantly spreading, causing onerous local quarantine restrictions, necessitating enormous annual appropriations, and each season, every season, taking an increasing percentage of the growing crop and of the crop producers' anticipated profits. No one of these miserable crop destroyers is yet established west of the Rocky Mountains; no one of them can reach here through its own powers of locomotion, and it should be the fixed purpose of all plant producers and equally with all plant quarantine officers, to circumvent any attempt to assist in their emigration.

"The formidable list of pests just enumerated—all of which constitute a constant daily menace—should be a warrant for renewed efforts upon the part of the western plant quarantine board to prevent their introduction into our territory, and as an appeal to the legislative and commercial bodies of our several states for support and cooperation in this work of protection to our crops, and prevention of the burdens of plant quarantines.

"Active cooperation with the United States department of agriculture, particularly in the execution of quarantine regulations, has developed into a recognized part of our local state work, and has proved of incalculable value to the state of California. Under this cooperative system all our quarantine inspectors have been made 'collaborators' of the United States department of agriculture, vested with full authority to execute all the provisions of the numerous federal plant quarantines and paid by the federal government for this cooperative work."

tablished 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

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Saturday June 19, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

HELP BUD SELECTION

The Bud Selection Association may be given material help in its present campaign to advance horticultural interests of California. Naturally the best of every kind of fruit grown in California is desired. Nearly every community has an outstanding orchard or an outstanding tree which would add greatly to the state's prosperity if its high producing quality could be transmitted or passed on to other orchards and other communities. This can be done if the information is given to the association which is looking for the best and biggest producing trees in the state.

PREPARE FOR THE WET

There is a wet time coming. This is a drying state. Thousands of tons of fruits and vegetables are dried annually. Every year will see material increase. Unfortunately, the drying season sometimes runs over into the wet, as was the case some two years ago when one of our largest fruit drying sections experienced a seven inch ten day long rainfall. The loss was millions for there were no dryers, dehydrators nor evaporators to help meet the situation. Prof. Cruess' article on Page 977 is filled with suggesetion. A post card to manufacturers of these appliances will bring other information and show how the commercial interests are endeavoring to aid in solving one of California's fruit problems.

GROWING

California is growing as never before. We are all wishing the census had come a year later. However, it will, ten years later, and we believe our growth will be as great during the next decade as it has been in the past. The total for the state will not be available for some little time. Some of our cities are being given approximately correct figures as to their totals. San Francisco shows a gain of 21.9 per cent, with a total of 508,410; Pasadena, 45,334, an increase of 49.7 per cent; Fresno, 44,616, an increase of 49.2 per cent; Stockton, 40,296, an increase of 73.3 per cent; Long Beach, 55,593, to which it was increased from 17,809 ten years ago. This makes Long Beach the banner winner with nearly 300 per cent. Los Angeles also has a comfortable feeling with a total of 575.480, or an increase of nearly 80.3 per cent, the greatest increase of any city of its size.

Census Supervisor Dodson reports that 10,000 of this increase was due to extension of territory. Still the increase of the same territory as the 1910 census is nearly up to 80 per cent. Los Angeles at the time of the 1910 census was the 17th city of the United States. She is now the tenth city.

PAGE 1000

To the household department comes the honor this week of "page 1000." For the first time in its history the California Cultivator gives to its readers considerably over the 1000 page mark in the one volume covering a period of six months. Next week's issue will complete the volume LIV. If the remaining six months should give an equal number of pages the Cultivator would supply to its subscribers in the one year almost as many pages as there are in the International dictionary. Perhaps our vocabulary is not so extended as Webster's, but we trust our subscribers will grant these 2,000 pages will give their full dollar's worth. Paper and a good many other things have been short, but with it all we trust our range of articles and the number of them and their quality will justify every subscriber in continuing, and more, passing on the word to neighbors Jones and Brown. The Cultivator is worth the money.

Next week will be given the index covering the past six months. Keep it and file every issue during the coming six months, when an equally interesting index will make permanent the value of the paper.

EFFICIENCY REDUCED

Secretary Meredith of the department of agriculture writes:

"The department of agriculture is receiving numerous inquiries from all parts of the country regarding the curtailment or discontinuance of various lines of work on account of reduced appropriations. These inquiries are coming from those interested in the activities affected and arise out of the action that is necessarily being taken by the department to bring its expenditures next year within the limits set by congress. In all these cases the department is urged to make some arrangement for the continuation of the particular lines of work involved.

"The agricultural appropriation bill for the fiscal year beginning July 1, 1920, recently passed by congress, carries approximately $6,000,000 less than the estimates made by the department as to its needs, and $2,185,000 less than the amount provided in the appropriation act for the current fiscal year. Although the effect of reduced funds on the work of the department was laid fully before congress while the bill was under consideration, this serious reduction has been made apparently on the ground of economy. I do not believe it is real economy, however, because it will certainly hamper the department in its efforts to aid the farmers of the country in doing their work of feeding and clothing the people, and will also handicap the department in administering some of the important regulatory laws entrusted to it for enforcement."

Too bad! The department work in many states will be abandoned entirely and in others greatly reduced. The bureau of markets suffered from last years' decrease and it will now suffer still more. Dairy investigations will be curtailed, work will be discontinued entirely in Texas-fever-tick free sections, the foot and mouth disease fund greatly reduced, cereal field stations will be closed, drug crop production work curtailed, food inspection reduced, forest experiment stations will be closed, crop estimate project discontinued, pink boll worm fund reduced, market news service curtailed, insect control stations abandoned.

But with it all we have one "blessing"—the congressional seed distribution will be continued. Of all the inconsistencies of congress this is the most glaring. It has appropriated $239,000 for this seed distribution. These pretty little packages of seeds will be sent out by all the congressmen to all voters who wish them, but economy demanded restriction of real constructive service. Gee!

AND FINALLY—THE BONUS

Another ex-service man writes regarding the bonus. He is from San Francisco and if we have his name right it is J. W. White Jr.

"As to the American Legion standing together as an organization, you are correct in your statement, but in my belief you will find a large percentage of them in case of another war will do as a great many did in the past war, i. e., look for the "soft" jobs on the farms.

"For one I am for the bonus strong. I served 27 months in France and on my return to the U. S. A. I found that the glad hand which was extended when I left had disappeared, and after my discharge I went to the company, with whom I was employed before entering service, only to find that the job I had before the war and the place promised me was there no longer and that I had better look elsewhere.

"I think if you will talk to a few ex-service men you will find that the above statement is the same in their case. So why fight against the bonus and the boys who gave up all they had to fight for the U. S. A.? If the newspapers and papers of your kind that are before the public at all times do not stay with us, what can you expect the next time? Do you think that the slackers and draft dodgers will come forward? They will not. It will be up to Uncle Sam to go get them, and the chances are he will not give the advance notice next time that he did this time."

This is the first time we have heard of the soft jobs on the farm during the great war. We all do know of guaranteed profits to capital, of high wages to shipbuilders and others more, we also know of willing self-denial, hard work and service on the part of millions of true hearted Americans that the boys at the front might be spared every hardship and as many of their lives be saved as possible.

To balance the advantages which were secured by many as a result of war conditions, it is possible that the only way is to be cold blooded and put it on an absolute commercial basis. We are sorry it is so. On this point our subscriber sends a statement by Henry G. Mathewson, associate editor, Californian Legion Magazine. From it we quote:

"After the war the government cancelled many billions of war contracts and settled on the average basis of 15 per cent of the expected profits—a huge bonus.

"The soldiers settled the war long before the country expected it, thereby saving thousands of lives and billions of dollars in war debt.

"The opportunities of war profits were not available when he returned and he was discharged without the necessary funds to help himself to a condition comparable to what he had left.

"The American Legion believes that the former soldier is entitled to have his choice of the fourfold plan of legislation. A large number will not select the cash bonus and are entitled to this selection, while the remainder that desire it may have the cash compensation."

THE NATIONAL TRACTOR AND IMPLEMENT SHOW OF THE WEST

The campaign to educate the American farmers as to the usefulness, the efficiency, the economy—the absolute necessity—of the tractor to American farming called for a campaign at the fairs, at special tractor and implement demonstrations, private demonstrations and tests, in fact thoroughly trying out this newest in farm power in every way. The demonstrations increased in number and hundreds of acres were plowed and tilled and retilled at each demonstration. There has gradually come a change and this year there will be held but two great demonstrations or shows in all America. To California has been extended the honor of one of these shows. It will be under the direct supervision of the Tractor and Implement Association of Southern California, which will be under the auspices of the National Implement and Vehicle Association. It will be held in Los Angeles or rather ten miles from the business center of Los Angeles in Verdugo Canyon, one and one-half miles north of Glendale. The other show will be held at Columbus, Ohio, in February, 1921.

Beauty will be combined with utility in the staging of this great event. The Verdugo Park is a bit of shady woodland with running water. Its 30 acres will be converted into fairy land and in addition there will be tractors, farm power appliances of practically every nature, implements, home light generators, modern home necessities and conveniences and all things mechanical pertaining to rural life. There will be a portion of the park made into a tent city where the visitor may secure accommodations and live amid ideal surroundings while taking in the great exhibit. There will be brass bands and other music. It is expected there will be entries from nearly every state in the Union.

California Cultivator

Vol. LIV, No. 25 | Los Angeles, June 19, 1920 | One Dollar Yearly

New Ideas From Davis

By Jean A. Koethen

THE poultry school which has been held annually for four years past in some Southern California poultry center by members of the staff of the poultry division of the University of California has been something of an event in poultry circles. That it seemed less of an event this year is due, no doubt, partly to the fact that it was held two successive weeks at two different centers. The aggregate attendance was probably equal to that last year at San Gabriel, but the attendance at Van Nuys the first week in June and at Riverside the week before was disappointingly small. The fact that these two towns are at the extreme ends of the poultry producing area around Los Angeles was another contributing circumstance. San Gabriel and Gardena folks had a long way to go, whichever direction they took, and gasoline is dearer than last year and not too plentiful. Some of them were to be seen at Van Nuys every day, but the number was not large. Van Nuys poultry people turned out well and made the visitors welcome, and the hundred or more who were there found the high school auditorium a most comfortable place for listening, the lunches served by the students extremely appetizing, the school folks, both students and teachers, a cordial, courteous bunch, and the lectures and discussions well worth their while.

Stands for Trapnesting

Professor Dougherty has apparently changed his views on the respective merits of trapnesting and Hoganizing. Last year his approval of Hoganizing was quite emphatic. This year at Van Nuys he admitted that while selection by type, color and measurements works very well in grading a flock and picking out the drones, it does not guarantee that a hen will lay any given number of eggs in a year, or, indeed, that she will lay any at all. So far the trapnest is the only means we have of finding out just how many eggs a hen has laid, and if we are to breed from the best, we must trapnest.

It is not necessary, however, for everybody to trapnest. The distinction between commercial poultrymen and breeders is becoming more evident. The commercial poultryman who is able to buy his chicks from men who make a business of breeding for egg production cannot afford to trapnest, and if he is wise will not attempt it. The breeder who wants to sell chicks and hatching eggs at a good price will soon find that he must trapnest. And he is justified in charging a price for his stock that will make it worth while.

It is possible, Professor Dougherty says, for the poultryman who wants to select his best layers to do so by trapnesting his pullets part of the year. October, November and December are the months when the best layers are sure to be laying, and using the trapnest those three months will pick them out with almost mathematical certainty. In June, July and August, also, the best layers are laying, and fewer trapnests will be needed than are needed in the fall because the poorer layers have stopped and some of them have been culled out of the flock. While a nest to every three pullets is needed in the fall, one nest to five birds is sufficient in summer. The expense of labor, however, is so great, and the labor of watching trapnests so constant, that their use will not often be profitable to the commercial poultryman.

Culling the Flock

A great deal was said on Friday, both by Professor Dougherty and Professor Lloyd, about culling, and a demonstration in culling was given by the latter, which, like most demonstrations, demonstrated nothing to the satisfaction of the uninitiated. It is quite evident that if we must depend on color of shanks or thickness of pelvic bones, or distance apart of keel and pelvic bones, we are entirely at sea, for their value is only relative at the best. For instance, a hen was shown, which, if color is to be relied on, should have been a 200 egg layer. Shanks and beak and comb were pale, but it was plain from other marks that the paleness merely indicated lack of vigor, and the hen was quite past whatever usefulness she might once have possessed. Thickness of pelvic bones, Professor Lloyd admitted, is only relative, for the older the bird the thicker they are, whether she has been a high producer or not, and he was quite frank in saying that no one of these tests alone could be relied on. If they all coordinate—that is, if the hen with pale shanks, beak and vent has also a good comb, a warm, soft, full abdomen that will just fit into the palm of your hand, an alert eye, thin, flexible pelvic bones, and is of proper length from keel to pelvic bones, she may safely be kept in the flock.

Constitutional vigor, time of molting and time of beginning to produce are really, when all is said, the only reliable tests, outside of appearance of comb, which only tells whether or not a hen is actually laying and says nothing about her ability as a producer. The vigorous hen is the only one that can ever become what is called a "long distance" layer, that is, one that will lay profitably three or four years. The high producing type is the vigorous type, blocky in head, rectangular in body, long in back, deep in keel, with great digestive capacity, for the high producer must have a good digestion, whatever she may lack. This is imperative.

Alertness and quickness of motion are also characteristic of the high producer, for she must be a bird of highly sensitive nervous organization, or, as we commonly say, "high strung." Since egg production is also reproduction, it involves considerable nervous strain, and there must be a strong constitution underlying the nerves or the bird will break down under the strain.

Outside of the vigor test, the only culling tests that may be relied on are calendar tests. The best layers are the hens that begin earliest, provided they begin with a fair sized egg and lay longest before they molt. Hence banding the hens that begin in October and November and then banding those that are still laying the following October, will almost infallibly pick the high producers. A very successful poultryman several years ago told me these were his only tests of fitness, and there seems to be nothing more reliable.

A Case for the Doctor

Dr. Beach, pathologist of the Poultry Division and Assistant Farm Adviser Gordon, vaccinating a hen. (Dr. Beach in long coat).

For Smaller Flocks

It goes without saying that in any well ordered flock culling goes on all the time. Every hen that shows signs of ill health or weakness or that begins to molt before September should be immediately removed. Professor Dougherty declared himself emphatically in favor of smaller flocks and better ones. "Most of you," he insisted, "keep too many hens and too many individuals in a flock. Cull them down, keep fewer hens and better ones. You'll come to it in time, even if you can't see it now." He mentioned a man in the North who is making a good living and educating his children with 800 hens, and this man is only one of many.

Professor Lloyd was equally emphatic in condemning the common practice of raising a thousand or more chicks in a single flock, declaring that experiments at the farm had demonstrated the inadvisability of raising more than 300 chicks in one lot. The figures he gave, however, did not quite substantiate the statement, for his chart, giving certain student data for chicks in these comparatively small lots, put the mortality for the first ten days at 16 per cent, which seemed to the poultrymen present a big loss even for chicks brooded by the thousand. Some of these chicks were doubtless chicks that should never have been put in the brooder, but still the loss was large.

Breeding for Production

Breeding up a heavy laying strain is a matter of a generation, says Professor Dougherty. Don't expect to see much improvement in two or three years. In selecting eggs for hatching, see that they are of the color and size that extras should be—pure white, two ounces in weight, and with strong shells. They will all be from record hens, of course, but preferably not from those that make the highest record. A hen at the farm, now a profitable layer in her eighth year, and a 200 egg layer two seasons, has not laid a fertile egg in five years. As a breeder she is worthless. In order that you may know whose eggs are fertile and hatchable, mark the number of the hen on every egg she lays and at testing time credit each hen with the number of infertile and dead germs she has produced. You will find some heavy layers produce few infertile eggs and others whose eggs, though fertile, contain a germ too weak to hatch. Such hens are useful in the laying pen but of no value as breeders, and you will save time and money by keeping them where they belong. When you have found a hen that lays a good many eggs year after year, and eggs that are mostly hatchable, keep her as long as you can. There is no better breeder than a four year old hen. You do not need to test her for vigor. Her age is proof of that.

Some of the pullets from these eggs will lay more than their mothers, and some will lay fewer eggs. If the better ones are mated to a cock whose mother laid more eggs than the mother of the pullets there will be a little increase in production, and this procedure must be followed year after year till the 200 egg flock, which is now very rare indeed, is attained.

Fowl Cholera

The fact that fowl cholera, which has been supposed to be quite rare in California, has occurred in a good many flocks the past year was unwelcome news to all of us. Its appearance, according to Dr. Beach, was in so unusual a manner that it was not at first recognized. It began apparently with a broken egg in the abdomen of a pullet. An outstanding symptom was a twisted or wry neck, and there was usually a discharge of whitish material from the vent. Some of the affected birds died suddenly and some were ill for several weeks. Many ultimately recovered. In a large flock of ducks the disease appeared as a swelling in one leg. In another flock of hens its only indication was a pecu-

(Continued on Page 995.)

Agricultural News Notes of the Pacific Coast

Northern California

Nevada and El Dorado Counties report mild outbreak of pear blight.

The rice crop of Colusa County for 1920 is to be double the acreage of 1919.

Eureka, Humboldt County, is planning the manufacture of Swiss cheese on a large scale.

Prices have been named by the California Peach Growers and the California Fig Growers.

River boats on the rivers of Northern California report water very low and navigation difficult.

A forest fire in the mountains near Santa Rosa destroyed five square miles of valuable timber.

Lake County is concerned over the noncompletion of the state highway from Hopland to Lakeport.

Sonoma County farm bureau is boosting for a county fair which will be held in Santa Rosa, August 25-29.

Colusa County reports grain short as a result of insufficient rain, but high prices also reign and returns are good.

The rice acreage is much smaller than last year, but the fields already planted indicate a condition above average.

The Glenn County Hog Growers Association has been formed and will aim to market all the hogs in the county.

Expert sheep shearers at Dixon, Solano County, have made as high as $31.50 a day. One man sheared 150 in one day.

Sonoma County fair will open on August 23 instead of August 25, as previously arranged, and will continue to August 29.

The Poultry Producers of Central California, Inc., reports on hand in storage and in transit eggs to the value of $565,384.

The new peach sizing device patented by the United States bureau of markets will be in general use through the state this season.

Petaluma recently reports one day's shipment of eggs: "Three cars 1,436 cases, Petaluma to New York; one car 480 cases, Petaluma to New Jersey."

The Booneville center of the Mendocino County farm bureau has indorsed the wool pool which is sponsored by the state farm bureau federation.

Irrigators of the northern part of the Sacramento Valley are organizing to fight proposal of the delta farmers to divert water from the Sacramento and its tributaries.

Dates have not been definitely set for the farm products show to be held at Hayward, Alameda County, but it will probably be pulled off during the second week in August.

San Francisco announces the probable erection of a three million dollar assembling plant for the purpose of collecting and distributing the products and manufactures of Japan.

Petitions are now in circulation for an initiative amendment to the present state anti-alien land law. According to Senator Inman this law will stop buying and leasing of lands by aliens ineligible to citizenship and prohibit corporations, the majority of whose members are aliens, from acquiring land.

Central California

Fresno reports the first rainless May for 30 years.

California has 420,000 registered motor vehicles.

Turlock is planning for big exhibit at the state fair.

Tulare's recent fat hog sale secured top price of $15.75.

There are 18,000,000 acres of national forests in California.

San Jose reports prune contracts being made on a 12 cent basis.

Some contracts are closed for fresh wine grapes. As high as $60 per ton.

Stanislaus Farmers Union plans installation of cooperative store at Modesto.

Turlock cannery announces that it will operate notwithstanding the sugar shortage.

Tulare County is maintaining an exhibit in the Exposition Building in Los Angeles.

The farm bureau of Madera County is investigating prospects of securing a cannery at Madera.

Board of trade of Ceres, Stanislaus County, is planning for satisfactory housing of fruit workers.

Prices being offered for fresh peaches indicate that they will sell even higher than last year.

Santa Cruz farm bureau meetings: Directors, June 18; Aptos, 18; Santa Cruz, 24; Happy Valley, 25.

June crop will be discussed at the citrus institute to be held at Porterville, Tulare County, June 25-26.

The California State Automobile Association has requested motorists to cut down use of gasoline for pleasure riding 50 per cent.

The California Peach Growers, Inc., is making an active campaign to secure contracts with 6,500 peach growers on a four year basis.

A dehydrating plant is to be constructed at Brack Station, near Lodi. It will have a capacity of eight tons of grapes every 24 hours.

Present cantaloupe plantings in the Turlock section are estimated at 4,864 acres, and it is thought that the crop will run to about 3,000 carloads.

The California Peach Growers, Inc., which is now also the fig growers association, is endeavoring to secure 75 per cent of the fig acreage of the state.

Charges by fruit growers of the Santa Clara Valley that the canners are combining to force down the price of fruit are emphatically denied by the canners.

The Stanislaus County farm bureau will hold local meetings at Denair, June 14; Turlock, 15; Mitchell, 15; Hickman-Waterford, 16; Fairview, 18; Laurel Lodge, 21; Claus, 23; Ceres, 24; Orange Blossom, 28.

The biggest fresh fruit shipment of any year in the California industry is expected, providing cars for transportation can be had. Some observers think it will reach at least 36,000 cars as against 29,636 last year.

The California Associated Raisin Company is distributing $4,500,000 to growers. This figure represents a total of 9 cents for Muscats, Malagas and Feherzagos and 10½ cents for Sultanas and Thompsons. The final payment will not be made until November.

Southern California

Much late corn for filling silos is being planted in Orange County.

Beaumont, Riverside County, celebrated a "cherry day" on June 12.

Palo Verde reports warm weather bringing up the cotton in fine shape.

Lankershim, Los Angeles County, held a big community picnic, May 31.

Coachella Valley's 1920 onion crop, now harvested, amounted to 1,800 cars.

Grain thrips are attacking cherry and apple trees in San Bernardino County.

Tomatoes were shipped from Imperial County in May to the amount of 279,577 crates.

Apricot growers of Ventura County last week inspected their new packing house at Santa Paula.

Growers of wine grapes at Cucamonga and Etiwanda report offers of $50 per ton on the vines.

The Villa Park Orchard Association has begun construction of a new sweathouse to color Valencias.

The San Dimas Lemon Association did a business last year amounting to over a half million dollars.

Ranchers around San Bernardino report water in wells is two feet higher than at same date last year.

The California Growers Association at Hemet is calling for women workers to start on the apricot pack, June 25.

Fourteen Japanese were arrested last week in Los Angeles County charged with giving short weight in berry boxes.

The first solid express train of cantaloupes left Imperial Valley, Saturday night, May 29. It was made up of 25 carloads.

Ranchers in the San Bernardino Valley, under the direction of the farm bureau, have organized a potato growers association.

Grasshoppers are doing much damage to cattle ranges in the higher districts of San Diego, San Bernardino and Riverside Counties.

A sawmill has just started operating in Holcomb Valley, San Bernardino County, and will cut at least a half million feet this summer.

Ventura County has been divided into 18 districts by directors of the fair association and arrangements of exhibits will be made on a district basis.

Jews in California are seeking 30,000 date palm leaves for religious services during the "Passover" and have applied to the Coachella Valley for the supply.

The Ontario plant of the California Growers Association will open for the apricot season about the end of June. The cannery is now being thoroughly overhauled.

Proposal to allow a lower standard on apricots in lug boxes was ruled undesirable by Director of Agriculture Hecke, and apricots in lugs will be held at the same standard as apricots in crates.

C. L. Emerson has presented the city of Riverside with five acres in the mountains near San Jacinto, to be used as a municipal playground, and Uncle Sam is to be asked for 80 acres adjoining.

The Coast and General

A heavy crop of oranges is in prospect for Florida.

Georgia's peach crop is moving into Eastern markets.

The wheat acreage in Arizona for this year is the largest ever sown.

Several of the Florida citrus exchanges are building pre-coolers.

Generally favorable conditions are reported on Arizona stock ranges.

The 1920 cotton crop of Arizona is now reported 80 per cent of normal.

Late frosts have somewhat damaged berries in southwestern Washington.

The fish catch of the Dominion of Canada for 1919 was valued at $35,000,000.

Whatcom County, Washington, reports its egg business amounts annually to over $1,000,000.

Petersburg, Alaska, reports six new islands lately taken up by settlers and stocked with blue foxes.

The evaporation of sweet corn has developed into an important industry at Lancaster, Pennsylvania.

A bill for standardizing onion grades is proposed by the department of agriculture of British Columbia.

Winter wheat in western Oregon is heading short but in remainder of state a normal crop is reported.

The Walla Walla Valley of Washington expects to ship 1,000 cars of onions during July and August.

Estimates as to potato production of British Columbia this year indicate a crop of about 2,750,000 bushels.

Fruit growers in the district about Walla Walla, Washington, have organized a cooperative marketing association.

Berry growers of Washington anticipate good markets on account of the demand for their product for making soft drinks.

New varieties of wheat, oats, barley and rice have been developed in Alaska that will mature within 100 days from seeding.

The farm bureau of Cochise County, Arizona, has bought, for members, 10 carloads of dairy cattle during May and still is buying.

Apples in the lower part of the Yakima Valley, Washington, were damaged by frost from 25 to 75 per cent according to Inspector Robinson.

Owners of native walnut trees in Arizona have started such a movement for top grafting to English walnut that the graft stock is exhausted.

Apple growers and shippers at Hood River, Oregon, are revising their estimates of the 1920 apple crop. It is now thought it will not be over 1,000,000 boxes.

Shorthorn breeders of Linn County, Oregon, are planning a "Shorthorn Shoutfest," along the lines of the recent Jersey Jubilee, in a tour of the Shorthorn herds of Linn County.

At the recent annual meeting of the Okanogan United Growers it was announced that the fruit growers forming the membership had transacted business amounting to over $2,000,000.

Texas sweet potato growers last fall sent thousands of bushels of potatoes to curing plants, unaware that they had been frost injured, and the result has been somewhat disastrous to both growers and handlers.

An Evaporator for Community Use

By W. V. Cruess

DRYING offers a simple, convenient and economical method of preserving fruit and vegetables. Where there is a considerable quantity of produce from the gardens and back yard fruit trees in a given community the surplus may in many cases be very satisfactorily taken care of in a small cooperatively owned and operated evaporator.

If such a drier is built solely for the purpose of saving the surplus fruits and vegetables of the neighborhood, the venture has every chance of success; if undertaken with the expectation that remarkable and unusual profits are to be realized from sale of the dried products, disappointment will be the usual result.

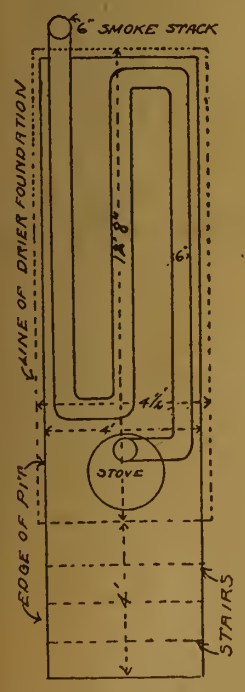
There is, nevertheless, a legitimate place for such driers and many communities could install them to advantage. In localities of abundant sunshine fruits may be dried in the sun but sun dried vegetables are not very satisfactory.

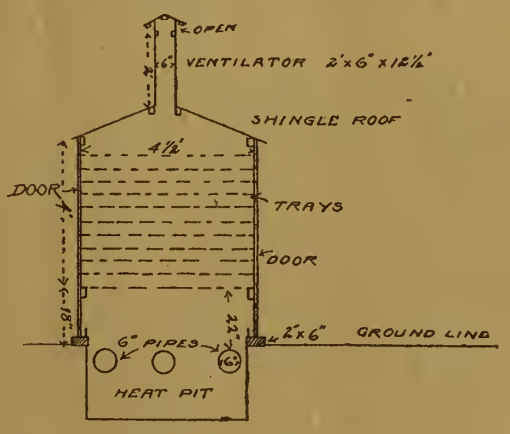
The exaporator to be described in this article may be constructed of materials easily obtained in most localities. It is a modification of the Topping evaporator, which has been in use for many years in eastern states and for this reason no patent rights are violated in its construction or use.

The drier is designed for use in the open. It consists first of an air heating pit which holds a stove and system of pipes. Above the fire pit rests a box like chamber of four (or less) compartments in which the trays containing the fruit or vegetables are placed. The evaporator may be said to be of a simple "stack type" and resembles the stack evaporator used for apple drying throughout California.

The Fire Pit

A pit three and one-half feet wide and twelve feet long is first constructed. This contains at one end an excavation four feet deep and six feet long for the stove, with steps leading to this excavation as shown in the sketches. The remaining six feet of the fire pit need be only two feet deep as it contains the heating pipes only.





PLAN OF HEATING SYSTEM CROSS SECTION

Figure No. 1—Plan and Cross Section of Heating System.
Drawn by Professor W. V. Cruess

The Air Heating System

A sheet metal stove about two feet in diameter by about 30 inches high will answer the purpose, such, for example, as an ordinary large size "air tight heater." An empty 50 gallon distillate drum may be fitted to receive at one end a six inch stove pipe and an opening large enough to permit firing made in the side of the drum near the opposite end. This style of stove is used in a number of driers in Fresno County. But if this style of heater is used it will be wise to increase the depth of the stove pit to about five feet to reduce the fire risk.

An elbow six inches in diameter is attached to the stove outlet; to this a piece of six inch pipe about one foot long and at right angles to greater diameter of pit is attached; to this a second elbow; to the second elbow a piece of six inch stove pipe about eight and a half feet long, which extends horizontally to the opposite end of the pit where it connects to a double elbow, that is, two elbows joined together, or to a return bind; to this is attached a second piece of pipe about eight feet long leading back to furnace end of pit; to this in turn an elbow and third piece of pipe which returns to smoke stack end of pit and connects to the smoke stack as shown in accompanying figures. The smoke stack should be about 15 feet high and fitted with damper. A kerosene or stove burner capable of burning about two gallons of kerosene per hour is shown in the sketch. Because of scarcity of petroleum fuels it may be necessary to burn wood or coal. It is advised that the possibility of obtaining kerosene or stove oil be investigated before the drier is built.

The Drying Cabinet

The drying chamber is 12½ feet long by 4½ feet wide. It is built upon a frame of two by four resting upon a base of two by eight material. The walls are 64 inches in height between this base and the eaves. The peak of the roof is 18 inches above eaves and joins an open ventilator six inches wide by two feet high and extending the entire length of the drier, as shown in Figures 1 and 3. The drying chamber is divided into four compartments by two by four studding placed 38½ inches on center making each compartment 36½ inches wide. Beginning at a distance of 16 inches above the base support, one by two strips edgewise and four and a half feet long are nailed to these uprights for support of trays. This places the lowest tray about 22 inches above the heating pipes or stove. The tray supports are placed four inches apart on center, giving a total of 11 supports for each compartment or 44 for the entire evaporator. The compartments connect with each other at the sides, the tray supports being the only impediment to free circulation of air between compartments. The ends of the drier are closed by four inch T and G over a two by four frame or by battened rough one inch material. Roof is shingled over two by four rafters and one by six sheathing. The ventilator may be made of T and G or of one inch material battened. The frame of the drier should be about four inches off the ground in order to admit air freely as indicated in Figure 3. Each side of the drier is made up of four doors as shown in the sketches, permitting trays to be placed in the drier from both sides and affords easy inspection of all trays in the drier. Each tray support accommodates two two by three foot trays; the entire drier holds 88 such trays. The drier may be made smaller by decreasing the length, width and height, and increased by increasing the length. Increase of height is inadvisable because such increase seriously retards rate of drying.

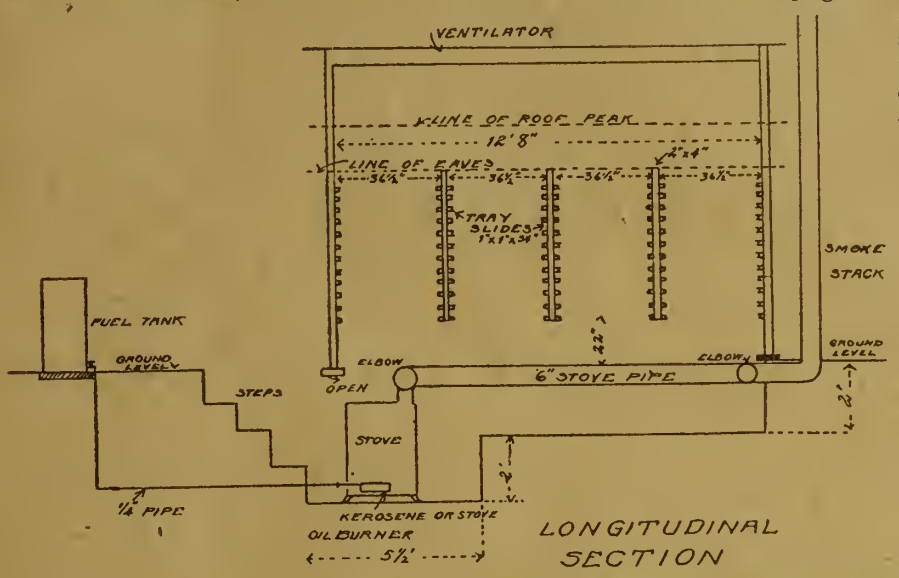


Figure No. 2, Longitudinal Section of Dryer and Plan of Trays
Drawing by Cruess showing tray slides, location of fuel tanks, stoves, pipe ventilator, etc.

Capacity

Each square foot of tray surface will hold about two to three pounds of apricots, peaches and prunes, about one and one-half pounds of sliced vegetables and about three pounds of grapes. Or the drier will hold about 675 pounds of vegetables, about 875 pounds of most fruits, and about 1200 pounds of grapes.

The Trays

The frame of the trays consists of the following parts: Each side: One piece 36x1½x1 inches; one piece 33x 1½x1 inches.

Each end: One piece 24x1½x1 inches; one piece 21x1½x1 inches.

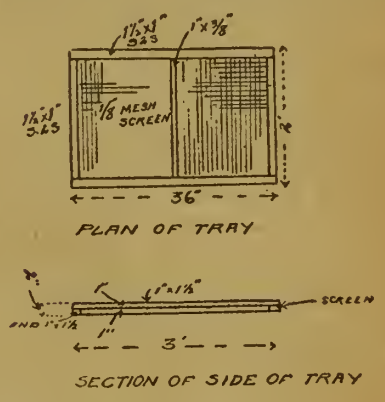
Center supports: Two pieces 21x1 x⅜ inches.

A piece of screen one-eighth of an inch mesh or ordinary door screen and two by three feet in size is placed between the pieces making up the sides and ends of the tray. The center supports are nailed to sides of tray.

The trays are one-half inch shorter than the width of each compartment, thus permitting the trays to slide easily along the tray supports. If fruit is to be sulfured on the trays the screen should first be coated with a thin layer of hot paraffin to reduce corrosion of the metal.

Thermometers

At least four ordinary dairy thermometers reading to 212 degrees Fahrenheit should be available. One of these is placed on the lowest tray of each compartment in order that the fire may be regulated to give the desired temperature. Do not attempt to operate the drier without thermometers.



Asbestos Lining

The framework and walls for a few inches above the base board should be covered with sheet asbestos or sheet metal to reduce the fire risk. The entire evaporator may be built of sheet metal and thus rendered fireproof; or the walls may be built of brick or cement up to a height of 18 inches from the ground level.

Operation

In using the drier the trays are loaded with the prepared material. Preparation consists in the cases of peaches and apricots of pitting, spreading one layer deep on trays with cups upward and exposing to fumes of burning sulfur in a closed box for three hours. Pears are cut in quarters and sulfured as above. Halved pears dry too slowly. Prunes are dipped about 20 seconds in a boiling lye solution of one-half ounce soda lye per gallon and are not sulfured. Thompson seedless grapes, Tokays and Cornichon grapes are dipped for about five seconds in boiling lye of the strength used for prunes but are rinsed in water after dipping. Muscat grapes and other varieties require a dip in a boiling lye solution of three ounces of soda lye per gallon for about 30 seconds followed by rinsing. In all cases dip long enough to crack the skin. Apples are peeled, sliced and sulfured 30 minutes. String beans, peas and corn are prepared as for

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In Bulletin No. 163, of the Oregon Experiment Station, it is reported that "the amount of sulphur in alfalfa hay from fertilized, vigorous plants varied from 3.34 to 4.54 pounds per ton." The report says further, "Experiments conducted in 1915 to 1919 inclusive, on various types of soils showed that the alfalfa and clover crops can be increased from 50 to 1,000 per cent on many soils by use of various fertilizers containing sulphur."

Sulphur is most available as plant food in AGRI GYPSUM, and it is in the form of a sulphate—ready to be taken into the plant life. Think what it would mean to you with alfalfa selling at from $28.00 to $35.00 per ton to DOUBLE the yield with the use of $4.00 or $5.00 worth of AGRI GYPSUM to the acre. Many have had better results.

AGRI GYPSUM contains the plant food your alfalfa needs. In most soils sulphates are lacking, due to the continued taking of sulphur from the soil and the washing away by rains and irrigation. Put this back in the soil at small expense by applying AGRI GYPSUM.

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cooking and then dipped in boiling water five minutes and chilled in cold water. Potatoes are peeled, sliced and dipped in boiling water about one minute, until heated through. Greens are usually dried untreated after thorough rinsing to remove sand, etc. Spread

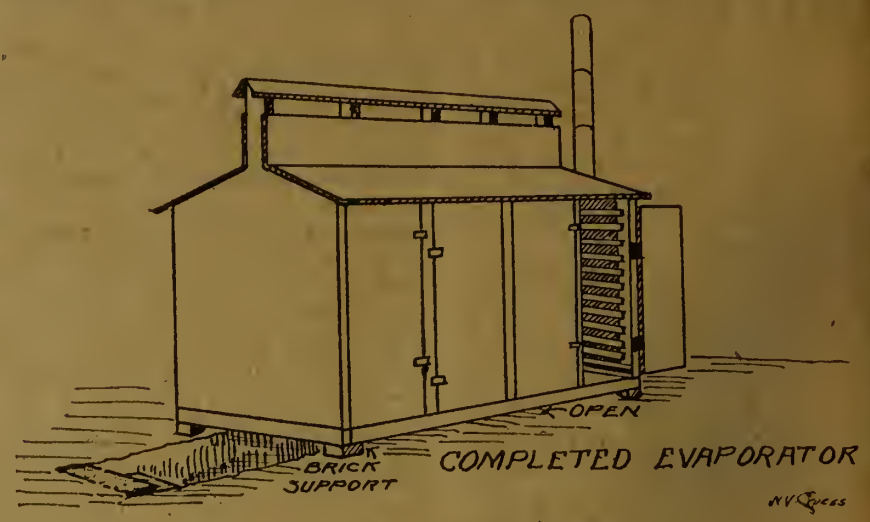

Figure No. 3, As It Looks Completed
Simple, not expensive and effective.

vegetables in thin layers to obtain drying.

Start the fire and regulate fire and damper so that lower trays above the furnace end of drier are maintained about 165 degrees to 170 degrees Fahrenheit, not higher. The trays in other compartments will be at temperatures somewhat lower than this because heat is most intense at furnace end; if difference is too great place a piece of sheet metal above the stove. If the trays are "staggered" on the runways, that is, if trays on lower runway extend to one wall of drier, the trays on shelf above to opposite wall leaving a six inch space at one side; the third tier of trays placed against opposite side and so on for succeeding trays the air will tend to be more evenly distributed.

As soon as lower tray is dry remove it and shift the whole stack of trays down one tray. Insert a fresh tray at the top. Thus each tray enters at the cool part of the drier and finishes at the hot part, utilizing the heat efficiently. Vegetables should be dried "bone dry"; fruit to a leathery degree of dryness. Apples should dry in about six hours; prunes in about 24 hours; apricots and peaches in about 15 hours; vegetables in six to ten hours; and grapes in 24 hours.

Insect Proof Containers

Pack all dried produce at once into sealed jars, cans or insect proof boxes. Keeping insects from the dried product is an absolute necessity; neglect of this precaution has spoiled millions of dollars worth of dried products and is the most important problem confronting the commercial producers of dried vegetables.

If wood is used instead of kerosene or stove oil as fuel the cost will be reduced considerably. If sheet metal is used for construction or a cement or brick foundation used, the cost will be greater than given above. In many cases the fruit grower can build the entire drier by his own labor and cut the cost estimates given above.

General Suggestions

Building and operating a drier involves a great deal of time, thought and attention spent in various ways even under the best of conditions and regardless of the size of the outfit used. Considerable ingenuity and resourcefulness and above all a "sweet temper" are needed to make a drier a success. If these facts are realized before the work is undertaken success will follow.

In operating a community owned plant the delivery of fruits and vegetables should be so planned that one variety is handled each day and so that not too much material for the capacity of the drier is delivered at any one time. It will be necessary to enlist the aid of some public spirited person who is familiar with the operations involved if delay is to be avoided.

* * *

Save the Fruits

This article by Prof. Cruess should help in attracting attention to the possibility of preparation for unfortunate weather conditions or for handling a large quantity of fruits and vegetables which would be waste, and make of them a valuable product.

Unfortunately there has been no general agreement on methods or even name of the processes of drying. Some prefer "California Dried;" some, "Evaporated;" others, "Dehydrated." Many maintain especially that there is a material difference between the processes of dehydration and evaporation.

Certain it is there are effective methods. There are manufactured ready-to-use dehydrators and evaporators which may be installed under direction of competent engineer without necessity for growers familiarizing themselves with the process other than to practically manipulate it after erection. Several of these installed dehydrators and evaporators have proven entirely satisfactory and their installation is extending almost every day.

A Possible Source of Cheap Nitrogen

By Fred M. Reed

THOSE of us who have been in the citrus game in Southern California for 30 years or more have seen the fertilizer question change from a matter of getting rid of men trying to sell all kinds of fertilizer for any old price, to getting sufficient supplies of any kind without much regard to price. We used to get sheep manure for two cents delivered in the grove; now we pay ten cents or more for it on the car, and every sheep corral in California, Utah, Nevada and Arizona within hauling distance of a railroad is being scraped for shipment direct to the citrus groves or to be used as "filler" for much higher priced commercial goods. We use all the alfalfa we can get, all the bean straw, steer manure from the Imperial Valley and the city stock yards, nitrate of soda from Chile, sulphate of ammonia from the Eastern factories, fish scrap from the whole Pacific Coast, and all the local manures available, and yet there is no prospect of the supply ever being better nor of the price getting lower Nor will it be practicable to divert any part of the available supply of irrigating water from the growing of food crops to the culture of alfalfa or other legumes to be used as raw fertilizers, because the available supplies of water in Southern California are now developed and in use, and future increase of the supply by new development will be at ever increasing cost.

The observations of the writer as an amateur botanist have led him to believe that there is still a great source of supplies of organic nitrogen bearing fertilizers still untapped and possible of practical development without encroaching on the supply of irrigating water or of the better food producing lands. I refer to the many native leguminous plants, now mostly unknown and unnoticed except by bot

unists, which even in their wild state should produce considerable quantities of herbage that should be as valuable as alfalfa or bean straw for fertilizer.

There is no reason why the seeds of these plants should not be collected and subjected to cultivation and modern methods of improvement by seed selection. These plants could be grown on the cheapest and poorest lands without expensive cultivation and without irrigation, and the great cooperative organizations could easily have these crops grown by contract for their members under the same system of supervision by experts that they employ in selecting buds and furnishing other supplies.

For example, there are several species of clover, such as Trifolium neolagopus and Trifolium columbium, that grow remarkably well on high and dry mesas, that ought to prove a thoroughly satisfactory fertilizer. These clovers ought to be a bonanza to the dry land farmers as a cash crop to grow alternately with grain. Then there is every reason to believe that a strain of lupine, of the type of Lupinus micranthus and its varieties, could be developed that would produce a good crop on the poorest and dryest soils. The Hosackia family is still more promising, the best of them being the "Spanish clover," Hosackia purshiana. This plant grows thick and a foot or more high on ground too hard and dry to plow, and should respond readily to cultivation and improvement. The perennial "deer weed," Hosackia glabra, would produce a heavy crop on land that would be too rough and poor for most ordinary crops, and in addition would afford an immense amount of bee pasture. Hosackia strigosa shows great possibilities in this line, and down on the Colorado desert there is a perennial species, Hosackia rigida, that grows vigorously, producing great quantities of seeds on individual plots, on hillsides so sterile and rocky that it is a wonder that any plant can endure.

These are only a few out of a considerable list of native plants capable of being improved and domesticated, that can easily be made to produce an abundant and comparatively cheap supply of organic fertilizer, rich in nitrogen, and that could be produced without encroaching upon the available supply of irrigating water or lands now producing food crops.

Pineapples in California

By Ernest Braunton

PINEAPPLES are native to America; not to the United States, but to tropical America in general. They will grow and thrive, so far as temperature is a limitation, where light frosts prevail. This statement would, unqualified, appeal to Californians. Our climate is not too hot for them, but too dry. A soil retentive of moisture, but well drained, with a light shade to prevent the sun pulling it out of the soil, is the combination needed. The plants need shade in summer and will fruit in winter without protection in practically frostless places.

In California we depend mainly upon Hawaii for our pineapples and Eastern states have looked to Florida and the West Indies for their supply, principally to Cuba and Porto Rico. But of late the Floridan crop is each year less of a factor, for the incurable wilt is fast retiring the pineapple from commercial plantations in that state. Down there they will tell you that the plants will not thrive in a moist atmosphere, but during the summer season in California they are benefited by more humidity than nature provides.

Out at Hollywood, near Los Angeles, H. Zulauf has a dozen plants on the south side of a tight board fence, that have produced fruits second to none. Those who have eaten them told the writer they were the very best they have found. These were planted from tips cut off above Hawaiian pineapples bought in the local market and therefore varietal names are unknown. The fruits weigh about three pounds each and ripen in early spring. It is quite evident that the plants should be grown in summer for fruits in winter. As the plants rapidly develop top shoots it is but a short time until one may have a good family stock of plants.

In 1893-4 the writer grew several hundred plants, in four named varieties, stock obtained from Florida. From experience gained thereby, joined with subsequent observations, it is evident that soil should be well drained at all seasons, though it may be sandy, heavy or a medium loam. Our winter climate is favorable, and the hottest place should be chosen, such as the south side of a fence, hedge or building. If there is danger of frosts the plants should be covered at night, but never during the days of winter. About May the plants should be covered with lath frames or, better still, with the lightest cheesecloth to be had. When the hot weather is past take shade away, for heat is needed. If the location is on a slope so water escapes easily, the soil may be very shallow. It is said that on the Florida Keys the plants fruit perfectly on but one or two inches of leaf mold overlying a coralline rock.

THE NITRATE INDUSTRY OF CHILE

Chile is the only country in the world known to contain commercially important deposits of nitrate of soda, a product which has a wide variety of uses, but is best known as a valuable fertilizer. Two grades of nitrate are produced—95 per cent, or ordinary nitrate, which is used for fertilizer purposes, and 96 per cent, or refined nitrate, which is used for manufacturing purposes.

Before the war, approximately 75 per cent of the nitrate marketed was of the lower grade. Private business in Chile and government revenue are both dependent on the prosperity of the nitrate industry, since this one product ordinarily constitutes nearly 80 per cent of the country's exports, and the export tax on nitrate and its principal by-product, iodine, constitutes more than half the government's total income.

The nitrate fields, the principal source of Chile's wealth, are limited to a narrow strip of arid desert located on the eastern slope of the coastal range, west of the Cordillera of the Andes, at an altitude of from 2,000 to 5,000 feet above sea level, and inland a distance varying from 16 miles in the northern part of the zone to 90 miles in the southern part.

CALIFORNIA SOIL BORINGS

Dr. C. B. Lipman of the state college of agriculture reports that from studies of auger borings at various depths down to seven feet in a number of different soils, it was found that previous findings to the effect that microorganisms of arid soils penetrate deeply into the subsoil layers, were confirmed.

It was demonstrated that ammonification continues undiminished through six feet of soil in every case. While this was not true for the nitrifying powers of the same soils, it is considered clear that nitrifying bacteria do live in the lower layers of some, and perhaps all, of the soils to similar depths. The great difference between the two is attributed to the fact that the nitrifying power of these soils diminishes rapidly downward from the first foot, while the ammonifying power remains apparently unchanged. The nitrogen fixation results were for the most part inconclusive, but seemed in general to confirm the idea that bacteria and other microorganisms do penetrate to greater depths in arid soils than would be generally expected. Such penetration and activity at those depths seem to be superior to those noted on humid soils.

The San Francisco Chronicle quotes "a large rice grower" as saying: "The acreage planted to rice this year will be equal to last year's, this being made possible in spite of the drouth because of centralized control of water and prevention of waste."

Plant Teague Trees

They Are Grown From Selected Buds Taken From Trees With Individual Performance Records both for Quality and Quantity Production

LEMONS

We can supply Eurekas, Villa Francas, and Lisbons. All budded from the best and most prolific bearing types. If you have lemon land do not be afraid to plant Lemons. They will yield satisfactory returns when they come into bearing.

LIMES

Every home orchard in the protected localities should contain one or more lime trees. We have some extra large trees of both the Mexican and Tahiti Seedless varieties.

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We still have a few nice Marsh Seedless, Triumph, Imperial, Foster and Duncan trees unsold.

Handsome returns are realized from Pomelo orchards where properly planted and cared for.

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Good thrifty field grown Fuerte and Sharpless trees for immediate delivery.

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Grafted from the best large fruiting varieties.

Write for our new descriptive price list describing forty-six varieties of Oranges, Lemons, Limes and Pomelos and seventeen varieties of Avocados and other Tropical fruits.

It's free to those interested.

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Efficient—will pump water with only a light breeze blowing. Requires only occasional oiling — has direct stroke — no gears — but little friction—noiseless.

Have your dealer tell you about the superior construction of the ECLIPSE, its long life and other features.

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WHAT THEY WILL DO:

They make the best summer covercrop.
Maintain a moist surface mulch.
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As a hay have a food value of 43% more than Alfalfa.
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Thirty pounds of seed is sufficient to plant one acre.
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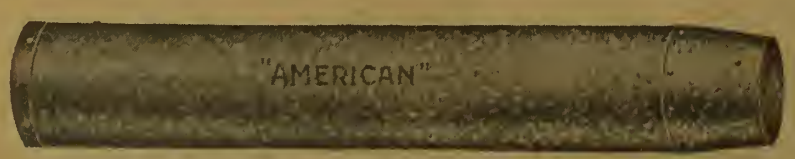

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Nurserymens Bud Selection Association

THE annual meeting of the stockholders of the Nurserymen's Bud Selection Association of California was held at the Plaza Hotel, San Francisco, on June 5. The following directors were elected for the ensuing year: William T. Kirkman Jr., Fresno; J. E. Bergtholdt, Newcastle; J. S. Armstrong, Ontario; J. W. Barnicott, Newcastle; H. A. Hydc, Watsonville; Max Crow, Gilroy; Almon Wheeler, San Jose.

General Manager L. B. Scott presented a detailed report outlining the work which had been done up to date and forecasting the work of the association during the next year. He stated in his report that the work of the investigational staff of the association was well under way. This includes the securing of performance records in individual orchards of the different fruit varieties which have been recommended by the canners, shippers and growers in the different meetings which have been held in San Francisco, San Jose and Sacramento.

The association will not furnish the buds which will be used by the different nursery members this coming year, but will furnish each nursery which is a member of the association with a list of the orchards in which the investigational staff is working, so that the members who belong to the association can use this information in selecting their bud wood.

The individual tree performance records which havc been started this year in orchards of the different fruit varieties will be continued in 1921 and in succeeding years. All the buds used by the different members of the association in 1921 and in succeeding years will be sold at cost to the different members and will actually be cut by representatives of the association. The first two seasons' records will have been secured by 1921 and association representatives will be able to make a selection of bud wood from record trees.

A central bud farm will be secured, and buds will be selected in 1921 from record trees for propagation at this farm. Eventually the second generation trees on this farm will yield a large amount of bud wood which will be sold to the different nursery members who belong to the association and to any fruit grower who desires to purchase buds or scions for top working.

The association has placed at the disposal of the United States department of agriculture the sum of $5,000, which will be expended during the summer months in detailed investigationai studies. These studies will be in addition to the investigational work which is carried on by the members of the Nurserymen's Bud Selction Association staff and will include the studies of fruit and leaf characteristics and habit of growth of individual trees in small blocks in each of the important deciduous fruit varieties. This work wiii be carried on in just the same careful, painstaking way as the citrus fruit investigational work has been conducted, and will be under the direct charge of Mr. A. D. Shamel of the United States department of agriculture, who will be assisted in his investigations by R E. Caryl and other department representatives. The commercial performance record work which will be conducted by the association itself will be handled by Mr. Scott, V. W. Hoffman and Millard Sharpe.

Recognizing the fact that there are a number of nurseries in the state which would like to receive the benefits of the work of the association, the stockholders voted to reduce the minimum amount of capltal stock which must be owned by any nursery from $1,000 to $300. As only ten per cent of this amount is payable on joining the association, it is within the reach of every nursery in the state to obtain the benefits of the association. The capital stock of the association will be used only in the purchase or lease of land for a central bud farm and for other permanent equipment. The running cxpcnses of the organization during the year 1920 will be met by an assessment at the rate of $5 per thousand on all buds put in by the different firms which belong to the association. In 1921 and in succeeding years the cxpenses of the organizatlon will be met by thc actual selling price of buds furnished to al members. Any nursery, however whlch does not joln the associatio until 1921 will have to pay an entranc assessment equivalent to the numbe of buds handled by that nursery i 1920 at the rate of $5 per thousand in addition to the selling price of the buds in 1921. This stipulation is made in the hope that all the legitimate nurseries in the state will avail themselvcs of the work of the association and unite with the association during the present year.

The following are the officers fo the ensuing year: President, William T. Kirkman Jr., Fresno; vice-presi dent, J. E. Bergtholdt, Newcastle; sec retary-treasurer, Max Crow, Gilroy.

JUNE DROP TO BE DISCUSSED

Tulare County has called a plant pathological congress to be held June 25 and 26.

Every effort is being made to have the meeting develop on the practical side of fruit production, and technical and scientific talks will be avoided. The day and evening sessions will be given over mostly to general discussions by the practical commercial growers in attendance. The formal addresses will deal with the practical application of scientific facts to production. The program is being arranged by Dr. P. A. Boncquet, county plant pathologist. Speakers invited are:

Geo. P. Weldon, consulting horticulturist, Ontario. "Deciduous Cultures and Pest Control."

Harry Smith, state horticultural commissioner, Sacramento, "Plant Pest Control."

Frederick Maskew, deputy plant quarantine officer, San Francisco. "The Practical Value of Plant Quarantine."

Geo. Compere, plant quarantine officer, San Francisco. "Introduction of Beneficial Pests."

Dr. Thomas F. Hunt, dean University of California school of agriculture. "What Prospective Settlers in This Section Should Know."

Professor Horne, department plant pathology, University of California, Berkeley. "Plant Pathology."

Professor Bioletti, department of viticulture, University of California. "Pest Control of Vines."

Professor Howard, department of pomology, university farm, Davis. "Summer Pruning."

Dr. Lipman, University of California. "Soil Bacteriology in Relation to Health of Plants."

CITRUS INSTITUTE

The summer meeting of the California citrus institute, scheduled for June 24 and 25 at the Elks Club House, Santa Ana, will discuss primarily the proper maintenance of mature citrus groves. Papers will be presented by practical orchardists giving detailed methods of tillage, irrigation, etc., in use on various soil types ranging all the way from the heavy clay soils of the Whittier region to the light gravelly soils of the Upland section. Ample opportunity will be given for discussion and questioning, so that the differences in operation on different soil types will be clearly brought out.

The report of the past two meetings of the institute has just come from the press and is being distributed this week to all members who have paid their dues. Annual dues in the institute are $2, and the report is distributed only to actually paid up members.

The banquet to be held on the evening of June 24 in the Elks Club House is one of the new features of this year's meeting. President Barrett suggests that so far as possible reservations should be sent in to the Orange County Farm Adviser, Santa Ana, before the date of the banquet.

VALLEY FAIR

The people of the rich little San Fernando Valley in Los Angeles County are planning for a fair and public sale of pure bred livestock to take place September 15-18. This is the week following the close of the state fair. The people of the valley are intensely loyal to their own section and propose to make this fair one of the milestones in its advancement.

DUST SPRAY FOR CITRUS

In a paper read before the Florida Citrus Seminar, by W. W. Yothers, attention is called to the value of sulphur applied as a dust in the control of the rust mite

Several experiments conducted by the author in 1918 corroborate earlier work and show that the effect of the sulphur upon the mite is practically instantaneous. Since the incubation period of the rust mite egg is about five days, the mortality will be complete if the interval between the dust application and the first rain is an equally great length of time.

Experiments on a fairly large scale in two fields are reported upon. Examinations made after application of dust consisting of 20 per cent hydrated lime and 80 per cent sulphur showed practically all mites to have been killed within one hour. The results show flowers of sulphur to be as effective as the finely ground mixture of sulphur and lime. So long as the sulphur was present it killed the young mites as soon as they hatched out. While one dusting was not enough to produce bright fruit, it is thought that two will be. It is concluded that dusting done during the hottest and dryest part of the day is in all probability equally as effective as when done while the foliage is wet with dew. It is said to be reasonably certain that a pound of sulphur is sufficient for a tree, and that a team and two men can dust 40 acres in a day. The approximate cost of treating 40 acres is placed at 4.7 cents per tree.

THE TROPICAL PAPAYA

J. E. Higgins, horticulturist of the Hawaii agricultural experiment station, in a bulletin entitled "The Papaya in Hawaii," says: "Excepting the banana, there is no fruit grown in the Hawaiian Islands that means more

Carica Papaya

Fruits weighing five pounds each, fruiting in a greenhouse, but without artificial heat except in coldest weather.

to the people of this territory than the papaya, if measured in terms of the comfort and enjoyment furnished to the people as a whole.

"The papaya is the almost universal breakfast fruit in Hawaii, enjoyed alike by rich and poor, and is recognized as one of the most wholesome fruits wherever it abounds. It grows so readily, with so little care, in such variety of soils and conditions, with so serious diseases or insect pests; occupies so little space and matures so quickly that it is to be found in nearly every dooryard and garden."

In California the papaya is regarded as a strictly tropical fruit, more so than the avocado or cherimoya, and is only planted in practically frostless localities. It must be said, however, that in favored spots it has fruited and that such fruits have been very good. The larger and better fruits, those weighing six or more pounds, have been grown under glass. A few trees have fruited in various parts of the south end of the state, out of doors, ranging from San Diego to Santa Barbara. In many places where frosts have not injured them the plants have died from "wet feet," the roots rotting from an excess of cold water during the rainy season. It is recommended to plant in the hottest place at command, on a little rise in ground or mound. The plant does not require as much water as the orange or avocado and as it is largely dormant during the rainy season, no drink need be given.—E. B.

THE WHITE SAPOTE

Casimiroa edulis, the white sapote, is a member of the same family as the orange, known to the botanist as Natural Order Rutaceae. It is also hardy as any orange tree and thrives under similar conditions. In fact, it has fruited in southern Europe and in its native Mexico grows at an altitude of 7,000 feet where the winters are quite severe. Therefore it is hardy throughout California.

The tree grows very slender when young and should be branched low, with several leaders, and these should then shoot upward uppruned. When the tree reaches some height it begins to branch and at 30 feet high is as much through the top. There is no other so-called tropical fruit tree that will endure so much drouth and general neglect. No amount of care lavished upon it appears to much improve growth of tree or quality or quantity of fruit.

It is better to plant it on well drained soil and give it an occasional irrigation in summer; never more than once a month. The terminal growths of young trees should be pinched out to induce them to branch. The fruit has a considerable range in size and quality, but budded trees are available. The best of these is the Harvey, the fruit ranging from three to four inches in diameter. In shape it somewhat resembles a quince, with the skin and flesh of a Bartlett pear. The tree, fruit, flowers and leaves all are in five parts, and by this the tree is easily recognized. It will not bear until seven or eight years old.—E. B.

GREEN MANURE DOESN'T SOUR THE SOIL

Turning under a green crop, even though it is nothing more than a crop of weeds, will nearly always increase the yield of crops raised on that ground during the next two or three years.

Some people have had the opinion that turning under green crops tended to make the soil sour, and would, therefore, make it unsuitable for some crops which do best on a sweet soil. This may be true in some cases, but experiments carried on in Virginia have shown that plowing under green crops does not always make the soil sour. On the contrary, the practice of turning under green manure seemed to make the soil less sour.

From these tests it would seem quite safe to assume that there is little, if any, foundation for the belief that green manuring makes sour soils. But even if it does, a little ground limestone will sweeten it again, and there is no question whatever regarding the higher crop yields from green manuring and liming, whether practiced together or separately.—Tractor Farming.

ANOTHER GERMAN GRIEF

"Ach, Fritz, dis democracy iss terrible. Ve haf now no vun to look up to."

"Vorse as dot, Hans, we haf nod any vun to look down on except our vifes."—Life.

Judge—"The police say that you and your wife had some words."

Prisoner—"I had some, but didn't get a chance to use them."—Puck.

Twin City 12-20 Plowing 30 year old Alfalfa Sod

Here is a striking example of Twin City 12-20 performance. This picture from an actual photograph shows Twin City 12-20 near Montrose, Colorado, pulling three 14-inch bottoms through Colorado gumbo — 30-year-old alfalfa sod—plowing 8 to 10 inches deep in this toughest of all land. A feat not easily matched in tractor work.

With this demonstration of what Twin City 12-20 does under extraordinary conditions, you have ample assurance that it will give you any service you will ever demand.

Its 16-valve (valve-in-head) engine means great surplus power with fuel economy that you can see. Its unusual strength and light weight are the Twin City results from the finest alloy steels heat treated. *The Twin City 12-20 is built to do the work—not to meet a price.*

See the TWIN CITY dealer nearest you. Or write for details on TWIN CITY Tractors 12-20, 16-30, 25-45, 40-65, 60-90. All-steel TWIN CITY Threshers in three sizes and TWIN CITY Motor Trucks.

Here are some of the reasons:

Double valve area of 16-valve (valve-in-head) engine quickly exhausts all burnt gases, leaving a clean cylinder so that the new charges deliver full power. Removable cylinder walls mean uniform cooling, quick and easy replacements. Counterbalanced crankshaft reduces vibration and wear. Pressure feed oiling through drilled crankshaft. Hyatt roller bearings throughout. All gears of special alloy steel, drop-forged, heat-treated, completely enclosed and running in bath of oil. Every part readily accessible.

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12-20 Kerosene Tractor with 16-valve engine

"FIRE!"

In the dead of night. You awake choking. Flames bar your way to the children's room. "Mother! Daddy!" You hear their screams through the smoke. Will they escape? Your blood freezes. Will you escape? . . . . . Outdoors at last!—in night clothes. Midwinter—and freezing cold. No place to go. Sparks have ignited the barn. Horses and cattle kicking in terror. You try to lead them out. A stampede. Will you escape their hoofs?... No way to fight the fire. No one to help. Smoldering heaps of embers. Homeless!

DON'T LIVE IN CONSTANT FEAR OF CHIMNEY FIRES!

Do you know that three or four out of every ten farmhouses that burn are set afire by leaky chimneys? Do you know that a chimney without flue lining is the biggest fire risk on your place?

Heat dries up the mortar. Chemicals in the soot crumble it. The mortar falls out and leaves holes through which the flames start a fire in your walls.

Or the soot gathers on the rough places inside the chimney, catches fire and drops sparks on the roofs—or the wind carries them toward the barn.

Fire Clay Flue Lining fireproofs a chimney from bottom to top—*for a few dollars!* Its smooth surface does not gather soot. This reduces the chance of flying sparks. Also it saves costly chimney sweepings. And the smooth, clean, leakless flue causes the chimney to draw better.

Out where you have no real way to fight a fire and where a fire usually means a total loss, take no unnecessary chances.

Protect your family and your home with chimneys that are lined from bottom to top with Fire Clay Flue Lining.

Sold by building material dealers in sizes to fit all chimneys. Write for free booklet, "How to Build a Safe Chimney."

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CHICAGO PITTSBURGH

FIRE CLAY FLUE LINING

The Potato is King

By Ernest Braunton

AT San Gabriel the writer met a representative of one of Los Angeles' heaviest shipping firms, hunting for new potatoes on May 26, and finding none in that section. He said: "We are paying the grower $7 a hundred for any kind of potatoes and cannot find one-tenth what we need. Every available car is loaded with potatoes for Eastern markets. I don't know what is the trouble, altogether, but it looks as though California is feeding the other states."

This remark was made on the McSweeney ranch, standing in a ten acre patch of the finest White Rose the writer has seen, a very early and unusually vigorous lot, yet they will not be dug until about June 20. These have been cultivated at least four times, perhaps five, and will receive at least one more, and if another irrigation is found necessary, still another soil stirring will be given. It all depends on the weather. Potatoes were found in that section that had not been irrigated for two weeks previous to a day or two of hot weather, and the tender tips were sun scorched.

For Seed Purposes

The ten acres mentioned is but a part of 100 acres planted by the same grower, but on account of its excellence it will be "hill selected" for seed purposes. A large number of the best hills will be marked and the crop harvested by hand digging. If the crop in each hill prove up to the standard they will be kept and cured for replanting early in August, being kept out of the soil for at least a month. These potatoes have been twice sprayed as a precautionary measure, once in April and again in May. No trouble threatened, but the "ounce of prevention" was administered.

The spray used was the 5-5-50 Bordeaux mixture. It consists of five pounds of lime, five pounds of copper sulphate, and 50 gallons of water. To each 50 gallons is added four pounds of lead arsenate for any leaf hoppers or other insects that might come, the Bordeaux being used only to ward off possible fungus disease. The rows are planted three feet apart, but even now the plants practically cover all the soil with large bushy tops that come above one's knees.

Treatment After Harvest

After these potatoes have been dug and sacked they will be stacked in the shade of some large eucalypts, covered with three or four inches of straw and sprinkled twice a week if weather is warm, or at least every four or five days. This will cure them in four or five weeks so they will be in prime condition for replanting. The main points in seed potato storage are to keep them cool, dark, and not allow them to become too dry. In long storage for eating purposes the prime necessity is darkness. The field where this select ten acres of White Rose is growing will be irrigated, plowed and sown to melilotus some time in October, to be turned under in early spring. It is the practice on the McSweeney ranch to grow but one crop of potatoes on the land each year. The fall crop, like that now ripening, will be in about equal quantities of White Rose and British Queen—the acreage also about the same, or 100 acres for each crop.

Ten Acres of White Rose Potatoes

A remarkable growth on the McSweeney ranch, photographed May 25. Will be hill selected for seed.

Potato Field Meet

MORE than 200 potato growers and interested observers met at the ranch of J. L. Oleson near Van Nuys, on June 9, to inspect the several fields there and in the neighborhood, looking to crop production, fertilizing experiments, effect of cover crops, insect pests and diseases and all that pertains to commercial potato culture.

Potato Digger at Rest

Was turning out about 90 sacks to the acre, near Van Nuys, of very large potatoes.

Assistant Farm Adviser Gordon presided and introduced Mr. Oleson, who spoke briefly on what he had to present in the several fields—varieties used, treatment given, etc.—and invited those present to follow him through the fields to observe the various conditions he would point out. All started out in good faith and nearly all were "in at the finish," some decidedly "all in," for it was at least a four mile tramp over potato fields, covering two or more hours of time. But the crowd was willing and of good nature.

After return to the large shed, Mr Gordon introduced D. G. Milbrath, pathologist of the United States department of agriculture, who spoke briefly on potato troubles. He told of a few fields in poor condition where the ailments of plants were hard to define—a general lack of vitality. Near by were other fields given better care that showed less trouble. One field had been irrigated three times and cultivated seven times and in this one the plants were free from any trouble, proving proper care is the keynote to success. Fusarium may be largely controlled by proper irrigation and cultivation; the keeping of low temperature in the soil.

Mr. Gordon then introduced Farm Adviser Hodgson, who told of the advantages of organization, as many present had expressed the wish that a Los Angeles County potato growers' association might be formed. D. B. Mackie, field entomologist of the state department of agriculture, told of the depredations of the tuber moth and the best means for its control. No more speeches were made, but the following persons were introduced to the audience for a "once over": R. G. Risser, manager crop production department, California Vegetable Union; Roy E. Campbell, entomologist United States department of agriculture; J. H. Law, in charge of office of United States bureau of markets, Los Angeles

branch; H. E. Truax, investigator for same bureau; County Horticultural Commissioner Ryan and Deputy Neville, the latter in charge of rodent control; Dr. Clements, agriculturist of the Los Angeles chamber of commerce; and K. Okamoto, secretary of the Japanese Association of Southern California.

After this presentation of officials

Enthusiastic Visiting Potato Growers

Showing but one of the crowds of investigators in the fields of J. L. Oleson, near Van Nuys.

the crowd entered autos and visited several other fields, some where potato diggers were at work. To swell the crowd there were several classes of boys from surrounding schools, in charge of teachers in agriculture. The fields visited ranged from Van Nuys, through Owensmouth to Chatsworth. One of the most interesting phases of the meeting was the pointing out by Mr. Oleson of fields on which cover crops of various varieties had been grown, ranging in (1919) potato crops from 25 sacks to the acre to 225 sacks. The same lot of seed planted on new soil at Chatsworth yielded but 70 sacks an acre, but at Van Nuys, after two or three years of cover crops, the yield was 200 sacks to the acre. The first year following alfalfa the crop is much poorer than following vetch or other crops. Twelve tons of horse manure to the acre, with some bean straw, produced a bad case of scab throughout the field so treated. Mr. Oleson is seeking to eliminate scab from this field through use of cover crops, planting, of course, scab free seed potatoes. He has promised to tell Cultivator readers, in a future issue, about this and other interesting experiments with cover crops and fertilizers. Oats five feet high produced negative results, while on the adjoining field a vetch crop before potatoes produced a splendid yield of the latter. Mr. Oleson is now plowing under alfalfa and the field will be again plowed later and planted to autumn potatoes. When present crop of spuds is harvested, some of the fields will be sown to cover crops in August.

A FOOT OF ASHES

A report has just been made on the recovery of vegetation from the effects of volcanic ash at Kodiak. This is an account of conditions and processes in the region affected by the eruption of Mt. Katmai, Alaska, as regards vegetation and the revegetation of this area. Comparisons are made with other volcanic outbursts there and elsewhere. It is stated that the damage to vegetation by an eruption is not likely to be so great as at first appears, no permanent injury to agricultural interests being probable in cases where the ash fall is not greater than 12 inches.

BUD VARIATION IN POTATOES

In Poland, at the selection station near Warsaw, in fields of Early Rose potatoes, certain plants attracted attention by their great resistance to mildew during a time of heavy infestation. The plants were carefully saved, propagated and further observed. It seems that they were distinguished by another peculiarity—the terminal leaves as the young plants came up were observed to be shorter and more rounded at the ends. These characters the Polish investigators believe due to bud variation.

PROPAGATION OF POTATOES BY USING EYES

An experiment has been conducted by the agricultural director of the Ardeche (France) in utilizing as seed the eyes of potatoes with a very small amount of tuber adhering. At harvest time the plants produced were found to bear very small potatoes. Thus by using these very small pieces as seed, while there was a saving of five-sixths of the amount of seed (230 pounds per acre) there was a loss of 1350 pounds per acre on the harvest.

AMERICAN TOBACCO IN ITALY

The United States trade commission at Rome reports most unusual importations of American tobacco by Italy. In six months of 1918 we sent them 19,000,000 pounds and in the same months for 1919 there were arrivals of 42,000,000 pounds, an increase of considerably over 100 per cent. He adds: "It appears that American producers should be able to still further increase their sales to Italy, where it seems certain that the upward tendency of consumption will continue."

THE RICE BEAN

In Australia a few farmers have been using the rice bean, Phascolus calcaratus, as a summer cover crop or mulch with good success. This species is native to India and is sparingly cultivated for food both there and in China. It has also been grown in a small way, for trial, in the United States. Several Australian farmers who have given it three years' trial on steep stony ground praise it highly as a green mulch that prevents the washing of soils in times of torrential rains.

MEXICAN TOMATOES

The American consul at Nogales, Mexico, states that the steamship Mazatlan left that port on April 12 and arrived at San Pedro on the 17th, making the quick run of five days. The steamship carried 40,000 boxes of tomatoes, all it could carry of that class of freight. This shipment brought the tomato receipts from the state of Sinaloa above those of last year. He further states that two-thirds of the growers in Sinaloa are Americans.

A friend of M. E. Page of San Jose saw at far away Juneau, Alaska, a moving picture of Santa Clara prune orchards; gathering, processing and packing the fruit. The legend on the screen read: "California supplies 78 per cent of the world with prunes; the other 22 per cent don't eat 'em-"—Associated Grower.

DRIED VEGETABLES

Every year sees an extension of the commercial dehydration of vegetables, and in California we have such food factories from Siskiyou and Yuba Counties down to the south end of the state. Some of these dry nothing but potatoes, others mixed vegetables, and still others grind the latter and put them on the market under commercial brands, and for specific purposes.

One of the latter class recently inspected by a Cultivator representative puts out a powdered preparation consisting of dried and ground carrot, celery, onion, potato, spinach and turnip. It is used for making soups, salads, etc. The composition was readily given by the manager and an invitation extended to inspect the factory. The vegetables are dried by one of the common processes of dehydration and all are grown within a mile or two of the factory. This industry has been established about two years and ships to Canada and South America. It may be of general interest to quote the prices this prepared product brings at retail. The small packages are in four sizes, from ten cents for 1½ ounces to 75 cents for a one pound carton. In bulk the price for five pounds is $3.50 and for 15 pounds $10. The establishment has every appearance of prosperity and doubtless others will enter this promising field.

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THE high hay market is not your local market where hay is plentiful and consumed only in limited quantities. The high market is in the cities where 3,000,000 horses still compete with the automobile and motor truck — and eat hay. The city horse has no pasture or roughage to fall back on — he must eat feed and hay — 15,000,000 tons of hay yearly or one-fifth of the nation's total hay crop!

As a rule the demand for hay in the cities is greater than the supply and consequently the prices are high. Also, the city horse owner wants good hay and is willing to pay for it.

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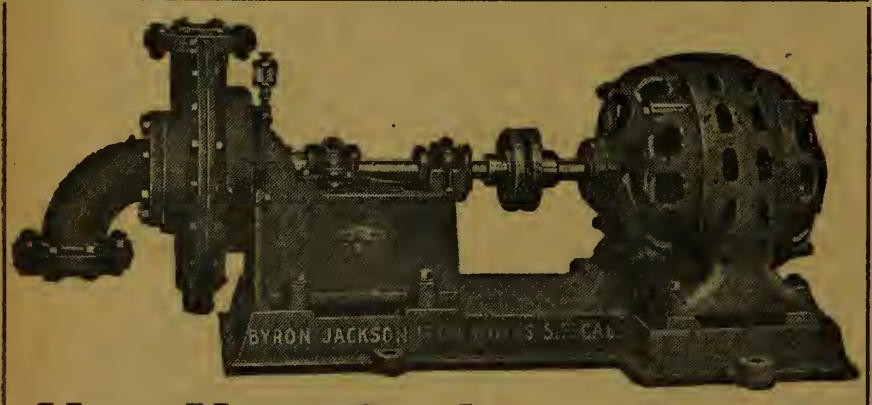

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Mariout Barley Scores in Butte County

Mariout barley not only has ripened earlier in Butte County this season, but has yielded a heavier production than common barley, according to the report of G. W. Hendry, assistant professor of agronomy at the University of California farm, and H. E. Drobish, farm adviser of Butte County. After an inspection of the 30 Butte County Mariout demonstrations last week, the following report was made:

'Mariout on the Geo. E. Canfield ranch, three and one-half miles west of Chico, was practically ripe on May 21, while common barley was just filling and was in danger of pinching as a result of the north wind.

"On the ranch of John H. Guill Jr., two miles east of Chico, Mariout barley was so far advanced that it was not pinched by the north wind of May 19, 20 and 21, and Mr Guill estimated that it would outyield common barley by about 50 per cent on his drier, higher lands.

"An estimate of ten sacks of Mariout barley per acre was made after inspecting on May 21 a piece of shallow hardpan soil eight miles north of Chico, near Rock Creek, planted by Arthur Smith and C. V. Richards. This land was selected in order to provide the severest test possible. Common barley has never produced on this land.

"Mariout planted by R. W. Durham of Durham, February 25, was in the "dough" and still green and thrifty May 22, while common barley planted at the same time was in the boot and had not started to fill, and was in a less thrifty condition. Others near Gridley who had good fields of Mariout were Fred Hackett, C. S. Cliffman, S. A. Mealey, C. W. Van Note and E. S. Porter."

World Cotton Conference in 1921

Advice has been received from Rufus R. Wilson, general secretary of the World Cotton Conference, who is now in England for the purpose of conferring with other officers of the conference, that the date of the next meeting has been fixed as June 13 to 22, 1921. The sessions of the first three days will be held at Liverpool. The delegates will then proceed to Manchester, where the remaining sessions will be held.

The conference to be held in England bids fair to surpass any gathering in the history of the industry, not only in point of attendance, but in the scope and importance of its work. The first World Cotton Conference, held at New Orleans last October, was a distinct success. Much was accomplished at that time; close and cordial relations were established through mutual intercourse and personal contact; a spirit of hearty cooperation was aroused; the body became a permanent organization, with a definite purpose, and the wheels were set in motion for real achievement in the solution of the many problems now facing all cotton interests. The next conference will bring to its task a perfected organization, committees whose work is definitely outlined and an enthusiasm born of the knowledge of the power of coordinated effort and the cooperation of those who firmly believe that the welfare of each unit is best served by that which benefits the industry as a whole. Arrangements are rapidly taking form for a program which will be of vital interest to all engaged in the production, handling and manufacturing of cotton and its products,

Nor have arrangements for the enjoyment of the delegates and their guests been neglected. The last day at Liverpool and two days during the Manchester meeting will be entirely devoted to their entertainment. Steamship and train arrangements for the entire trip are in the hands of the Eaves Steamship and Tourist Agency of Boston, which has been appointed transportation manager by the executive committee. Very attractive itineraries are now in preparation for those who desire to extend their travels to the continent after the conference.

Broad Bean Weevil

Roy E. Campbell, in Bulletin 807 of the United States department of agriculture, says: "Infestation of the broad or horse bean in California by Bruchus rufimanus has resulted in a reduction of dry beans for market from 200,000 bags to the present production of about 50,000 bags. It is pointed out that only about 30 or 40 per cent of the crop is used as stock feed, the larger portion being shipped to New York and other Eastern cities, where it is used for food by Italians and Portuguese and is known as fava. The principal broad bean sections in California are around San Francisco Bay and down along the coast to a little below San Luis Obispo. This weevil was first recorded as established in the United States in September, 1909, having been found by I. J. Condit at San Luis Obispo.

"Life history studies show that there is but one generation of the weevil each year and that it does not breed in dry beans. The eggs are laid on the green pods in the field from the middle of March to the middle of May. The larvae reach maturity from August to October, while adults can be found from August to the following June. The egg stage is from nine to 18 days; the larval stage, ten to 15 weeks; the pupal stage, seven to 16 days; and the adult stage, one to eight months. Germination of infested beans was found to be from 20 to 40 per cent less than that of uninfested beans. Germination of seed a year or more old is only slightly less than that of new seed.

"There are no natural enemies of the broad bean weevil of any consequence in America. It requires 170 to 180 degrees Fahrenheit for over half an hour to kill all of the weevils in broad beans. Sulphur is unsatisfactory as a fumigant. Carbon disulphid at the rate of seven pounds per 1,000 cubic feet in a tight box for 24 hours kills all the weevils. In seed held over until the second year all the weevils are dead. Beans from crops planted late, after March 1, are much less infested than those planted earlier, from November to March."

LAND HOLDINGS IN CALIFORNIA

The California commission of immigration and housing has issued a report for 1919 for which have been compiled from the tax records various facts regarding holdings in the eight southern counties:

Some of the findings are that in the eight counties of Southern California there are about 25 holdings, each of more than 2,000 acres; that the Southern Pacific grant lands and lieu lands in five of these counties aggregate 2,598,775 acres; that 50 per cent of the "lands in farms" are owned in about 250 holdings; and that there are at least 32 holdings each of more than 15,000 acres, seven of which exceed 50,000 acres each, one of which is of 101,000 acres, and another of 183,399 acres. Remedial suggestions offered include the extension on a large scale of the plan of the land settlement board and the adoption of a graduated land value tax.

ASK TOBACCO COMPANIES' AID IN FOREST FIRE PREVENTION

Because of the very serious fire hazard created by tobacco smoking in the forests, E. T. Meredith, secretary of agriculture, has asked tobacco companies to enlist smokers in a campaign against careless use of fire in all forests, both national and private. The suggestion is that the tobacco companies include in tobacco packages brief printed legends urging smokers to take every precaution to prevent the spread of fire from matches or burning tobacco. This has

been done by a Canadian tobacco company.

This is one feature in a movement now being carried on by the forest service to lessen the number of fires caused by smokers and others while working or enjoying outings in the forests.

The secretary writes:

"In protecting the national forests of over 150,000,000 acres, the department of agriculture has to fight thousands of forest fires every summer due to carelessness. Smokers cause many forest fires. Some lumber companies forbid smoking in the woods, and the extension of this rule is being strongly urged. Such measures would never have been considered necessary if smokers sufficiently recognized the danger that attends the dropping of a lighted match, a pipe coal, or an unextinguished cigarette or cigar stump.

"Hunters, fishermen and woods workers of all kinds smoke in the forests, while automobilists toss a bit of fire from their cars and speed thoughtlessly on, unaware that they have left an incipient conflagration behind them. A single glowing cigarette end may cost the government thousands of dollars for fire fighting, to say nothing of the value of the timber destroyed, the desolation of scenic beauty and the harm done to water flows.

"It is not enough to bring the importance of fire prevention to the attention of an individual once or twice. The warning to use caution needs to be so drilled into his consciousness that care becomes habitual and instinctive."

MAGIC OIL

John K. Barnes quotes from Franklin K. Lane in the June World's Work as follows:

Oil draws railroad trains and drives street cars. It pumps water, lifts heavy loads, has taken the place of millions of horses and in 20 years has become a farming, industrial, business and social necessity. The naval and the merchant ships of this country and of England are fitted or are being fitted to use it either under steam boilers as fuel or directly in the Diesel engine. The airplane has been made possible by it. It propels that modern juggernaut, the tank. In the air it has no rival, while on land and sea it threatens the supremacy of its rivals whenever it appears. There has been no such magician since the days of Aladdin as this drop of mineral oil.

POTATOES FROM CANADA

Under date of May 4, 1920, Consul Johnson, at Ontario, Canada, reports: A large portion of the available potatoes in Ontario province is finding its way to the American market. American buyers are paying $5.50 per bag (90 pounds) f. o. b. Ontario points, and will take any amount that is offered and are glad to get them. Ten carloads recently left a Canadian town for an American center and 12 more carloads a few days later.

The only reason that large quantities are not being shipped is due to the railroad strike, which is causing shipments to be held at border points and, in a way, is practically an embargo. Apparently the lack of transportation has had no effect upon the American buyers who are operating in Ontario. As to the quantity still available, nothing definite can be learned.

A shipper stated that by sending potatoes to the United States he benefited by the rate of exchange. "American buyers," he remarked, "come into our warehouse and offer $5.50 per bag, and even buy cars at that price without touching them. They pay the cost of the potatoes and also prepay freight in American money. The exchange on a bag at the present price is around 60 cents, and as a car contains about 450 bags, the profit on the car in exchange is about $250. In this way we are able to make a little profit."

Central California Fruit Workers Union of the federation of labor will move its headquarters to Fresno because of the coming peach and grape harvest.

NEW USE FOR BAMBOO

Owing to the world wide shortage of paper the subject of raw material is an interesting one and claiming much attention. Sir Harry Johnston of England, a well known explorer and scientist who has spent many years in British Africa, suggests the use of the rank growth of tropical grasses which cover so much of the "Dark Continent." But William Raitt, consulting cellulose expert to the government of India, says that the same grasses grow in India and have been largely experimented with. He states that bamboo is the most promising new material. Experiments have proven no practical difficulties attend the conversion of bamboo into paper pulp. The supply is practically unlimited in India. A crop is produced annually, and transportation facilities are good, many of the sources of supply being on tidal water.

NO CRUDE CAMPHOR

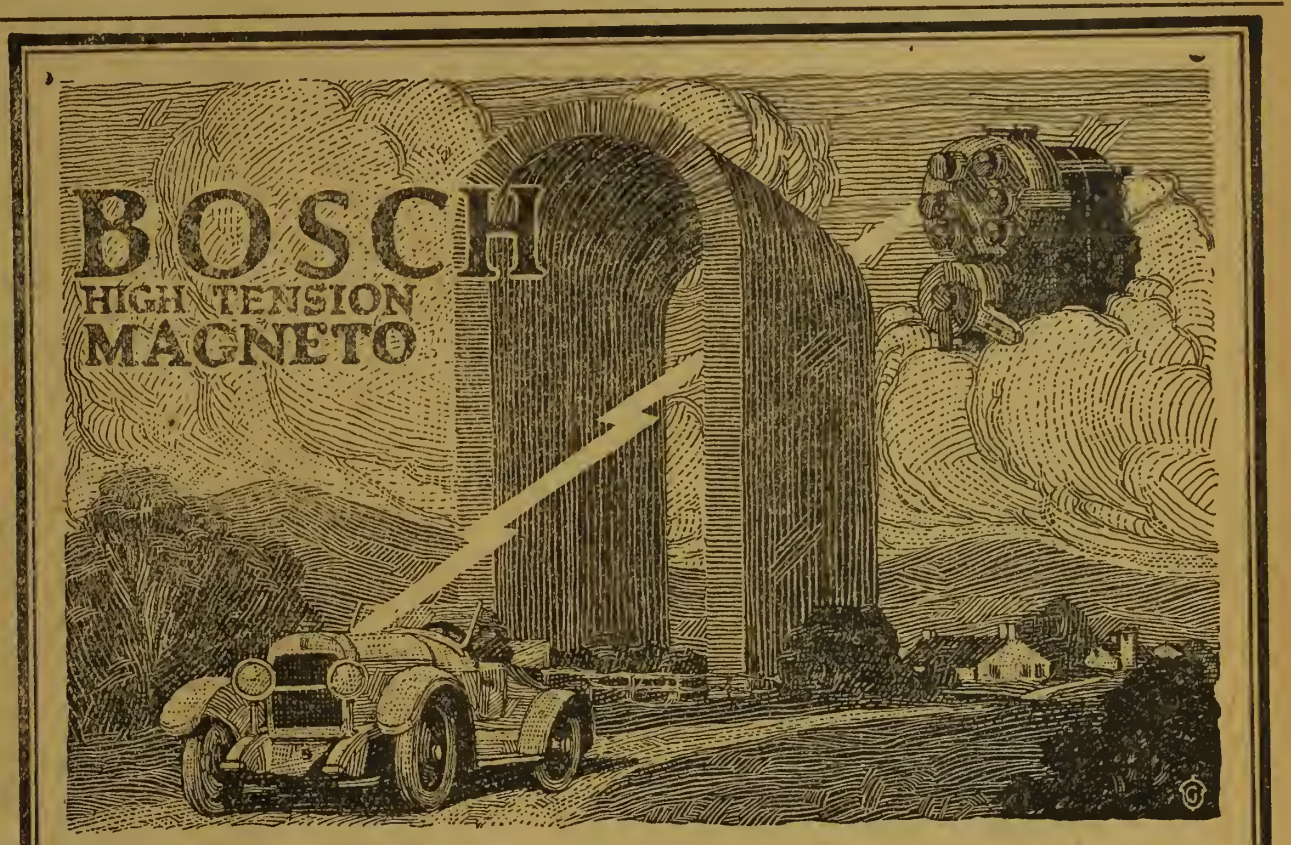
The United States has admitted crude camphor free, to encourage refining works at home, and has placed a substantial duty on the refined product. Consul Hitchcock cables from Japan under date of May 25 that the Japanese government, to assist the camphor refiners of Japan, will stop all exports of crude camphor to foreign countries. This should prove a boon to Florida, where some commercial camphor has already been produced. While the California climate is too dry for the rapid production of camphor wood, the cutting off of the crude camphor supply may encourage the setting out of camphor tree plantations in the cooler and more humid coastal districts.

PLANT DISEASES

From experiments made in Ontario, Canada, Bordeaux mixture appears to be of little utility as against onion blight. Combined with 40 per cent nicotine sulphate, it gives hope of controlling celery black heart through its destructive effects on the tarnished plant bug, which is believed to be responsible for injury leading to infection resulting in this disease. Lime-sulphur dust and lead arsenate in dust form applied over a limited potato area gave an increased yield of cleaner and larger tubers. The use of dust mixtures is recommended for celery blight, but formalin was not successful after this disease was once well started.

FAIR DATES

Sonoma County Fair, Santa Rosa, August 25-29. Secretary J. Francis O'Connor.
Patterson Fair, Patterson, August 26-28. Secretary T. J. Moe.
California State Fair, Sacramento, September 4-12. Secretary Chas. W. Paine.
Tulare County Livestock and Agricultural Show, Tulare, September 14-18. Secretary John A. Rollins.
San Fernando Valley Fair and Market, Owensmouth, September 15-18, Secretary Chas. L. Schufeldt.
Kings County Fair, Hanford, September 21-25, Secretary Frank C. Russell.
Ventura County Fair, Ventura, September 22-25, Secretary L. P. Hathaway.
Glenn County Livestock and Agricultural Association, Willows, September 27-October 2. Secretary E. A. Kirk.
Fresno District Fair, Fresno, September 28-October 2, Secretary Walter C. Fickiin.
Los Angeles Livestock Show, Los Angeles, October 2-10, Secretary C. R. Thomas.
Siskiyou County Fair, Yreka, October 5-9, Secretary Claude R. Gillis.
Southern California Fair, Riverside, October 13-19. Secretary W. W. Van Pelt.
Western Royal Livestock Show, Spokane, Washington, November 1-5. Secretary Bert L. Hilborn.
Pacific International Livestock Show, Portland, Oregon, November 15-19.



SERVICE STATIONS

Bakersfield—Bakersfield Gar. & Auto Sup. Co., 20th and G Streets.
Chico—Vaughan & Fordyce, 7th Street and Broadway.
El Centro—C. E. Coggins, 409 Main Street.
Eureka—Bair's Garage, 6th and D Streets.
Fresno—Elec. Laboratories, Inc., 1347 Van Ness Avenue.
Hanford—Cousins Tractor Co., 110 E 7th Street.
Lindsay—Central Calif. Elec. Co., 182 N. Sweet Briar Avenue.
Los Angeles—E. A. Featherstone, 958 S. Los Angeles St.
Los Angeles—Bosch-Hayfield Service & Supply Co., 922 S. Los Angeles Street.
Long Beach—A. C. Walker, 342 American Avenue.
Marysville—Geo. W. Roberts Electrical Works, 324 D St.
Merced—Lounsbury & Shaffer, 625 M Street.
Modesto—Frank Andrews, 714 9th Street.
Oakland—Motor Car Electric Co., 2324-2330 Broadway.
Oxnard—Herbert Hedges, 427 A Street.
Pasadena—Guarantee Auto Elec. Wks., 97 W. Colorado Street.
Redlands—Ray Ignition Works, 3rd and Citrus Streets.
Red Bluff—Hartman's Elec. Machine Wks., 600 Main St.
Riverside—Mission Auto Elec. Co., 450 Main Street.
Sacramento—Kimball Upson Co., 609-611 K Street.
Sacramento—Sacramento Motor Service Co., 813-17 L St.
San Diego—Young & Chamberlain, 1130 Front Street.
San Francisco—American Bosch Magneto Corp., 1262-72 Post Street.
San Jose—Auto Electric Service Co., 471-5 South First Street.
San Luis Obispo—California Garage, 879 Higuera Street.
San Bernardino—Snyder & Bell, 337-9 F Street.
Santa Ana—Orange County Ignition Works, 302 E. Fifth Street.
Santa Barbara—Western Mach. & Fdry. Co., Cota and Anacapa Streets.
Santa Rosa—L. & T. Co., 300 4th Street.
Stockton—W. L. Maxwell Co., 307-9 N. Eldorado Street.
Salinas—Salinas Auto Electric Co., Alisal Street.
Taft—Maxwell & Thompson, Center Street.
Tulare—Central California Electric Co.
Visalia—Central California Electric Co.
Willows—Automotor Service Station, 253 N. Tehama St.

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Onion Sets

I planted a large seed bed to onions of the California red variety, last August, but didn't transplant them. Now I am harvesting a nice lot of onion sets, in size from a butter bean to large marbles, and some large enough for pickling. If I should set them out in field this fall, will they make large onions, or will they go to seed? How many will be required to acre?—L. H. B., Lathrop.

All onions less than an inch in diameter may be planted and will make large onions, as they contain but a central shoot. Those larger contain two or more and will make dividers or split onions. It is better, therefore, to sell those of one inch or more as pickling onions, planting only the smaller ones. About 250 pounds of sets are usually planted on an acre.

Apricot Pruning

We have an apricot orchard about seven years old that has not been pruned right—cut back too much and not thinned enough. We intend to summer prune this after this crop is off. What will be the best time and will it harm the trees if the larger limbs are cut out during summer?—H. G. B., Bakersfield.

Summer pruning after the crop is off is not best where large limbs are to be taken out or in any case where the trees would be robbed of large numbers of green live leaves. The latter are all needed to finish wood growth and store plant food. When they have ripened and are turning color and falling off the pruning may be done.

Lung Worms

What shall I do with my calves? They have lung worms, and what is the cause?—Subscriber, Holmes.

Unfortunately there is no very satisfactory remedy. Prevention is practically the only procedure for the stock still uninfected. Diseases of Cattle, issued by the department of agriculture, page 535, reads: "Treatment for lung worms: Various treatments have been advocated for lung worms, including fumigating with different substances and injections of remedies into the trachea by means of a large hypodermic syringe or by a special spraying apparatus, but none has been very successful from a practical standpoint. About all that can be done is to feed affected animals well and protect them from exposure, removing them from the pasture and keeping them in dry yards or stables maintained in a cleanly, sanitary condition." Methods of prevention are discussed in the same book, on page 525, as follows: "Cattle become infected with these parasites by grazing on pasture in which infested cattle, sheep or goats have grazed and scattered their droppings. The worms in the stomach produce a multitude of eggs of microscopic size, which pass out of the body in the feces. In warm weather these eggs hatch in a few hours. If the temperature is below 40 degrees Fahrenheit, they remain dormant, and if below freezing, they soon die. The eggs are also killed by dryness; moisture, on the other hand, favoring their development."

Avocados on Land Subject to Frosts

I have 20 acres of river land with very light soil; in fact, sandy; no alkali. Frosts very hard. Would this be desirable for avocados?—Subscriber, Kern County.

No, we do not think avocados would do well under these conditions. The most successful plantings of avocados we have seen have been on high lands which are almost frostless. They are more susceptible to frost than the orange or even the lemon.

Number of Hens in Pen

How many hens are required to make a pen?—Subscriber, Del Mar.

For exhibit at fairs, one male and four females constitute a pen, and in an egg laying contest a pen consists of five laying pullets or hens with one reserve.

Growing Onions

Can onions be grown successfully on sandy loam soil without irrigation, and, if not, how often is irrigation necessary and at what time of the year should the sets be planted to mature in March or April?—Subscriber, Del Mar.

As onions to market in March or April should be set out in late September or early October, it will doubtless be necessary, and best, to irrigate before planting and immediately afterwards. Winter rains should keep up the water supply; if not, one must judge by soil conditions as to when irrigation is needed. The sandy loam mentioned is the best of soils for onions if it has been sufficiently enriched.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Inheritance Right

I married a man having several different pieces of real estate. Upon one of these we have resided. All of the property was his prior to marriage. Have I the right to file a homestead upon this property upon which we reside? In case of my husband's death, what would become of property homesteaded and what would become of the remainder of the property, if there were no will? There are no children.—Subscriber, Owensmouth.

If the claimant be married, the homestead may be selected from the community property, or the separate property of the husband, or, with the consent of the wife, from her separate property. If the selection were made from the community property or from the separate property of the spouse making the selection or joining therein, the land so selected, on the death of either of the spouses, vests in the survivor, subject to no other liability than incumbrances actually existing against the homestead. In case the husband does not join in the selection, then upon his death it goes to his heirs, subject to the power of the superior court to assign the same for a limited period to the family of the decedent. In the case stated, the property being all separate property, upon the death of the husband without issue, one-half of the property would be distributed to the wife, the other half in equal shares to the father or mother, or, in case of their decease, to the brothers and sisters of the decedent, or his other next of kin.

Childless Intestate

A married man with no children dies and leaves no will. What disposition is made of the property?—Subscriber, Manteca.

In case the property was community property, one-half thereof goes to the surviving wife and the other one-half is subject to distribution in the same manner as the separate property of the husband. The separate property of the husband goes one-half to the surviving wife and the other one-half to the decedent's father and mother in equal shares, and if either is dead, the whole of said half to the other. If there is no father or mother, then such one-half goes in equal shares to the brothers and sisters of the decedent and to their descendants, or in case there are no brothers and sisters or descendants thereof, then to the next kin in equal degree.

Partition Fence

Two parties own land adjoining. What is the law as to the partition fence? If one party wishes to leave a driveway on his side, does that excuse him from maintaining and putting up of a partition fence? Who is required to put up and maintain partition fence?—Subscriber, San Bernardino.

There is no requirement of law that anyone put up or maintain a partition fence, except the following provision:

Co-terminous owners are mutually bound equally to maintain the fences between them, unless one of them chooses to let his land lie without fencing, in which case if he afterwards encloses it, he must refund to the other a just proportion of the value at that time of any division fence made by the latter. Such a division fence having been established, it is probably true, under the law of easements, that each owner has the right to have the other bear his just proportion of the expense of maintaining such fence. It would make no difference what disposition a person chooses to make of his land, whether he wishes to make a driveway or not, as to his obligations with respect to such fences.

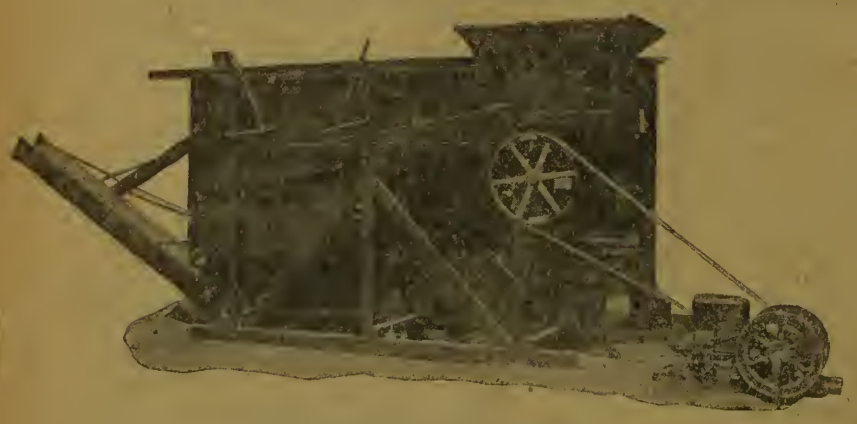
BEAUMONT CHERRY DAY

The Beaumont cherry day celebration of June 10 resulted in a fine showing of cherries and other fruits. An attractive showing of several hundred boxes were placed on display by M. P. Chubb, R. Le Beau, R. L. Wilson, K. P. Boulton, Philipp Truby, G. E. Turner, F. A. Curtis, J. D. Funk and the Beaumont Fruit Growers Association. An additional display was neatly arranged at the corner of Fifth and Egan streets by Frank More, a leading grower of the valley.

Visitors were entertained by the Beaumont military band, the March Field aviators' exhibition flight, an address of welcome by K. R. Smoot, sports and games.

The acreage of Beaumont Valley includes about 13,000 acres of apples, apricots, almonds, cherries, grapes, nectarines, olives, pears, peaches, prunes, plums, walnuts, hay and grain.

Almond Huller



Manufactured and Patented by
L. K. VAUGHAN, 172 Elm St., Woodland, Cal.

Some Smiles For The Farmer

Have you seen the Almond Huller that don't wear out the fingers and you don't have to stand at the stacker and see the meats going into the hulls as loss? With this machine you can hull or crack all the nuts and no waste at all and have time to go to all the fairs and no worry. Write for any information. 1 1-3 tons in 10 hours guaranteed. Price $385.

The Standard Oil
ZEROLENE
For Motor Cars

A grade for each type of engine

More than half the cars on the Coast—

More than half the motorists of the Pacific Coast states use Zerolene. Such approval is given only as a reward to a product of highest quality. Use Zerolene for the Correct Lubrication of your automobile, truck or tractor.

STANDARD OIL COMPANY (California)

NITRATE OF SODA ON CITRUS FRUITS

By William S. Myers

The citrus in California needs humus, nitrogen and phosphoric acid. Nitrate of soda may be used at the rate of 400 pounds to the acre broadcast, in February or in March. An application of 400 pounds of acid phosphate may be put on with the nitrate or earlier. The use of barnyard manure and cover crops is recommended for securing a supply of humus.

The natural capillarity of soils, doubtless, is in most instances a powerful factor in helping to retain the readily soluble elements of fertility, otherwise all the fertility of the world in our humid regions would, in a few seasons, run off into the ocean and be permanently lost. This is mentioned on account of certain statements to the effect that it would leach away. The thousands of tons of soil in an acre of land has a powerful holding capacity for all the useful, available elements of fertility. Of this soil 2,000 tons from the part usually subject to cultivation might be called service soil.

Whilst the price of nitrate of soda per ton may seem relatively high, its value should be judged by the availability of its nitrogen, which is complete—that is to say, all the nitrogen in nitrate of soda is usable.

The main question for the grower is how to secure the most effective form of nitrogen at the lowest cost per unit of this available material—the most important of all his fertilizers.

We recommend the use of leguminous cover crops, or alfalfa hay or manure in connection with nitrate of soda.

The best results from the use of nitrate of soda are always secured by thorough cultivation. The longer and more continuously the soil is worked during proper periods the better; and each succeeding year brings better crops, where soils are thus treated; in other words, we believe in continuous, intensive cultivation.

Nitrate cannot take the place of intelligent soil management, which includes a liberal but judicious water supply, proper cultivation and the use of phosphate.

HINTS FOR PRUNING

Professor Longyear of the forestry department of Colorado agricultural college gives points to remember when pruning trees. They are enumerated as follows:

Proper pruning gives more and better fruit.

It costs less to spray and pick a well pruned tree.

All varieties are not pruned alike.

Heavy pruning tends to increase wood growth and may be used to rejuvenate a run down tree.

Light pruning tends to increase fruit production.

The growing habit of a tree varies with age.

Water sprouts are usually the result of heavy pruning. Those sprouts near the base of the scaffold limbs may be tipped back and caused to produce fruit.

A limb grows more from the tip buds than from the lateral buds.

Fruit may be thinned by pruning.

Keep the top of tree somewhat open. Light helps to make extra fancy fruit.

If the buds on your peach trees have been killed and the fruiting wood is in the upper third of the top, "dehorn" your trees back heavily to limbs one inch in diameter.

Learn the principles of pruning, the details will vary with the tree.

Common sense and good judgment will help a great deal.

VACANCY AT WEST POINT FOR CALIFORNIA MAN

One cadetship at the United States military academy, West Point, is open for some young man of California. California's junior senator has been requested to nominate a candidate who can qualify by certificate for admission on July 1, 1920, it being too late to hold another entrance examination this year The law requires that the person appointed shall be an actual resident of the state from which he purports to be appointed.

According to Colonel John T. Nance, commandant at the state university, application for appointment should be made by wire, followed by letter, directly to the senator or representative who has the vacancy at his disposal, and in view of the very short time remaining before the admission of the next class, application should show full name, date of birth, residence, and educational and other qualifications Unmarried men between the ages of 17 and 22 years of age are eligible. Ex-service men who served one year during the war are eligible until 24.

DEMONSTRATION IN FIGS

A demonstration of fig growing, packing, even culture and pruning, will be made in the orchard of W. Sam Clark at Sultana, Tulare County, June 20. Invitations have been sent to fig enthusiasts in all parts of the state.

Mr. Clark says: "There will be a complete exposition of the subjects of pruning, picking and packing of figs during the day, and the occasion is one offering such opportunities for securing first hand information on these points that it is expected a large number will attend. The harvesting of the first crop of figs will be in full swing and guests on that day will be privileged to help themselves to all the fruit they can eat."

Mr. Clark is an enthusiastic grower of the Kadota.

ELECTROCULTURE OF POTATOES

Two years experiments on potatoes in Wales, in a heavy loam soil, using a network of No. 24 steel wire with meshes six feet square and straight wires nine feet apart, suspended five feet and two feet above the plat, are reported. A current varying between 30,000 and 39,000 volts was used. Treatment was usually given between the hours of 6 and 9 in the morning and 7 and 10 in the evening. During the first year a total of 282 hours treatment was given and during the second years 588 hours. An increase in yield of 17.2 per cent was obtained the first year and 12.6 per cent the second year. It was noted that in both years the potato stalks kept green much longer under the network than in the control plats.

USES FOR WINE GRAPES

F. T. Bioletti and W. V. Cruess have suggested various ways of utilization of vineyards now planted to wine grapes. The methods proposed and listed here are of four types: shipping the fresh grapes to countries which do not prohibit wine making; utilization of grapes for other purposes, such as raisins, for home wine making; grape juice, grape syrup, vinegar, grape sugar, cream of tartar, etc.; grafting the vines with raisin and other table varieties; and replacing the vines with other crops.

MRS. JOHN KILLEFER

Nearly every soil tiller who has had occasion to use subsoilers and other power implements has become acquainted with one of the pioneer manufacturers, John Killefer. These friends will sorrow with Mr. Killefer in the death of his wife, who lost her life in an auto-electric car accident on the Coyote Pass road last week. Mr. Killefer was driving the machine and he was so seriously injured that he has as yet not been able to give any account of the accident. His recovery is now considered certain.

The Tulare County Canning Peach Growers Association will control in its "peach pool" over a thousand tons of freestones and about 800 tons of clings. They have been sold at $60 for the freestones and $100 for the clings.

HUDSON SUPER SIX

Hudson Fineness Equals Its Matchless Performance

Aside From the Supremacy of the Exclusive Super-Six Motor, Its Beauty Gives Distinction in Any Field of Fine Cars

Hudson has unremittingly kept the issue of performance to the fore. Not simply because its mastery is indisputable.

Rather because this question is vital above all. It must always be so. It must always be the measure of any car's title to worth.

Hence undue emphasis has never been placed on Hudson's four years' leadership in fine car sales. Largest sales are not infallibly proof of greatest merit. Hudson has no need to offer them as such.

Yet their importance cannot be overlooked. Here is the massed opinion of far the greatest number of owners of any fine car in the world. Some are driving the earliest Super-Sixes built—now more than four years old. Some acquired Hudsons but recently. But how unaminously they hold no car can rival it.

What 90,000 Owners Know First Hand

Those who have had their Hudsons longest are perhaps its most emphatic champions. They know it best. They have seen it pitted with triumph against every situation that can confront an automobile. Today their Super-Sixes are giving service, such as is literally beyond the performance capacity of many new cars that cost more.

Certainly no fine car is so highly regarded by such a large following.

See What It Has Done

Were its position less deserved could Hudson hold the loyalty of all these? Were its supremacy less decisive, surely five years must have discovered the rightful successor.

But time only brings fresh evidence of Hudson leadership.

In speed—in power—in acceleration—in hill-climbing, it has never been matched.

The most abusive tests to which a car was ever subjected have failed to find its endurance limit. Could other types adopt it, they might share Hudson's unmatched ability. But Hudson controls it. By right of invention Hudson alone can use it.

It will not be possible to supply all who want Hudsons. So even though you may not want your car for several months, now is not too early to place your order.

Hudson Motor Car Company, Detroit, Michigan

(3078)

There's Just One 100% Efficient

CREAM SEPARATOR

And That's The

DE LAVAL

For Forty Years

The World's Standard

There may be a half-dozen plows, wagons, tractors, autos or other farm equipment to choose between, but no would-be imitator or utilizer of expired De Laval patents has yet produced a cream separator comparable with the De Laval.

First in the beginning, De Laval machines have led in every step of cream separator improvement and development. Every year has presented some new feature or betterment, and the 1920 machines are still better than they have ever been before.

If you haven't seen or tried a new 1920 De Laval machine, any local agent will be glad to afford you the opportunity to do so.

If you don't know the nearest De Laval local agent simply address the nearest main office, as below.

DE LAVAL DAIRY SUPPLY CO.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

61 Beale Street San Francisco, Cal.

The Bargain of the Entire Year

Owing to sickness in the family of my partner, I am forced to dissolve the business, and am offering without reserve my entire herd of

Big Type Poland Chinas

Including My 1920 Show Herd

Among the individuals offered are the following: Black Beauty C., first prize Jr. yearling and Reserve Grand champion sow at Sacramento in 1919, with futurity litter of nine pigs sired by Long Big Bone Jr., the junior champion in 1918.

Perfect Beauty, by Long Big Bone Jr., and out of Black Beauty C. This is one of the most promising yearling sows in the state.

Whizzer, a litter mate to Perfect Beauty and my boar candidate for junior yearling honors.

A junior yearling sow sired by Orange Boy, that cost me $500 in the East last winter.

Tim Jones by Fissy's Tim and out of an F.'s Big Jones sow. This is one of the best individual and breeding boars I ever owned.

This ad will only appear twice, so act at once if interested. Now is the time to build for the future.

W. A. YOUNG

LODI, CAL.

When Writing Advertisers Mention California Cultivator

The Shire as An Improver

W. G. Lynch, Secretary of the American Shire Horse Association

THE outstanding merit of Shire stallions to produce a horse of superior merit when mated with grade stock is becoming more and more widely recognized. The admiration for the Shire is not confined to breed enthusiasts and those who produce grades. This is attested by an experience recently reported. It happened that three stallions of one of the popular breed, owned on one of America's famous farms, were being shown to a party of visitors. One of the three was a noted sire, one was a young horse that had won fame in the show ring while the third was a recent addition to the herd. The man in charge of the stallions remarked confidently to a friend of his in the party concerning the third. "This is the one that will prove to be the real sire. He is very much like a Shire. He has the size, the massiveness, the ruggdness and the powerful way of going combined with a masculine appearance which I have found necessary in a sire." The horseman who made the remark had had a wide experience and opportunity to observe in Illinois, Minnesota and other states.

Shire stallions are outstanding useful in present day horse affairs. They sire good horses. In every community where Shire stallions have been kept there are always good horses to be found. Buyers of geldings for big teaming concerns hover regularly in communities where sires of our great breed have been on the stand. Buyers seeking geldings to make up the great six horse exhibition teams go first to the localities where they can look over the progeny of the great and massive and attractive Shire. Buyers for the circus make annual pilgrimages to those communities. John Truman, president of the American Shire Association, himself one of the closest students of blood lines is authority for the statement that scarcely a gelding of great prominence has appeared that did not carry a large proportion of Shire blood. Some, he says, which were claimed by other breeds were far stronger in the blood of the Shire than they were of the breed so anxious to stand sponsor for them.

There is a market for every good Shire. This is equally true of grade or purebred. Such being the situation during this temporary depression, we may depend upon wonderful prosperity for the same lines of stock when the horse market shall again come to its own. It is said that the real test of a man is for him to go through ill luck and depression. Likewise with the horse, the one that goes through an extended period of lack of excitement such as we have experienced during the past five years deserves our greatest commendation. The Shire has gone through all this period and stands forth ready to continue to do his part in bringing livestock progress and prosperity. We are proud of the Shire horse. During the past five years some weeding has been done. Many of the inferior ones have been culled out and as a result the average excellence in our breed is undoubtedly higher than ever before. Shire stallions are widely distributed in all the best horses producing states. Any desiring to breed to a Shire may rest assured that the offspring will be meritous and profitable.

The Hog in California

By T. J. Hitte

THERE is nothing more conspicuous in the livestock situation in California today than the shortage of hogs. In casting about for a reason one is confronted by a peculiar combination of circumstances and conditions, some of which, at least appear as plausible drawbacks through the setting forth of much technical information at the command of the packing fraternity. Reference is had to the matter of price in the California markets as compared with the scale of prices obtaining in the big markets of the Middle West.

To the close observer it should appear that the real, if not only, handicap experienced by growers of hogs in the Pacific Coast territory is to be seen in this disparity of prices, showing a wide margin in favor of the hog that is marketed in the older hog growing country under conditions that should and do inspire a keener competition among buyers.

Assuming that here is to be found the gist of the trouble with the pork growing industry in California, it behooves every thinking man and woman in the state to lend aid to a campaign, whose purpose shall be to grow hogs in sufficient numbers to supply our own domestic needs, in numbers that shall challenge the attention of the packing interests of the state, and in numbers that shall put the pork making industry on a par with other great agricultural interests throughout the state.

There is today no question in the mind of any man who has had opportunity to observe feeding operations up and down the state, as to the feasibility of growing out and finishing a type of hog here that will compete with the best type of corn fed hog in any part of the country. The economic factor is certainly in our favor even at the outset. It is to be readily admitted that a pig does not thrive continuously on California scenery, nor on California climate, though the latter is to be accounted a real factor in the pork making industry of the state, and one whose importance can only be fully realized as the magnitude of the industry expands to proportions in keeping with the needs of the state.

In this climate the pigs are saved in larger numbers at farrowing time; two litters per year per sow are to be figured as the regular order of things; the pigs are grown out more economically because of no hitch in their development owing to extremes of weather conditions; and there is no country in the world that can supply a more efficient or more economical feed ration for the brood sow, for growing pigs and for fattening hogs, than that furnished through the fertile fields of our own state. In view of all the various foregoing favorable factors, it should be considered the duty of producers and consumers alike to speed the day when the state of California shall be working to full capacity her pork making industry.

Since the spirit of cooperation among the farming classes of California is so well set, it is a safe assumption that any feature of livestock enterprise taken in hand by the rank and file of farmers over the state is destined to succeed even beyond the most sanguine expectations of those who should know best. If there is a lingering doubt in the mind of any person familiar with California conditions today as to the permanency of the state's hog growing industry, as seen from the viewpoint of its infancy, that doubt should be dispelled through a comprehending sense of the unanimity of forces back of the industry today.

Foremost, perhaps, in this good work is that of the average county farm bureau, having for its cardinal principle an active everyday service in behalf of the movement to grow more and better hogs. Then there are the state and county breed associations, each, of course, playing its own special favorites, but none the less agressive in behalf of the general theme of swine promotion. Every professional breeder of pure bred swine in the state, whether in large or small degree, is an ever active agency making for improvement in type and quality of hogs grown. The state, district and county fairs constitute a powerful factor in deevloping the swine industry through well defined plans for creating competition in the show yard, as well as affording opportunity for the public to form its own opinions as to the relative merits of the various breeds on exhibition.

As an indication of the way in which the industry is taking a fast hold upon the average farming community in this state, it may be mentioned that there are now probably no less than half a hundred breeders of pure bred swine in the San Fernando Valley alone, and at the same time it is to be borne in mine that this valley is one of the newest and richest fruit growing sections of the entire state.

It all leads up to the inevitable conclusion that the great American hog is already a fixture in the mixed farming order of things hereafter to prevail in California.

SALINAS VALLEY DAIRYMEN'S PICNIC

The dairymen of the Salinas Valley and their families to the number of over 1,000 assembled in Johnson's grove near Gonzales, Sunday, June 6, as the guests of the dairymen's department of the Monterey County farm bureau.

A very interesting program had been arranged and it was carried off without a hitch. Jolly parties of dairymen and their families began to assemble at ten o'clock, and after an hour of general conversation and visiting the program was started with a cow judging demonstration given by Professor V. C. Bryant of the college of agriculture. Two cows were provided for this number and Professor Bryant explained the desirable points of a good dairy cow in a most convincing manner. His talk aroused a great deal of interest and many questions were asked and answered. Mr. Thomas Mayhew followed Professor Bryant with a talk upon the farm adviser's work. He carefully explained that his office was one of service and that dairymen were privileged to call upon him at any and all times for assistance in solving their problems and developing the dairy industry.

At the close of Mr. Mayhew's address the welcome call to dinner was given. "Butch" Beever and his assistants had been working for hours over the pits and the beef was done to a turn. Two hours were required to do full justice to the splendid feed which had been provided. After everyone had eaten and drunk his fill, the balance of the program was carried out. Mr. Inglebritson of the research department of the Sperry Flour Company gave a highly interesting talk on cow testing and feeding. He was followed by Mr. Crate, who gave a convincing explanation of the modern milking machine. Mr. Crate predicted that within a very short time the mechanical milker would supplant hand work in all herds of ten cows or more.

Sam H. Greene, secretary of California Dairy Council, and Mr. P. Zabala addressed the gathering and talked about general dairying conditions. Mr. Greene predicted that the Salinas Valley would in time come to be the second greatest dairying section in the state. Mr. Zabala complimented the dairymen for their progressive and cooperative spirit and urged that the picnic be made an annual affair.

One of the most interesting features of the day, and one that aroused great enthusiasm, was the auction sale of the bull calf, Creamcup Council Leader, for the benefit of California Dairy Council. The animal was donated to the council by Miss M. M. Holdridge of San Jose, one of the prominent California Holstein-Friesian breeders. Creamcup Council Leader is a son of Creamcup Anna Segis Beets and is by Creamcup Victor Tula Lad. His breeding is excellent, his dam having a record of 64 pounds of milk with her first calf. The granddam's record was 25 pounds of butter in seven days. "Butch" Beevers was the auctioneer and he proved his ability, running the bidding up to $725, at which price the animal was finally knocked down to Joseph Reichmouth of the P. & M. Ranch near Gonzales. Creamcup Council Leader was only four days' old at the date of the sale. He is a beautiful calf and gives promise of developing into a fine individual. This is the second instance of the interest taken by breeders of pure bred stock in California Dairy Council. The first was when Dairy Council Chief was sold for $400 at the dairymens' picnic on the Laguna Ranch of the Los Angeles Creamery Company last April. Dairy Council Chief was presented by G. M. Brown of the Burr Farms. The fashion set by Mr. Brown and Miss Holdridge will undoubtedly be followed by many others breeders.

The chairman of the day was Louis Viddoroni. The following gentlemen acted as the committee of arrangements: H. Rianda, Thos. Mayhew, P. Reinhold, A. Reinhold, J. Pearson, Frank Pura and J. C. Meyenberg.

SHORTHORN PRIZES

The American Shorthorn Breeders' Association invites the attention of all Shorthorn breeders to the very large amount offered for cash Shorthorn prizes for the current year. One hundred and fifty thousand dollars has been appropriated by the Shorthorn Association and in addition to that the various fair and show appropriations make a total around $300,000 for Shorthorns. Certainly this generous amount—far in excess of any prize appropriation ever offered before, by any breed organization—should encourage Shorthorn owners to prepare for the show contests. There is a greater advantage, too, in the prestige one gains by showing a few creditable representatives of the herd. It creates business. The inducements are calculated to stimulate Shorthorn activity on a still broader scale.

The largest single shipment of stock hogs ever sent off the Kansas City market and said to be the largest off any market in the world, was sent from Kansas City, May 21. The shipment consisted of 2,200 pigs averaging 92 pounds each. A special train carried the shipment. The animals were vaccinated by the double treatment, were loaded in clean and disinfected cars, and were fed and watered in transit without unloading. A feeding company at Jersey City placed the order with a Kansas City serum company and will feed the pigs on garbage, finishing them on grain.

MAKING THE DAIRY PAY BIGGER PROFITS

About eighty-four billion pounds of milk are produced in the United States each year.

Of this total the butter industry consumes approximately thirty-four billion pounds.

But—approximately thirty billion pounds of the amount devoted to butter-making becomes skimmed milk—having practically no market as human food.

IF someone should come to you and say—"I have discovered a new way to convert your corn-husks into paper-pulp, or—"I can make a new fabric from your wheat-straw," or—"I have found a commercial use for the chaff from your wheat," you then would suddenly realize the value of new markets.

In such manner Hebe comes to you and says, "I have created a new and more profitable market for your by-product, skimmed milk. I have done this by restoring to the skimmed milk a fat content—the element it lacks to make it more desirable, and therefore more readily salable as human food, for certain purposes. This I have accomplished by scientifically emulsifying the fat pressed from the pure white meat of the cocoanut with the skimmed milk, creating a product that serves in the home as an auxiliary to the daily milk supply in cooking and for baking."

The utilization of by-products is a big problem in every industry. Gluten, coal-tar, gasoline and cotton-seed were valueless by-products until someone found a commercial use for them. Skimmed milk is the big by-product of the dairies—thirty billion pounds of it are produced yearly.

The greater part of this by-product, which science tells us is a highly nutritious food, is being fed to stock, when according to the Department of Agriculture it could be used to better and more profitable advantage as human food. Hebe points the way to marketing skimmed milk as human food. It is the first big effort in this direction.

You will ask the question—How is Hebe to benefit the dairy farmer who is not near enough to a Hebe condensery to sell his milk there?

Remember, the Hebe industry is only in its infancy. It will grow with every can sold. Every bit of advertising put out by The Hebe Company will exert a beneficial influence on the dairy product market as a whole. Witness the influence on the market by the sale of nearly four billion pounds each year to the ice-cream manufacturers. While not every farmer is within shipping distance of an ice-cream factory, yet every milk-producer benefits by the demand.

There is no camouflage about Hebe. It is produced, labeled, advertised and marketed for just what it is—"A Compound of Evaporated Skimmed Milk and Vegetable Fat," for cooking purposes. It is not a substitute; it is not an imitation. It is Hebe and nothing else. Hebe creates a distinct place of its own, separate from the general class of dairy products. In seeking and finding its proper place in the market, Hebe will prove a substantial benefit to the entire dairying industry, increasing the general use of dairy products.

You will be interested in our booklet, "The Missing Third." Ask us to send you a copy. There is no charge for this. Address 2673 Consumers Building, Chicago.

THE HEBE COMPANY

CHICAGO SEATTLE

Warranted to Give Satisfaction
Gombault's
Caustic Balsam

Has Imitators But No Competitors

A Safe, Speedy, Positive Remedy for

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Senior herd sire Altama Interest, sire of 12 cows in Register of Merit.
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Live Stock News Notes

LIVESTOCK SALE CALENDAR

Duroc-Jerseys
July 21, Elmer Lamb, Ceres.
July 29, Conejo Ranch, Newbury Park.
July 28, Winsor Ranch at Los Angeles.

Hampshires
July 30, Conejo Ranch, Newbury Park.

Poland Chinas
August 21, Merced County Poland China Breeders' Association, Merced.
September 27, Hugh C. Shinn, A. J. Elliott and Alex D. McCarty, Tulare.

Shropshire Sheep
August 11, Butte City Ranch.

Shorthorns
August 11, Butte City Ranch.

Berkshires
August 11, Butte City Ranch.

All previous records were recently broken when the Winsor Ranch, Bonita, sold the senior yearling Duroc boar Great Sensation 3rd to Walter Dupee, Santee, for $8,000, making him the highest priced boar of any breed produced on the Pacific Coast.

Winsor Ranch retains the use of the boar until September, as they are featuring him in their coming sow sale. A large number of the sows included in the sale will be carrying his service.

Walter Gatton, who for the past year and a half has been in active charge of the Diamond Bar Ranch herd of Duroc-Jerseys, has resigned his position and is contemplating engaging in the livestock business for himself. Gatton has been identified with the livestock industry of California for a number of years and on two occasions has served as judge at the California state fair.

W. F. Sandercock, Berkshire breeder of Sacramento, reports the following recent sales: To Bruce T. Shute, Sacramento, the yearling boar His Royal Highness. This boar was sired by the Butte City Ranch boar Onward, and is a representative of the Epochal strain. Miller and Lux selected four boars; two are sons of Baron Duke 201st, grand champion at the 1917 National Swine Show, and two are by Rincon's Rival and out of a litter mate to Riverby Princess.

In a recent letter from W. S. Guilford of the Butte City Ranch he says: "We will hold our big annual sale Wednesday, August 11th, at the ranch. The offering this year will consist of about 60 head of registered Shorthorn cattle from the Butte City Ranch and the Golden West Stock Farm of O. L. Raper, and the following stock from Butte City Ranch: Over 100 head of registered Shropshire sheep, 40 head of registered Berkshires and 20 or more head of Shetland ponies. We do not expect this stock to bring record prices, but it is by far the best offering we have ever made, and we know those who buy this stock will make money on it and be satisfied with it. We are proud of the fact that stock bought at the Butte City Ranch is giving universal satisfaction. The sale will be conducted by the California Breeders Sales and Pedigree Company, C. L. Hughes, manager, and the auctioneers will be Colonel Ben A. Rhoades and George Bell."

R. L. McCollum, assistant farm adviser, has organized a Holstein calf club in Stanislaus County with an initial membership of 16. The calves were secured from Bridgford Company, Patterson; A. M. Bibens, H. E. Cornwell, R. L. Holmes, E. M. Morrow, all of Modesto, and E. Peterposten of Hughson.

The Millbrae Dairy, Millbrae, reports the sale of two young Holstein heifers and four young bulls to a Japanese buyer.

In addition to the report of the National Holstein sale in our issue of last week, the following details have been received: Miss Aralia De Kol Aaggie, a seven months old daughter of Sir Aaggie De Kol Mead and out of the 34 pound three year old, Aralia De Kol Pontiac Mead, dam of the $11,000 bull Sir Aaggie Mead De Kol, was sold by A. W. Morris and Sons, Woodland, to W. J. Higdon of Tulare for $3,300. Miss Aralia De Kol Mead, a six months old daughter of Sir Aaggie De Kol Mead and out of the 859 pound junior two year old Aralia De Kol Mead 2d, was purchased by Brentwood Farms, Philadelphia, for the very moderate price of $1,700. It will be remembered that Brentwood Farms paid $11,200 for Tilly Alcartra 2d at the National sale last year.

In the consignment of Bridgford Company, Patterson, the 18 months old son of King Segis Alcartra Prilly, King Prilly Segis Pontiac, was sold to F. B. Green, Evansville, Wisconsin, for the low price of $1,000. Boweda Alcartra Prilly, a daughter of King Segis Alcartra Prilly and 37 pound Boweda, went to M. E. Gutches, Long Prairie, Wisconsin, at $1,900. Rosa De Kol Alcartra Abbekerk, daughter of King Segis Alcartra Abbekerk and the 30 pound four year old Rose De Kol Cande, fell to the $1,600 bid of R. E. McLaughlin and F. O. Flygue of Minnesota.

One of the biggest disappointments in the California consignment was Roma Princess Alcartra, a 30.39 pound daughter of Prince Alcartra Korndyke, consigned by J. S. Gibson Company, Williams, and purchased by F. H. Boyle of Fond Du Lac, Wisconsin, for the bargain price of $1,300. It is known that the Gibson Company was offered almost twice that amount for her before she left this state.

All in all, the California breeders were generally well pleased at the reception that their offering received at the hands of the Eastern buyers.

California breeders will be interested to learn that the well known Rancho del Prado in the Santa Inez Valley, formerly owned by Judge Robert C. Canfield, has been purchased by Captain Harry Gantz and Mrs. Gantz, owners of the Helena Orchards, Fullerton. The new owners announce that in the future the ranch will be known as the "H. G. Ranch," and that their plans contemplate installing a herd of Herefords and Hampshire swine. At present a considerable herd of Ayrshires is on the ranch. Polo ponies are also being bred.

The July sale of bred Duroc sows by the Winsor Ranch, Bonita, promises to be one of the most important events of its kind ever held on the Coast. The offering, sired by such boars as Pathfinder, Great Orion Sensation, Orion Sensation, Orion Fancy King, and Great Model, is one of outstanding excellence. The sows are mostly spring yearlings and are a very uniform lot.

They are bred to the $8,000 Great Sensation 3rd, the highest priced boar on the Pacific Coast, and Winsor Giant Orion, the largest Orion Cherry King boar in the world.

Joe A. Haaga, field secretary for the National Duroc Association, wires Manager C. R. Thomas that twenty herd nominations have been received for the Los Angeles Livestock Show futurity, embracing both fall and spring litters. Mr. Thomas reports approval by the board of classified premium list, covering all livestock entries, and the same now is in hands of the printer. A total of $642 is hung up for pig clubs. A judging contest for boys and girls belonging to pig clubs is now in contemplation.

J. L. Dunlap is the Iowa man, now at Pomona, with fine specimens of big type Polands of Jumbo and Big Bob strains to show all who visit the ranch.

W. S. Morton at Gardena is known as a stickler for high class Hampshires. Morton has sold his entire crop of spring pigs. He raises two litters per sow each year without skip or break.

Dr. Burton C. Platt of Eagle Rock owns excellent foundation stock in big type Poland Chinas, and is also remembered as the man who conducted a successful public sale of registered Toggenburg and Saanen goats at the Liberty Fair.

A Berkshire herd that is destined to help make the Berkshire hog more popular in Southern California is the Santa Catalina Ranch herd, owned by D. J. Bastanchury, La Habra. The herd is under the management of E. N. Whittemore and is being rapidly developed along practical lines and is

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Is a boar that is siring a high class
POLAND CHINAS
good enough for the most discriminati buyer. Come and investigate; can sh you.
A. J. Van Cleef, Riverdale, Ca

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headed by Kintyres Laird Jr., champion at the Panama Pacific Exposition in 1915. Royal Longfellow and Baron Premier are outstanding yearlings recently purchased from the N. H. Gentry herd at Sedalia, Missouri. This young boar and three litter sisters will be with the show herd this season and will cause considerable trouble for their competitors.

Five carloads of Salt River Valley milk cows have recently been purchased to go into the northern part of Arizona. Dairying is becoming an important industry in the new section opened up by the Apache railroad which runs out from Holbrook. Dairymen there plan to ship cream to Phoenix.

The Big Davie Ranch at Marinette, Arizona, has been sold to the Southwest Cotton Company and will be added to their Litchfield plantation. This ranch comprises 7,500 acres and brought $600,000 in cash.

The Italian Vineyard Company, Guasti, is developing a herd of Berkshires second to none, due chiefly to the efforts of Superintendent Alex M. Wilson. Mr. Wilson is sparing neither time, energy or expense, and is certainly picking the good ones. The herd is rich in the leading bloodlines of the breed, and while popular breeding will not be overlooked, still Mr. Wilson will devote much time and effort to putting Berkshires on every farm, as he realizes the small farmer is the backbone of the swine industry. To this end he is fitting a carload of barrows to show this year and keeping his herd matrons at work. However, it is a safe bet that should he decide to show a few of his herd sows he would be there at the time the ribbons were tied.

Jane Garden Farm, Sacramento, reports the recent sale of a year old Holstein bull sired by Sir Aaggie De Kol Acme and out of Maude Cordova Clothilde, an 18.19 pound three year old daughter of Prince Gelsche Walker, to E. B. Connolly of Willows. The second dam of this youngster is Maude Mooie Clothilde that has four A. R. O. daughters. Mr. Connolly is a new recruit to the Holstein ranks and it is his intention to assemble a collection of Holsteins that will take a prominent ranking in this state. Jane Garden Farm has also sold a young bull to Oswald Scrieber of Marysville. This calf is sired by King Sadie Vale Elzevere and is out of Montezuma Bettie De Kol that is a sister in blood to the well-known cow, Ontario Blonde Pietje, with a 33.07 pound record.

The first week in June witnessed great activity in pure bred livestock affairs. Beside the record breaking sale of Holsteins held at St. Paul, Carpenter and Ross sold 232 head of Shorthorn bulls and females, $1,436. In the sale the bull calf, Maxwalton Rodney was sold to a Mississippi buyer for $14,000. On June 4, O. Harris and Sons of Missouri, sold 98 head head of Hereford bulls and females for an average of $1,237. Repeater 182nd, a junior yearling, sold for $12,600. While the Holsteins were breaking records in the West and the beef cattle holding the stage in the corn belt, the Jerseys were hitting the high places in the East. At five auctions 365 Jerseys sold for a total of $470,240. At Linden Grove sale 84 head averaged $924. The Edmund Butler sale distributed 60 head for an average of $3,104. In this sale Gypsy Gamboge Lad, a two year old son of Sybil's Gamboge, sold for $23,000. The following day W. R. Spann and Sons of New Jersey, sold 79 head for an average of $1,359.

A meeting of the board of directors of the Southwest Berkshire Congress was held at the office of the Italian Vineyards, Guasti, June 9, at which time it was decided to hold a public sale of Berkshires at the ranch of D. J. Bastanchury, La Habra, Saturday, August 14. The sale will consist of 30 bred sows and gilts, bred to the good boars now maintained on the various breeders' farms. No animal will be entered in the sale that is not a good representative of the breed, and some of the most popular blood lines of the breed will be found in the offering. A barbecue dinner will be served. It would probably be hard to find a more suitable location for a sale, as pens for the animals are large shade trees that will provide comfort for all. The demand for good already provided and there are many Berkshires in the southern part of the state is increasing so rapidly that it was deemed wise to hold a sale in August as well as the one previously announced in October, during the livestock show at Los Angeles. Recent additions to the Berkshire herd of D. J. Bastanchury, La Habra, include Lad's Champion Lady, Superior Duchess 6th, and Real Type's Lucindy 2nd. All of these were secured at the recent sale of E. J. Barker Thorntown, Indiana, the purchase price for Real Type's Lucindy 2nd being $1,000. This gilt was shown as a senior pig and either won or defeated the winner at the state fairs of Ohio, Indiana, Kentucky, Missouri, Iowa, Tennessee, Nebraska, New York, Minnesota, Wisconsin, Michigan, Kansas, Oklahoma, Memphis Tri-State Show and Eastern Berkshire Congress. She farrowed a late fall litter, two of which were in the sale averaging, as pigs, better than $200. As a senior yearling she will probably rank with any to be found in the state. She is exceedingly large, stands high off the ground on good feet, has an extremely well arched back and is very smooth. The Bastanchury herd will be seen at all the prominent fall shows.

SUPERSTITION

By A. L. Spellmeyer

The present status of values for sheep in the range country is $20 for a 125 pound ewe and $50 for a 1,000 pound cow. You can't figure breeding stock by the pound, but if you could the ewe would be worth something over 16 cents and the cow six cents. Figuring the offspring, the lamb ordinarily would bring 14 cents and weigh 70 pounds and the yearling steer eight cents and weigh 500 pounds, on a "catch as catch can" rough range basis. To the consumer the price of rib roast or leg of lamb is about the same, with a probable ten per cent higher price in favor of the lamb. The light wool of the Southwest shears about eight pounds to the sheep and has been bringing from 60 cents to 75 cents per pound.

Cowmen and sheep men never do get along very well, as a deep and abiding prejudice against sheep, the smell of them or the taste of mutton, lingers with many old range men, in many instances to their financial detriment, as the woolly range gleaners are money makers and have a twice yearly turnover, in wool in the very early spring and in lambs in the summer and fall. Sheep on the same range as cattle often bring excellent results if handled properly, but under the same owner there is no comradeship among the men who handle the two kinds of stock. Like oil and water they mix under compulsion. In the marketing and packer turmoil the sheep men are pro- and the cowmen anti-.

Shedding whatever intelligence one may have inherited or acquired, and proceeding upon the uncharted sea of the "sixth sense," fourth dimension, or vague instinct, most cow punchers figure when sheep are up cattle will be down, and when cattle are up sheep will be down. Irrespective of any known cause this seems to have worked out as far back as most of us can remember. For several years the sheep business has been very profitable wherever the seasons have been favorable, and during those several years cattle have been on low price levels in comparison.

Recently lambs and sheep have been hit with a lower price, and if the old idea works out cattle are due for an advance.

Ten times as much rice is being exported from the United States at the present time as in 1914, and rice growers are receiving 30 times as much money for it. Exports of rice in the ten months ending October 31, 1919, the last available figures, aggregated 28,000,000 pounds, as compared with 26,420,009 pounds in ten months period ended with October, 1913. The value of rice exported during the ten months period ending with October, 1919, is stated by the government at $25,182,000, against $883,000 as the value of the rice exported during a corresponding period in 1913.

Auction Sale

Thursday, June 24

Closing Out Sale---No By Bidding

I will sell at my place known as the Prestage Ranch, 4 miles west and one-half mile south of Porterville, near the Olive school house, at 10:30 sharp

27 Registered Holstein Cattle, 28 Head of Grade Cattle
7 Head of Horses, 11 Head of Hogs
Farm Machinery, etc.

Present Sire—Prince Coloma Segis. List of sires of pure bred cattle, old and young: California Progress Wayne Pontisa, Merci Burke De Kol, Captain Merci Shorn. Outside sires: Sir Segis Hengerveld De Kol, Merryland Major De Kol, Deuyl Wayne De Kol, Gouzold Dawn Hengerveld. These cattle are all tuberculin tested.

Lunch on Grounds **Ladies Specially Invited**

TERMS—All sums of $100 and under, cash. Exceeding $100, six months time at 8 per cent interest on approved security. 5 per cent discount for cash on sums exceeding $100. All property to be settled for before removing from premises.

L. E. PRESTAGE, Owner

Auctioneers:
Shore & Son, Phone 389-M, Tulare. O. S. Grant, Phone 334-W, Porterville

Leslie A. Ridgway, Clerk, Phone 8-F-3

AUCTION AUCTION

Wednesday, June 23, 1920. 11 A.M.

12 Horse and Mule Collars, 1 Ross 60 Ensilage Cutter.
1 Broadcast Seeder, 1 McCormick Corn Binder.
1 Hand Spray Pump, (All in good order).
1 Old Bunk House to be removed or wrecked.
1 Lot Shafting, pulleys and sprockets.
30 Fat Hogs, 2 registered Poland China Boars
10 Cows, and 2 bulls for beef.
5 Cows for family use. 10 Veal Calves.
3 Registered Holstein Bull Calves, 20 Grade Heifers.

Los Angeles County Farm **Hondo, California**
3 Miles South of Downey on Downey-Long Beach Boulevard

POPULAR AUCTION SALES

We have already booked a number of September sale dates.
It requires "pep" to win in the livestock sale ring. Let us match our "pep," skill and experience against your good livestock and we've got a sure winner. Get in the game.
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Jacks and Jennets for sale at all times. Come and see them.

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Italian Vineyard Company

Guasti Berkshires

Weaned pigs, both sexes, from sows that farrow large litters and raise them. Priced at a figure any farmer can afford and that will show him a profit.

BIG PUBLIC SALE OF BERKSHIRE SOWS AUGUST 14TH

Alex. Wilson, Supt., Guasti, Cal.

Bastanchury Better Berkshires

LA HABRA, CAL.
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Bred Gilts, Open Gilts
Young Boars
Young Sows
At Reasonable Prices

Over Two Million Calves

protected against Blackleg for LIFE with ONE treatment vouch for Purity Blackleg Aggressin (Germ-Free Vaccine made by the Kansas Process). Absolutely safe to use. Cannot transmit disease. Brand, castrate, etc. when you vaccinate. OTHER PURITY PRODUCTS: Anti-Abortion Vaccine for Cattle; Hemorrhagic Septicemia Vaccine for Cattle, and Sheep; Anti-Hog Cholera Serum, and High Count Mixed Infection Vaccine for Swine. For service that counts write, phone, or wire

PURITY SERUM CO., J. L. Thatcher, Mgr. Riverside, California

Lendorris Liberty Bond, Skyrocket and Lendorris Liberator,

Three good sons of three good sires are our herd boars, and are backed by a sow herd of such uniform excellence and approved blood lines as to assure satisfaction to the purchaser of Poland China breeding stock. We have some choice individuals of various ages for sale at all times. Write us for prices.

W. L. Haag and Son **Hanford, Cal.**

Do You Know?

That The Westerner is a half brother to the Junior, Senior and Grand Champion sows at the last National Swine Show.

That his half sister (the Junior Champion) sold for $5000, the record price for an open gilt.

Remember that The Westerner is from a family of "mighty good folks" and that we sell sows bred to him in our Sept. 27th sale.

ALEX. D. McCARTY **RIVERINA FARMS** **MODESTO, CAL.**

The Buckland Herd of Poland Chinas

A herd where the individuality of the herd stock is right. The pigs developed carefully and the customers treated with that degree of courtesy and fairness that has made it possible for us to say "once a customer, always a customer." Let's get better acquainted.

A. Buckland & Son, R.F.D., Fresno, Cal.

THE SEQUOIAN

A yearling of the most approved Poland China type and one that bids fair to develop into a remarkable sire. At present I can spare some choice young stock either sex at reasonable prices.

Z. M. Dickey **Dinuba, Cal.**

I AM ALWAYS PREPARED

to offer exceptional bargains in

POLAND CHINA

breeding stock and can fill your order whether it be choice pigs or mature animals. Write for information. I can please you.

Eugene Miner **Lodi, Cal.**

FORRESTVIEW BOB

A Son of the Grand Champion Caldwell's Big Bob

is the boar that is largely responsible for the number of satisfied customers who have purchased Poland Chinas from me.

Satisfied customers are my specialty. Write me. I will appreciate your inquiry.

J. H. Cook **Paradise, Cal.**

McCune's Quality Herd

of BIG TYPE POLAND CHINAS

attained their prominence by their individual excellence, necessary to constructive breeding.

A McCune-bred Poland China is backed up by generations of ancestry that have stood the test. Write for information and prices.

H. D. McCUNE, **Lemoore, Calif.**

King's Big Bone Leader

Assisted by Giant Bob 2nd, a son of last year's champion, is siring a high grade of Poland Chinas. Remember my big August sale of bred sows featuring the above boars.

Les McCracken **Ripon, Cal.**

Trewhitt's Big Type Polands

have been developed by a most careful selection of individual excellence and blood lines that have made good in Poland China history. Size and feeding ability have always been essential features demanded. Let your next purchase be a Trewhitt-bred Poland.

W. D. Trewhitt **Hanford, Cal.**

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Berkshire Sale by Inglewood Pig Club

The sale of Berkshires by the members of the Inglewood union high school was held on the school farm, June 4. Twenty-four pure bred Berkshires were sold, the greater part of which were pigs of spring farrow. Zinn. A number of the members showed extraordinary ability in feeding and developing, as a number of early spring pigs were sold weighing around 125 pounds, or nearly a pound a day gain from the time of farrowing.

Knocking Down Husky Young Berkshire

Auctioneer Rhoades and Berkshire Booster Bennett with husky boar pig on the block, "going, going, $37.50."

Seven gilts just old enough for breeding were sold for an average of nearly $85, while the pigs sold for from $20 to $45, according to their age and development. The club was formed late last fall when about 20 Berkshire gilts were purchased, and the work has been carried on under the instructions of the school agriculture teacher, C. S.

The sale was held on the school farm and as a result Berkshires are now being raised on a number of nearby farms where heretofore no swine had been kept. Col. Ben A. Rhoades of Los Angeles donated his services as auctioneer and the satisfactory prices realized were due, in a great measure, to his untiring efforts.

First Annual Ram Sale

The first annual ram sale to be held under the auspices of the California Wool Growers Association will take place at the state university farm, Davis, on June 24 and 25, 1920. Although this represents the first attempt made in California to hold such a sale, present indications are that it will prove a great success. Three hundred and twenty-two stud rams, range rams and registered ewes will be sold at auction, with Col. Ben A. Rhoades of Los Angeles wielding the hammer.

The sheep consigned to the sale are being inspected by officers of the Wool Growers Association and all sheep not considered first class individuals have been barred from the sale.

On the night of June 24 a moving picture show has been arranged. A five-reel feature entitled "From Wool to Cloth" will show in detail every step which wool undergoes from the time it leaves the sheep's back until it is ready to be worn by the consumer.

A wool exhibit has also been planned and attendants at the sale will be able to study and handle fleeces from some of the best show sheep that California produces.

A list of the consignors to the sale follows:

Rambouillet: Carl Lindenheimer, Woodland, 10 range rams; A. S. Mann, Ukiah, 20 range rams; university farm, Davis, 1 stud ram, 8 range rams; G. N. Merritt & Sons, Woodland, 18 range rams; Bullard Bros., Woodland, 12 range rams, 5 stud rams, 10 ewes, 19 range rams; Dalhy Bros., Dixon, 5 range rams; Chas. A. Kimble, Hanford, 20 range rams.

Hampshire: Spencer Ranch Co., Cranmore, 2 range rams; Kaupke Bros, Woodland, 10 ram lambs (Reg.), 5 ewes; university farm, Davis, 1 stud ram; Calla Grove Farm, Manteca, 25 range rams (Reg.), 5 stud rams, 50 ewes; Wm. Bond, Newark, 1 stud ram (Imp.); C. Harold Hopkins, 5 stud rams, 5 range rams (Reg.).

Shropshire: J. C. Montgomery, Davis, 2 stud rams, 5 range rams; J. W. Marshall, Dixon, 5 stud rams; G. K. Swingle, Davis, 1 stud ram, 5 range rams; Frank Campbell, Davis, 4 range lambs; university farm, Davis, 1 stud ram; Butte City Ranch, Butte City, 5 stud rams; Benj. B. Shaw, Hollister, 1 Reg. ram lamb (Imp.); Oeste Bros., Davis, 5 stud rams; Harry L. Huston, Winters, 5 stud rams.

Corriedale: Benj. B. Shaw, Hollister, 2 Reg. ram lambs (Imp.); Ellenwood & Ramsey, Red Bluff, 20 range rams.

Romney: University farm, Davis, 1 stud ram; Spencer Ranch Co., Cranmore, 1 stud ram.

Southdown: University farm, Davis, 1 stud ram; Benj. B. Shaw, Hollister, 1 Reg. ram lamb (Imp.).

Cross breds: Spencer Ranch Co., Cranmore, 12 range rams; I. A. Burrows, Newville, 20 range rams.

Cactus as Silage

Doubtless many Cultivator readers know what a pest the American prickly pear cactus has become in Australia, by far the worst weed pest that country has ever had. The government has combatted it in every way possible, as have the landowners both individually and collectively. Having it with them in such large quantities, they have sought to make some practical use of it. Yet it was from the United States the first help came.

Ranchers in Arizona and elsewhere had various methods and equipment for singeing the spines so they would not stick in mouth or throat, for once in the stomach the spines soon lose their rigidity. According to a department of agriculture bulletin (No. 74), published in 1905, a rancher in Colorado had some success in feeding steamed prickly pear. He had found that spines wet for a considerable time became soft, so he fitted up a tank and boiler to hold three tons of cactus, steamed for several hours and fed it mixed with other foods, with considerable profit.

But we have received no reports of cactus being used for silage, and should it be proved a success in that direction there is an enormous native supply growing wild in many parts of the Southwest. An Australian dairyman has found that spines soon become innocuous in the silo. In the Agricultural Gazette of Victoria he says: "In my article in Gazette of April last I mentioned that I had included 20 loads of prickly pears in a stack of ensilage with maize and sorghum. I now have the pleasure of forwarding you a sample and reporting unqualified success. The cattle like the pears quite as well as the other constituents of the ensilage, and prefer these pears to the steamed pears, which I am still giving them. I estimate that the pears amount to one-third of the whole stack. In building the stack I put alternate layers of pears and maize and sorghum, four loads of pears in one layer, but never allowing the pears to be nearer than a foot to the edge.

"At present I am feeding the cow-

on this ensilage, steamed pears, and barley, all on the same day. There is also a good picking of green herbage, yet everything is eaten up clean. The milk test is at present four per cent of butterfat, which is amongst the highest at my creamery. Now, as this ration has a good proportion of prickly pear, tho facts stated prove that there is considerable virtue in the much despised prickly pear. It only remains for me to add that the pears were placed in the stack whole, including thorns and roots, the largest bunches being afterwards chopped to flatten them. The heat and ferment of the silo has softened the thorns and rendered them harmless. I always add a bag or more of coarse salt to a stack to make the fodder more palatable."

DO NOT OVERFEED SKIM MILK CALF

"Overfeeding," says C. H. Eckles, chief of the dairy husbandry division of the Minnesota college of agriculture, "is probably the most common cause of lack of success in raising calves. It is a mistake to assume that because the cream has been removed the calf needs more milk or that because the calf is not doing well it is not getting enough milk and should be allowed to gorge itself. A good rule is always to keep the calf a little hungry. Some provision must be made for making certain that each animal gets its share and no more. A satisfactory plan is to tie the calves in small stanchions during the feeding. Each calf then gets its proper amount and cannot interfere with the feeding of others.

"Under natural conditions the calf takes its milk frequently and in small quantities. When fed by hand two feedings a day is the general practice and special care must be taken not to allow the calf to consume more milk than it can digest. For the first two weeks ten to 12 pounds a day is all that the largest calf should receive. If it can be done without too much inconvenience, the calf at this age should be fed three times rather than twice daily.

"As the calf grows older, twice a day feedings are sufficient and the milk may be increased, but at no time is it necessary to feed more than 16 or 19 pounds daily. By the time the calf needs more than this amount, it will take the additional feed necessary in the form of grain."

SEASONABLE HINT ON COOLING MILK

With the advent of warm weather some of the milk of the home dairy is likely to become sour unless steps are taken to keep it properly cooled. In this connection, Harold Macy, dairy bacteriologist at the Minnesota university farm, says:

"In order to insure the best quality of milk for delivery, it should be cooled to 50 degrees Fahrenheit or below as soon as possible after milking and kept at that point until it is delivered. To do this it is necessary to depend upon some other means of cooling than air. If you have no cooler the best way to do is to place the can of milk in a tank of cold water and stir the milk at intervals until it reaches the temperature recommended.

"If plenty of cold running spring water or well water is available, there should be no difficulty. If you have ice you can make good use of it to lower the temperature of the water. A little care exercised each day in the cooling of the milk will check the return of sour milk so common later in the season."

AMERICAN JERSEY CATTLE CLUB ANNUAL MEETING

The fifty-second annual meeting of the American Jersey Cattle Club was held in New York on June 2. The total registrations and transfers of Jerseys for the year showed an increase of 25 per cent over the figures for the previous year. There are now more than 6,000 Jerseys on Register of Merit test, the testing being done by 775 Jersey breeders. Three new records were made in the past year, two of them being champions over all breeds, one in the senior yearling class and the other for cows of twelve years and over. The growth of the club's business is more clearly brought out by the fact that it has outgrown its present building, which was erected only a few years ago ,and that it has become necessary to purchase the adjoining building for additional office space.

There was discussion as to changing the methods of nominating and electing officers and directors. This matter was referred to the board of directors, who were authorized to work out a plan. Issa Tanimura, sent by the Japanese government as commissioner of livestock, was elected first honorary member of the A. J. C. C.

All of the officers were reelected. M. D. Munn, president; E. A. Darling, vice president and George T. Chaffee, treasurer; R. M. Gow, secretary.

Four new directors were also elected in place of the retiring members of the board. Senator Carter Glass of Virginia, former secretary of the Treasury, was elected to the board by a unanimous vote. Other distinguished breeders, the Hon. C. N. McArthur, congressman from Oregon; W. A. Griswold of Tennessee, and C. J. Tucker of Missouri, were elected directors.

FEED AND LIVESTOCK CONDITIONS

J. E. Rickards and E. E. Kaufman, field agents of the bureau of crop estimates of the U. S. department of agriculture, report the condition of pasture and the hay crop by counties, as of June 1, 1920, as follows:

County—	Alfalfa	Pasture	Hay	Alfalfa Acreage 1919
Zone 1				
Lassen	81	74	76	18,500
Modoc	82	80	86	18,000
Plumas	92	90	88	7,600
Shasta	81	71	79	35,000
Siskiyou	90	80	85	34,000
Sierra	..	..	..	1,500
Trinity	92	60	73	1,500
Zone 2				
Amador	..	70	80	1,130
Butte	..	84	68	12,000
Colusa	72	72	63	20,000
Del Norte	..	60	50	.....
Eldorado	75	74	63	.....
Glenn	82	48	68	20,000
Humboldt	77	70	70	1,000
Lake	87	75	80	2,500
Marin	..	75	90	150
Mendocino	80	70	71	5,500
Mono	95	90	87	2,500
Napa	..	63	72	3,600
Nevada	60	55	55	120
Placer	95	90	75	2,400
Sacramento	83	81	80	6,500
Solano	90	74	58	50,000
Sonoma	75	64	86	420
Sutter	73	65	48	7,531
Tehama	81	71	68	5,275
Yolo	79	68	68	41,580
Yuba	85	80	82	6,010
Zone 3				
Alameda	76	65	55	650
Contra Costa	..	50	41	3,000
Monterey	92	65	80	20,000
San Benito	75	70	60	3,000
San Luis Obispo	98	90	82	3,300
San Mateo	..	80	..	250
Santa Clara	88	80	90	3,900
Santa Cruz	90	78	84	282
Zone 4				
Alpine	100	90	100	400
Calaveras	95	83	80	150
Fresno	95	55	85	68,480
Kern	95	59	86	90,000
Kings	83	65	71	29,839
Madera	85	84	76	10,297
Mariposa	..	80	62	60
Merced	94	80	82	92,000
San Joaquin	92	80	78	35,000
Stanislaus	93	90	84	56,564
Tulare	95	85	90	102,360
Tuolumne	90	88	87	50
Zone 5				
Imperial	93	68	95	96,140
Inyo	95	95	95	32,700
Los Angeles	96	80	90	2,450
Orange	95	90	90	2,000
Riverside	96	90	100	21,784
San Bernardino	84	85	90	22,470
San Diego	95	85	90	2,670
Santa Barbara	78	87	84	.....
Ventura	95	90	85	750

The alfalfa acreage figures by counties submitted herewith are those returned by the different county assessors to the state board of equalization for the year 1919. The estimated acreage of alfalfa by counties will indicate in a general way the relative importance of each county in the production of alfalfa hay, although in many counties more or less alfalfa is pastured all or part of the season.

Reports for the entire state indicate a very slight increase in the acreage of alfalfa compared with last year. The condition of alfalfa for the state is 89, the lowest since 1913, while the ten year average is 93.

Pasture is only 76 per cent of a normal, compared with 91 last year and a ten year average of 86. Pastures, it will be noted, are best in the southern and mountain counties where the rainfall was heaviest. Considerable pasture will doubtless be obtained from some grain fields which will neither make grain nor hay.

The condition of hay, which includes all kinds—alfalfa, clovers, timothy, wild and grains cut green—is placed at 81 per cent of a normal compared with 87 one year ago and a ten year average of 84.

Is Your Cream Check Insured?

Insure your cream check against slumps due to dry pasture and lack of green feed with an Indiana Silo. Green, succulent silage makes dairy cows improve in butterfat tests.

Indiana Guarantee

Because we know Indiana Silos from the standing timber to the finished product we back them to the limit. If used according to our instructions Indiana Silos will give satisfaction. If they do not we will replace them or refund your money. Our assets are more than $2,000,000.

Certain Green Feed

With an Indiana Silo *you* control your pasture—not the weather. Regular, green silage rations will increase that cream check. Indianas are built of No. 1 Fir. Airtight, self-draining, tongue and groove joints. Three men in three days can erect an Indiana. Write for our free book on silos.

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For easy feeding, early maturing Poland Chinas,

Secure the Get of Model Big Fellow

The Reserve Grand Champion of the last state fair, the strongest Poland show ever held in California. His pigs are the kind that satisfy the purchaser. Your correspondence will be appreciated. Write me.

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where efficiency is our watchword and the production of extra heavy milking Holsteins and big type Poland Chinas is our specialty. A few choice animals of either breed or sex for sale at all times at reasonable figures. Write for information.

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is some boar. As an individual he ranks as one of the best in the state. His get are the type that experienced breeders demand. Let me fill your order for anything in the Duroc line. You will be pleased with your purchase.

H. C. WITHEROW **Live Oak, Sutter Co., Cal.**

Do Crows or Ravens Become Killers?

A report has been received from eye witnesses of an instance in Mendocino County where flocks of crows (not identified) had attacked and killed 15 newly born lambs, the property of L. J. Romer of Ukiah. In each case the newly dropped lamb had been attacked by the birds as soon as parturition occurred, the damage being restricted to the umbilical region exclusively and resulting in the death of the young lamb. On being disturbed the wary "crows" took flight before it was possible to identify them.

Now as a matter of fact such birds as ravens and crows are sufficiently well developed, both physically and mentally, to accomplish such damage to small animals at such a time, and possibly the death of many lambs attributed to predatory animals is in fact due first to crows that kill the lamb when first dropped, to be followed by a dog or coyote that frightens off the crows and devours the carcass at leisure.

Let us look, for example, to the early history of New Zealand. Before colonization set in the fauna of New Zealand numbered among other birds a fruit eating parrot, the "Kea" parrot. Later civilization brought livestock and sheep. Carcasses of sheep left hanging attracted flocks of Kea parrots that devoured the fat surrounding the kidneys. The parrots acquired a taste for flesh and today sheep raising in New Zealand has become a problem through the fact that these ravenous birds attack and kill living sheep in the field.

Where such damage occurs in California and it is not possible to get sufficiently close to identify the birds, one should carefully ascertain by direction of flight the location of the "roost," after which specimens of the offenders may be secured and identified. One fact would seem to point to the common crow in that the birds attacked the lambs in "flocks," whereas it is understood that the raven does not fly in numbers.

Farm Labor and High Cost of Living

By Wm. H. Overholtzer

The farm labor problem has reached a point where there must be something done. We cannot produce and harvest our crops with the shortage of labor; and worst of all, the class of labor that the farmer must put up with will drive many a good former to farm just what he can do himself. Why is it that the farmer must take this poor, inferior labor—simply because every other line of labor is paid more than the farmer can pay. The farmer should get such returns from his crop that he can pay the top wage, so he can get the best help available.

A year ago I tried a new plan—hired my regular help for a share of the crop—and it worked fairly satisfactorily till the time came when we needed extra help, and then we were up against it just as the wheat farmers of Kansas are today, where it is said 25 per cent of the wheat crop will be wasted because sufficient help cannot be obtained to harvest it.

I have a government report showing the shortage of farm labor. This report says some of the cotton in the South was not picked last year because of the shortage of help; and then goes on to show that conditions will be worse this coming season. What is becoming of all the help that we used to depend on to do the farm labor?

There is no other conclusion to come to but that the wages that have been paid in every other line of industry have been greater than the farmer could pay and have drawn the help from the farm; better pay and shorter hours in the cities leave no help on the farm except inferior help that no other line of industry wants.

The only solution to this farm labor problem is for the farmer to pay just as high wages as any other industry can pay; and the only way this can be done is by giving him more for his produce, or bringing down the high cost of living so wages will come down with it. My method would be to put many men out of employment that are now employed in useless occupations and place more men where they are needed on the farm, and pay them just as much as the best industries can pay them.

To accomplish this we must make laws to control the profit between the producer and the consumer. When we began shipping onions from the Coachella Valley the farmer received $2 per crate or four cents per pound. Freight to Los Angeles would not exceed 50 cents per crate, or one cent per pound, or a total delivered in Los Angeles of five cents per pound, and the retailer retails them for 12 cents, a profit of seven cents for the middlemen. Two cents ought to be enough, and the retailer should have that. And if we had a law not allowing a greater profit than the amount paid the producer, these onions would have been sold for nine cents retail instead of 12 cents. If we had such a law, all retailers would have to do would be to organize and have a buying agency to buy all produce for the retailers and distribute it to them at cost, and then the only profit there would need to be would be the retailers' profit, and the retailer can certainly handle the goods for half what the farmer can produce them for and prepare them for market, for the onions, crates, and preparing for market cost the farmer 75 cents per crate. What did the producer have for his profit when the last shipment sold for 85 cents f. o. b. cars, and many acres more not harvested? Can we not get action in some way—make laws to control the profits between the producer and the consumer?

A $10,500 Cow—and Worth the Money

Ruby Pietertje of Forest Hill 2nd, consigned by W. J. Higdon, Tulare, to the National sale at St. Paul and purchased by Wheatfield Farms, Wisconsin for $10,500. Ruby holds the Pacific Coast 30-day record, 162.5 pounds butter from 3,144.6 pounds milk. Her seven day record of 39.74 pounds butter was the largest record reported last year.

GOOD MANAGEMENT OF THE PUBLIC'S INTEREST

According to Jonathan S. Dodge, chairman of the board of supervisors, Los Angeles County is the owner of King Korndyke Pontiac Mead, a young bull 16 months old, that is a half brother of King Korndyke Pontiac Acme, just purchased at the Holstein sale at St. Paul by Mrs. Anita Baldwin for $41,000.

The dam of Pontiac Mead is de Kol of Valley Mead 2d, and his dam's dam is De Kol of Valley Mead. De Kol of Valley Mead was four times grand champion at the California state fair, and she has three daughters, all with seven day records above 24 pounds of butter, and all with yearly records above 700 pounds of butter. Her best daughter is De Kol of Valley Mead 2d, with a record of 1,011 pounds. De Kol of Valley Mead 2d is full sister to King Mead of Riverside, all of whose tested daughters average above four per cent on a yearly test.

The sire of King Korndyke Pontiac Mead was recently sold to the Crescent Creamery for $12,000, and his dam held three different worlds' records, and still holds on. When King Mead is four years old it is well to presume that the herd at the county farm, owned by Los Angeles County, will have at its head a bull that is unexcelled by the record of any in Southern California.

HORSE ASSOCIATION OF AMERICA

Wayne Dinsmore, secretary of the Horse Association of America, has announced the appointment of Hamilton Bassett of San Luis Obispo as Pacific Coast representative of that association.

Mr. Bassett is well known to California livestock men as the proprietor of the White Triangle Ranch, and his Clydesdale horses are well known throughout the state. He is a thoroughly practical horseman, has traveled all over the world, is thoroughly familiar with breeding, rearing, breaking and use of horses, and is a well known writer who has been contributing news notes to agricultural papers for many years.

Mr. Bassett will visit the larger cities on the Coast, will personally study transportation conditions found therein, and will give you from time to time news stories dealing with existing conditions. He will also visit the irrigated tracts and the large ranches and will cooperate in every possible way in bringing about a clearer understanding of the indispensable part which the horse and mule plays in agriculture and transportation.

TANNING LEATHER

Leo Mereno of Wilmington spends a bit of his spare time in making a high grade sole leather. He gives us the following facts regarding green hides and leather. The ordinary green hide weighs about 60 pounds, for which the farmer may receive anywhere around 18 cents. For his own work he requires selected hides so that he secures from dealer at a price around 30 cents. A 60 pound green hide reduces to about 20 pounds of cured sole leather. Nearly a month is required in curing the leather. Six days of this is in lime and perhaps 20 more in working, coloring and finishing. This hide ready for use by the cobbler is sold for $1.50 per pound. That is, if it is not cut. Cut pieces or selected pieces may command double that amount.

ATTENTION SHORTHORN BREEDERS

The American Shorthorn Breeders Association has received communications from the animal husbandry department of various colleges and universities in regard to young men who are desirous of working on the breeding farms during the vacation. It is a regular practice with a number of well known breeding firms to employ one or more of these capable young men, and with very satisfactory results. One Shorthorn firm engages ten each season. The wages are moderate and the young men being interested in learning the details of the business are very useful. Many such a young man has later become a fixture in the business with his first employer. Not a few have later formed partnerships with their employers. In view of the present limited labor force this is an opportunity that may well be taken advantage of by Shorthorn breeders. The sooner the matter is arranged the better. Applications may be made directly to any one or more of the institutions or through the American Shorthorn Breeders' Association.

AUSTRALIAN WHEAT CROP

The wheat crop has been disastrously affected by the drouth in New South Wales. It is estimated that the yield of the present season will be only 4,296,000 bushels, the smallest during the past 20 years. There is, in fact, an insufficient amount of wheat even for domestic consumption in Australia.

Humboldt County wool growers have combined and agreed to hold entire output for a 60 cent basis.

CATTLE FOR SALE
95% Whitefaces
400
Heavy Boned Hereford Steers
Mountain Raised—Healthy
100 Cows and Calves
100 Heifers and Cows
Inspect Cattle at Howard Ranch
12 miles Southwest of Chowchilla, Madera County, Cal., or write
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SICK ANIMALS
BOOK about Sick Horses, Cattle, Sheep, Dogs and Poultry, mailed free. Address Dr. Humphreys' Veterinary Medicines, 156 William St., New York.

TESTIMONIALS
"Cows increased in one week 3 per cent in milk."
A. L. McCULLOCH, Alpaugh, Cal.
"I never saw hogs do so well or grow so fast as on this molasses ration."
C. H. HARTWIG, Yuba City, Cal.
"It has enabled me to keep my stock in better condition at less expense."
J. M. HENDERSON, JR., Sacramento, Cal.
"Have one calf that refuses to drink new milk—prefers skimmilk with molasses. What do you know about that?"
R. HECKLEY, Santa Rosa, Cal.
"It has been a great advantage in getting the stock to clean up the roughage."
H. H. AMES, Chowchilla, Cal.
"One cow will turn down the choicest handfuls of alfalfa hay unless it has been 'Molassed'."
REDWOOD AYRSHIRE FARM, La Honda, Cal.
MOLASSES
cheaper than hay, but has same feeding value as corn or barley.
W. H. YOUNG COMPANY
58 Sutter Street San Francisco, Cal.

NEW IDEAS FROM DAVIS

(Continued from Page 975.)

llar swelling on the comb. Always it appeared in pullets or cockerels, never in old hens, and always, when it occurred in pullets there was the broken egg in the abdomen. In all these cases the disease was recognized by bacterial examination, and a thorough cleaning up and disinfecting usually eradicated it. Vaccine was tried without much success, but bichloride or mercury in the drinking water checked infection.

Mixed Feeds Best

Tests with several flocks to determine what scratch grain or mixture of scratch grain is best brought out the fact that a mixture is always better than one grain alone. If either corn or barley must be used alone, corn gives slightly better results than barley, but the mixture of the two is better than either alone. A flock fed barley alone laid 99 eggs, while another flock fed a mixture of corn and barley laid in the same time 108 eggs. One reason for keeping before the fowls a variety of grains is that the presence of an abundant supply of vitamines is thus assured. Nobody knows just what vitamines are, but we know they are contained in milk, fruit, greens, meat.

On the question of green feed Professor Dougherty is more emphatic than ever. He told of an epidemic last year among the flocks around Haywards which for a time could not be explained. Lack of green feed was suspected as its cause, because it was known that the poultrymen had been short of greens. Experiments with several flocks, one of which has been given no greens for a number of months, substantiate this suspicion. While the flocks that received greens remained healthy and productive, those without began to die off, and it looks as if not one would be left by the end of a year. "The man that can't raise green stuff had better not raise poultry. Green feed is the foundation of success." These words are quoted exactly because we cannot emphasize this point too much. Any piece of bare land is not "good enough for chickens." It must be fertile enough for all sorts of green crops and the water supply must be ample. The more irrigation the more succulence in the green, and succulence is what we want. Alfalfa hay and beet pulp are not green feed, but anything green, freshly cut, tender and succulent will answer.

Hatch Early

January and February are without doubt the best hatching months, Professor Lloyd declares, and charted data seemed to show that January is a little better than February This is because chicks do not grow as rapidly or as symmetrically in the dry, warm days of late spring as in the moist, cool winter weather. November and December pullets do very well but are not quite as profitable layers as the January pullets. California poultrymen will avoid loss and trouble by sticking to the "hatch early" rule.

For Coccidiosis

Remedies for coccidiosis which have proved quite efficient when sour milk was not available were suggested by Dr. Beach as follows:

Hydrochloric acid in the drinking water, 1 teaspoon to a quart of water. Must not be used in metal container.

Zinc sulphocarbolate, 1/1000 solution, or 1 pound a day to 1000 chicks in dry mash.

Thymol, 1/1000 solution, used 3 days at a time. This is the most expensive and least desirable.

Bismuth subnitrate. (I did not catch the dose.)

Coccidiosis, fowl cholera and intestinal worms are all most prevalent when the chicks or older birds are on contaminated ground. Probably it would be useless to say "Keep your chicks on clean ground," for brooder houses as well as laying houses are permanent and must be used where they are, but double yards with a crop grown in each yard in alternation are a great help in purifying the soil.

Keep Accounts

Mr. Eason appeared just for a moment, but long enough to say he believed the most important thing to urge on all poultrymen is the keeping of accounts. "Half of them," he declared, "don't know whether they are making money or losing it, and it is some job to get them to keep books consistently and persistently" If this is true, it is a challenge to everybody who keeps any chickens at all to at least know where he stands and what it is costing him to produce a dozen eggs.

NATIONAL EGG LAYING CONTEST

Mountain Grove, Missouri:

The 300 contest hens laid 6,121 eggs during May, or an average of 20.4 eggs per bird. Pen 16, S. C. White Leghorns, owned by Homer Collins, Ozark, Missouri, won the cup by laying 135 eggs during the month.

Ten Leading Pens for May

S. C. White Leghorns, Missouri, 135 eggs; S. C. White Leghorns, Missouri, 127; Anconas, Missouri, 126; S. C. White Leghorns, England, 124; S. C. White Leghorns, Idaho, 124; S. C. White Leghorns, New Jersey, 123; Anconas, Missouri, 122; Anconas, Missouri, 120; Anconas, Missouri, 120; Anconas, Missouri, 120; White Rocks, Idaho, 120; Black Minorcas, Missouri, 120.

Ten Leading Pens to Date

Barred Rocks, New York, 782 eggs; S. C. Reds, Missouri, 756 eggs; S. C. Reds, Alabama, 751; White Wyandottes, Missouri, 745; S. C. White Leghorns, England, 732; Columbian Rocks, Missouri, 723; Barred Rocks, Canada, 711; S. C. Reds, Missouri, 696; White Wyandottes, Arkansas, 685; R. I. Whites, Missouri, 674.

Five Leading Individuals to Date

S. C. Red, Missouri, 190 eggs; Barred Rock, New York, 182; S. C. Red, Alabama, 175; S. C. White Leghorn, England, 174; S. C. Red, Missouri, 167.

THE PERSONAL RIGHTS MAN

By J. P. Iverson

One of the most serious difficulties with which the inspector has to contend is the skeptical man, generally known as the "personal liberty" or "personal rights" individual. This sort of a man believes that certain personal liberties are the inalienable privilege of every American citizen and fails to look beyond and realize that every American citizen also has certain plain duties which he should, and must, perform. Generally he believes himself to be the crowd and is the kind of man who will dart off at a tangent from the great mass of public opinion and then call loudly, "Come on and follow the crowd!" He does not realize that he, personally, does not represent the crowd and further, that the principle of the American government is that all laws are based upon the desire of the majority and that, since that majority has spoken by laying down a law, it is incumbent upon the minority to abide by that law if they are to be considered respected citizens and not anarchists.

The personal rights man cannot see the justice or right of any law that interferes with his dollar chasing desire. He wonders what right any state inspector has to tell him that he must screen his milk house to keep the flies out of the milk or to ask him to go to the expense of installing a milk cooler or steam sterilizer to keep his bacterial count down. He has milked cows and drunk milk for years and never had any of this foolishness, and he is still alive! "If it is clean enough for me, why ain't it good enough for anybody?"

Another of these personal rights individuals cannot understand why his ranch should be quarantined when there occurs an outbreak of Texas fever, hog cholera, anthrax, or other communicable disease of animals. "Why shouldn't he be permitted to sell his animals—unload quickly, so to speak, even though by so doing he spreads the disease to his neighbors' herds? Let the other fellow worry!"

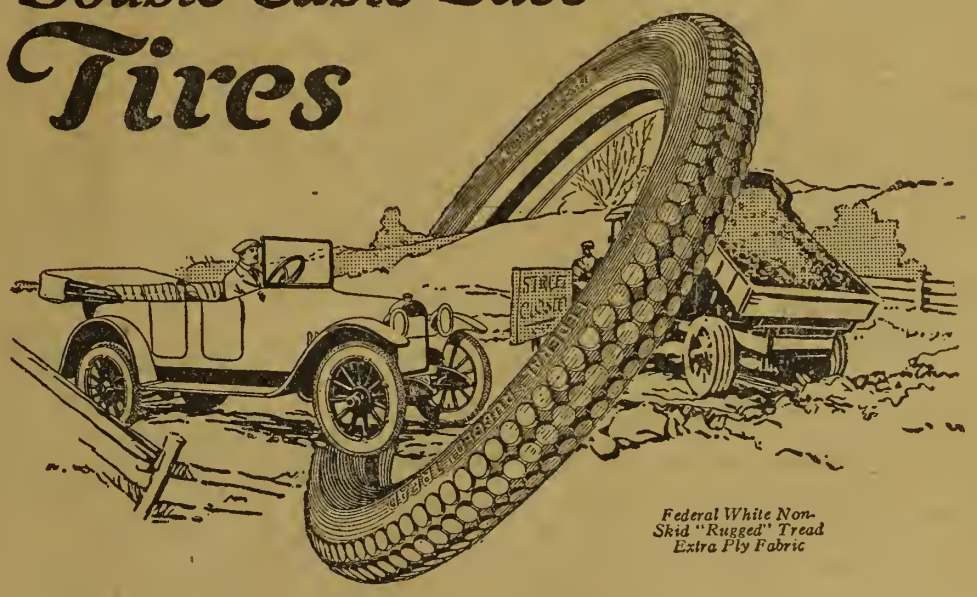
NO HIGH COST OF CLOTHING HERE

When a hole is worn in tapa cloth it is only necessary to moisten the edges and beat them together. Tapa cloth was once woven or pounded into shape in many parts of the South Sea Islands. It is made of barks of the banana, breadfruit or mulberry. The rough outer bark is first scraped off and the inner fibers are beaten together and allowed to ferment. So fine is the texture of the cloth that one would never imagine it had been prepared in this crude manner. It is bleached to a dazzling white color in the sun, and when made into garments is practically indestructible.—Boys' Life.

FEDERAL

Double Cable Base

Tires



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Poultry for the Tenderfoot

By Jean A. Koethen

TWO letters have come to me this week which open up a question the Californian must meet, and can meet only in a spirit of frankness and fairness. California as a state renowned for climate and wonderful natural beauty is also a state that is becoming known far and wide for the progress and stability of its poultry industry. It is no wonder people who love poultry and wish to boost the industry as well as gain a living from it should wish to come here. That is to be expected and desired. We want them, every one. The poultry associations want them. Real estate promoters want them. But we and they shall both be losers if we magnify possibilities or minimize difficulties.

The first letter is from an insurance man in Ohio. "I am writing you," he says, "for information on the possibilities of a poultry ranch in your state. I am contemplating coming to California to live this coming October and would like to engage in the poultry business. If you have any information for a newcomer I shall be glad to hear from you." He says nothing as to his capital, health or previous experience with chickens, but from the fact that the envelope bears the seal of the American Poultry Association I take it for granted he is a fancier with some experience in handling small flocks and wishes to go into the poultry business on a larger, perhaps on a commercial scale.

What shall we say to a man like this? First of all, I think, he must understand that the poultry business in California is in no essential different from the poultry business elsewhere, except that it is, if anything, a little harder here than in some parts of the country. Possibly I shall be criticized for that statement, and as all my poultry experience has been in California, I cannot pretend to compare with authority. I do know, however, that since California is not a grain country, as the Middle West is, feed inevitably costs more, and we cannot always afford the kind of feed that gives best results. Corn, as everybody knows, is one of the best all around poultry feeds. It is hard to raise young stock without it, hard to fatten broilers without it, and hard to keep laying hens in good condition the year round without it. Milo and the other sorghums take its place to some extent, and so does barley, but neither one is the dependable feed that Indian corn is. Ever since the beginning of the great war sent the price of wheat up we in California have had to skimp on corn. as well as on wheat. Its price has been around $5 a hundred so long that some of us have forgotten it never was a cheap feed, and we try to get along with the least possible amount of it.

Higher Prices Ahead

It has seemed as if there must soon be an end to such conditions, but those who are on the inside are looking for higher prices rather than lower, not only of corn, but of all other feeds. Only a few weeks ago J. T. Barber, president of the Poultry Produecrs of Central California, which handles the egg output of the Petaluma district, hung out storm signals, stating in the plainest language that the coming year promises to be a very hard one for poultry people, that it will cost close to $4 to feed a laying hen through the year, and that only men who are well established in the business can hope to break even. That is strong language, but it is Mr. Barber's, not mine.

In Southern California, while I have heard no prediction as gloomy as Mr. Barber's, I know there is a general feeling of uncertainty as to just what the coming year has in store for poultrymen. Eggs have not brought the prices they brought in 1918-1919, and went into cold storage at a considerably lower figure. With feed prices going up and egg prices coming down, we can hardly say to the tenderfoot, "Come right along in, boys. There's millions in it." A large poultry man who has been in the business near Los Angeles for 15 years said to me in January, "I get a lot of letters from eastern people who want to come here and go into the poultry business, and I don't know how to answer them. I don't like to discourage them, and yet I know most of the little fellows are producing eggs at a loss right now."

Of course, it may be something will happen to bring feed prices down, but as long as crop reports indicate a smaller area than usual planted to grain, we can hardly hope for much relief this year. The man who is well established and has the capital to buy feed where and when he can get it cheapest, who does not need to buy stock or build houses, can worry along and make a living. If he has a good hatching egg or baby chick business he can do better than that. It is the new man that will suffer most and soonest.

Personality Counts

Even if prospects were the best in the world I could hardly encourage the tenderfoot without knowing the kind of man he is. This seems trite, but it is not. The successful poultrymen I know are very hard working men. They visit the roosts night after night picking out the hens that do not come up to the mark. They study night and day to perfect their system, whatever it may be, for every successful man has his system. What they earn they earn by the sweat of their brows, every one of them. Only a man who can look forward without misgivings to "long days of labor and nights devoid of ease" need expect to succeed with commercial poultry keeping. Some men will succeed anywhere. You can't keep them down. High feed prices, long hours of labor don't scare them. Even such a one, however, must have capital and knowledge.

Slow and Easy Does It

My advice to Mr. S., and to every other tenderfoot is: Come to California. You can hardly make mistake. Whatever you do, you'll be glad you came. But, don't be in a hurry about making a living with poultry. Get a job in the city or one of the larger suburban towns. Buy a few acres, or a single acre, and plant it to fruit. There are thriving poultry communities within commuting distance of the larger cities where you can find a pleasant home and plenty of people to give you advice about starting with chickens. In January or February buy 100 day old White Leghorn chicks from a reliable hatchery and raise them. If you make a reasonable profit with the pullets you get from those chicks you will be ready to buy more chicks and raise more pullets. Meantime, stick to your job. Don't leave it till you can make a living with poultry.

Women in Poultry Work

The other letter is from a California woman who asks; "Can you give me any information concerning the poultry farms of the state that would permit me to encourage a young English girl to come out here. She is at present manager of the poultry department on an estate in England. She wants similar or suitable work on a poultry ranch in California."

I am afraid such a position as this girl is holding would be very hard to find in California. I know a good many poultrymen who keep help, but they all hire men to do the heavy and rough work on the ranch, while they themselves, or their wives and daughters, look after tending the incubators, raising chicks, and other light jobs. There must be wealthy people in this state who have country estates and hire some one to look after the poultry, but I do not know them. Perhaps they might be found by judicious advertising.

I do know, however, quite a number of women who are successful fanciers

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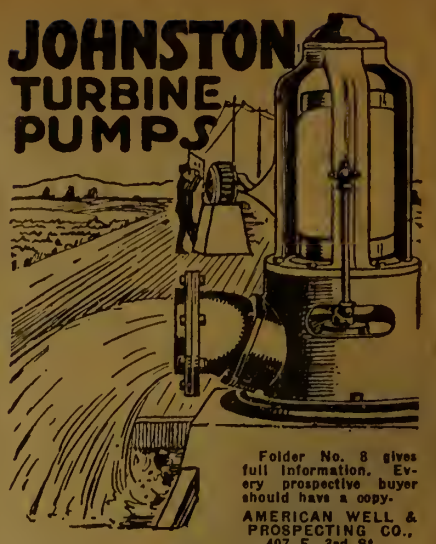

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and even commercial poultrywomen. One woman I have in mind cares for upwards of 1500 hens with the help of a young man and does a nice little hatching business on the side. Another, with the help of a boy, cares for 1,200 laying hens. Another, whose flock is less than 1,000 told me last winter, "I'm doing so well I hardly dare to think about it." These women all own their little ranches, and I hardly know how one would begin without capital enough to buy a little place she could call her own. If this young girl has a little capital to start with, or friends who can give her a home while she is getting her bearings, or some other occupation that she can follow while she is getting a start, and there is some one who will be interested in her where she is going, you can encourage her to come. I should be recreant to my own convictions, however, if I did not say emphatically, do not encourage any girl to make the trip from England if she must travel alone and be entirely among strangers after she reaches California. This has nothing to do with poultry. It is simple common sense.

Poultry Queries

Conducted by J. A. Koethen

Sea Grass

Will you kindly inform me whether sea grass would be good litter in a chicken house? It contains some salt. Would this be injurious?—Subscriber, Chula Vista.

A little salt in the mash is a good thing, but half a pound of salt to 100 pounds of mash is about the right proportion. Is your sea grass more salt than this? A little salt increases palatability, but too much is injurious and even fatal. It is said that over half an ounce will kill a healthy hen in from eight to 12 hours. I should not dare advise you without knowing just how much salt is in the grass. As you are near the beach, why not use sand instead of scratching litter? I have seen good clean beach and wash sand hauled considerable distances for this purpose.

Overcrowded

We have 200 chicks, from six weeks to three months old, and two-thirds of them have roup. They are in coops six by three, divided into three parts, and 35 chicks to each part. The coops are open front. Should curtains be let down at night?—B. O. W., Whittier.

What your chicks need is not less air, but more. They are sadly overcrowded. Twenty chicks to each of these two by three divisions is the utmost that should be crowded into them, and fewer would be better. Leave the fronts open but spread the chicks out. They are too warm all night, and when they go out into the morning fog they chill.

Roupy Breeders

If hens have roup will they pass it on to their offspring?—Subscriber, Whittier.

Most certainly they will—not the actual disease, but a tendency to it. A single attack of the disease might not affect the hen's constitution, but a hen that has roup every year should never be used as a breeder, and it is better to exclude her from the breeding pen entirely. There is too much roup in our flocks now. Let us do our best to eradicate it by never breeding from roupy stock.

Picking Geese

Will you kindly tell me in what months to pick my geese, and how? Also if picking will hinder laying.—Mrs. W. B. D., Vacaville.

Geese are picked in spring and fall, when the feathers begin to loosen, preparatory to dropping out. When you see your geese picking out their own feathers, then you may know it is time. At any other time it is cruel. Breeders should not be picked. Pick the young birds when you see them beginning to molt. I am not sure that this rule applies to all breeds, but it does apply to the Toulouse.

White Holland Turkeys

Some time ago a party advertised White Holland turkeys in the Cultivator. Can you give me the address, or that of some other breeder of gray or blue turkeys?—Mrs. F., Descanso.

White Holland breeders, where are you? No White Hollands were entered at the January show, but there must be a good many of them somewhere. By gray or blue I suppose you mean slate. They are scarce, but have been in the shows occasionally. Won't some breeder of these birds make his whereabouts known?

Summer Feeding

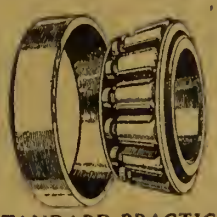
In January you gave me two mash formulas and I chose the following: 40 pounds bran; 20 pounds each of corn meal, middlings, barley meal and alfalfa meal; ten pounds each of fish meal and beef scrap; five pounds bone meal. I am feeding this warm morning and noon and at night give white Egyptian corn, rolled barley and a poor grade of oats. Have been steaming the barley and oats to make them more palatable, and have eliminated the corn altogether for the summer. After I put the pullets on the maintenance mash they stopped molting, but I notice they are beginning again. As it is extremely hot here, I should like to know if the above feeding is correct for summer. Later on I shall have sunflowers. In what proportion should they be fed ? Some of my pullets lay soft shelled eggs. Would you advise lime in the drinking water? Have been running a little water in the yard on hot days. Will it hurt the hens to drink from the puddles? Your former advice put my pullets in fine shape, and they have kept up a fine average for four months.—L. B., Arbuckle.

If it is as hot as you say (112 degrees in summer), you will need to feed carefully. Stop the warm mash and the steamed grain. Let them have the mash dry in hoppers or boxes before them all the time, and cut the meat in the mash down to 15 per cent. If you could feed some wheat with the barley at night that would be better than any kind of corn. The hens may not like rolled barley at first, but they soon get used to it. I think, though, whole barley sprouted would be better than rolled, in your climate. Soak it 24 hours, then pour in a box, cover and keep in the shade, sprinkling daily or oftener, till the white rootlets appear, then feed all the birds will eat at one meal. You might feed the sprouted barley in the morning, greens at noon, wheat at night, and the mash all day. Sunflower seed should not be more than ten per cent of the evening feed. It is better to feed a little at a time and make it last a good while than to feed heavily for a short time. For the soft shelled eggs give more oyster shell and, if you can get it, let the birds have granite or limestone rock to pick at. Feed all the greens you can, and do not try to force the pullets during the hot weather. It may be you have been feeding a little too large a proportion of grain, and the birds are fatter than they should be. If you follow the above suggestions you will not see many soft shelled eggs.

The moist mash is rather more fattening than the dry. That is one reason why it sours very quickly. Drinking from puddles will not hurt the hens as long as the water is reason-

(Continued on Page 999.)

Do You Know—



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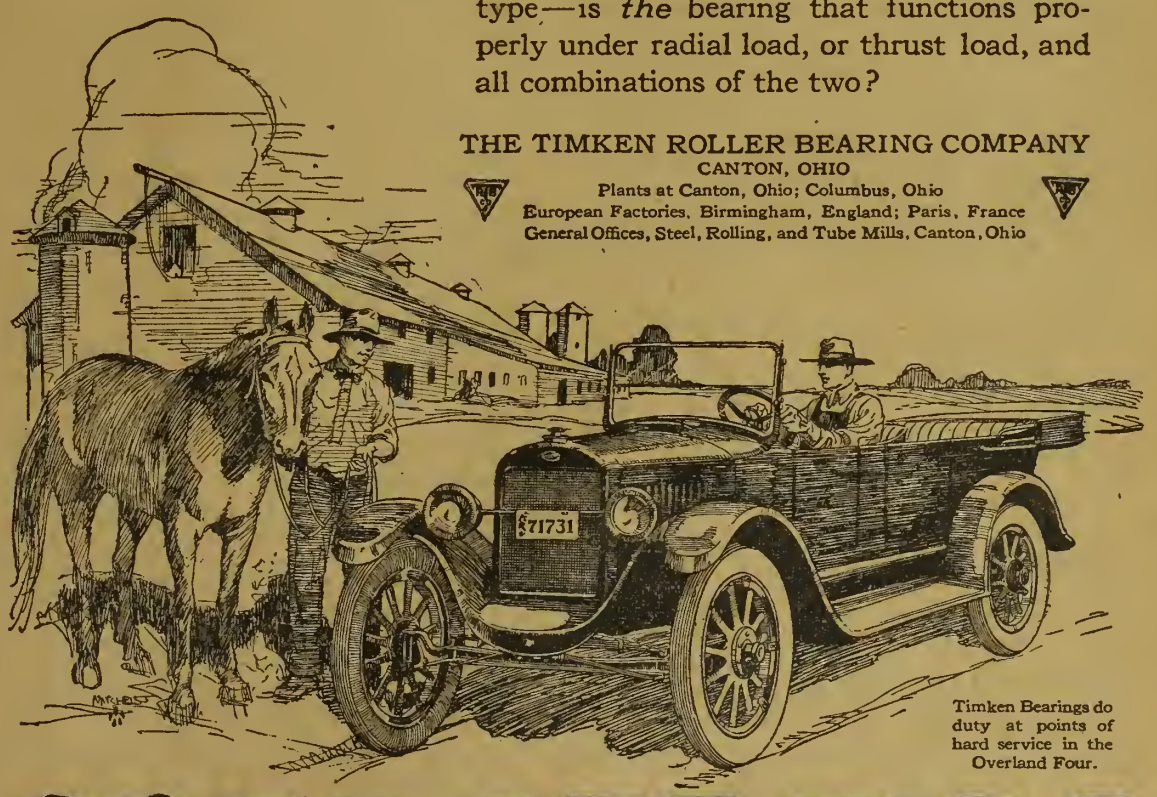

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Pure Bred Berkshire Pigs at weaning age, either sex. J. D. Rodolf, Sunshine Ranch, Yuba City, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calaa Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

DUROC-JERSEYS

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bargains in Bred Sows and Gilts—Pathfinder and Great Wonder I Am blood. Derryfield Farm, Capitol National Bank Bldg., Sacramento, California.

L. & M. Ranch, Van Nuys — Buy our young boars by such sires as May Rose King, Winsor's Giant Orion, Orion's King Gano, Top Sensation 3rd.

SWEETWATER DUROCS

The most popular herd in the West. Winsor Ranch, Bonita, San Diego Co. Address: R. K. Walker.

Durocs — Spring gilts and boars. Sire Great Model 233139, dam Orion Model Rose 663114. J. L. Stevenson, Van Nuys, California.

Duroc Bargain—4 sows and 30 pigs, three to seven weeks old, $600. Or sow and litter, $80.00 and ten dollars for each pig. R. S. Mossman, Antioch, California.

For the Best in Durocs write Tune Acres Stock Farm, Davis, California.

POLAND-CHINAS

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. H. Crawshaw, Hanford, California.

The Big-Type Polands direct from Iowa. The best blood lines in the game by the Iowa man. J. L. Dunlap, Pomona, California.

The Grand Champion El Profito heads our big type Poland Chinas. Letters promptly answered. Viola L. Renwick, Santa Barbara, California.

Guaranteed growthy big type Poland Chinas, not pampered, selected for general farm conditions. Stock all ages. Walter Ficklin, Box 946, Fresno.

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White Muscovy (Quackless) Ducks—Eggs, Ducklings, Breeders. Free circulars. Caldwell Farm, Box 274-E, Los Angeles.

White Pekin Baby Ducks—White Pekin Duck Eggs for hatching. 152 East Spruce St., Inglewood.

Mammoth Muscovy Ducks, Ducklings and Hatching Eggs; heavy fowls and great layers. Woodland Hatchery, Woodland, California.

Mammoth White Pekin Duck Eggs, $1.00 per dozen. A. Surtman, Petaluma, California.

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Capri Figs—Ready about June 25. Lasts till August. Price $2.00 per 100; $6.50 per 500; $11.50 per 1,000. Tribbie Bros., Elk Grove, California.

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For Sale, Bargain — 245 acre improved ranchc; 90 acres fine bottom land, 10 acres bearing orchard, peaches and prunes, 1 acre grapes, 1 acre melons and tomatoes, balance in corn, wheat and alfalfa; 156 acres level mesa land, fine soil; enough timber to pay for clearing; all well fenced; under fine gravity irrigating system; house, 2 barns and other buildings; drying trays, fruit boxes, all farming implements; horses, cows, hogs and chickens, furniture and crops. Everything goes, $20,000 (half cash). Good neighbors, no Japs; telephone, electric lights, near school, good roads; might subdivide. Address B. B., R. F. D. 1, Box 32-A, Redding, Shasta County, California.

AN IDEAL DAIRY RANCH

The Redlands and Yucaipa Land Company is offering for a limited time, a 1250 acre Dairy Ranch in the famous Yucaipa Valley—two miles from Redlands city limits — on the Ocean to Ocean paved highway. This ranch is equipped with buildings; no better soil in the state; has 500 acres suitable for alfalfa; 750 acres grazing land with live oak trees and living springs; also 100 inches water. One of the best dairying and alfalfa locations in the state. Price reasonable and terms easy. Address, Dike & Logie, Sales Agents, Redlands, California.

For Sale—$10,000; in San Gabriel Valley, beautiful home of eight rooms and bath and toilet, screen porch; strictly modern with all built-in features, cement front and back porch; near school and churches. Up to date garage, cement walks and cement driveway to garage, fine water supply, and two acres of the best soil all under cultivation in fruits, walnuts, almonds, berries and vegetables, chicken run and corrals. Beautiful flowers and shrubbery. This is an ideal place and one must see it to fully appreciate its value. Address Owner, John Daveggio, San Gabriel, California, R. D. 1, Box 453.

ORANGES AND GRAPEFRUIT

15 ACRE FARM, $2,500.

Bearing grove, 100 oranges, 50 grapefruit, 25 peach trees, also pears, plums, guavas, 7 acres fine truck land, some wood, near R. R. station, all conveniences, pretty bungalow, fireplace; 2 porches, good water; aged owner makes price only $2,500, easy terms. Details page 58 Strout's Catalog Farm Bargains, 33 States, Copy free. STROUT FARM AGENCY, 503 F. B., Wright-Callendar Bldg., Los Angelcs, California.

Forced Sale—This place must be sold at once for cash—440 acres of the best level valley land in country. Includes tractor, implements, horses, cows, in fact, everything necessary, modern house. All for $28,000. You can double your money in one year. Place will invoice more than selling price. Deal with owner, no commissions; one mile from store and postoffice. Address L. S. Wood, Potrero, San Diego County, California.

FOR SALE AND EXCHANGE

10-20-40-60 and 80 acre ranches, rich, level, plenty water; proven grape (Thompson seedless), fig and alfalfa land. Price right, easy terms.

FOR SALE

Some of the finest dairies in the state. Chas. McNeely, Alpaugh, California.

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Buy cheap, good alfalfa and fruit land in the easy lift water district near improved dairy and hog ranches. $50 to $75 an acre, one-fifth cash. Send for circulars. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

Glenn County Dairy Ranch, forty acres all in excellent alfalfa, two large barns, stanchions for 40 cows, good buildings, all under canal irrigation, best of land well located, all crops after date of purchase go with the place. Price $8,000.00; good terms. J. L. NAPTON, WILLOWS, CAL.

For Sale—30 acres level, rich valley land in Arroyo Grande Valley. All in alfalfa. Plenty of water, gravity system. 12 acres in 15 year old walnut trees. For full particulars write J. E. Parrish, Arroyo Grande, R. D. Box 12, California.

44 Acres dry land, producing 90 tons oat hay in Orange belt between Riverside and Bloomington, 40-inch well guaranteed. Address Box 633, San Jacinto, California.

If Interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

Diversified Farming Lands—Natomas Irrigated, Sacramento County; terms. Alex. Murdock, 38 S. Sutter, Stockton.

If You Want to sell or exchange your property write me. JOHN J. BLACK, 116 St., Chinpewa Falls, Wisconsin.

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Best Cheapest orchard berry and range lands. John F. Beckett, Arroyo Grande, California.

For Sale—Paso Robles orchard lands. $75 acre. J. L. Taylor, Paso Robles.

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Grape Wild Farm—Berkshires, Guernseys. Big Type Berkshire Boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Carruthers Farms—Live Oak, California Shorthorn cattle and Berkshire swine of quality and select breeding.

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Dr. A. S. Alemida, Dixon, California, Reg Shronshire Sheep.

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FOR SALE—USED RANCH MATERIAL
WE SELL FOR LESS. SEE US.
WHY PAY MORE?
REBUILT WINDMILLS.
8, 10, 12-ft. sizes, with or without towers. Used Redwood TANKS; 2000-gal., $38; 5000, $68; 6000, $78; 25,000, $195. Many others, used GALV. TANKS; corrugated, 16,000 gal., $325; 3000, with top, $95; 2000, with top, $52.50; 1500, with top, $38; new 1000 gal., $43.75; 2000 gal., $59.75.
PUMPS
Large Bulldozer, $135; No. 3 horizontal centrifugal, $65; duplex boost pump, $49; No. 3 double-acting AMES, $375; rods, cylinders extra; many other snaps. Complete PUMPING PLANT, 15 h.p. Western gas engine with deep well double-acting AMES pump, rods, pipe, cylinder, belt, complete, $950; guaranteed good shape.
SPECIAL BARGAINS
5-ton wagon scales, $75; 4-gang Stockton plow, $28; potato planter, $65.00; 4-row beet planter, $25; 2-row bean cultivator, $35; 3 four-gang disc plows, $85 to $140.
WHY PAY MORE?
IRRIGATING PIPE.
3-in., 15½c; new light weight, 4-in., 18½c; 170 ft. 8-in., steel riveted with flanges, 50c. We don't keep material; we SELL IT. Material guaranteed as represented or money back. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

Engines and Pumps for Sale—Replaced by electricity. Good supply to choose from.
25 H. P. Western
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12 H. P. Western
Fordson tractor, slightly used.
20 H. P. Type Y Fairbanks (new)
3 H. P. Lambert
2½ H. P. Gilson
2 H. P. Fairbanks
2 H. P. International.
5 H. P. Electric Plant
7½ H. P. Electric Plant
10 H. P. Electric Plant
Case Steam tractor
32 inch Case thresher
10 H. P. Raleigh-Schyer
8 H. P. Samson
15 H. P. Samson
25 H. P. St. Marys
25 H. P. International
2 H. P. Vertical Fairbanks.
Notify us ahead if possible when we may expect you. Phone at our expense. Phone 90. Crowe Hardware & Electrical Works, Tulare, California.

For Sale—Empire outfit complete, consisting of two double units, Vacuum pump, tank, gauges, and relief valve. One double 12 inflations and four long tubes never been used, balance used three months, but all in first class condition. First check for $150.00 takes this entire outfit.

A Bargain in new six horse power Z-type Fairbanks Morse Engine. C. L. Russell, 3055 Telegraph Ave., Berkeley, California.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—New Beeman Tractor—does the work of one horse. Cost $450.00, sell at 10 per cent discount. No use for it; have team. Deliver anywhere in Southern California. L. C. Alles, Carlsbad, California.

For Sale—One Ames deep well pump No. 30 head with 140 ft. of tubing and rods complete. Address Harry Putnam, La Verne, California.

For Sale, bargain, Utiliter Tractor and implements, practically new, used only one month. A. P. Fransen, Route A, Box 171, Burbank.

For Sale — 17x22 Sandwich Belt Power Hay Press in good order, $350. Ceres Hardware & Implement Co., Ceres, California.

For Sale—Holt 45 Tractor, two engine plows and tank wagon, all in good condition. Price $2500.00. W. R. Mayo, Compton, California.

For Sale—Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

For Sale—15 H. P. Motor, 3 phase 60 cycle, 900 R. P. M. J. V. Dewhurst, Ojai, California.

WANTED

BOYS FOR EDUCATION.
Best Mental, Moral and Physical
Training for useful Life.
PASADENA MILITARY ACADEMY
Grammar Grades and College Preparatory
Admits to all Colleges and West Point
or Annapolis. Also Course in Aviation
Fall Term Begins September 21
Send for new Catalog
Col. C. M. Wood, Supt., R. D. 2, Box 12
Pasadena, California.

Situation Wanted—By experienced horticulturist. Is graduate of Pomologic and Pathologic University. Good propagator and budder. Will consider big proposition only. Married with one child. Finest references furnished. Box 19, Cultivator, Los Angeles.

Wanted—Dairyman to take charge of herd of about 75 Ayrshires in Santa Barbara County. State experience, wages expected and religious affiliation if any in letter. Box G. B., Cultivator, Los Angeles.

Married Dairyman desires position on ranch; purebreds preferred. Educated; lifetime experience. Box S. R., care California Cultivator, Los Angeles.

Wanted—Immediately, experienced budders and tiers. Address or phone Kirkman Nurseries, Fresno.

GOATS

For Sale—Pure bred registered Toggenburg Goats as follows: A Three year old doe, a sixteen months old buck. A doe kid and 2 buck kids. All naturally horniess except doe kid. Prices reasonable. C. U. Widmer, Upland, California.

For Sale—A foundation stock of 12 gentle goats. I took them on a debt and must sell goats. Can be seen at M. E. Dillingham Ranch. Make offer. E. S. Abbott, Box 776, San Gabriel.

RABBITS

Pedigreed Flemish Giants; also utility stock. No fancy prices. Maud Beeching, 1578 W. 46th Street, Los Angeles.

New Zealand Reds—Young stock. Reasonable prices. Josephine Spencer. 1915 21st St. Sacramento.

PIGEONS

For Sale—White King Pigeons. Old mated breeding birds, $3 a pair; unmated birds $2 a pair. Paradise Valley Poultry Ranch, National City, California.

PAINTS

Roof Leaks Stopped Quickly, permanently. Our guaranteed roof paint and cement, ready for use, does not settle, thinning unnecessary. Exclusive territory to dependable dealers considered. Dept. 38, Martinek Paint Co., 405 Lexington Avenue, New York City.

HOGS

My Victor Herd — Headed by Bililken Chester Whites. For quality and big litters. E. E. Fulton, Box 7, Fair Oaks, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

POULTRY QUERIES

(Continued from Page 997.)

ably clean. You will need to use a good deal of water in your yards on hot days if you have not much shade. Sprinkle several times a day if the hens seem to feel the heat. Moist dirt, if it is not mud, is very comforting to them.

THE FORMAL DINNER TABLE

In setting the table, as in all other artistic performances, there are certain defined rules for procedure which should be observed.

A "silence" cloth should always be used under the table cloth to protect the surface of the table and to muffle the noise.

The table cloth should be laid smoothly and evenly on the table. If the table top is finely polished, doilies may be used instead of a table cloth for breakfast, luncheon or informal dinners. Twenty-five or 30 inches is allowed from plate to plate.

Lace doilies should be arranged on the service plates, and on these should be placed the cocktail glasses for fruit, oyster or other fish cocktails. The bread and butter plate should go to the left of the place plate, above the forks. On the right of this, with the blade turned in, the dessert knife should be placed, followed in the order mentioned by the meat knife (fish knife if used), soup spoon and oyster fork.

On the left, nearest the plate, is the dessert fork, followed by the salad fork, meat fork and fish fork. This rule can best be remembered by observing that the silver is laid in the order of its use from the outside toward the plate.

The napkin should be placed at the left of the silver, with the fold at the top, the open edges at the right toward the edge of the table.

The number of glasses used will be determined by the kind of beverage to be served. There are special glasses for nearly every kind of beverage. The water goblet is always essential. A tall stemmed glass is used for tarty beverages which may be served with the soup and fish courses. A low stem glass, usually patterned after the goblet, is used for any beverage which may be served with the entree and the roast courses. Any graceful arrangement of the glasses on the right at the head of the knives is proper.

An individual salt dish and spoon to the left, with an individual almond dish on the right, completes each place. Salt and pepper shakers may be used if desired. They should be so arranged that they will be conveniently accessible to all guests.

The Table Decoration

The arrangement of flowers is always one of personal taste. Complete color schemes and original decoration ideas are frequently fully carried out in flowers. The color scheme to be used is generally determined by the season, the flowers available and frequently by the event which has occasioned the dinner.

A very popular custom is to place a single flower in a slender vase at each plate. A low green center piece is very pleasing. A single rose laid beside each plate makes an effective decoration.

When Dinner Is Announced

The host, with his partner, leads the way to the dining room when dinner is announced. At the table, cards are placed at each cover showing the seating arrangement. Each gentleman draws out the lady's chair, waits until the host and ladies are seated and then seats himself.

Order of Seating

The guest of honor, if a man, should be seated at the right of the hostess; if a woman, at the right of the host.

The order of serving is very largely a matter of individual inclination.

All the women may be served before the men, beginning with the guest of honor or hostess.

Or the guest of honor or the hostess may be served first and then the next person, irrespective of whether man or woman, continuing thus around the table.

It is advisable to serve one course around the table to the right and the other around the table to the left, so that the courtesies may be equally divided.

Methods of Serving

There are three recognized methods of serving a meal—the English, the Russian, and the compromise. The Russian is more formal than the English and the compromise combines ideas from both.

English Service

In the English service all the food that is to be served in any given course is placed on the table in platters and other suitable dishes, before the host, hostess or some member of the family. The number of plates necessary for the persons seated is placed before the carver, or they may be taken one by one from a side table and set before him. As each plate receives its portion the waiter carries it either to the person serving another article of food, such as vegetables, or sets it directly before the person for whom it is intended.

When finger bowls are used a plate bearing a doily upon which the bowl is placed should be placed in front of each person.

Russian Service

In the Russian service serving is done from the serving table or pantry. With the exception of candies, nuts, and relishes, food is not placed on the table except as it is served to the individual. A portion of the main dish of the course and possibly one accessory are placed on each plate, before it is brought from the pantry. All other dishes are passed.

Sometimes the plates are all set down empty and the food is passed on daintily garnished platters. As the plates of one course are removed the plates of the next course should be immediately set in place. The table should at no time be without plates except that between the main course and dessert all dishes should be removed and the table crumbed.

Compromise Service

In the compromise service portions of courses are sometimes served on the table in the English way and others are passed as in the Russian service. The soup, for instance, may be brought in individual plates from the pantry and the meat carved at the table by the host, the vegetables and the salad course both passed by the maid and the dessert served at the table by the hostess.

The Courses

Oysters on the half shell may be served first, either on luncheon plates, surrounded by cracked ice, or on special oyster plates. It is a matter of preference as to whether this is done before or after the guests are seated.

If preferred, the first service may be a "fruit supreme," for which tall, flared, saucer shaped glasses with plates should be used.

The soup service follows. If the soup is served from the table it should be brought in by the servant in a tureen, with ladle, and placed before the hostess, whose duty it is to serve it. The soup plates are either rimmed or cup shaped. As each service is rendered the servant takes it from the hostess and passes it to the guests, always serving ladies first.

There the soup is served from the pantry the tureen is dispensed with, the servant bringing in the soup in individual services on a suitable serving tray.

Following the soup service comes the fish course. This requires a specially adapted service, including a long, narrow fish platter with sauce boat, ladle and fish plates, which should be slightly warmed. The fish platter is either passed from person to person or it may be passed by the servant and each guest is then expected to serve himself or herself. The sauce boat is not passed until the fish has been completely served.

The service plate may be removed before the roast course, although if removed it should be returned to the table after the roast course for the remaining courses of the dinner.

The meat course, which follows, if the English custom is employed, is brought in on a large silver covered platter or on a large china platter which may have a silver cover. The vegetables also may be brought in in appropriate covered dishes. The meat course is served on large, carefully heated dinner plates.

Where steak is served a heavy wooden steak plank, with silver railing, simplifies the service and is very effective.

With the meat course jello or jelly is frequently served. This is generally prepared in a special mold. These special molds may be had in original designs to carry out almost any desired decoration.

Vegetables may be served on the same plates, or passed in small, deep dishes.

The salad course comes next. It is served on small plates made especially for the purpose.

Appointments with the exception of the water glass and dessert knife and fork are now removed from each place and the table is crumbed.

The dessert service depends upon the dessert. If ice cream is served in individual molds or brick, flat plates are used; otherwise it is served in deep dishes or in tall stemmed glasses. An individual ice cream fork or ice cream spoon is used and may be placed on the table at the head of the service plate when the table is set, or it may be given with the course, at the time of ice cream service.

If the dessert consists of a frappe or similar delicacy it should be served in a comport or tall stemmed glass. If the heavier desserts, such as pie or pudding, dessert plates should be used.

According to the English custom it is perfectly permissible for pie to be served by the hostess at the table. In this event the pie plate is placed in a container with a silver railing.

Small plates containing crackers and cheese are now served, being placed conveniently at several places on the table. Then follows the after-dinner black coffee or demi-tasse. The coffee should be served from a china or silver coffee pot by the hostess and should be passed to each person by a servant.

Finger bowls of glass or metal, standing on a plate to match or otherwise, are now placed before each guest.

CLEANING PAINT OFF WINDOWS

Cleaning the windows of a new house or a newly painted house is no enjoyable job. The paint comes off easily, however, if given a little of the right kind of help.

One would hardly go to an automobile accessory store or a garage to find something with which to clean windows, yet it will be found that an ordinary tar remover, used by motorists to clean up their machines after a trip over newly tarred roads, is one of the best things obtainable for taking ordinary house paint off glass.

Here's another: The janitor who cares for the California Cultivator offices says the best thing is a safety razor.

WHERE HE'D LAND

Dusty Rhodes—I'd give me right shoe if I had wings like a bird.

Weary Rambles—Nothing doing; look at the hard work you'd have to keep off a woman's hat.—Houston Post.

The Cultivator Patterns

BE SURE TO SEND SIZE

3262. Girls' Dress. Cut in 4 sizes: 8, 10, 12, and 14 years. A 12 year size will require 4½ yards of 27 inch material for the dress, and 2¼ yards for the "jumper" or overblouse. Price, 10 cents.

3260. A Smart Frock. Cut in 3 sizes: 16, 18, and 20 years. An 18 year size will require 3⅞ yards of 40 inch material for waist and skirt, and 1¼ yard for the jumper. Width of skirt at lower edge is a little over 2 yards. Price, 10 cents.

2880. Child's Set. Cut in 4 aizes: 6 mos., 1, 2 and 3 years. Size 2 will require of 36 inch material, 2 yards for the dress, ⅞ yard for the sack and ½ yard for the bonnet, with ¼ yard of lining. Price, 10 cents.

3249. Porch or Home Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It will require 6⅛ yards of 36 inch material for a medium aize. The width of skirt at its lower edge is 2 yards. Price, 10 cents.

3267. Girls' Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. A 10 year aize will require 3½ yards of 40 inch material. Price, 10, cents.

3275. A Stylish Gown. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 iiches bust measure. A 38 inch size requires 5⅛ yards of 44 inch material. The width of the skirt at lower edge ia about 1⅝ yards. Price, 10 cents.

3266. Child's Play Dress. Cut in 4 sizes: 2, 4, 6 and 8 years. A 4 year size will require 3⅜ yards of 27 inch material. Price, 10 cents.

2947. Ladies' Apron. Cut in 4 sizes: Small, Medium, Large and Extra Large. Size Medium requires 4½ yards of 36 inch material. Price, 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and aize of each pattern you want, and send 10 cents in coin or (1 or 2 cent) atamps for each number. In ordar to furnish our readers with the very latest NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS: we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

Household Department

JUST WAIT FOR THE THAW

Cheer up, chillun, tho the weather's mighty raw,
Every time dar comes a freeze, dar's gotter come a thaw.
It takes a little patience till de freezin'-time is done,
An' if you lose yoh temper, why, it doesn't help yoh none.

Cheerup, chillun, 'cause de weather's on de move.
When de luck appears de hardest, it is certain to improve.
Cold wave an' warm wave, dey gotter mind de law—
Every time you gits a freeze, you gotter have a thaw.

Cheer up, chillun, an' prepare to say "Hurrah!"
De chilliest proposition by an' by is boun' to thaw.
Yoh hopes dey keeps a droppin'—don't you let it make you frown,
Thermometers was built for movin' up, de same as down.

So, cheer up, chillun, 'cause you sho'ly might as well;
We all has our troubles, an' dar's nothin' new to tell.
Each botheration seems de worst you ever saw,
But every time you gits a freeze, you's gotter have a thaw.

—Washington Star.

CAPTAIN HAYDEN'S SUNDAY EXCURSION

(Continued from last week.)

This was the condition of affairs when the Captain came home one night in high good humor, bringing a diminutive white dog, the gift of a friend, which was to divide its time between the house and the yard, so he instructed Cynthia, but was never to be permitted on the street. Upon this small piece of dogship be bestowed the highly inappropriate name of Neptune.

The following Sunday morning Captain Hayden sat by the window awaiting his niece's summons to breakfast. He wanted to talk to Cynthia, to reprove her, and becoming impatient at the delay, his voice was irritable as he called:

"Cynthia! Cynthia! Now where is that girl?"

"Coming, Uncle," said a blythe voice. A door opened, and Cynthia, dark eyed, rosy cheeked, good to look upon, stood before him, smiling and unruffled at the imperative summons. It was never any trouble for Cynthia to smile, and her uncle's temperamental outbreaks were never taken very seriously by her.

"When I came up the street last night," the Captain began, "I saw that young puppy leaving this house. Now, girl, I've told you—"

"Impossible, Uncle," Cynthia interrupted demurely, a twinkle rising in her bright eyes. "The dog was shut in the yard and he is there now."

"By the Lord Harry, girl! Don't get smart with me," her uncle snapped. "You know very well who I mean. That young puppy, Barton. You're encouraging him in defiance of me. I've told you before and I tell you again, I'll not have him coming to my house. I'll not." And the angry old man raised the stick that aided in the navigation of his rheumatic leg, intending to emphasize his remarks with a vigorous thump on the floor, but by a slight miscalculation it descended with considerable force on top of his pet corn.

"Oh, Lord!" he groaned, "and it's all on account of that rascally Barton."

Cynthia fled, assuring herself that she would have to tell Fred to keep out of sight for an entire week.

His toe still throbbing, the Captain leaned back in his easy chair and glanced out the window.

"Eh! What the devil!" he exclaimed aloud. "There's Neptune," and seizing his stick, his slippers flip flopping at every step, he went out the door and down to the sidewalk.

This sudden activity on his part was caused by the sight of a small white fluffy dog meandering down the street, sniffing as he went, which the Captain quickly recognized as his property, even to the pink ribbon with which Cynthia had adorned him.

The Captain whistled. The dog stopped, looked back, wagged his tail and went on, with the Captain following. Half a block away the dog stopped again, glanced back at his pursuer and took another start. The Captain quickened his pace; so did the dog, then slowed down to hold converse with another dog, and the now distressed Captain came near enough to attempt a grab, when one of his slippers fell off. He limped back to get it, and the dog turned a corner and disappeared. Following as rapidly as circumstances would permit, the Captain collided with a fat lady, begged her pardon, received a glare in return, and finally rounding the corner caught sight of the dog standing motionless some distance down the street, waiting for him. Seeing the Captain he wagged his tail joyfully, as though to say "Come on. We're having a fine time, aren't we?"

The old gentleman was hot, tired and exasperated. The sun beat down upon his bald head; people on their way to church looked at him curiously. A number of small boys found the situation interesting, joined in the chase as spectators and began betting on the result, with odds in favor of the dog, but made no move to assist in his capture.

Suddenly an idea seemed to enter the dog's brain, and away he went, the Captain following, and the boys on his heels. The animal turned a corner rapidly, raced up a side street and into a court, where he stopped, turned and faced his pursuers.

At last! Thoroughly exhausted, the Captain made one grand effort and seized the offending animal, tucked it under one arm, and, leaning on his stick, took out a handkerchief to mop his perspiring brow, prior to turning his steps homeward, when a woman came out of a house and asked, in a very unfriendly tone, what he expected to do with her dog.

"Your dog, madam!" gasped the Captain. "He's my dog. He escaped from my yard."

"No such thing, sir. He's my dog."

"But, madam, I'm prepared to prove—"

"So am I, and I say he's mine. I'll have my property. I'll have you arrested."

Came howls of glee from the small boys, vigorous squirming to be free on the part of the dog; but the Captain held fast.

A good natured looking policeman glanced into the court, and seeing a small commotion, sauntered in to ask what it meant.

"Officer," the woman cried, "this man is trying to steal my dog."

"But it's my dog, officer," the unhappy Captain said, rather weakly. He was beginning to wonder if this was all a bad dream.

The officer with difficulty repressed an inclination to laugh and he looked at the struggling mite held fast by his captor.

"How about this?" he asked sharply. "The lady surely knows her own property. Do you want to go to the police station?"

A tall young man stepped up, and with a "Wait a minute, Jack," laid his hand on the shoulder of the officer, who wheeled about suddenly.

"Hullo, Fred!" he said in a pleasant voice. "Now where do you come in on this? Lady accuses old party of trying to steal her dog."

Fred Barton, for it was he, drew the policeman to one side and said something in a low tone. When they turned back both men were smiling.

The Captain still held the struggling dog but was beginning to wish the ground would open and swallow him out of sight, dog and all. He was thoroughly exhausted; his dignity was wounded; he had been threatened with arrest. Oh, why did he leave his peaceful home this Sunday morning in pursuit of a miserable dog?

Not knowing how his good offices would be received, but taking fate into his hands, Fred Barton turned to him and said:

"Captain Hayden, there has been a mistake. Your dog is at home in the yard. I was—at least—I happened to be—near when Cynthia missed you, and some one told her you had gone down the street after a small white dog. She asked me to follow and tell you that your dog is in the yard. Sorry I could not overtake you sooner, but you were out of sight around the corner and I did not know which way you had gone. It's all right, officer," he continued. "The lady gets her dog."

The Captain dropped the squirming dog at the feet of its irate owner and turned to young Barton.

"Fred," he said in a tone so meek it was almost pathetic. "Take me home. Take me anywhere, away from here."

"I'll have a taxi here in one minute, sir, and we'll be home in short order," returned Fred, and hastened away, his friend the policeman following in his wake.

A moment later into the welcome shelter of a taxi went the tired and crestfallen Captain, and with Fred accompanying him was soon speeding toward home.

Cynthia beamed as she saw Fred alight from the taxi in close attendance upon her uncle who looked at her rather suspiciously as they entered the house.

"Is that true," he asked, "that my dog is actually in the yard, and I'm a darned old fool?"

Cynthia laughed merrily.

"Oh, yes, Uncle," she said. "It's true that Neptune is in the yard. I'll bring him in," and vanished in the rear.

The Captain sank into his easy chair and gave a sigh of relief.

"Fred," he said, and the merry twinkle in his eyes belied his ill temper, "you'd better go help her to catch that dog. And say, Boy," as Fred, quite willing, started to follow Cynthia, "come in this evening to see us and try to bring your father along. Tell him I said so."

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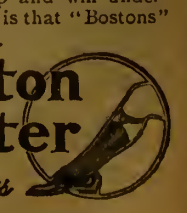

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THE HOMEY THINGS

By Margarette Walker, Anaheim

In considering the homey parts of my life two scenes come to my mind. One is of the Sunday afternoon when our mother would gather us all around the organ and we would pour out our hearts and voices in a joyful hour of song. That scene was enacted, however, but once a week. The scene that seems more really to embody the sense of home took place nearly every evening. In it I see my father and mother, each reading, and three little people on their knees on chairs with elbows on the table while they eagerly devour the pictures and rhymes of their books. The scene sometimes changes when either the father or mother read aloud. I think I might be able to eliminate all of the luxuries from the home but the books and still enjoy my home if the books and magazines were good. You will see I think the library the homiest part of all. As Meredith says:

"You may live without friends,
You may live without cooks,
But civilized man cannot
Live without books."

THE HOMIEST THING

By Mrs. Laura T. Houghton, Calipatria

Why, it is music of course, but not a piano, banjo or any bought instrument, and it is not singing that suits my mind best. It is the gay whole-souled whistle of any member of the family who has God-given talent enough to make your pulse beat and heart awaken to all the music in that whistle. If you have ever had a fine whistler about and that whistler departed, did you miss that whistle? Didn't your home seem like the shades o' night, or lonelier?

Way back in the 60's I remember a neighbor boy who always whistled when taking his cows to and from the pasture. Although more than a half mile away his whistle came up musical and strong over those hills, and I would sit out on the horseblock and listen. There was much sadness in those days and our boy had gone to war.

Long since I was in a lumber camp and the homiest thing I found there was the whistle of three brothers. They called them the Dungie boys. One would stand outside to listen to their far departing whistles as they echoed through the deep woods. When the boys drove their sleighs out at 4:30 a. m. the thermometer was sometimes below zero, but getting cold was nothing when you got all that lovely whistling for nothing.

One summer was spent in the foothills of the Sierras. The boy who drove the stage from Auburn to Placer was a whistler. Everyone loved that whistle; the school children caught on and did their best to whistle his pretty tunes. Along this stage route are many Indian burying grounds and one tune he often whistled was "Red Wing." We wondered if it was in remembrance to their departed. It seemed quite appropriate anyway.

The farmer boy's favorite seemed to be "Rosalie, the Prairie Flower." I never had any boys of my own to whistle, but when our only grandchild was four years old we taught her to whistle. She is a fine whistler now and never fails to say, "Grandma taught me to whistle."

Now, all you who can whistle just try once and drive away your blues, if you have any, and if you haven't any you may drive away all sad thoughts from those who live with you and all within hearing. I hope there are others that have found joy and gladness in the musical whistle of at least one of their home folks. That whistle is certainly enjoyed at our house and when gone nothing is missed so much.

THE HOMIEST THING

By Mrs. Linda W. McNeil, San Jacinto

Many things both useful and beautiful go to the making of a home, but to my mind, aside from the three necessaries, food, fuel and clothing, the one thing which assures the permanence of the whole structure, is the presence of the Book of Books, the Bible, in the place of honor and with the look of service, as if it were valued at its just worth and used accordingly.

One of the earliest memories of childhood is a large leather bound Bible with time-stained pages, well thumbed, lying open upon an ancient stand of cherry wood. A pair of steel bowed spectacles lie upon it. The breeze from the open windows stirs the white muslin curtain softly and fills the room with the scent of June roses.

To my baby mind that plain little room with its blue woodwork, yellow floor and braided rugs was a shrine for some sacred thing, and when the sun was near its setting and grandfather sat beside the stand with the sunlight turning his grey hair to silver and read from the old brown book with his strong deep voice, it seemed as if Heaven were very near, and so today the dearest, homiest thing in the house to me is the Bible, the Book which points the way to Life Eternal.

The heart of the home? What is it, pray?
The tinkle of music, the children's play?
The shine of the fire, the lure of a book?
An easy chair, the art of the cook?
For me the simple things are best;
The scent of flowers, a breeze from the West.
Splashes of sunlight across the floor,
Red roses nodding beside the door,
A mocker's song from the pepper tree,
All are the "homey" things to me.

THE THING I THINK IS THE HOMIEST

By Helen Clark, Gilroy

The thing I think is the homiest is just to look out at the beautiful green trees and flower garden.

I remember when the trees were first set out and I used to run out and watch the men plant them. They were very little then, but now they are about four years old and they are very beautiful.

I have planted quite a few of our flowers and each year the flowers are prettier. It is very nice when you have beautiful flowers in your home and to take to the teacher. I always love to look out at the beautiful trees and flowers, and when they are in blossom they smell so sweet.

WHAT MAKES OUR HOUSE A HOME?

By Mrs. Chas. F. Casey, Pasadena

The things that have made our house a home, and life more comfortable and happy than the highest priced furniture or best paid chef ever could have done, has been the possession of a huge fireplace, even if it has adorned only a modest little home; also our ferns and flowers.

Admitting that a chaise longue, banked with down pillows, placed beside a lovely floor lamp, is a most comfortable place in which to rest and read, only one member of the family can enjoy it at one time, while the four in our family can circle around the cheerful fire. Often on a cold, rainy night we set our supper table near it and then who cares if it rains or the wind howls.

When the girls were young they enjoyed popping corn over the coals or throwing in a handful of "fairy fire" to see the wonderful colors it would produce, and telling stories. Then when older and along came a beau, it was still their favorite haunt, where they toasted the marshmallows "he" would bring. No doubt many times the coziness and cheerfulness of the open fire was preferred to a movie.

Even in summer we consider our fireplace our prettiest nook, with a jar of flowers on the broad mantel, a tall growing palm on either side of the hearth, and the wicker woodbasket filled with lovely wild flowers and grasses placed in the center. This, together with window boxes below our casement windows filled with ferns and colorful flowers makes for cheer all the year in this glorious Southland of California.

A PAINFUL MATTER

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"Faith, Moike, if yez could see me razor yez wouldn't say that."

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Los Angeles Markets

Los Angeles, June 16, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price 59 cents.

Dairy Exchange prices last week on extras:

June	9	10	11	12	14	15
'20 ...	58	..	58	58	59	59
'20 ...	44	..	44	44	45	46

CHEESE

Brokers' prices:
California flats, 27 per lb.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 44 per dozen; case count Produce Exchange closing price, 41 per dozen; pullets, Produce Exchange closing price 37 per dozen; pewee pullets, 31.

Dairy Exchange prices last week on extras:

June	2	3	4	5	7	8
'20 ...	43	43	43	43	45	44

POULTRY

Price to producers: Hens, lt., 21; heavy, 26@28, broilers, 24; roasters, 38; old roosters, 14; fryers, 33; ducks, old, 17, ducklings, Pekin, 3½ up, 20; others, 17; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 16; old, 9.

LIVESTOCK

Los Angeles, June 15 — Weighed and delivered off cars without food or water:

Hogs (hard-grain, 125 to 175 lbs., 15.50; 175 to 225 lbs., 16.50.

Cattle (on foot, gross weight)—Steers, good, 11.00@11.50; medium, 10.50@11.00; cows, good, 9.00@9.50; medium, 8.50@9.00; bulls and stags, 6.00; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

Potatoes show slight decline during week. Commission houses have been willing to accept $1 lower price than a week ago.

These are the actual prices obtained between 7 and 8 o'clock, June 15 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Old stock: Practically no supplies; too few sales to establish market. New stock. Market unsettled. Local Early and White Rose No. 1's, mostly 2.75. No. 2's, 1.00@1.75 per lug, according to size; 100 lbs. sacked, No. 1's, 7.50@8.00; mostly 7.75.

Carlots: Demand and movement moderate; per dozen bunches, 30@40.

Onions: Supplies of Wax, heavy; Yellow, light; wide range in quality; some slippery; demand and movement slow; market slightly stronger. New stock: Coachella Valley: Wide range in prices; Bermudas, best, 1.25 per crate, mostly 1.25; lugs, mostly 75@85; sunburned and decayed stock at all prices.

Carlots: Demand and movement slow; wide range in condition; many sunburned; market improving. Coachella Valley: Standard crates, Yellow Bermudas and Crystal Wax, sales to jobbers, best, 1.00; poorer, low as 50.

Garlic: lb., 40.

VEGETABLES

These are the actual prices obtained June 15 by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., best, 1.00@1.50.

Asparagus: Supplies moderate. Delta section: Best 12@15; local, 17@20.

Beans: Wax, lb., 5@6; Ky. Wonder, 6@8.

Beets: Doz., 45@50; sk., 2.25@2.50.

Cabbage: Supplies heavy; market weak; movement slow; wide range in quality; best, 1½@2 per lb.; per field crate, best, 1.50@2.00; others, low as 75.

Carlots: Demand slow; movement limited; market steady; few cars rolling on consignment; few sales. Carloads, f. o. b. usual terms. Cannonball and Winningstadt, per ton, mostly 20.00, mixed cars, 20.00@25.00.

Carrots: doz.,40@50; sk., 2.50@2.75.

Corn: Local, 1.75@2.00.

Cucumbers: Market steady; local, best, box 1.40@1.70.

Egg Plant: Best, lb., 15@18.

Lettuce: Supplies heavy. Crates, best, mostly 60@75.

Carlots: Few shipments, mostly on consignment; market steady. Few sales straight and mixed cars; 1.50@2.00 per crate.

Parsnips: Lugs, 1.00@1.50; sacks, 3.00@3.25.

Peas: Local, lb., 5@6; poorer low as 3; Northern: lb., 8@10.

Rhubarb: Strawberry, bx., 1.00@1.25.

Spinach: Doz., 20@30; lb., 2.

Squash: Imperial Valley, market steady, local summer, large lugs, 75@1.00; smaller boxes, 65@75.

Tomatoes: Imperial and Coachella, supplies heavy; market weaker; cr., best, 1.50@2.00.

Turnips: Per dozen, 30@40; per sack, 1.25@1.50.

FRUITS

These are the actual prices obtained June 15, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Apricots. Northern: 7@10, local lugs, 1.50@2.00.

Bananas, 10; Red, 10.

Blackberries: Supplies light; per crate, mostly 3.25@3.75.

Cantaloupes: Market lower; supplies light. Imperial Valley: Standard, 3.00@3.25; Ponies, 2.75@3.00; flats, 1.10@1.30.

Carlots: (Direct wire from Brawley) Continued cool. Haulings light; demand active; market strong; prices higher; quality and condition fair. Carloads f. o. b. cash track; too few sales to establish market. Shippers holding for higher prices. Practically all consigned freight. 160 cars shipped by freight.

Cherries: Supplies liberal; market strong; various varieties; best, mostly 14@18 per lb.; few high as 20; poorer, low as 8.

Gooseberries: lb., 12@15.

Raspberries: cr., 3.50@4.00.

Strawberries: cr., 3.75@4.50.

Grapefruit: No carlot arrivals; California: per box, 4.00@4.50; Seedlings packed, 2.50@3.25; loose, 2.00@3.00.

Lemons: No carlot arrivals; market firm; local stock: Packed, 3.40@4.25; loose, 1.25@2.25.

Oranges: No carlot arrivals; supplies liberal. California Navels, best brands, packed, 80's to 100's, best, 4.00@4.75; 126's to 150's, best, 5.00@5.50. Local market; packed, 80's, 3.50; 96's, 4.00; large sizes, low as 2.25; lugs—culls—mostly 1.50@1.75. Valencias; packed brands, 100's, 4.50@5.00; 126's, 5.00@5.25; 150's to 176's, 5.25@5.75. Local packed, 3.75@4.25.

Watermelons: lb., 3½@4.

Carlots: (Imperial Valley section)—Demand and movement good; market slightly weaker. Carloads f. o. b. cash track, Brawley and El Centro; 30.00@35.00 per ton according to size and quality.

HONEY

Demand exceeds supply, movement limited, market higher. Old honey practically exhausted, new supply not on market for about two weeks. Carloads f. o. b., usual terms. Light amber sags per pound, 18; light amber alfalfa, 17. Beeswax, l. c. l. lots, 40@42.

BEANS

California Lima Bean Growers Association, June 12:

Lima beans have been selling fairly freely during the past week and at recent rate of selling stock will be entirely disposed of within the next few weeks. Weather conditions have been favorable and fields planted to Lima and Baby Lima beans are generally thrifty and showing a good growth. If favorable weather should continue throughout June and July and up to the 10th of August the outlook is for a fair crop upon the greater portion of the acreage planted.

HAY

Alfalfa Growers of California, under date of June 16, says:

The market for alfalfa hay continues strong in all parts of the state. Receipts in principal markets continue remarkably light for this time of the year. Dealers and consumers in smaller centers in interior are free buyers at prices which net the grower more than present Los Angeles and San Francisco prices. Alfalfa acreage is not keeping step with increasing consumption, the result of growing population. Also the former growers have changed to what they consider better paying crops, becoming buyers of hay instead of sellers. Mr. Daniels, state market director, predicts serious shortage of milk, especially in the large cities such as Los Angeles and San Francisco and declares that he has authentic information that in various parts of the state many of the dairymen are auctioning off their herds or selling cows to the butcher. The decrease in the acreage would be still more marked than it is if it were not for the effort of this association in encouraging the growers to stick it out in the hope of better times for them.

Prices as low as $12.00 and $13.00 a ton to the grower during the principal selling season in the last few years discouraged the producer of hay for marketing purposes. He was losing money, and it did not do him much good that the following winters the price went up to $35, and even higher, as he then had little or nothing to sell.

After all is said, the only way to bring about increased production of alfalfa, or, for that matter, any other crop is attractive prices, that is prices which compare fairly well with the returns from other crops; everything considered, together with some assurance of a fairly stable market; extremely high prices are almost as detrimental to the grower in the final result as are extremely low prices.

Prices in California today are as follows in southern districts:

Choice alfalfa, 40.00 per ton, No. 1 dairy, 36.00; standard dairy, 32.00, stock alfalfa, 29.00.

GRAIN AND FEEDS

Price bid local grain exch. cwt., June 15:
Barley: Carlots, 2.77½.
Milo: 2.82½.
Kafir: 2.82½.

San Francisco Markets

San Francisco, June 15, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	57
Prime Firsts	55½

Extras past wk. and year ago:

June	8	9	10	11	12	14
'20 ...	55½	55½	57	56½	57	57
'19 ...	..	57	57	55½	55½	56½

Rcts. wk. ending June 14, 4,540 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	29
Ore. Trips	32
Cal. Flats	31½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	47½
Extra Pullets	40½
Undersized	34

Extras past week and year ago:

June	8	9	10	11	12	14
'20 ...	45½	45	45	47½	47½	47½
'19 ...	..	51½	53½	51	51	50

Rcts. wk. ending June 14, 1,195,818 doz.

POULTRY

Wholesale prices are:

Leghorn, 23@25; large, 32@33; roosters, young, 45@50; old, 18@20; broilers, 23@30; fryers, 33@35; turkeys, live, 37@40; dressed, 48@50.

Ducks: Indian Runner, 21@23; Pekin, 22@25. Squabs, 55@60; pigeons, doz., 2.35@2.50.

Belgian hares, live, 15@17; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle: Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 9@10; do, 1,200 to 1,400 lbs., 8@8½; do, second quality, 7@8; thin, 6@7. Bulls and stags: Good, 3½@4; fair, 3@3½.

Cows and heifers: No. 1, 7@8; second quality, 6@7; common to thin, 2@4.

Calves: Lightweight, 10@11; medium, 8@9; heavy, 7@8.

Lambs: Milk, 9½@10; yearlings, 8@8½.

Sheep: Wether, 7½@8; ewes, 6@6½.

Hogs: Weighing 100 to 150 lbs., 15¼; 150 to 225 lbs., 16¾; 225 to 300 lbs., 15¾; 300 to 400 lbs., 14¼.

Virden Packing Company quotes prices on livestock, weighed and delivered off cars at its plant, South San Francisco, as follows:

Cattle: Good steers, 1,000 to 1,100 lbs., 9@10; top steers, 1,100 to 1,200 lbs., 8½@9; good heifers, 1,200 lbs. and over, market price; good cows and heifers, 7@7½; No. 2 cows and heifers, 6@6½; good bulls, 4@4½.

Calves: Light, 13@14.

Hogs: Top packer, hard and well finished, 100 to 150 lbs., 14¾; 150 to 225 lbs., 15¾; 225 to 300 lbs., 14¾; over 300 lbs., 14; under 100 lbs., 13½.

Ewes: Full wool, 7@7½.

Wethers: Full wool, 8@8½.

Yearlings: 9½@10.

POTATOES

River, old stock, 8½@10 per lb.; new Rivers, in boxes, 7.00@8.50; new Garnets, 7 per lb.; Whites, 7@8½ per lb.; Turlock sweets, 9@11 per lb.

new, 15@17½.

ONIONS

Onions: New reds, 1.25@1.50; white the same; green onions, 1.50@1.75. Garlic, old, 20@25; new, 15@17½.

VEGETABLES

Wholesale selling price:

Asparagus: lb., white, 6@8; graded, 10@12; gr., 4@7.

Beans: lb., String, 8@12½; Wax, 7@8.

Celery: cr., 3.00@3.75.

Cucumbers: Eng., doz., 1.25; other, 1.80@2.25 per bx.

Corn: doz., 50@75.

Peppers: Bells, 20@25 for large, 5@10 for small; chili, 12½@25.

Peas: lb., green, 2½@5.

Radish, 7@9 doz. bunches.

Spinach: lb., 4@5.

Squash: Summer, cr., 75@1.00.

Tomatoes: Brawley, cr., 1.25@1.50.

DECIDUOUS FRUITS

Apricots: Imperial Valley, Los Angeles lugs, 5@10 per lb., 1.75@2.25 per crate.

Bananas: lb., 8@9½.

Cantaloupes: Ponies, 3.00@4.00; standards, 4.00@4.50; flats, 1.75@2.00.

Cherries: Black, 1.00@1.50 per drawer; loose, white, 5@11; blacks, 8@14 lb., according to quality; Royal Annes, lb., 9@12½.

Figs: 1.00@1.25 for white and Brunswick per box of one layer.

Gooseberries: lb., 5@10.

Loganberries: Red, dr., 75@80; Black, 75@80.

Peaches: 1.25@1.50 per crate; boxes, 1.50@1.75.

Pineapples: Doz., 2.75@4.25.

Raspberries: dr., 1.00@1.50.

Strawberries: Peninsula, dr., large, 75@90; small, 50@65.

Watermelons: Imperial Valley, lb., 8; Honey Dew, cr., 2.00@2.50.

CITRUS

Box: Lemons, standards, 2.50@4.75; lemonettes, 1.25@2.00; grapefruit, 2.00@3.50; navel oranges, 4.00@6.50.

DRIED FRUITS

Prunes:

Prune prices announced by the California Prune and Apricot Growers, Inc., were for the base prices, according to sizes, and are: 20-30s, 22c flat; 30-40s, 16c; 40-50s, 14c; 50-60s, 12c; 60-70s, 11½c; 70-80s, 11c; 80-90s, 11c; 90-100s, 11c. One cent a pound premium will be paid on fruit delivered before September 20. On smallsized fruit 8½ cents a pound will be paid for 100-120s and 7½ cents for 120s and smaller.

Peaches:

Peach prices announced by the California Peach Growers, Inc., for 1919 crop dried peaches for the domestic and foreign trade; September, October, November shipment, seller's option; guaranteed against our own decline until January 1, 1920, are as follows:

Standard yellows, 14¾c; Muirs, 15c.
Choice yellows, 15½c; Muirs, 15½c.
Fancy yellows, 16½c; Muirs, 17½c.
Extra fancy yellows, 17¾c; Muirs, 18¾c.
Slabs, yellows, 14½c.
For "practically peeled" add 1½c per pound (any grade).
Prices above are all bulk basis.
For packing in 50 pound or 25 kilo boxes add 1 cent per pound.
25 pound or 12½ kilo boxes, all 1¼c per pound.
10 pound boxes, add 2c per pound.
Blue ribbon peaches packed 2 pound cartons, 12 per case, $10 per case.
Blue ribbon peaches packed 2 pound cartons, 24 per case, $10 per case.
Bakers' special "practically peeled," 16¾c per pound, bulk basis.

Apples:

Choice (in 50s), 20@20½; extra choice (in 50s), 21@21½; fancy (in 50s), 23@23½.

Figs:

White: Cooking (in 50s), 15@16; choice (in 50s), 17@18; extra choice (in 50s), 19@20; fancy (in 50s), 21@22; extra fancy (in 50s), 23@24; bricks, 12 No. 10s, 1.60@1.67½; bricks, 24 No. 8s, 2.55@2.65; bricks, 50 No. 6s, 4.00@4.15; bricks, 70 No. 4s, 4.20@4.25; layers, No. 10, 2.50@2.80. Calimyrna: Cooking (in 50s), 19; choice (in 50s), 23; extra choice (in 50s), 24; fancy (in 50s), 26; extra fancy (in 50s), 27½; bricks, 10 1-lb., 2.75; layers, No. 10, 2.95@3.20. Black: Standard 14, choice 17@18; extra choice, 18@19; fancy, 19@20.

Pears:

Standard 20, choice, 22½; extra choice, 24; fancy, 26@27.

BEANS AND PEAS

California Bean Growers Association, San Francisco, June 14:

Market rather inactive so far this month and bean trade not likely to show much real interest until July. Kotenashis are held firm at price of 4.90@5.25 delivered San Francisco to arrive.

Small Whites, 5.90@6.15; Large Whites, 6.35@6.50; Pinks, 6.45@6.60; Blackeyes, 8.50@8.75; Mexican Reds, 8.50@8.75; Red Kidneys, 14.00@14.50; Bayos, 10.50@10.75; Cranberries, 6.75@7.00.

Dried Peas: California, 5.00@5.25 cental.

Lentils: California, 11@11½ per lb.; Chile, 12 per lb.

HOPS

1919 crop, 1.00@1.05 per lb. Prices to growers for 1920 crop, 75@80 per lb.

HONEY

Old crop is scarce and hard to quote.
New white orange extracted is 21, f. o. b.

GRAIN

Wheat: The prices are based upon Federal grades and standards at the terminals in San Francisco bay and Los Angeles and are as follows per bushel of 60 pounds:

Hard White—	Per Bus.	Per Cen.
No. 1	$2.20	$3.63 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.13	$3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51⅓
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.58
No. 3	2.00	3.48 1-3

The above are minimum prices.

For sacked grain add 4½ cents per bushel to the above prices. Deduction of three-fourths of a pound made for weight of standard grain bags. Wheat grading under No. 3 mixed or smutty wheat will be purchased according to merit.

Oats: Red feed, 3.15@3.25.

Corn: California Yellow, 3.70@3.80 per cental; Egyptian White, 4.25@4.35; California milo maize, 3.45@3.50.

Barley: No. 1 feed, 3.10@3.20.

HAY

Under date of June 12, Scott-Magner, Miller, say:

We quote today wholesale prices in carload lots (old crop) as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.)

Fancy wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat and Wheat and Oat hay	35.00@38.00
No. 2 Wheat and Wheat and Oat hay	32.00@35.00
Choice Tame Oat hay	37.00@40.00
Wild Oat hay	Nominal
Other Tame Oat hay	33.00@37.00
Barley hay	Nominal
Alfalfa hay new	25.00@30.00
Alfalfa hay, old	30.00@32.00
Stock hay	29.00@32.00
Oregon Cheat and Oat hay	29.00@32.00
No. 1 Barley straw, bale	70@1.00

Alfalfa Growers of California quote prices for Northern Districts:

No. 1 Dairy Alfalfa	32.00
Standard Dairy	30.00
Stock Alfalfa	27.00

Citrus Markets

Los Angeles, June 16, 1920.

The orange market shows remarkable strength. The auctions sometimes show as high as $8.00 sales, and f. o. b. quotations are playing around $4.50 to $5.50 prices.

The lemon situation remains desperately flat. The weather has warmed slightly in some Eastern sections but with nearly 150,000 boxes of foreigns within sight of Atlantic ports there will be no long prices for sometime to come.

Shipments

Shipments of oranges to date from Southern California since November 1, 1919: Oranges, 21,559 cars; lemons, 5,130; total, 26,689. To same date last season: Oranges, 25,078; lemons, 6,514; total, 31,592. From Central California to date this season: Oranges, 5,339; lemons, 288; total, 5,647. To same date last season: Oranges, 3,668; lemons, 251; total, 3,919. Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

June 9

New York, 32 or., 1 lem. Nav. 3.65-6.50, Val. 4.65-7.85, Sweets 4.50-5.30, St. Mikes 2.95-3.55, lem. 3.90-4.35.

St. Louis: 3 or., 3 lem. Val. 3.10-4.95, lem. 1.25-3.55.

Boston: 18 or., 5 lem. Nav. 4.80-5.95, Val. 2.35-5.75, Sweets 2.35-3.85, Bloods 3.35, Grapefruit 1.45-3.25, Mikes 3.45-4.25, lem. 1.95-5.10.

Pittsburgh: 11 or., 4 lem. Val. 3.90-6.00, lem. 2.95-3.75.

Philadelphia: 9 or., 1 lem. Val. 3.20-6.55, Seeds 2.40-2.50, Mike 5.60-6.60, Sweets 4.75-5.50, lem. 1.50-4.05.

June 11

New York: 27 or. Nav. 3.15-6.20, Val. 3.60-8.35, Sweets 4.50-5.65, Mike 4.85-6.80, Seeds 3.65-5.10, Bloods, 2.70-6.00.

Boston: 7 or., 3 lem. Nav. 3.40-5.95, Val. 4.20-5.90, lem. 1.95-2.65.

Cleveland: 5 or., 4 lem. Val. 2.85-5.55, Sweets 2.65-4.30, Bloods 2.55-3.35, lem. 1.95-4.36.

St. Louis: 6 or., 4 lem. Nav. 3.60-4.70,

Val. 2.85-4.95, lem. 2.75-5.05.
Philadelphia: 8 or., 1 lem. Val. 3.90-6.75, Sweets, 3.05-3.85, Seeds 3.70-4.30, Bloods 2.35-3.95, lem. 1.90-2.35.

June 15

New York: 21 or., 4 lem. Nav. 4.45-5.75, Val. 3.20-7.50, Seeds 3.15-4.50, Grapefruit, 1.40-2.20, St. Mike 4.80-6.10, lem. 1.60-3.75.

THE POULTRY AND EGG SITUATION

Under date of June 11 the Poultry Producers of Southern California, Inc., sends out a letter to members reviewing the broiler and egg situation. It is so interesting we quote almost entire:

"Broilers: We have previously reported the sale of two cars of broilers at good prices. We have just learned today that the third car has been sold and is to be shipped next week. All of these sales have been made at a premium over the market.

"At the meeting of our executive committee held last Friday it was decided not to accept any more broiler marketing agreements during this season except from those shippers who will certify that they have not marketed any broilers subsequent to March 15, 1920, the date of our broiler marketing agreement. The purpose of this action is to prevent those who have sold broilers outside the association during the first part of the season from participating in profits earned by those who have marketed through the association throughout the year.

"Broiler marketing members have during the week been advised by letter of a local strike among chicken pickers and have been requested not to make any more deliveries until further notice. The National Poultry Company informs us today that they are getting along fairly well and that they expect to notify us the first of next week that they can accept deliveries as usual. Immediately upon receipt of such advice from them, we will notify all signers of our broiler marketing agreement."

Since this letter was sent out this strike situation is cleared and the association is sending out word that broilers may now be brought in freely.

"It might be stated in connection with broiler operations that the Los Angeles broiler market has for sometime been above the Petaluma market.

"New York Shipments: Since our last letter we have shipped to the New York market 2,280 cases of our White Extra candled eggs. Inasmuch as our egg market has for the past month been the highest on the Coast, we are gratified at being able to sell five cars of our Extra eggs at a higher price than buyers were paying for white eggs in other markets. These five cars were sold for cash, f. o. b. Los Angeles, without inspection, and were sold to three different parties, each of whom had previously handled our pack of eggs, and knew that we would ship him a car of fancy, well graded eggs. Each was satisfied, therefore, to pay for the eggs before they were shipped.

"We hope to be able to continue making Eastern shipments, and urge our members to keep their eggs clean. As the weather gets warmer it becomes necessary to make more frequent deliveries to us—deliveries should be made at least twice a week. Gather your eggs twice a day and be sure to keep them in a cool place. Eggs quickly show the effects of hot weather.

"Empty Cases: The problem of providing sufficient fillers to keep our business going has been a hard one. The cost of new cases and fillers this spring has been a little more than 60 cents per case, or two cents per dozen eggs. The northern association has been charging its shippers two cents per dozen for cases this season. Of course we use a good many second-hand cases, but during the storing season all of our eggs are transferred to new cases and filiers. Our New York shipments, too, are always made in new cases and fillers.

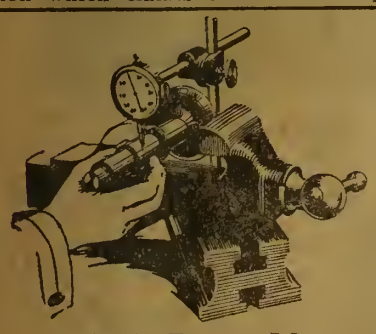
FISH OR CUT BAIT

Prune and apricot growers who become members of the California Prune and Apricot Growers, Inc., the growers' state wide cooperative organization which claims to market 75 per cent of the prunes and apricots produced in California, after prices have been set for the 1920 crops, will not be permitted to sell their 1920 crops of dried fruit through the association, according to a resolution which has just been passed by the board of directors of the association.

This action was taken, according to a statement made today by the association's management, to prevent non-member fruit growers from benefiting at the expense of the association's members, as has been done in the past.

Heretofore it has been the practice of some non-member fruit growers to hold their crops until after the association had set the price it would pay its members for their fruit; then, if the non-members could get a higher price from the private packer, they would join the association. The association believes that its recent action will stop outside growers from thus playing both ends against the middle.

Because of the success which the association had last year in obtaining top prices for its prunes and apricots, fewer growers than ever are selling to private packers this year. But if these non-members should decide to join the association and turn over their fruit to it after a price was named, such a large tonnage might be offered the association to sell that the average return to the present membership might be seriously affected.



Is It Round?

Just as dimensions are controlled within a 100,000th part of an inch, so are the all-important details of roundness, hardness and other essentials in the making of the "Caterpillar" Tractor—the world's highest grade tractor—proved by the finest instruments. You will have a new idea of "Accuracy" after reading our booklet by that name.

The Holt Manufacturing Company
Stockton, Calif., Peoria, Ill., Los Angeles, Calif., Spokane, Wash., San Francisco, Calif.

CATERPILLAR
Reg. U.S. Pat. Off.

WHAT SPLIT HALF DOME IN YOSEMITE?

Half Dome, split in twain, towers in a group of almost perfect dome shaped mountains. This question has puzzled tens of thousands of Yosemite visitors. Early geologists leaned toward theories of glacial action and mighty earthquakes. The part played by constant erosion by cobblestones in swift mountain streams has been given much more emphasis as our knowledge of the mighty forces that made Yosemite Valley has increased.

The government, trying to satisfy these inquiries of Yosemite visitors, has been making a careful study of Yosemite National Park geology. An up to date booklet, abundantly illustrated, by Government Geologist F. E. Matthes, can be had from Superintendent of Documents, Washington, D. C. Nature study hikes are offered through the cooperation of the federal government with the state fish and game commission. High power scientists will be in charge. Among these will be Dr. E. C. Bryant of the University of California, who has a wide knowledge of high Sierran life, and Dr. Loye H. Miller, the Los Angeles biologist, who has an almost uncanny ability in imitating the songs of wild birds.

This year's Yosemite nature guide program is about a 400 per cent increase over last year's highly successful one at Tahoe. It will include directed nature play for children such as the blindfold "herb smelling" and "bark feeling" games. There will be directed hikes for children and grown-ups. Evening campfire talks on the mammals, birds, trees and wild flowers of Yosemite National Park, and on the fun of sleeping bag trips into the high Sierra will also be featured, as well as lantern slide talks and movies of high Sierran wild life.

THE REAL PYGMIES

Living in the mountains of the strip of land that juts down between the Indian Ocean and the South China Sea, says Eva Chappell in Everyland, are the strangest little folk that I know about in all the world. They are the Pygmies of the Malay peninsula. The tallest of their tall men is proud indeed if his kinky black head reaches more than four feet ten inches up the side of the tree in which he lives. Not that he knows anything about feet and inches, for he has never heard of a yardstick, and would only know that he is tall by measuring himself by those about him. But the height of these little people does not prevent them from having a fine, commanding view of the world, for they build themselves little houses of grass and palm leaves in the tops of trees. And when they need a change of scene they move down to the shelter of an overhanging rock. These changes are needed often; indeed, the Pygmies hardly ever stay longer than five days in any one place.

BASEBALL IN MEXICO

In Mexico baseball will be a matter of evolution rather than adoption. At the outset a game will proceed along these general lines:

Prior to the opening day, a parade of picadors, matadors and toreadors about the diamond.

Liberation of the umpire, and beginning of the game.

After first inning, siesta for infielders.

After second inning, umpire is pursued by picadors.

After third inning, siesta for outfielders.

After fourth inning, pursuit of umpire by picadors and matadors, twice around the bases.

After fifth inning, pitcher and catcher take siesta.

After sixth inning, massacre of the umpire by picadors, matadors and toreadors. Fresh umpire liberated and game continues.

After seventh inning, siesta for spectators; grandstandistas, bleacheristas, freelistas, everybody.

After eighth inning, official announcement that the game will be concluded "manana."

Final spectacle: Revolution among players and burning of the grandstand. Looting of box office. Looting of safe. General looting. Mescal. "Watchful waiting" for umpire.

Prolonged siesta for umpire.—Cartoons Magazine.

BAKED STORIES

"It's in the oven!" That was the ancient Babylonian version of the modern printer's "It's on the press." When a native of Babylon or Egypt wanted to "write,' he shaped soft clay into little bricks. On these bricks he scratched signs, sometimes pictures, which stood for letters, words or ideas. His "pencil" was an oyster shell or a piece of broken pot. After he finished his story, he had it baked in an oven or dried in the sun. Later the Egyptians found that the pith of the papyrus—a plant growing in the Nile Valley—made a good foundation for writing; so they scratched "papyrus letters," using a reed pen and ink made from gall nuts and sulphate of iron. For hundreds of years papyrus was the world's "writing paper." But when Mohammed conquered Egypt, Europeans could not get papyrus; so they used a fine leather instead. Even today leather is sometimes used—only we call it parchment.—Everyland.

NEW BELLS MADE LIKE OLD

We have often heard the beautiful silver tons of very old church bells in Europe and some have even been bought at a great price and brought to America. It was supposed that after a bell had rung regularly for one or two centuries some mysterious quality was developed and the beautiful tone could be acquired in no other way. An ingenious American studied the problem, however, and decided that the silver tone was simply due to the fact that the clapper of the bell had worn itself and the bell by continued striking, until the two fit closely together, and that the shape of the metal and nothing else determined the tone. He began to make bells by casting them so that the clapper and the bell fit each other properly, and the mellow silver tone was obtained at once. Today we are manufacturing such bells and selling them abroad.—Boys' Life.

EQUAL TO THE EMERGENCY

Collection money was to little Tommy one of the essentials of churchgoing. Every Sunday morning he saw that his penny was ready. One day, just as the ushers began to take the collection, Tommy noticed that a guest in the family pew was not duly provided. Sliding along the seat, he whispered:

"Where's your penny?"

"I didn't bring mine," replied the lady.

Time was short and the matter was urgent, but Tommy was quick witted. Thrusting his penny into the lady's hand, he whispered:

"Here, take mine! It'll pay for you and I'll get under the seat!"—Pittsburg Chronicle-Telegraph.

Grapes from the Coachella Valley are being shipped to Eastern points, an estimated crop of 100 carloads.

POULTRY AT STATE FAIR

The California State Fair Association is sending out its Poultry, Pigeon and Pet Stock premium list, together with entry blanks. Entries close August 30. Director in charge of the poultry department is E. F. Mitchell. Poultry people can secure premium list by writing Chas. W. Paine, Sacramento.

WEATHER REPORT

San Francisco, California, June 12, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	1.52	23.55	45.53	70	46
Red Bluff	.00	10.60	24.81	88	56
Sacramento	.00	8.85	20.06	84	50
San Francisco	.00	10.42	22.22	69	50
San Jose	.00	8.63	16.78	78	44
Fresno	.00	8.21	9.68	90	53
San Luis Obispo	.00	14.81	20.51	80	42
Los Angeles	.00	12.52	15.62	76	58
San Diego	.00	8.89	10.01	70	57

Sulphur

It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards 6 times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of Sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100% pure, in double sacks, for Dry Dusting and making Paste Sulphurs.

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food and prevent smut in grain, drill into the soil 110 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR, 100% pure. This has increased various crops up to 500%. Send for Circulars No. 6 and 7.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 degree BE., etc., Fungicides and Insecticides.

Carried in stock and mixed to order.

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624 California Street, San Francisco, Cal.

We are equipped to make immediate shipments. Send for "ILLUSTRATED BOOKLET"; also booklet "NEW USES FOR SULPHUR" Price-list and Samples.

Ask us for prices for Carbon Bisulphide, the surest remedy for destroying ground squirrels.

Albany Nurseries

"Trees of Quality"

Hardy Northern Grown Trees Give Results

Bartlett Pear
French Prune
Apricot, Apples
Almonds and
All Other
Cal. Varieties

Send us your want list for quotation

Can use a few good salesmen

Albany Oregon

ORNAMENTALS

Trees, Plants, Shrubs direct from the nursery to you. Choice stock. Big assortment. WRITE FOR CATALOG, which illustrates and describes best varieties for California conditions.

LEONARD COATES NURSERY CO.

Morganhill California

What's going on inside?

THE mysterious process by which feed is converted into eggs—and eggs *into money*—is no mystery at all to the poultryman who uses SURELAY. You know that nature provides each laying hen with just so many eggs in embryo. After that it's up to the hen—and to you!

If you let Mrs. Hen follow her own lazy inclination in the matter, she may take six or seven years to produce her quota of eggs. Not much profit in that—is there? So, its up to you to see that she produces her full supply of eggs in *two or three years.*

That's why she must be *fed into action.* But, the elements of an egg are derived from so many sources that no single food will answer the purpose. Hence the need of a uniform, balanced feed like SURELAY. For, it contains at least a dozen ingredients blended and mixed more skillfully than can possibly be done by hand. It is made so good, so tasty, that every time Mrs. Hen takes a peck of SURELAY she is eating a little of everything that goes to make up an egg.

The poultryman who consistently uses SURELAY never has to worry about what's going on inside. He knows that all's well with the hen because all's well with the feed. SURELAY contains no harmful stimulants, no questionable "scraps," no adulterated substances. It is a clean, prime feed that has stood the test of time.

And SURELAY is always the same—always uniform! Our daily laboratory tests make sure of that! No guess-work! You know that "what's on the sack is in the sack—and that's what makes the eggs."

If you want to get down into the vitals of this feeding question—if you want to see why SURELAY has won the favor of millions of hens and the faith of thousands of poultrymen—send for our booklet, "Makes Hens Happy." Simply cut out the coupon and mail today—it's free!

STOCK AND POULTRY FOOD DEPARTMENT

SPERRY FLOUR CO.

STOCKTON · CALIFORNIA (A58)

SURELAY

"A Sperry Product"

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SPERRY FLOUR CO.
208 *Weber Avenue*
Stockton, California

Please send me, without obligation, a copy of your booklet, "Makes Hens Happy."

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CALIFORNIA CULTIVATOR

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JUL 1 1920

Learning by Doing

THIS matter of learning things—the knowing how—is one long problem. At one time the son of David, king in Jerusalem, suggested: "In much wisdom is much grief." But at another time he did conclude: "Wisdom is the principal thing, therefore get wisdom; and with all thy getting, get understanding."

The Finished Product Ready for Market

After three or four days in seed bed nursery row where they are trained, pruned and made ready for the orchard, the trees are then ready for the market. A trench is dug along the entire row and dirt is sifted away from around the tree and left in form of a ball. Burlap is tied firmly to the trees, and they are started in lath houses where they become "established," even start a new growth, and they may be placed in the orchard where the growth will continue without the faintest check. Members of the University of California citriculture class observing the operation.

The farmer in California has been obeying this last injunction for many years, though the newness of the problem still makes producers under California conditions pioneers. California's problems are as diverse as are her climatic, soil and other conditions. Hence this state many years ago started the plan of conducting a movable farmer's institute, going from farm to farm or orchard to orchard. This plan has been enlarged upon and improved by farm bureaus, by classes of the University of California, high school clubs, and innumerable other organizations. The most recent trip of this kind has just ended at Pasadena.

On May 6 a score of students, members of Dr. J. Eliot Coit's classes, who had spent four years in mastering the academic side of California's horticulture, determined to see at first hand the methods as practiced in the orchards. They realized the state's diversity and the fact that the best of orchards in one section was no indication of methods which would be best in another.

Their autos were first headed northward from Berkeley. They first made a long elliptic, something like a kite, and later added a tail to it by running their machines over the Tehachapi and down into Southern California. Dozens of different sections were visited, amongst which are Sacramento, Loomis, Penryn, Auburn, Marysville, Oroville, Chico, Durham, Red Bluff, (this was the northernmost point), Corning, Hamilton City, Monroeville, Orland, Willows, Maxwell, Davis, Elk Grove, Modesto, Turlock, Fresno, Sultana, Exeter, Lindsay, Porterville, Bakersfield, then over Tehachapi, touching points in-(Continued on Page 1017.)

A Five Year War Veteran From South Africa

The gentleman at the right is C. H. F. Woolley of Nieu we Hoop, Simondum, Cape Province. Captain Woolley is in California gathering information which will be of value to South African orange growers. He is in charge of ranch properties which in former years have used two carloads of California grown Washington Navel orange trees. The trees made the 10,000 mile trip safely and are now bearing Washington Navel oranges.

Learning Budding by Doing It

University of California class in citriculture doing field budding of citrus trees. Man in center with X on shirt is W. T. Preston whose whole life has been spent in the budding game. He is now in charge of the budding in the Teague Nurseries.

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Alone in the tire field—the Firestone 3½ takes its place beside the half dozen products of universal use which manufacturing genius has made standard.

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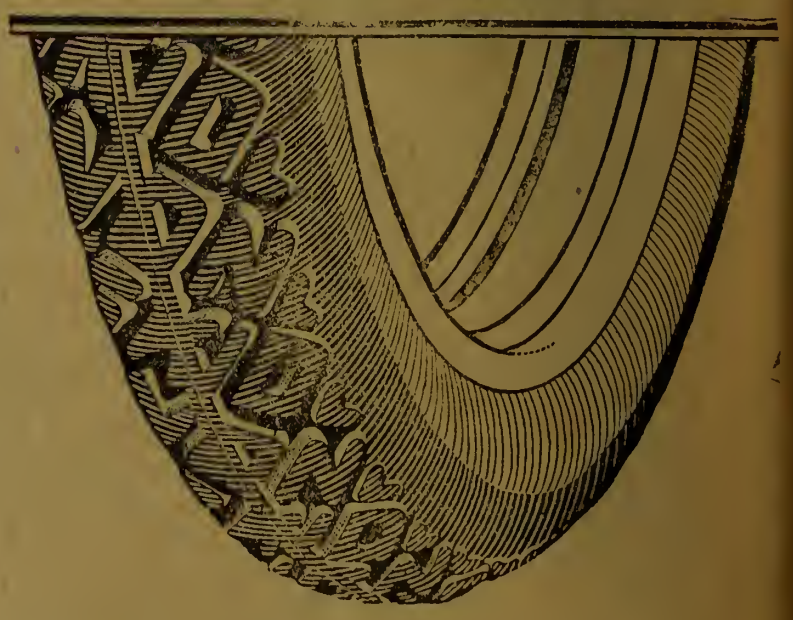

Most Miles per Dollar

California Cultivator

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Agricultural Graduate and the State

In an address before the agricultural club of the University of California early in April, Dean Hunt referred to the fact that young men and women trained in agriculture by the agricultural college of the university were becoming a great factor in the state's upbuilding. In that address he gave instances of California young men who have become moving spirits in the upbuilding of the state. Dean Hunt maintains that "there is no finer nor better trained body of agricultural graduates anywhere than those who have graduated from the college of agriculture during the past ten or 15 years."

In the address before the agricultural club, Dr. Hunt referred to his 40 years of active interest in agricultural education and gave many instances of graduates from various educational institutions who have been fitted for a great work in the nation's upbuilding. From these we take the following having to do with California young men:

By Dean Thomas F. Hunt

A NATIVE son graduated from the college of agriculture of the University of California in 1907. During his college course he was active in student affairs, including athletics, which no doubt led him to be made private secretary to the president of the university. After serving in this capacity he became superintendent of the Miller & Lux ranches for a short period. Eight years ago he was called back to the university as comptroller, next to the presidency, the highest position in the institution. In this capacity he has managed also the Kearney Ranch of 5,000 acres, with an annual net income ranging from $40,000 to $90,000. Almost exactly ten years after Ralph P. Merritt graduated from the college of agriculture at the University of California the president of the United States named him food administrator for California. He was generally recognized as one of the three most able state food administrators during the war. However, the purpose is not to praise Mr. Merritt, but to point out that here is one of your own number who is yet so young that he is known to most people by his first name, who has had an opportunity for usefulness such as should satisfy the red blood in any young man's veins.

Thus far I have been stressing, as I think I should, the service that certain agricultural graduates have been called upon to render. I realize, however, that every young man is born into the world with his clothes off. About the time he becomes 21, without capital and with only his head and his hands, he wonders how he can combine these two organs to make a living. I will give you one such example—doubtless a somewhat unusual one, but nevertheless it was possible to any number of other boys had they only combined their head and hands to seize similar opportunities that have been scattered all over California, and doubtless such opportunities will continue to exist for all time.

In 1905 a small, red headed, freckled faced, smiling lad, then known and still known as Joe Moody, entered the college of architecture of the University of California. Later he discovered that while he had the initials all right he was in the wrong college. He changed over to agriculture, graduating in 1909. According to his own story, he started out after graduation with a degree, two strong hands and a good wife—nothing more. It was enough. He bought 40 acres of land and went into debt for it, made possible because someone had faith enough to grubstake him. Nine years later I heard him say that as he looked over his university classmates he noted that they had prospered generally, but that he was about the only one who owned the roof over his head. Most of the others, while successful enough, lived in rented houses beside paved streets.

Of course last year the conditions were unusual. In California conditions, like the weather, are generally unusual. Nevertheless, if you must know whether a man can support a wife and rear a family on a farm in California, I will tell you that Mr. Moody's gross income from 40 acres in 1919 was $19,000. He sold $13,000 worth of table grapes from 16 acres and the buyer picked them. He has purchased an additional 120 acres, which he is setting out to fruit. I dare not tell you what he thinks he will be worth in another ten years.

I might come down to later graduates, such as Donald E. Graham of Lancaster of the class of 1912, who is easily the leading farmer of Antelope Valley, specializing in pears and Berkshire swine; or David Brant, class of 1914, of Owensmouth, San Fernando Valley, probably the leading breeder of Guernsey cattle in California. I cannot go on naming all of these graduates; there are too many of them.

Let us see whether we can summarize the situation:

I have here a list of 106 graduates who have taken higher degrees from the college of agriculture—12 doctors and 94 masters degrees. Here is another list of about 650 persons who have taken bachelor's degrees, and still another of about 250 persons who have received diplomas from the university farm school. The sum, you will notice, totals about 1,000. There is some duplication, but when the 1920 classes have graduated the college of agriculture will have given degrees or diplomas to at least 1,000 different persons. Of the 106 who have taken advanced degrees, 38 are instructors. Nineteen of these are connected with the University of California; 11 are with other institutions, while eight are high school teachers. There are 20 research workers and chemists, including workers in the United States department of agriculture. Eleven are operating ranches. Of those whose occupations are known all but five are employed in work for which their training fitted them. Among the men who have taken bachelor's degrees, 203 are ranchers, 112 are teachers of agriculture or otherwise employed in educational institutions, 105 are engaged along other agricultural lines such as horticultural commissioners, agricultural chemists, irrigation engineers, managers or employees of fruit packing plants and farmers cooperative associations, while 66 are known to be in other lines than agriculture, including salesmen and real estate agents.

These men and women are gradually becoming an important factor in the agriculture of the state. There is scarcely an organization or activity of the farmers of California that does not employ one or more agricultural graduates. Not all are graduates of the college of agriculture of the University of California, but no matter what college of agriculture they are from, they are doing their part to strengthen the rural life of California.

Listen to this letter from the California Packing Corporation, the greatest institution of its kind anywhere, written under date of April 5, 1920:

"We have on our various ranches several graduates of the University of California and also a good many young men who have not gone farther than a high school education. It is the policy of the corporation to make promotions in our ranks from material that we have, rather than take outside people, provided that they prove themselves fit for promotion. With that in view I have for some time been trying to figure out a scheme whereby we could get these young men interested in continuing their studies in the agricultural line but have been unable so far to think out any program that would be practical, and am writing you, therefore, for advice.

"It has occurred to me that it might be possible to make some arrangements with the university extension to have a correspondence course, and then have the boys on each ranch form into a club and every once in a while someone from the university give them a talk on a live subject. For instance, when they are spraying for red spider we could have someone give them a talk on this subject, and so on with other things. This would make the boys realize what they are doing the work for and make it more interesting to them. We would be willing to go to some expense if necessary to do this, and possibly have the boys pay a small charge so as to make them feel that they are not getting something for nothing."

This letter is fairly indicative of the change that is coming about in California. Formerly, although the superintendents of the large ranches were capable enough, they were generally self made men without college education. They all too often either despised the college graduate as a white collared good-for-nothing, or were afraid of him for fear he might know more than they did. It was difficult for the college man to maintain himself under their dislike or suspicion. In spite of this serious handicap the students of the college of agriculture have been successful. Indeed, they are succeeding beyond our fondest expectations. In due time they are becoming the superintendents of the larger ranches and agricultural industries. The last three years has seen a decided change in the attitude toward the college graduate, as indicated by the inquiries received in the dean's office. Formerly, too, many letters were received from men who wanted laborers at less than the ruling rate. Now we are receiving more requests for trained men than are available. When I say trained men I mean really trained men—upstanding graduates with two or three years of actual experience beyond their college days. It generally takes two or more years for the graduate to get the college out of his system.

It is not difficult to understand the opportunity that this new situation offers to the recent graduate. Other things equal, the college bred superintendent, when looking for an assistant, will prefer a graduate because he is the sort of man with whom he likes to be associated. Furthermore, he does not expect too much of him; he appreciates how little he knows when he graduates, because he knows how little he knew when he graduated. Having been a college student, he knows how to go about it to find the type of young man he wants. There is much yet to be accomplished, but this movement is like a snowball—the larger it grows the more snow it gathers.

During the year 1919 we had an average of one request every day for men with college training. It is definitely known that we placed 81 college men, 24 farm school men and three ex-students. In other words, we filled one out of four of these requests. It is probable that more than this number were actually placed, since the persons given include only those who have subsequently written notifying us of the fact.

In another ten years there will doubtless be in California 1,000 graduates of the college of agriculture and the university farm school between the ages of 30 and 45 years, the ages between which men do things. If these 1,000 men do not become the most important factor in the material and social welfare of all those who live in the open spaces of California, then the college of agriculture will not have been worth its salt.

Without doubt your first duty is to earn a sufficient living to rear and educate a family. That is the first duty of every man. But if, in addition to this fundamental requirement, these thousand men who have had the unusual advantages furnished by the state for a special purpose, do not lead in every progressive enterprise which affects the agriculture of California, then the college will have been a failure and should be abolished.

Circumstances are such that in the future the representatives of agriculture are going to be heard in the councils of the nation as never before. Whether these hearings will result in the good of humanity must be largely determined by the agricultural college graduate, whose vision has been broadened and whose courage has been strengthened by the most thorough education which it is possible for a beneficent state to give him.

Agricultural News Notes of the Pacific Coast

Northern California

Lake County is making a drive on Canada thistle.

Napa County farm bureau will conduct a county fair.

San Jose reports a serious shortage of cherry pickers.

The farm bureau of Tehama County has opened a public market at Corning.

Haywards, Alameda County, will hold a farm products show, August 12-15.

Siskiyou County is developing water from many sources not heretofore availed of.

Mendocino County farm bureau sheep men are planning a pool of spring wool.

The cannery at Haywards, Alameda County, started on cherries about the first of June.

Santa Rosa is to have a $250,000 fruit cannery in operation for this season's crop.

Maxwell, Colusa County, has one of the newest and finest lemon packing houses in the state.

The increase in rice acreage now planted in Colusa County over that of 1919, is 24,000 acres.

A 20 acre peach orchard in Sutter County sold for $37,000, or $1,850 an acre, the highest price yet recorded.

Oroville, Butte County, is preparing for its biggest and best orange and olive exposition, to be held November 15-20.

Anderson-Cottonwood irrigation district has just voted $200,000 for improvements to the million dollar irrigation project.

California shows an increase of one per cent in its alfalfa acreage over last year, but the condition of the crop is 89 per cent of normal.

Sonoma County fair management claims it will have on exhibition the grand champion Berkshire sow of the world. Fair begins August 23.

The Nurserymen's Bud Selection Association is conferring with cling peach growers of Sutter County as to the best canning varieties for that county.

Sam Marple, "professional wolfer," killed 51 coyotes in Sutter County during May. The county pays him $255 bounty and the sheep men a like amount.

All power companies of California from Los Angeles to the Oregon line are now operated as a single unit under general direction of the state railway commission.

The state industrial commission at Sacramento has sent out notices that the $16 a week minimum wage for female agricultural workers becomes effective June 24.

Oroville is already making plans for her olive and orange show to be held in the fall. Farm bureaus of Butte and adjoining counties will cooperate in making the show a success.

At the recent meeting in San Francisco of the newly organized California Grape Growers Exchange, E. M. Sheehan was elected manager. Other officers are C. E. Humbert of Cloverdale and Frank T. Swett of Martinez, vice-presidents; H. S. Stoll, San Francisco, secretary; and George M. Bowles, San Francisco, treasurer.

Central California

A new cannery is in operation at Reedley, Fresno County.

Turlock section has planted 250 acres to a trial plot of cotton.

Stanislaus County will make large exhibit at the coming state fair.

The wheat crop for the valley will be materially smaller thau that of last year.

Raisins are quoted by dried fruit houses outside the association at 15 cents.

New fruit packing houses will be operated at Parlier and Sanger, Fresno County.

Owens Valley farmers are finding the shortage of water not so serious as anticipated.

California Peach Growers, Inc., did a gross business during the last year of over nine millions.

Madera County ranchers now harvesting barley report the yield much greater than expected.

Over 300 dairymen attended the recent dairymens' convention near Salinas, Monterey County.

Fruit growers near Sacramento are finding Japanese demands for wages and commissions excessive.

Stanislaus County melon growers are trying out a dry nicotine-sulphate-kaolin mixture on melon thrips.

Box shook for the coming cantaloupe crop is being received in large quantities at Turlock packing sheds.

Tulare Cooperative Poultry Association did its largest business during the month of May. The total was $33,600.

San Jose industrial exposition no sooner over than plans are in the making for another and greater next year.

Terra Bella, Tulare County, fruit buyers are paying around $100 a ton for cling peaches and $75 per ton for apricots.

The dried fruit associations of California hope to harvest the coming season's crop without serious differences over wages and hours.

The state department of engineering estimates that the proposed Pine Flat project will supply water for a million acres of San Joaquin Valley land.

Cotton growers of San Joaquin Valley met at Madera and listened to an address by a cotton expert. Madera County's planting will be greatly increased.

Bishop, Inyo County, is complaining of the negligence which permits thousands of fine large trout to float with the irrigation water onto alfalfa lands and be destroyed.

Green fruit shippers of the Fresno territory recently conferred with railway people and have agreed on special fruit train movements on same schedule as last year.

The outlook for fig prices during the coming year is anything but promising, according to the California Peach Growers, Inc. Importations of figs from Smyrna, which are selling at eight and one-half cents at auction in New York, have demoralized the market. An effort is being made to sign up the fig acreage in the state of California with the California Peach Growers, Inc. Unless such an organization is perfected, the growing of figs will become unprofitable, it is pointed out.

Southern California

Cypress, Orange County, has a new farm bureau center.

Many ranchers in Ventura County have shifted from beans to beets this year.

The Covina Citrus Association has completed its new packing house at a cost of $120,000.

The citriculture class of the University of California last week visited the date gardens in Coachella Valley.

Eight hundred acres of apricots in Orange County are signed up with the Prune and Apricot Growers Association.

Pomona canneries are busy getting ready for the initial run on apricots, perhaps the last of June; if not, the first week in July.

The state of California has bought 300 acres of land at Riverside for a branch farm school for the University of California.

Manager Halladay of the Anaheim Orange Growers estimates that the output of his district this season will be over 2,000 cars.

The Deglet Noor Date Growers Association has just sent circular to all members urging care in packing best grade of fruit to get maximum prices.

Several road meetings have been held by the state highway commission with residents of the section between Fallbrook and Vista, San Diego County.

Because of the short crop of apricots it is thought that the cannery at Elsinore will not open this season, the fruit being taken to the Ontario plant.

Orange County farmers last week took part in a rodent control campaign under the leadership of W. C. Jacobsen, state superintendent of rodent control.

The Imperial Valley shipped 2,000 cars of cantaloupes the first week in June, with 250 cars a day since then, 400 cars being needed on some days, but not available.

The cannery of the California Growers Association at Riverside will probably open June 28. The cooperative owners have lately spent $15,000 on the building and $25,000 on appliances.

Farmers of Orange County are taking steps toward forming the Farmers Cooperative League. The league will operate a cooperative employment bureau and will make itself generally useful to members.

The marketing committee of the Hemet Fruit Growers Association has notified members that there is no reason to change the first recommendation as to price for apricots and peaches, $90 per ton for apricots and $20 difference in the price of clings and freestones. There is strong sentiment in favor of getting all growers of the county together in a marketing association.

A large crowd attended on the evening of June 14 the formal opening of the new packing house of the Placentia Mutual Orange Growers Association at Placentia. The new building is of hollow tile and concrete and is 100 by 241 feet. The dairy department of the Orange County farm bureau is conducting a drive for members. The campaigners report: "Shortage of milkers in some instances has kept the boss' head against the flank of the cow."

The Coast and General

The resources of the banks of Arizona have increased $22,741,437.97 since one year ago.

A Yakima, Washington, ranch owner recently sold 2,500 pure Lincoln and Romney ewes for $50,000.

The Kansas Honey Producers League has been organized to bring beekeepers in closer touch.

Reno, Nevada, reports continued light frosts have seriously retarded alfalfa and damaged beans, tomatoes and potatoes.

At Tacoma recently 26 district leaders in farm home economics from the Puyallup Valley met to discuss their various problems.

At Rampart experiment station, Alaska, an alfalfa has been developed that will stand 70 degrees below freezing without killing.

The Cathlamet State bank of Washington has offered to loan any boy or girl the money with which to buy pure bred heifers.

Officials of three farm bureaus met at Mesa, Arizona, on June 8 and agreed to pay the one price of $3 a day for all general farm labor.

The crop of Garbanzo beans from the Mayo River Valley of Sonora, Mexico, is expected to be about normal, 220,000 sacks of 220 pounds each.

The Southwest Cotton Company, whose business is raising cotton, has put up 1,000 tons of hay for the first cutting on its plantation at Goodyear.

A highway commission bill will be submitted to the voters for initiation into law provided that sufficient signatures are obtained to the petition, which is soon to be circulated.

An auto camp ground south of the city of Phoenix, Arizona, is being established to take care of the needs temporarily of the auto traveling public. It is expected that permanent grounds will be established within the next year.

State Veterinarian Dr. R. J. Hight is urging the people of Arizona to enact legislation for the purpose of eradicating tuberculosis in cattle. He is of the opinion that it is necessary to have legislation of this kind which would be uniform with that of practically all states in the union.

Commissioner Cato Sells of the Indian depratment has announced that 27,000 acres in the Florence Casa Grande Valley will be irrigated by the diversion dam which the Indian department will build shortly. This is in addition to the proposed San Carlos reservoir, which would irrigate a considerably larger acreage. Part of this will be available for the Indian reservation and a part for white settlers.

As a result of a ruling made by the federal farm loan board at Washington, farmers holding laud under a government irrigation project will be able to borrow money from the United States government the same as other farmers throughout the Uuited States. Up until this recent ruling the law was interpreted to mean that the lien held by the government on the land for the payment of the project was virtually a mortgage which preveuted loaning funds. In the Salt River Valley the Salt River Valley Water Users Association will take care of all the details relative to farm loans of this character.

Harvesting Hay Efficiently

By Arthur L. Dahl

WITH an estimated production of over 111 million tons of hay, the United States will harvest this year the greatest forage crop in its history. Owing to the severe shortage of farm labor, many acres that would ordinarily have been planted to food crops were utilized for feed because the necessary work could not be put into the land to raise grain.

The labor shortage is not any less today in this harvest season than it was during the time of planting, and the farmer who has a considerable acreage devoted to hay will find it necessary to utilize all the short cuts in harvesting, stacking and curing, as well as taking the necessary precautions to preserve it until feeding time.

Hay is a bulky crop and requires considerable handling from the time it is cut until stacked, and a great deal of labor can be wasted in harvesting. If an old method can be superseded by a new one that will enable a given crew to accomplish more than before in a given time, then it is a wasteful method and should be abandoned. Where labor is scarce the following efficient methods in hay harvesting will often overcome the labor handicap, for we have found that in industrial matters one skilled American can accomplish more than half a dozen unskilled coolies. Where human labor is cheap and plentiful the inefficient practices might do, but on our American farms every man's brains as well as his brawn must count.

Efficiency in hay making means primarily the utilization of tractor or horse power instead of man power wherever possible, and the use of proper implements has a vital bearing upon the saving of human labor. The time of day when the hay is cut has a considerable effect upon the production and the number of men required. If hay is cut early in the morning when the dew is still on, a crew can accomplish more work than if the mowing was done later in the morning, and if mowing and raking are both done in the afternoon, still less work can be accomplished by a given crew.

The size of the harvesting implement has a direct bearing upon the amount of work which can be done in a day. While the five foot mower is in common use on many farms, if sufficient power is available, especially on tractor farms, it pays to use six or seven, or even eight foot sizes. Under average conditions a five foot mower will cut ten acres in ten hours, a six foot mower will cut 12 acres, a seven foot 14 acres and an eight foot about 16 acres in ten hours. Accordingly a farmer who uses an eight foot mower can cut almost twice as much hay in ten hours as he could with a smaller mower, and he can, therefore, almost double his labor turnover. Where horses are relied on for motive power it might not always be possible to use the larger mowers, but on power farms the tractor will furnish ample power for this work.

It is the practice of some farmers, who can put into the fields at one time more than one mowing outfit, to have them follow each other closely, each machine cutting a swath and followed by the next, and so on. From a study of hay making crews conducted by the government, however, it was found that this is not the best method to pursue and that more can be accomplished by having each mower operate in a given field by itself. In the former practice one machine is paced by another, and if the first stops for any cause the entire outfit must likewise stop, and being close together there is a tendency for the drivers to stop and talk more than they would if widely separated. This tendency was found particularly strong in the South, where darky labor is largely employed, and when the men were given separate patches to cut they accomplished more work.

The use of a tedder for stirring hay in the windrow is one of the most efficient means of saving labor, for where it has been the practice to use human labor for this work it was found that one man, or even a boy, operating a tedder, can turn as much hay in a day as 12 men using the hand method. Horse and machine labor is cheaper than human labor, and if a tedder is not part of the farm equipment its purchase will pay for itself where considerable hay is to be cut and cured.

Reaper and Binder at Work in San Bernardino County

On ranch of J. F. Catlett below Chino, where thousands of acres of immense grain crops are being handled almost entirely with reaper and binder and only a few fields here and there have been cut about margins for combined harvester.

Another great difference in the saving of labor is found to be true in the case of horse drawn rakes. The one horse rake requires the services of a driver just as a larger rake, drawn by two horses, would. An eight foot rake is commonly used with a single horse, while one of 12 or 14 feet will require a good strong team to pull. The latter, however, will cover 50 per cent more ground in a day and do it more easily than the smaller rake. The average farm boy can drive the larger rake oufit as well as a man, for no great strength is required. On very large farms where considerable hay is grown it will be found more economical to use the side delivery rake, for the hay loader can start taking the hay from the windrow as soon as the side delivery rake has made one double windrow across the field, whereas when the sulky rake is used they will have to wait until the rake has gone several times across the field.

Where it is the practice to cure hay in the cock, and weather conditions are apt to be unfavorable, many farmers have found it pays to use hay caps to protect the cocks while curing. This is especially true of alfalfa or other legume hay which cannot be cured in the same manner as timothy or clover. The hay caps protect the cocks from rain, reduce the loss of leaves and improve the color and increase the feeding value of the hay.

Some hay caps which can be bought are made of waterproof material, such as wood pulp, but most of those in use are made of canvas or duck and are made waterproof by treating the material with oil, paraffin or other substitute. Where the treated caps are not available ordinary cloth caps can be made of sheeting, unbleached muslin, twilled cotton, or duck, in sizes varying from 24 inches square to seven feet or more square. A common size for hay caps is from 30 to 36 inches square, which will answer any ordinary requirements. The caps are spread over the cocks and kept from blowing off by weighting the ends down with stones tied to the corners or by using wire pins run into the hay. Caps made from heavy material and carefully stored away when not in use will last for a number of years, some owners getting as high as eight years use from them, while others find they last for four or five.

Where hay caps are used it is the best practice to put them on just as soon as the cock is made. Otherwise a light shower may occur to damage the hay.

While hay caps are used principally to protect curing hay from rains their use is beneficial from other standpoints. Two important processes are involved in the curing of hay—the throwing off of a large per cent of the water in the plant and a heating or sweating process that takes place when hay is put into the cock. This heating, or curing, process is beneficial for it develops aroma and palatability in the hay. When rain wets hay in the cock, however, it stops the natural curing process and causes the hay to heat very rapidly. The hay often becomes so hot that its feeding value is impaired, and sometimes the heat becomes so intense that the hay is ruined. If the caps are put on before the rain comes the hay will be protected.

The quality and grade of hay is largely indicated by its color, and this color is affected by the rain, strong sunshine and other influences. The hay that brings the best price in a commercial market is that which has the best color, and the use of caps has a tendency to preserve a uniform color in the hay cured and prevent the occurrence of patches of off colored hay which often results in grading down a bale of otherwise excellent hay. In the case of alfalfa hay it is found that too much direct sunlight causes alfalfa to bleach and become lighter in color, which is prevented by the use of caps.

In certain sections of the South, particularly in Georgia, Alabama and Mississippi, it has become the custom of hay producers to use trucks for the curing of hay. The use of such trucks enables curing to proceed under unfavorable conditions, for if the ground becomes too wet the loaded trucks can be hauled to a more favorable site or even placed under shelter.

The curing truck is quite similar to the ordinary hayrack except that it is mounted on wheels. It is 12 feet long and seven feet wide and will hold from 1,500 to 2,000 pounds of cured hay, depending on how much the hay is cured when put on the truck. The back is supported by two 16 to 20 inch steel or iron wheels running on an axle placed about four feet from the rear end of an A-shaped frame. When a loaded truck is not in motion, as when left in the field for the hay to cure, the front end is supported by a six by eight inch wooden block of sufficient strength to hold the truck level. This trigger is fastened between the two main frame timbers by a heavy bolt, enough play being left so that it swings easily by its own weight. When not in use the trigger drags lightly on the ground.

The trucks are moved by means of a two horse team and a two wheel running gear similar to the front running gears of a low wheeled wagon.

In order to use the truck successfully hay must be cured to a certain point before it is put on the truck. If not sufficiently cured there is danger that it will heat and spoil. Hay is in best condition to be put on the truck when it has cured enough to go into the cock or possibly just a trifle greener, as it is desired to do the last third or fourth of the curing on the truck. A canvas cover or cap is usually placed on the hay to protect it from the rains.

When hay has been properly cured and is ready for the stack a hay loader will be found more economical and efficient than hand labor. Where a hay loader is used the hard part of the work is done by horses or by the tractor, and a crew using a loader can handle about 30 per cent more hay than when it is pitched on by hand.

ARIZONA CROP OUTLOOK

The wheat crop of Arizona for this season is estimated by L. M. Harrison, state field agent for the United States bureau of crop estimates, at 1,000,000 bushels. His report shows that there are 50,000 acres less for hay production than last year. Fruit conditions throughout the state show an average of nearly 30 per cent of normal. This is due very largely to a backward spring, late frost and some heavy wind storms. Pasture conditions throughout the state are excellent. The acreage of cantaloupes this year is 2,500, as compared with 4,500 last year. The condition of the cotton crop, while only 80 per cent of normal, is better than it was expected to be the first of May. The acreage of long staple cotton for the state, according to the estimates made June 1, is 210,000. There are also 20,000 acres of short staple.

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture, and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday June 26, 1920

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

EARTHQUAKE

Los Angeles had a jolt in a light earthquake which visited a portion of the city and was especially manifest at Inglewood, about ten miles southwest of the business portion of the city. Several buildings were damaged, but no loss of life was reported.

OVER FOUR BILLIONS

Secretary Meredith calls attention of American farmers to the fact that their products were exported during 1919 so liberally that their value exceeded $4,250,000,000. This was 55 per cent of the exports of the United States. Congress denied, or rather refused to grant, to the farmers the privilege of cooperating in marketing their farm products. The Capper-Hersman bill should have been passed. Farmers will continue to cooperate, however, and it is very probable Washington will continue to harrass those who are engaged in true cooperative effort. In any case the agricultural exports for 1920 can hardly be equal to those of 1919.

INDEX

A hasty glance at the index on Pages 1034 and 1035 will give information as to the great amount of reading material which has been given to subscribers of the California Cultivator during the past six months. As it is there are hundreds of articles which are not mentioned on those index pages. This has been the Cultivator's greatest year. It has been one of farming's greatest years though in animal husbandry and in some other agricultural activities conditions might have been better. File the Cultivators with the index and file other lessons of this great year that the next and other years to come will be still greater in California farming.

RESTRICT JAPANESE

The governor of California and his commission investigating the Japanese situation in the state have finally spoken. The tone of the governor's letter is such that every well wisher of the state cannot help but be encouraged that the campaign of education as to California's menace will now result in action. The governor calls attention to the fact that the unfortunate attitude of many Americans maintained during the Chinese exclusion agitation of years ago has not been repeated as to the Japanese. As a rule the attitude of the American has been that of securing fullest information as to the real menace.

The Cultivator will quote from the governor's letter to the secretary of state in its next issue and also from personal letter just received from Senator Phelan.

VALUABLE BULLETIN

The Monthly Bulletin of the state department of agriculture is well worth a place in the library of every orchardist. It is now in Volume IX of which Numbers 5 and 6 are issued for the months of May and June. Looking back over the past three or four numbers we are impressed with the value of the material which is being gathered in these bulletins. Besides the news regarding the work of the department, especially that division of it pertaining to standardization, there are special articles of particular merit. The issue for March dealt with standardization in an extended article written by Director Hecke. This number was so complete that a supplement was necessary, containing the proceedings of the Fruit Dehydration Convention at San Jose. The April number gathered together between its two covers the most complete information yet issued on "Biological Control of Mealy Bugs in California," by Harry Smith and H. L. Armitage. The frontispiece is a colored plate, and there are many most informing halftones and drawings. The double, May-June, number pays tribute to George E. Merrill, with valuable articles on Walnut Blight, Sorghums on Rice Land, Fig Cuttings, Grasshopper Poison, etc.

BUILD THE ROADS

Some think the good roads campaign should stop. The bonds were voted almost unanimously by the people of the state but since the election the price of money has vastly increased. No one wants state bonds at par when the interest is far below Libertys and other bonds which now may be bought on the market. It is proposed that an election shall be called to put another one per cent on the interest. Some object to this and think the entire campaign should be called off. Writing to one of these, Governor Stephens says:

"There is constantly present in my mind the unprecedented majority vote cast by the people only last July for highway construction. With my abiding faith in our people and a devotion to the laws of the state, I shall welcome an initiative petition to the end that all the people of California shall determine for themselves the question of increased interest rate on their own bonds and by the same vote determine the matter of further construction.

"The people in the exercise of their initiative rights have made no serious errors. It matters little how much you may dislike the initiative or any particular decision that the people may make, but it does matter much that in this free government of ours, founded on laws and principles, and not men, that neither you nor I shall presume to dictate to our people nor take unto ourselves too much the function of determining for them."

TOMMY" LEAVES

After July first Professor J. I. Thompson, familiarly known as "Tommy," will no longer be connected with the animal husbandry department of the college of agriculture, University of California. That he will be missed goes without saying and that he will leave with the whole hearted good wishes of the livestock fraternity he has served so well is equally certain. Thompson came to the college of agriculture shortly after his graduation from the Iowa state agricultural college. His delightful personality and his sound knowledge of the livestock industry almost immediately won him the friendship of all who came to know him. In the nearly ten years that he was associated with the institution he filled many responsible positions and always with credit. Thompson undertook the first real swine investigations made in this state and the many feeding trials that he conducted have been of gerat value. He was instrumental in organizing a number of the existing livestock associations and his services at the leading fairs were always in demand. As a teacher he at all times enjoyed the confidence of his students and there are many successful livestock men in this state today who freely give credit to "Tommy" for the success that has been theirs.

It will not be easy to fill his vacant chair, but we take it that the institution will make every effort to attract a man fitted to carry on the good work that has been started. It seems a great pity that state institutions are so cramped for funds that they are unable to compete with private enterprise in holding their men. In this respect the University of California is no different from other institutions.

STILL 650,000

The U. S. civil service commission feels that it is not understood because it has been criticized for the fact that while the war is over (nearly), the commission is still seeking applicants for examinations. The commission says that on April 1, 1917, there were about 500,000 persons employed in the federal executive civil service. This increased to 850,000 at the time of signing the armistice. Excepting in the eyes of politicians who have desired to make capital out of an unfortunate situation, the war has been ended nearly two years, but in two years these civil service employes have been reduced to 650,000.

Of course, we are nearly 3,000 miles from Washington, and vision is poor at that distance, but why these years of time necessary to reduce the force to normal? As to the renewal of the force, "the natural turnover in a force so large requires some appointments to fill vacancies." Notwithstanding our distance from Washington, we are able to see and feel the two cent stamp which we pay for on every bottle of hair restorer, and there is an occasional soda and a few other things that remind us that income tax time will soon come also.

We realize that there are a lot of fine jobs up at Washington and naturally there will be great reluctance by various commissions and things to loosen their hold on these jobs, but the whole country is sending up a wail and it is to be hoped that a bit of relief may be given to us, and soon.

FEDERAL FARM LOAN

Before the federal farm loan is given a fair trial it seems to be slated for the toboggan. The National Board of Farm Organizations reports:

"The federal farm loan act is in jeopardy. From the outside the Farm Mortgage Bankers Association is attacking it on the ground of unconstitutionality and from the inside Judge Lobdell, commissioner of the board, is opposing its cooperative features. Moreover, Secretary of the Treasury Houston, chairman ex-officio of the board, is responsible for reducing the amount of loans which otherwise would have been available for farmers this year, pending the decision of the supreme court of the United States, by the sum of approximately $32,000,000. To cap the climax the federal farm loan board this week took measures to dispense with the services of its secretary, W. W. Flannagan, who, by many congressmen and others familiar with the facts, is regarded as the father of the present farm loan act."

Possibly we look with prejudice on this matter, but it does appear that Washington is not extending as much encouragement to agriculture as it is to large commercial interests.

A review of the federal farm loan situation reveals the following:

In July, 1919, representatives of the farm mortgage banks brought suit in the federal court at Kansas City challenging the validity of the act. The court dismissed the complaint and sustained the constitutionality of the act October 31.

The case was appealed to the supreme court of the United States and heard January 6. On April 26 the supreme court ordered a reargument of the case to be taken some time during its next term in October.

The federal farm loan board has offered no bonds for sale since the litigation was begun and does not intend to offer any for sale while the litigation is pending.

Mr. Platt, chairman of the banking and currency committee of the house, introduced a resolution which would have given the secretary of the treasury authority to purchase farm loan bonds to the amount of $64,000,000, this sum being the amount available to the secretary of the treasury from the $200,000,000 appropriation provided by congress January 18, 1918, at the request of Secretary of the Treasury McAdoo, to be used for the purchase of farm loan bonds in order to avoid having these bonds on the investment market in opposition with liberty bonds. Of this $200,000,000 about $136,000,000 had been used in the purchase of bonds, leaving a balance of $64,000,000.

The federal farm loan board through Commissioner Lobdell took the same position as the secretary of the treasury.

The banking and currency committee amended its original resolution and limited the authority to sell bonds in an amount only sufficient to cover loans approved prior to March 1, 1920—round numbers, $32,000,000.

The federal farm loan board on June 2 adopted a resolution providing that the office of secretary of the board, held by W. W. Flannagan, be declared vacant, and for the removal of clerks and stenographers and other assistants to the number of 16.

California Avocado Orchards

By Ernest Braunton

THE total acreage of avocados in California will run pretty close to 1,000, chiefly located in the south end of the state, with some acres in Central California, and collections of a few trees as far north as Butte County. Each year marks a considerable extension of avocado planting and the precise present acreage cannot be accurately determined.

Representatives of the Cultivator have begun a tour of the larger orchards and will from time to time advise our readers of what is taking place therein. No one has a more interesting or larger orchard than W. A. Spinks, Duarte, Los Angeles County, numbering more than 1,800 trees. The varieties and numbers are approximately as follows: Spinks, 700; Queen, 400; Knight, 200; Linda, 200; the remainder, 200 or more, some young mango trees were blooming and had already set hundreds of fruits, at present about the size of garden peas. Cherimoyas were still in fruit, though some of them dropped their last fruit months ago. It is quite evident that by selection of varieties we may have cherimoyas, as well as avocados and oranges, each month in the year.

Carissa grandiflora was laden with both blossom and fruit, as it is at all times, though the fruit crop is generally sparse. Eugenia Jambos, the rose apple, was in full bloom, the flowers closely resembling gigantic eucalypt blossoms, for both trees belong to the myrtle family. Eugenia Hookeriana, said to be the best of the many species, was in vigorous growth close by, as were the African kei apple and many other fruit trees. Macadamia ternifolia, the Queensland or Australian nut, was dropping its delicious

The Spinks Avocado and Its Discoverer

W. A. Spinks standing by a "Spinks" tree. The Spinks is one of the five recommended by the committee of the state association.

named and others unbudded seedlings. Among the latter are some very promising fruits which may yet find their way into the official preferred list.

Mr. Spinks is firmly convinced of the excellence of the new Guatemalans introduced by E. E. Knight, the Queen, Knight, and Linda, and his later plantings have been heavily of these varieties. Of course, the largest number is of the Spinks. The latter name is now officially attached to this excellent avocado, though Mr. Spinks claims no credit for its introduction, did not name it, and says others were doubtless growing budded trees of it before he was. But he introduced it and distributed buds and budded trees, and by the laws of custom and by general consent it became known as "the Spinks variety." In this orchard, in early days of avocado budding, budwood was tried from every possible source. Mr. Spinks says he is fully satisfied the buds of Spinks came from the Bradbury ranch immediately below his, but the fruits are larger and finer on his trees, possibly due to bud variation.

Other Tropical Fruits

On other parts of this interesting ranch are so many tropic and subtropic fruits that the precise number of species and varieties could not be ascertained. A half dozen vigorous hard shelled fruits, and close at hand the Chinese litchi nut (pronounced li-chee) was in full bloom. Even cinnamon trees and others of commercial value were growing, some of great size and vigor, on this attractive, frostless foothill ranch, but lack of space forbids a complete list. No tea or coffee plants were noticed; it was fruit, fruit, everywhere but not a drop to drink.

After thorough canvass of the Spinks ranch the Cultivator representative visited Thos. H. Shedden at "Florimel Ranch" just above Monrovia, on one of those frostless benches for which this district is noted. Here we found mangoes, cherimoyas, sapotes, etc., and some 400 avocados in "57 varieties." These may range to 60 but Mr. Shedden says all but the standard recognized sorts will be top worked until the whole 400 is reduced to about a dozen of the best. Having some years ago retired from the hotel business in San Francisco, Mr. Shedden has some interesting price comparisons to make. San Francisco dealers in avocados from whom he formerly purchased imported fruits at four or five dollars a dozen now write to ask if he can procure them California avovados at $12 a dozen and as much as $15 a dozen has been offered. Wherefore Mr. Shedden says: "The demand for avocados is increasing and is more persistent, or insistent, each year."

Brown Rot

By A. T. King in Sunsweet Standard

BROWN rot is most prevalent in low places where the orchard is situated on the heavier soils. This fact gave rise to the belief that frost was the real cause. Some still persist in referring to it as "sour sap." In some northern districts they have dubbed it "twig blight." But the name matters not. The twigs die in the midst of their most hopeful career and take with them every little blossom they hold.

Since its first appearance this disease was claimed by those studying it under the microscope to be due to a fungus and was therefore to be fought with a fungicide spray. It remained only to be decided what was the proper time to most effectively apply that spray.

From the university experiment station comes the following recommendation:

Lime Sulphur Mixture

First spraying, 1 to 10, when buds are swelling.

Second spraying, 1 to 10, when buds show pink.

Third spraying, 1 to 30, when fruit is in the jacket before leaves show.

The following results of spraying according to above recommendations may be helpful.

I have four acres of Blenheim 'cots situated in low, heavy ground, especially susceptible to fungus disease. No indication of disease prior to 1915.

In 1915 crop was normal. Some brown rot in fruit after period of ripening. Yield, 35 tons.

In 1916 rain while fruit was in the jacket. Young fruit immediately rotted and fell. Yield, 12 tons.

In 1917 cold winter. Fungus disease attacked fruit spurs, killing practically all spurs and reducing crop to one and one-half tons. Expense of pruning trees tripled owing to necessity for cutting out all dead wood.

In 1918 very dry winter. Trees shy of fruit wood. Sprayed with oil. No trace of disease anywhere in the valley. Yield, six tons. Fruit clean.

In 1919 trees full of new fruit spurs. Blossom excellent. Enter brown rot fungus. Exit all young fruit wood with $2,000 worth of fruit.

I sprayed as disease was progressing. Lime-sulphur (summer strength). Fifteen tons. Fruit free from rot. Pruning bill double owing to presence of dead wood.

In 1920 season favorable for development of disease. Sprayed in January for brown apricot scale. Distillate emulsion. (Spray ineffective.)

Sprayed later three times with lime-sulphur, following instructions of county horticulturist. Brown rot to this date almost entirely absent. Crop light, owing principally to absence of wood caused by disease in 1919. Adjacent orchard, situated in same low, heavy ground, is hard hit by disease, losing 60 per cent of the fruit wood, together with its fruit.

Summing up, I will say that if one ton of fruit has been saved the three applications of spray have been paid for, and if the wood has been saved the spray has been paid for many times over.

During the period from 1916 to 1920, inclusive, the orchard mentioned should have produced in the neighborhood of 150 tons, but because of this disease that takes two crops at a shot the total production during that period will not exceed 50 tons. How many times could one spray four acres for the price of 100 tons of 'cots?

There are other orchards in the valley whose owners have sprayed with lime-sulphur, and the results have been even more apparent than in the case described. Some growers use Bordeaux, and where this spray was applied at the proper time the results are very clear. One mentions spraying all but a center row, leaving that as a check. His one row unsprayed was the only row badly hurt by the disease. That indicates something.

Oil sprays seem also to have checked the disease in many cases, but the most apparent results seem to follow the use of a recognized fungicide spray, lime-sulphur preferred.

These facts should be remembered. It costs less to spray than to cut out half the fruit spurs. Loss of spurs reduces the crop for two years. Brown rot is apparently becoming more and more prevalent in the state and should be checked by every possible precaution.

IN HARVESTING ALFALFA SAVE THE LEAVES

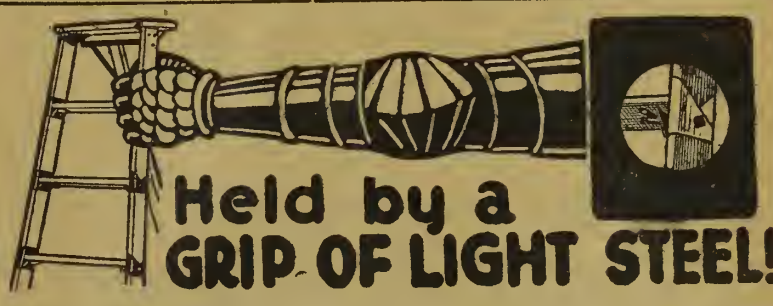
In curing alfalfa for hay it is particularly important to save the leaves. Whether this is done depends on the method of curing; the methods of curing depend chiefly on the man who is doing it. If he understands the great value of the leaves, he usually succeeds in doing so, because here is one place where "too rushed for time" has no part. It is as easy and as rapid to cure alfalfa properly as to lose most of the leaves.

The leaves are considerably richer in protein and mineral matter and about four times as rich in fat as the stems. Cattle and hogs eat leaves as well in properly cured hay. Moreover, the leaves represent from one-third to one-half the total dry weight. With hay at its present high price no farmer can afford to lose from 30 to 45 per cent by curing improperly. That is just what happens when the leaves are sacrificed.

Most leaves—practically all of them, in fact—may be saved by cutting at the time the first blossoms begin to show and by curing principally in the cock. Early mowing (one-tenth bloom) gives a considerably larger seasonal yield for the three cuttings than does later mowing. The hay is more palatable and also more nutritious. This is shown by the fact that acre yields were in the proportion of 100, 92 and 85 for early, medium and later cut hay. The yields of beef were 100, 79½ and 69½ respectively for early, late and medium cutting. These are average figures for the total of each season for five years.

Quality in the hay is further exchanged by raking at once and cocking as soon as possible, preferably the same day it is cut. Possibly some alfalfa land is too wet to permit this, but not much of it, and that little is not good alfalfa land. Let the hay be cocked as green as possible in small cocks just large enough to make one good forkful. Alfalfa so cured retains its leaves, is bright in color and palatable. Furthermore, it is easer to handle both in loading and unloading. Firmer and more symmetrical stacks can also be built from the compact flakes made by the cock curing. Such hay also sheds water better than swath cured hay, which consists mainly of stems and which is invariably too loose and too dry to handle well.

Alfalfa leaves are valuable. They increase the total yield by about 30 to 45 per cent. They are also better feed, pound for pound, than the bare stems.



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Bud Variation in Lisbon Lemons

Shamel has a new bulletin out. It is U. S. D. A. Bulletin 815, "Citrus Fruit Improvement, a Study of Bud Variation in the Lisbon Lemon." It is by Shamel, Scott, Pomeroy and Dyer. We note: "Additional copies of this bulletin may be procured from the superintendent of documents, government printing office, Washington, D. C., 25 cents.

Summary

The important commercial lemon varieties now grown in California are the Eureka and Lisbon. The Lisbon variety was introduced from Australia about 1874, and later in 1875, with perhaps less important later introductions.

Several important strains of these varieties have resulted through the unintentional propagation of bud variations. In this bulletin only the variations within the Lisbon variety are discussed. Descriptions of variations in the Eureka variety will be found in United States Department of Agriculture Bulletin No. 813.

Bud variations are of frequent occurrence in some of the trees of the Lisbon variety. Some of the strains which have developed from them are inferior in quality and quantity of fruit and mature the fruits at seasons when there is no great market demand for them. These strains occur as variations in the habit of tree growth, in characteristics of the foliage and blossom, and in the color, shape, texture, juiciness and other characteristics of the fruit.

The object of these investigations has been to determine the behavior of trees of the different strains and of the individual tree variations within the strain, to prevent the propagation of inferior strains, to develop practical methods for eliminating undesirable trees in established orchards, and to isolate and propagate the desirable strains and superior trees within these strains through bud selection based on individual tree performance records and intimate tree knowledge.

The plan of work as followed in these investigations has been to secure individual tree performance records in carefully selected plats of the Lisbon variety. Each tree is picked separately, the fruits assorted, counted, weighed, detailed notes taken, and other data obtained, so that after a series of years definite conclusions concerning strains and individual tree behavior can be drawn.

In these investigations five strains of the Lisbon lemon have been studied, their characteristics described, and the performance records of individual trees recorded.

Some of the lessons taught by these studies include the discovery of the importance of bud variations, the comparative value of the different strains arising from them, the need of eliminating the unprofitable strains and isolating the valuable ones through bud selection, and the origination and introduction of improved methods of propagation for conserving and improving the production of the Lisbon lemon variety. The desirable strains can be isolated by means of careful bud selection based on individual tree performance records and intimate tree knowledge.

Undesirable healthy trees or inherently unproductive ones in established orchards usually can be successfully top worked by using select fruit bearing bud wood from performance record trees.

Undesirable unhealthy trees in old established orchards can be replaced with desirable younger trees which have been propagated from selected fruit wood, provided proper attention is given to the preparation of the planting hole and, later, to care in irrigation and fertilization.

Only fruit bearing bud wood from superior parent trees which have been selected on the basis of their performance records and from intimate tree knowledge should be used for propagation or for top working.

The California Fruit Growers' Exchange, a cooperative organization of 8,000 citrus growers, has established a bud supply department as a result of these investigations. This department furnishes at cost to growers and nurserymen bud wood from superior performance record trees.

SALE OF SCRIP AT SACRAMENTO

Surveyor General W. S. Kingsbury will hold a public auction sale of scrip in the senate chamber at the state capitol, Sacramento, on Tuesday, July 6, 1920, at 10 a. m.

State scrip is the cheapest land scrip on the market today. It can only be purchased by citizens of the United States who are residents of California and can be located on any vacant nonmineral government land in California. State scrip is not transferable. No purchaser can buy more than 640 acres of scrip. It is sold in 40 acre lots for cash, personal checks received, and the surrender of the scrip is payment for an equal acreage of government land. At the last auction sale the prices received averaged approximately $8 per acre.

Homestead and desert land entrymen can relinquish their entries through the suveyor general and acquire title to the land through the purchase of scrip. The applicant need not live on or improve the land.

GRAPE GROWERS FIX PRICES

The California Grape Growers Exchange has adopted the following schedule of prices:

Burger grapes, $50 a ton; other white varieties, $60 a ton.

Zinfandel, Mataro, Burgundy, Mission, Carignane, etc., $65 per ton.

Alicante, Petit Bouschet, Grand Noir, Petit Syrah and other heavy color grapes, $70 per ton.

Alicante and heavy color grapes will be sold for $70 per ton when matured, regardless of sugar content. All other grapes will be sold on a minimum sugar content basis of 20 per cent. If it is less, the price will be reduced at the rate of $1 per ton per degree of sugar deficiency.

CALIFORNIA GRAPE INDUSTRY REPORT TO BE ISSUED

A complete survey of the California grape industry for 1919, with a forecast of crop and conditions for 1920, will be issued during the month, says Director Hecke of the California department of agriculture. This bulletin will constitute the first report to the director of agriculture by R. L. Nougaret, in charge of the office of viticulture of the department, and will cover all phases of the grape industry—production, prices, by-products and marketing. Copies will be sent upon application to Director of Agriculture, Sacramento.

VENTURA'S SIXTH ANNUAL FAIR

The Ventura County Fair Association announces its dates as September 22-25, 1920. L. P. Hathaway, secretary, is mailing out the premium list covering rules and regulations of officers and directors, and general information regarding the fair; also a complete list of the premiums, with prizes offered to grooms of best kept stalls and other prizes. The first paragraph under rules and regulations is "Competition open to exhibitors from all parts of the world."

NURSERYMEN TO REGISTER

All nurserymen or persons who sell or handle nursery stock, trees, or plants for propagation in California are required to register annually with the state department of agriculture The registration fee of one dollar for license for the fiscal year 1920-21 is due July 1, 1920. The liceuse number must be placed on all shipments of nursery stock. Notices to all nurserymen registered during the past year are now being sent out.

Lemon Pruning Demonstration

By Ernest Braunton

FARM Adviser Hodgson and Assistant Adviser Blanchard performed some pruning operations on lemon trees at the Emory ranch near Whittier, Los Angeles County, that constituted a revelation to nearly all the lemon growers present, this being the third pruning given these trees by them. It was nothing more nor less than the long or Whitten method with deciduous trees, applied to lemon trees with but slight modification. Before repairing to the orchard Mr. Hodgson delivered a very instructive and interesting talk from which we culled the following:

"Citrus growers were never so at variance on the subject of pruning as at present. There is no general agreement as to the best method or methods. The range of practice is from vigorous or heavy pruning down to no pruning. We have still a limited knowledge of the requirements of citrus trees, for we have had them with us less than 50 years—not two full generations—and only the last generation has investigated. Deciduous fruits we have cultivated for more than 250 years, yet only of late have we been able to get down to a practical solution of the pruning problem.

With our previous knowledge and experience with deciduous trees we have been applying the practices of our forefathers to an evergreen fruit tree, with varying success. We have been told that summer pruning of the lemon was invigorating because when we cut away heavily the response in new growth was heavy. But this was nature's response to a natural demand—the tree attempted to replace the leaf growth of which we denuded it. Severe pruning is divitalizing because we rob the tree of a "food factory hand" with every leaf we take away during the active season. We should avoid pruning as much as possible.

Citrus Trees Tropical

"The orange tree is native to the tropics. Here conditions are quite different. We live in a country naturally semi-arid, almost a desert. June drop of citrus fruits is largely due to climatic differences. Again, citrus trees are the most unstable in type of any fruit trees we grow. The Washington Navel has broken up into at least a dozen well marked types, many of which have been given commercial names. At the Riverside experiment station there are about 20 distinct variations. So that orchards are of necessity variable in the tree types they contain. They are not like an orchard of Baldwin apples where every tree and the fruits on nearly every tree are remarkably of one type.

"Some citrus trees are variable in much the same way as other plants. The cotton plant, for example, has two types of growth, and oranges and lemons often have both vegetative and fruiting wood. Some have not, or, if present, it is to a varying extent. Therefore all trees cannot be pruned alike and good judgment is necessary to render justice to all trees. Two types of wood and leaves are often present. Leaves on one set do not pay for their 'keep'—they are practically parasitic; the other set has to make up the deficiency, build the tree and produce the crops. Much sucker growth in a tree is devitalizing. One pruner will cut out useless wood, both that too young and that too old, and the tree is greatly benefited. Another will cut out an equal amount of wood and work a positive injury to the tree.

Why We Prune

"Why prune citrus trees at all, is a question asked by many. Some pruning is necessary and for three good reasons: 1. Because otherwise the tree would grow too large and the expense of picking, spraying and fumigating prove too great for commercial success. 2. Trees become too dense and air and light must be admitted to the interior. Locally the Washington Navel grows both large and dense, but at Bakersfield it is dwarfed, very dense and of a black green foliage. 3. If not restricted, undesirable types of non-bearing wood dominate some trees. This must be reduced and bearing wood induced to fill its place. These three reasons are sufficient to justify some pruning.

"Trees grown from fruit buds are small, eccentric in growth, but bear early, regularly, and indefinitely. Over 40 years harvests are known. Trees from sucker buds make large, vigorous trees, come into bearing late, often at eight or nine years of age, but are weak constitutionally, bear 12 or 15 years and then deteriorate in all ways. There is also an intermediate type or types, consisting of both sucker and bearing wood. The former must be cut away and the latter encouraged so that this type of trees may be controlled and 'brought back' to fruitfulness. Avoid severe pruning, heading back or stubbing at all times. Light and careful pruning gives maximum results with a minimum of labor and is productive of early and heavy yield of fruit."

The New Method of Pruning

Farm Adviser Hodgson and Assistant Adviser Blanchard pruning a lemon tree, for the third time, in the Emory orchard at Whittier, staging a "come back" with trees formerly unproductive.

PLANTING CITRUS TREES

On June 8 bare root citrus trees were being planted on the C. C. Chapman ranch, Fullerton. When the holes were dug—and they were large,—the refilling was done by mixing with the soil 20 per cent of what is called "vegetable humus" from the lowlands about San Bernardino. It is claimed to be from decomposed sweet clover, smart weeds, sunflowers, etc., and to contain considerably more than one per cent of nitrogen. It costs about $9 a ton. It is evidently high in humus content. This ranch is now paying $13 a ton for a high grade dairy manure.

NEW BULLETIN

Department Bulletin No. 312, "The Clover and Alfalfa Seed Chalcis Fly," by T. D. Urbahns, has just been issued by the United States department of agriculture. Mr. Urbahns, who is now assistant entomologist with the state department of agriculture, prepared the bulletin while with the bureau of entomology. The investigational work was done in the alfalfa seed districts of California, Arizona and Utah.

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Rattlesnake Oil

Having seen the query in Cultivator as to rattlesnake oil, will say my father lived in Illinois when I was a child. Rattlesnakes were somewhat plentiful in those days. When he was working in the field he always wore old fashioned leather boots and whenever he saw a rattlesnake lying in a position so he could slip up and put his foot on its head and hold it down till he could take out his pocketknife and cut off its head, he would do so, removing it away from the head so as to keep it free from the poison. Then he would cut it open along its stomach; the fat would lie in rolls on each side, which he would take out and render out the same as any other fat or oil. We always had it in the house to use in the family. Never knew him to sell it. If the snake is disturbed it is liable to bite itself, rendering the oil poisonous and unfit for use.

May Be "Little Leaf"

Can you tell me what is the trouble with my peach trees? I enclose a few leaves. The orchard was sprayed last fall with Bordeaux mixture and just as they were coming into bloom this spring, with lime-sulphur. Now the leaves and tips are turning yellow and fruit is falling off. Trees are growing in sandy loam.—Subscriber, Sanger.

There is nothing seriously the matter with the peach leaves as to insects and only a trace of shothole fungus, but not enough to affect tree or fruit crop. The leaves are small, thin and papery and prematurely ripening. Quite probably it is "Little Leaf," or some constitutional trouble. We would judge the trouble to be due to growth conditions last fall. A peach tree which suffers severely for water in the fall when it should be plumping up its buds, filling them with reserve material for the next season's strong growth, is sure to throw poor little starved looking leaves, which fail to function, and the starved tree dies or at least becomes non-productive. Maintain good soil conditions in late summer or early fall. We believe there is no help for such a tree at this time of the year.

Dodder

I have a fine field of young alfalfa that has a yellow vine growing in spots through it. Is this injurious and is there any way of eradicating it without destroying the alfalfa?—Subscriber, Turlock.

This is dodder, or love vine, one of the worse pests of alfalfa, and it will prove to be most persistent. The foothill underbrush is so completely covered in some sections this year that at a distance the hillsides have a deep orange color. From these hills the seed wash into the streams and are carried in the irrigation water into the fields. Fire is about the only remedy. Straw or other light burning material may be thrown on the infested spot in the alfalfa field and then burned, and if the dodder has not been allowed to ripen its seed for a considerable time the one burning may be sufficient. If, however, the ripened seed have been allowed to drop over the soil, spots may reappear, when reburning will be necessary. Some have used a large blow torch, same as used by plumbers, to destroy this pest. This is satisfactory and in the hands of careful workers would destroy less of the alfalfa plants than the larger fire made by burning straw. If the alfalfa is killed reseeding is necessary.

Ivy Mallow

Please name enclosed plant, which threatens to become a pest. Please give me information regarding killing same.—B. S., Dinuba.

This is a low growing ivy-like perennial mallow with a light yellow blossom, the whole of leaves and stems being rough and ashy white. It is a common weed over all the state but seldom a serious pest. There is no way to get rid of it before fall plowing, in fields, except to chop it out with hoe. It appears in stubblefields but is never a pest. On waste land it must be handled as any common weed.

Diseased Rabbit Liver

Would like to know what is the matter with my rabbits. They look and eat well, but when I opened some their livers were covered with white spots, like ulcers. They are fed hay and grain and there is always plenty of water and salt before them. They are kept clean.—Subscriber, Patterson.

We believe a little lighter feed, less of grain and more of green would correct this condition. Townsend's "Practical Rabbit Keeping" says: "With correct feeding and green food, particularly dandelion, rabbits rarely suffer from liver complaints. Should the liver become diseased or chronic inflammation set in, the patient had better be destroyed and thus put out of its misery, as the chances of permanent cure are exceedingly remote."

Broom Corn Seed

What is the value of broom corn seed as a feed?—Subscriber, New Mexico.

Analysis shows broom corn seed to contain of crude protein 8.3 per cent, of carbohydrates 62.9 per cent, of fat 2.6 per cent. This is practically the same as milo, which is slightly lower in feeding value than Indian corn or maize.

Tomato Blight

Our tomato plants were set out on the 20th of March, in a sandy loam soil that had never before been cultivated, and while the vines have grown rapidly, with immense branches and leaves, and are loaded with flowers and buds, the first flowers that came died on the vines with the little fruit almost formed. Can anything be done now to insure a crop of tomatoes on these vines? They have been sprayed several times with Bordeux, and a cupful poured around the roots of each plant when they were about three weeks or a month old, as at that time some of the plants were, and are still, infested with blight, though they are fully as large as the other vines. They have been irrigated about three times since they were planted. Do you know what causes this trouble and how it can be prevented?—Subscriber, Del Mar.

This matter of tomato blight is rather a long question. If these plants are affected with true summer blight and already show the wilt it is almost a hopeless case. If the plants had been blight free and on new ground, as suggested by our inquirer, they should show none of this summer blight. Stanley S. Rogers says in Bulletin 239 of our state university: "No remedy can be recommended for the plants showing wilt. When a field has become affected by wilt diseased plants can be seen scattered here and there, the number increasing generally until a large part of the crop has been ruined. In other fields the disease makes very slow progress, affecting only a few plants throughout the entire season. When a plant becomes diseased its condition has no effect on others. A diseased plant is oftentimes surrounded by perfectly healthy vines, and in many cases large tomato fields contain only one plant which has been affected by wilt. Our experiments have proved that the occurrence or the amount of wilt is not influenced by rotation of crops, character of the soil, amount of soil moisture, preparation of the soil or care of the plants in the seed bed or in the field. There is a close relation between the appearance of this disease and the season of planting. Plants which are set in the fields during early spring are much more liable to become affected than those which are planted after the middle of June. The date of the first appearance of the wilt is dependent to a large extent upon the temperature. It generally begins to appear soon after the first hot weather of the spring. It has been recommended, however, that plants put in the ground after June have greater resistance and are more liable to escape."

The dropping of blossoms is not due to blight so much as to cool season. Besides you may be irrigating too much.

Cockroaches

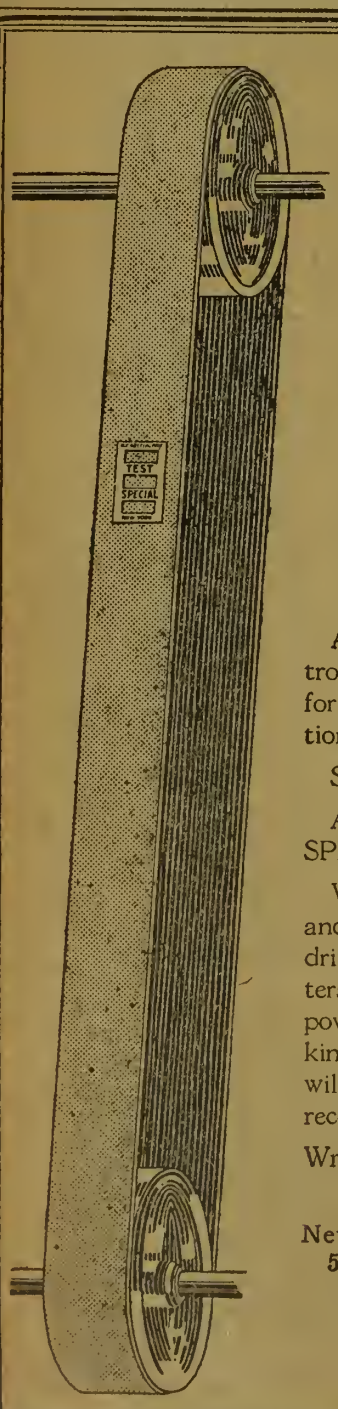
Describe the best method of getting rid of cockroaches. — Subscriber, Bakersfield.

Comstock in his "Manual for the Study of Insects" says: "Thorough and frequent dusting with insect powder in the cracks about the kitchen will rid a house of this pest. After everyone is in bed at night and all is quiet in the kitchen where there are water pipes, often a throng of little creatures come forth from hiding places and, like brownies, take possession of everything. They race around everywhere, trying to find something to eat; they do not care much whether it is raw or cooked, but will devour almost anything that comes in reach of their greedy jaws. They eat book bindings and bedbugs, if they find them, with equal alacrity; and sometimes they get bold enough to appear in broad daylight. The little, pale brown rascal called the Croton bug, which came to us from Europe and infests the vicinity of the pipes, is especially bold and impudent. In fact, in the North our native cockroaches are mostly respectable, well behaved insects, living in fields and forests under sticks and stones, the emigrant cockroaches being the offenders. Many cockroaches are wingless. The eggs of a cockroach are laid, all at once, enclosed in a sort of pod which is more or less bean shaped."

Whitewash

How can I make whitewash which will stick to a building and not scale off?—Subscriber, Oxnard.

Ordinary whitewash to which has been added a strong salt solution makes fine wash for fences or old outbuildings. Another formula said to be exceptionally fine is: For a



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tub of whitewash secure a half dozen cactus leaves, cut or chop into bits or thin slices, cover with water and allow to stand for a few days. Use this cactus solution to dilute the milk of lime after it has been slaked. The addition of, say, five or ten pounds of salt dissolved also aids in hardening whitewash. Another is: Slake fresh quicklime in water and thin it to a paste or paint with skim milk. The addition of two or three handfuls of salt to a pail of the wash is beneficial.

Ants in Strawberry Patch

Would you please let me know through your columns what a person can do to kill ants that are destroying strawberry plants and dahlia tubers. The ants eat the roots of the plants and I am worried for fear they will kill all of them. They are the small ant.—Subscriber, Ceres.

Presumably this is the Argentine ant. In any case the method of controlling the Argentine, which has been given several times in former Cultivators, will be surest of securing effective results. First, find the hole or the headquarters of the colony, pour in a liberal supply of gasoline or carbon bisulphide, then make the poison syrup as follows: 12 pounds granulated sugar, 7 pints water, ¼ ounce tartaric acid (crystallized). Boil 30 minutes. Allow to cool. Add water equal to that evaporated. Three-quarters ounce sodium arsenate (chemically pure only), dissolved in one pint hot water. Add poison solution to syrup and stir well. Add to the poisoned syrup 2 pounds honey. Mix thoroughly. This may be put in any container such as small tin can with sponge or cloth saturated so as to permit ants to travel over and secure their fill. In a very few days less of the colony will be observable or perhaps the ants will have disappeared entirely.

Old People's Home

Is there an undenominational home for old people in Southern California? If so, where and what are the requirements to enter: what age; amount of money required? Can the helpless or partially helpless obtain a home there? Who has charge of these homes?—A Reader, Rockwood.

The names of two of these homes are Hollenbeck Home in Los Angeles and Frederika Home at Chula Vista near San Diego. We do not know as to the one at Chula Vista, but one may write to the home there and secure information as to possibilities of entrance. The Hollenbeck Home in Los Angeles now has a waiting list which will require one to two years to exhaust. Its requirements are that the person making application for entrance shall have lived in Southern California three years prior to the application, shall be between ages of 65 and 80, shall make payment of $300 with the application, be able to furnish own room and supply own clothing. Any other funds the applicant may have are to be deposited with the management of the home, the entire income, however, to be available to the inmate but the property to revert to the home at death. Other homes are Pacific Old People's Home, 1055 North Kingsley Drive, Hollywood; Old Folks Home (colored), Watts, Los Angeles County. There is a home for aged members of the Masons at Alhambra. The Odd Fellows have a home in the northern part of the state, as doubtless do other fraternal organizations.

Communities of the Pomona Valley are cooperating in a plan for protection of forest reserves from fire.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Distribution of Furniture

An estate consists of furniture of house and wearing apparel. There are four daughters, heirs of the estate. The administrator arbitrarily makes a division of the property, to which one of the daughters objects. What shall she do to enforce her objection, and had the appraisers the right to place a valuation upon the property?—Subscriber, Imperial.

It is the appraisers' duty to appraise all of the property of the estate. The administrator did, probably, what the ordinary person would do, but his action is not final until by virtue of the final decree of distribution the court confirms the distribution made. In order to obtain this final decree the administrator must make a report to the court and petition for the distribution. At the time of the hearing of this petition the heir who is not satisfied with the division could object and have a proper division made.

Community Property

Husband and wife own community real property. The deeds are made to them as husband and wife. Can deeds be changed so that the property will vest in the survivor without the necessity of administration of the estate of the one dying first?—Subscriber, Arroyo Grande.

It would be necessary to deed the property to some third party and have that third party deed it back to the husband and wife, and the deeds should read to the husband and wife or to the survivor thereof in joint tenancy.

Fencing Right of Way

A sells to B a parcel of land a quarter of a mile from the highway and deeds a strip of land 15 feet wide as a right of way for road purposes. Recently A has acquired a strip of land along this right of way and now declares his intention to fence in the right of way and install gates. Has he the right to do that?—Subscriber, Indio.

The land being deeded for a right of way, B has an absolute right to go over that land and to have that right of way in the same manner that it was when deeded, and the seller of the land has no right to in anywise change the right of way which he granted. B would have the right to tear down the fences and the gates, just as he would if they were placed on his own land.

Right to Water

A sold a parcel of land to B and thereafter for three years has sold to him water to irrigate that land, although no written contract exists. Can A refuse to furnish further water and thus cause B to lose a crop of fruit and incur great damage to his trees? A also occasionally furnishes water to another party.—Subscriber, Indio.

It would appear that A has made himself a public utility amenable to the rule of utilities, and it is also possible that by the purchase of land with water as it was, the land of the vendor might be impressed with an easement in favor of the land of the vendee to receive that water, but sufficient facts are not stated so that a positive opinion could be given.

Separate Maintenance

Husband and wife are full partners in real property and stock. The deeds are made to both and the property was acquired through their joint efforts as well as through money inherited by the wife. Can either one trade or sell the stock without consulting the other? If wife should leave husband what would she be allowed for separate maintenance and what action should she take?—Subscriber, Maywood.

In the case of a general partnership each partner is the agent for the partnership in the transaction of its business and has the right to do whatever is necessary to carry on such business in the ordinary manner; thus, considered from the standpoint of partnership, either one would be entitled to sell property. A husband has the management and control of the community personal property with absolute power of disposition except that he cannot make a gift of it or dispose of it without valuable consideration. He does not need the consent of the wife to dispose of the community personal property. If the wife desired to apply for separate maintenance it would be necessary for her to file an action in the superior court, setting up the particular facts showing why it is impossible for them to live together and sufficient to legally constitute a cause of action for cruelty or other cause. The matter would then come up before the court, which would determine from the facts and from property of the parties whether or not she was entitled to separate maintenance, and if so, how much. No definite amount could be stated as that is entirely in discretion of the court.

By a recent ruling of the secretary of the department of the interior, land owners in the Paradise Valley, which is north of the Salt River Valley, Arizona, will be permitted to build irrigation dams on the Verde River. Under terms of this ruling the land owners will finance the project which later will be consolidated with the Salt River Valley project and all operated under one joint management. This proposition is to be put up to the land owners of both districts for final decision.

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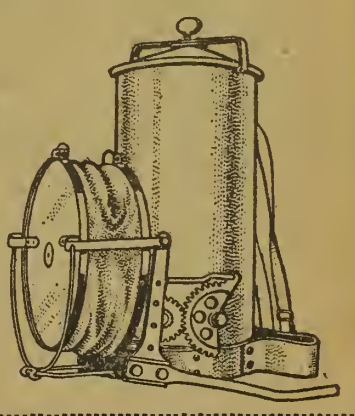

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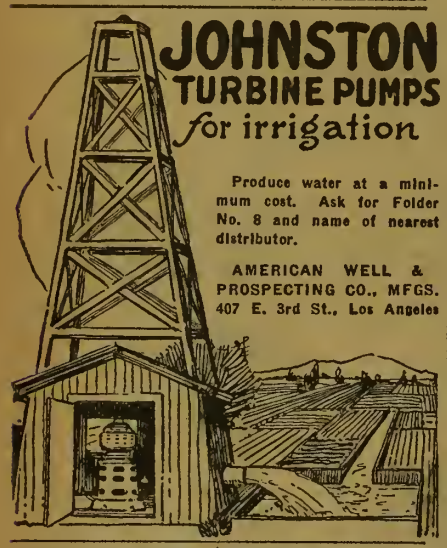

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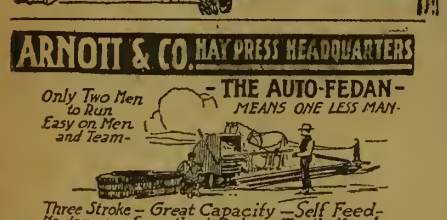

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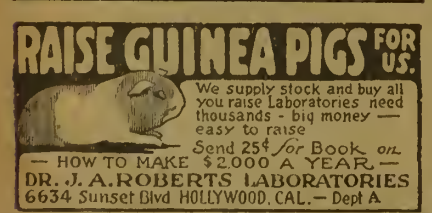

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Varying Orchard Practices

By Ernest Braunton

THE writer recently spent several hours in the orchards of C. C. Chapman at Fullerton, tramping over the ground with the owner and his superintendent, Lloyd Hulburt. As we stood in the midst of the large trees that have made the names of Chapman and "Old Mission Brand" famous throughout the orange world, Mr. Chapman said:

"These Valencias are 26 years old and used to be prodigious producers, but of late years the yield has gradually become lighter. So we have been doing some heavy pruning, both in beheading and in thinning. Now look at the heavy crop that has set. It looks like old times—the trees have 'come back.'" And so they have, for every tree in every part is loaded with tiny oranges from the size of peas to marbles, and the "set" is splendidly distributed.

Blow Out the Stumps and Rocks
Placing cartridge of dynamite in bore hole preparatory to blasing stump.

The Rejuvenated Trees

Some of the trees had been both tall and thick of top, so that the interior was bare of foliage and fruit, dark and gloomy, with but an outer cloak of active leaves amid which hung the annually diminishing fruit crop. Some of the oranges were so high that picking was difficult and expensive. The taller limbs were cut down a few feet to a side leader hanging outward, the interior was cleared of any large branches filling the center, and often these were three or more inches through. The trees are now so thin one may look through the crown and see ripe oranges on the opposite side, and much fruit is hanging on the inside, for the first time in many years.

All this improvement in crop production is due to judicious pruning, for the trees have been well fed every year. About the first of December each tree was given 20 pounds of a complete fertilizer running about four per cent nitrogen, eight to ten per cent phosphorus and two per cent potash. This was applied by hand, from pails or buckets, underneath the tree, not in the outer field. The zone treated extended from within a foot and a half from the trunk to a foot beyond the drip. This made a ring about five feet wide. It was scattered on top of the soil and lightly scratched in by toothed "hand hooks" and left for the rains to carry down.

Two More "Meals"

Later a single furrow ten inches deep was made down the rows, one way only, and into this a high grade dairy manure was placed, about eight cubic feet to a tree, a manure running about a half of one per cent in potash, one per cent of phosphorus and one and a half per cent of nitrogen. This was covered with a furrow turning the soil back in its original place. These trees are very large; for small trees it is advised to run a furrow on each side of the row, about two feet outside the drip. Next year the furrows will be run across the other way and the same treatment given.

For the "supper" or third meal of the season, an unusual feed was provided, a pet scheme of Mr. Hulburt's. Inside the drip of the tree and about four feet away from the trunk four trenches were dug at the four corners. Each was a foot deep, a foot wide, and three feet long. In these four trenches about six cubic feet of stable manure was placed, tramped down and covered over. Mr. Hulburt argues that being under the tree the manure cannot be cultivated out of the soil, exposed to the sun and burned up, and that the soil temperature under the tree is about right for most favorable bacterial action. This feeding is in the nature of an experiment and the results will be noted for two years as against the yield of trees not so treated. This makes more than two dollars worth of food given each tree a year, about equally divided between dairy manure and commercial fertilizer.

Other Orchards

The Valencia grove is but one of several orchards Mr. Chapman has. This one is on a free sandy loam; others are on soil so heavy that large quantities of Riverside "potash lime" are being applied to improve the physical condition of the soil. A one year Valencia orchard of 25 acres is second to none seen by the writer and a four year lemon grove contains the largest trees of that age observed anywhere.

In spite of these fine orchards Mr. Chapman has the greatest range of conditions to be found in the state, a veritable citrus museum. Some orchards look like horticultural hospitals, except none of the patients are improving, and trees may be found from the vigor of perfect health to the last "agonizing throes of complete dissolution." For Mr. Chapman kills many trees by overfeeding. His practice has been to feed to the uttermost until the trees, suffering from indigestion, dyspepsia and other ills that trees are heir to, can no longer produce a commercially profitable crop. Then it is: "Yank 'em out" and replant. Whether or not this is the best system many growers doubt, but Mr. Chapman is noted for the money he has made from growing oranges, so we leave it with the orange producing reader to pronounce judgment on the Chapman methods of forcing production.

Book Review

PRODUCTIVE SOILS

"Productive Soils: The Fundamentals of Successful Soil Management and Profitable Crop Production," by Wilbert Walter Weir, M. S. Published by J. B. Lippincott Company. Philadelphia.

"The chief concern of the human race is its physical needs. Its greatest needs—food and clothing—depend entirely upon the soil which is intimately associated with life. Myriads of plants and animals have lived upon the earth for ages and ages because soil exists. Every nation is deeply interested in the soil and its crops. Shall we grow more wheat to meet the demands of our increasing population, or shall we import it? Shall we meet the demand for more cotton or shall it be grown elsewhere? Are our working people to have meat on their tables in the years to come, or will the price of meat be beyond their means? These questions can be answered only by the soil."

The above statements and questions open a discussion of soil problems, and the following few paragraphs lead up to the fuller discussion of soil and its origin: Soils from a Chemical Point of View, Soil and Plant Relations, Crop Production, Factors Determining Soil Fertility, Crop Production Affected by Systems of Cropping, Application of Principles to Management of Special Soils, Principles of Soil Fertility Applied to the Farm as a Whole and Other Points on Soil Management. There are 24 chapters covering nearly 400 pages, interspersed with maps, figures, half tones and line engravings. It is a book designed primarily to meet a growing demand for definite, practical and complete information concerning soils and profitable crop production "This, therefore, is a book of fundamentals and hence applicable to a wide range of country. The basic facts concerning soils and the fundamental principles of successful soil management are essentially the same everywhere, but the methods of application must necessarily vary because of different climatic conditions." The book is one of the Lippincott Farm Manuals of which they have now published an even dozen. It is a valuable series and this particular number is of value to orchardist, general farmer or even livestock breeder

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SOUTH AFRICAN FAIR

After a lapse of three years on account of the war the Port Elizabeth Agricultural Society has this year revived its annual agricultural show. The livestock entered, while small in numbers, was excellent in quality, especially in the cattle division. Shorthorns, Frieslands and Afrikanders were particularly worth seeing. Grains, seeds and vegetables of the highest quality were displayed, and the exhibit of apples was a revelation to those who consider South Africa a poor apple country. Dried fruits of first class quality were also shown. Wool, mohair and ostrich feather exhibits were not strong in numbers, but were excellent in quality.

60,000 CRATES PER DAY NEEDED

Tap-tap! Tap-tap! is what a fellow hears for nearly a mile up and down the Southern Pacific road in Brawley nowadays. It comes regularly and is emphatic. First a sharp blow to send the nail in, then the lighter blow to send it home, and in a twinkling the cantaloupe crate is made, whether it be for a crate of flats, a crate of ponies or a crate of Imperial Valley's proudest, a standard with 45 prime "cants" snuggled away and ready for the Waldorf Astoria in New York, the Blackstone or Congress in Chicago, or the famous hostelries up and down the Pacific Coast.

These crate makers don't hesitate over their work. They can't and get away with a living. Some of them go high up into the hundreds, but to tell what any one crate maker can turn out in a day would at once start several hundred arguments in Brawley. As a matter of fact, 500 daily is the average. That is on a ten hour basis and means that 25 crates are made every 30 minutes—almost one a minute.

F. W. Williams, one of the makers at F. H. Speich & Company's sheds, talked right along to a News representative and did his tap-tap, tap-tap just the same. He had the touch system a la typewriter expert. He could hit those nails and never hit his thumb a single time, and yet look at the man he was talking to; and what is more in the way of phenomena—he could talk, too. He modestly says there are lots of the boys here faster than he is, but that 500 a day makes a fellow tired and ready for the hay after evening chuck time.

At the present rate of shipping it takes about 60,000 crates a day to handle the cantaloupe crop of the valley. That many are not being made each day because there was an accumulated surplus at the beginning of the season and it is being used along with the daily output.—Brawley News.

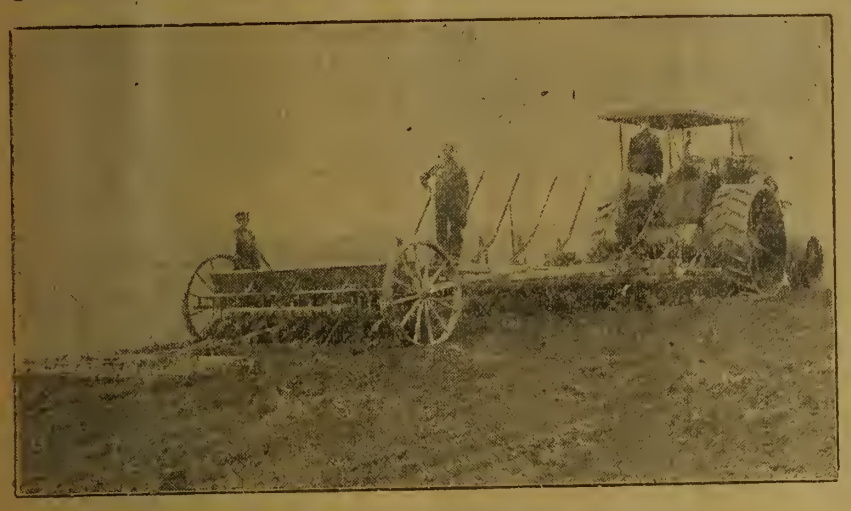
LEARNING BY DOING

(Continued from Cover Page.)

Ventura, Los Angeles, San Bernardino, Orange and Riverside Counties, where a couple of days was given to the study of intensive cultural methods followed in the desert section.

Dr. Coit accompanied the class for only a short portion of the trip. Assistant Professor J. C. Johnston, with Mrs. Johnston as chaperon, accompanied the party throughout the entire six weeks of the trip. Four of the students were ladies.

The practical lessons of the trip were not only in observing the methods followed by practical and successful orchardists, but in doing, under the supervision of the experts, actual field work. The illustrations on cover page show members of the class sticking buds of Washington Navel trees on the young seedlings in the nurseries of the R. M. Teague Company, San Dimas. They were instructed as to details of this work by W. T. Preston, a budder of years of experience, and in the handling of tropical fruit trees, avocados, cherimoyas, and a dozen others, by G. E. Grow.



Preparing Seed Bed and Drilling at Same Operation

This is the first of these practical field studies since the beginning of the war. Prior to the war there were a half dozen classes shown over the same sections, but not so extensively, this year's trip covering over 2,000 miles.

The best part of the trip, so far as Cultivator readers at least are concerned, is that which will be given in the columns of the California Cultivator some two or three weeks later. Each member of the class has been asked to contribute a short article answering this question: "What is the one biggest lesson which you have learned from the entire trip?"

CALIFORNIA OAK WORM

The California oak worm at times ravages trees from Sonoma County to Southern California, and the following valuable facts and advice as to its handling are offered in Farmers Bulletin 1076, by H. E. Burke and F. B. Herbert, forest specialists.

"The live oak and the valley oak, which are characteristic of the landscapes of California, often are stripped of their leaves by a dark striped worm which is the young stage of a light brown moth. Besides stripping the trees of their leaves and making the owner think that they are dead, the worm crawls on lawns, walks, fences and into houses, swimming pools, etc., becoming a general nuisance.

"Two generations of the pest occur during the year. The worms are most noticeable during April and May and again in August and September; the moths, during June and July and again in October and November. The best method of control is to spray the worm infested trees with a mixture of 3 to 5 pounds of arsenate of lead paste or 1½ to 2½ pounds of the dry powder dissolved in 50 gallons of water. This should be done while the worms are small. The live oaks should be sprayed in April and again, if necessary, about the first of August, when the deciduous oaks are sprayed."

UTILIZING GRAPE SEEDS

A prominent chemist discusses, on the basis of data obtained from various waste producing stations in the tomato pulping and grape juice industries, the possibilities of the commercial utilization of the canning house waste. The commercialization of such waste is thought to be profitable only by assembling the waste from readily accessible localities at some center and there extracting the oil. A greater profit is considered possible if the seeds are first separated from the other waste and then shipped to the central plant, and if the Cobwell system of grease recovery from garbage is used for the extraction of the oil.

CITRUS CROPS IN GREECE

The United States consul at Patras reports the 1919 citrus crop of western Greece at less than half of normal, based on the average for the past ten years. This reduction emphasizes the ravages of the Mediterranean fruit fly, Ceratitis capitata. Citrons and quinces suffered from it less than any and all classes of oranges. The lemon crop for western Greece is about two-thirds of normal and the falling off is ascribed largely to the extensive ravages of the red scale, Chrysomphalus minor.

ROOT TUBERCLES

When the farmer finds tubercles on roots of plants it is generally conceded that they are nitrogen nodules on leguminous plants and nematode galls on other plants. Exceptions to these are fungus galls on some fruit trees. These latter are not uncommon on ornamentals. They are found on roots of alder, mountain lilacs, eleagnus, wax myrtle and other trees and shrubs. O. F. Cook also found nodules on the roots of a palm native to Southern Florida, seemingly not the product of any disease, the uses of which have not yet been clearly determined.

FORESTRY NURSERY

The California state civil service commission held its final examination for forestry nurseryman on May 29, and it is expected an appointment will soon be made. Following this a nursery will be established for the growing of young stock for reforestation work. The examination call states: "The duties of the position include the supervision of the construction and operation of a nursery with a capacity to supply a producing area of 25 acres."

GLORIOUS GLADIOLUS

Last week we saw some gladiolus that would strongly appeal to anyone who deigns to cast even a casual glance toward the floral tribe. There were thousands of them, bred up to a high standard through careful hand pollination over a series of years. The stalks were four to five feet high, heavy and vigorous, the leaves long, broad and of dark color. The flowers were nearly every hue but pure blue, ranging from white to crimson, to purple and yellow. They were of large size and in some instances bore 11 full blown flowers or florets before signs of decadence in the first blown. This is a grand uplift in a popular garden flower and well illustrates the triumph of the skilled and scientific plant breeder.

A Concrete Mixer At Every Man's Price

We consider ourselves very fortunate in securing the exclusive agency in this part of the country for the Sheldon Concrete Mixer. It fills an old need of the contractor and farmer; that of a reliable low-priced mixer that will give perfect results the year around.

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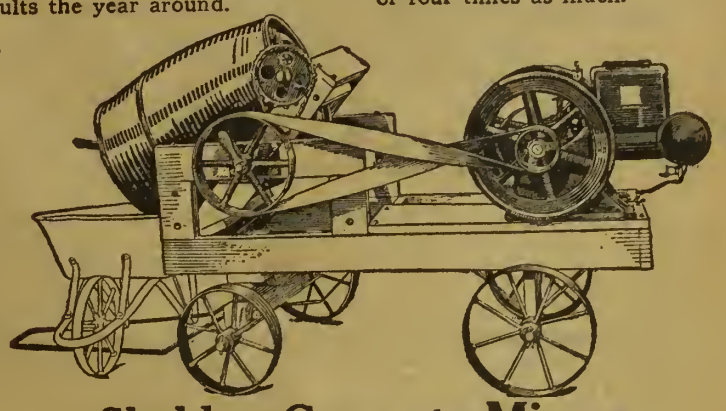

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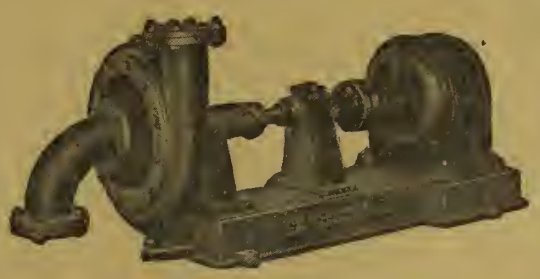

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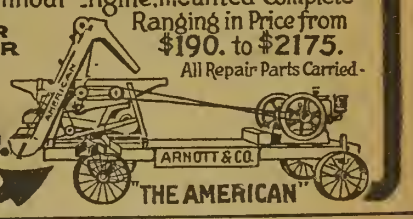

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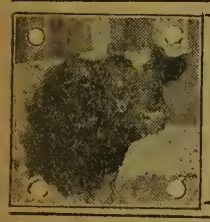

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The City Movement

By A. L. Spellmeyer

THERE is a menace in the movement towards the city—a national danger and possible calamity. The cities are bragging of their population increase as if it were a sign of prosperity, but it's a danger signal to warn us. The very value of the city lot depends finally upon the prosperity and production of the farmer and the stockman.

The city has its duty and is neglecting it. The city is the market place and manufacturing point for products and should attend to that end of the economic problem. The city is the money center to supply the lifeblood of finance for production and the encouragement of producers.

You hear that this city is great on account of the rich country back of it, that another city won't amount to anything because it hasn't any back country; but, blind and ignorant and selfish, the cities today withdraw money from production, increase complicated handling expense of food, provide manipulated markets, and ahead of them is the famine which has followed war throughout the generations—unless they change their conduct.

The claim I have repeatedly put out that cattle shortage is menacing the country is being partially realized already, and we hear from Chicago the prophecy that 20 cent beef will be the November price, made right now when a man can't sell steers for half that price in Los Angeles. We hear that the calf crop is 22 per cent short and that cattle declined last year. If the national calf crop is short 22 per cent it means a fifth less yearlings next year and a fifth less big steers the following year. We hear that slaughter has increased nine per cent at the same time. Just as surely as the sun rises there is an inevitable cattle shortage which will affect grain, soil and farmers, affect a thousand branches of manufacture and pile a big loss upon the nation, which consumers must liquidate. Whether or not this will do us cattle producers any good in many instances at this time, when we are short of feed and money and are being forced to a sacrifice market, remains to be seen. A lot of us will go under before the turn comes, probably, and that will merely be our little contribution to final shortage.

We are told that about ten per cent of people formerly were engaged in general food production and that in two years four per cent of them quit I don't vouch for the figures. We are warned to produce more, but the warning is idle words without any backing to help.

The city has its duty, and if the city is to prosper it must provide markets and money. Today meat is at its highest point to consumers and, considering production costs, lowest point to producers. It would seem that it's the city's duty to provide a shorter road between producer and consumer. Cattlemen are losing $20 to $60 per head on steers today. The consumer is paying $200 to $300 for the same steer the producer gets $96 for. The producer is losing money; the others making more than ever before.

Never was there such a logical time for establishing municipal abattoirs or small independent slaughter houses, providing large municipal cash meat markets are established. Meat should be a third to a half less to the consumer and more to the producer if the complicated controlled and wasteful marketing road was straightened out. The city is calling loans and the producer sacrificing his very principal in breeding stock to meet them.

Who is to blame for this city movement? How can you expect a man to sweat, worry and labor with bad markets, drouths and blights, for an uncertain paltry return, and probable loss, when he can go to the city, live comfortably and earn $5 to $10 a day? If he could do better in the country we would see a great back to the soil movement.

The remedy is to make production profitable. Make production profitable if you have to tear down the total oligarchy of devious marketing control. or there won't be food production to permit it. Food production is the big question now. A full stomach dislikes a quarrel. Make production profitable and you will have the production and start right in with giving the cattle producer at least a price to break even. In common justice he needs it.

If you doubt the trend, look up the facts yourself. You can get them from a dozen books the government prints, and, Mr. City, quit bragging about your population and get down to work yourself, providing money and a market for production on fair margins, or you are going to face hunger and hard times, depleted values, and no occupation for millions who won't have the raw products to work with.

The Best Age to Breed Gilts

As the animal grows and the various organs increase in size the several functions of the body become more clearly differentiated. As a certain stage in this process of development and growth the domestic animal arrives at the period of puberty, which marks the beginning of the time when the young animal is capable of producing young. In practice animals are seldom used for breeding purposes at the beginning of the period of puberty, says F. B. Mumford, dean of the college of agriculture, University of Missouri.

Very young animals are not bred, even though capable of producing young, because the breeders of livestock know that under certain conditions bad results are almost sure to follow. Breeders quite generally believe that the practice of mating very young females results in checking the growth of the mother, and in some cases the effect may be so marked as to permanently reduce the size of the mature animal. It is also believed by some breeders that the offspring of very young parents are less thrifty, smaller and in general less valuable for breeding purposes than the offspring of more mature parents. But the most serious result claimed has been that the continued breeding of very young parents will untimately result in decreasing the size of the breed. This result could not follow unless the hereditary qualities of the breeding animals themselves are influenced by this practice. It must be admitted that if any of these results do follow the mating of immature animals the question becomes immediately a matter of great practical importance.

At the Missouri experiment station for six years an experiment was conducted for the purpose of determining the results of breeding very young females for several generations. To determine just what temporary or permanent effects, if any, follow this practice, the experiment station has bred one group of sows and their offspring at the first appearance of heat. and this practice has been continued through many generations. Another group of sows have been bred first when half matured and still another group at full maturity.

The most significant effect that can be measured is the dwarfing effect which early pregnancy and lactation has upon the mother herself. The young sow that is bred to farrow at eight or nine months of age stops growing for a time. If she is well fed, and bred only once a year thereafter, she may practically recover from the dwarfing effects of early gestation. If the sow is not generously fed, or if she is bred twice a year, even with the best of feeding, she is permanently affected and will be smaller at maturity than other sows bred at an age when the body is better developed. This result on the mother is not a serious matter if she is well fed throughout her life.

It is a popular opinion that gestation is a serious drain on the physiological system of the pregnant mother. It has been generally taught that a sow in pig must not only maintain her

bodily functions and provide for normal growth, but must furnish the nutritive material essential for the development of the unborn young in the uterus.

The investigations at the Missouri station indicate that pregnancy is not an exhaustive period. The young pregnant mother will grow normally without great additional increase in the food supply. Indeed, there is a suggestion in the results so far obtained that pregnancy may actually increase the nutritive efficiency of the mother during gestation to such an extent that growth actually proceeds more rapidly.

How does it happen, then, that breeding immature animals results in checking the growth and decreasing the mature size of the mother? The exhaustive factor is lactation. In all of the cases studied it was found that while the growth of the immature mother proceeded without interruption during pregnancy, after the birth of the pigs and all during the period of lactation the growth was apparently stopped. No apparent growth takes place while the mother is suckling young. After weaning the pigs the immature mother begins to grow. During this period she may even grow more rapidly than other sows of the same age which have not passed through the periods of pregnancy and lactation. We must conclude, therefore, that the great cause of the dwarfing of the young mother is the strain of lactation and not of pregnancy.

The offspring of very young or immature mothers show every evidence that they are as thrifty and as valuable for every purpose of practical animal husbandry as the offspring of the more mature mothers. It must be remembered, however, that the immature mother is not able to supply as much milk for the nourishment of a litter, and consequently special care must be exercised in providing an abundant supply of nutritious food, otherwise the offspring of the immature mother will be smaller and weaker. This result, however, if it occurs, is due solely to a deficiency in the food supply and not to any hereditary effect.

It must also be said that no evidence of any sort has been obtained which would indicate that the long continued practice of breeding immature females will result in decreasing the size of the breed. The capacity to develop a certain size at maturity is hereditary. The breeding of young females does not affect the fundamental constitution of the germ plasm in which are to be found the inherited qualities that determine the final character of the breed.

What, then, is the best age to begin breeding young sows? The answer must be that this will be determined by the purpose of the breeder, but primarily by the development of the young sow. A well fed sow that shows good development may be safely bred younger than sows kept under ordinary farm conditions. It is certain that sows bred to farrow when one year old will be checked in growth, but this is not necessarily a permanent effect.

It is clearly shown also that young sows and their litters must be more generously fed than older sows, otherwise the sow may not reach the normal size of the breed at maturity. Breeders of registered hogs whose object is to produce the highest developed and most perfect types of their particular breed at every stage will find it better to delay breeding to a somewhat later time and thus avoid the check to development which is sure to follow lactation.

From an economic point of view the sows which are mated young are generally more profitable than those which are allowed to remain open too long. The exercise of the breeding functions at a younger age is also generally favorable in developing in the young female all those physiological qualities which we include under the term "the breeding powers of the animal." Probably the best general rule for commercial hog raisers is to breed young sows at about eight months of age.

Calves Make Biggest Gain on Heavy Skimmilk Ration

How much skimmilk should be fed to calves daily?

Results obtained thus far at the dairy division experiment farm Beltsville, Maryland, indicate that calves will make the greatest gains in weight when fed comparatively large quantities of skimmilk daily (one-fifth of their body weight, or all they will drink), but that the most economical gains are made on smaller quantities.

In an experiment to determine the effect of feeding various quantities of skimmilk, 16 calves were divided into groups of four calves each. These groups were balanced as nearly as possible with reference to breed and body weight at birth. One group was given a daily ration of one-seventh of the body weight, the quantity being regulated by body weights taken every ten days. Two other groups were fed at the rate of one-sixth and one-fifth of their body weights; and the fourth group was given all the milk the calves would drink, twice a day.

Each calf received its mother's milk until it was ten days old. The change to skimmilk was then made gradually, and at the age of 15 days the calf was on an entire skimmilk ration. The experiment ran for 70 days. Weights obtained for three consecutive days, at the end of the 70 day period, were taken as the final weights. The average results from each group are given in tabular form:

Rate of feeding	Daily gain...	Milk per day.	Milk per lb. gain.....
	Lbs.	Lbs.	Lbs.
Group 1 (one-seventh of body weight)	0.95	13.52	14.4
Group 2 (one sixth of body weight)	1.09	16.99	15.6
Group 3 (one-fifth of body weight)	1.26	20.96	17.0
Group 4 (all they would drink)	1.48	24.22	16.6

The groups were well balanced as regards weight and thrift of the calves.

The gains increased with the quantity of skimmilk fed, the calves which received all they would drink making gains at least 50 per cent larger than those receiving milk at the rate of one-seventh of their body weight. To do this they drank about 80 per cent more milk. As a consequence the skimmilk required for one pound of gain was greater with the heavily fed calves.

No bad results from heavy feeding were noticed, although all of the calves in the group, fed all they could drink, with one exception drank at times more than 40 pounds of skimmilk a day. This leads us to believe that overfeeding is not in itself a common cause of scours.

JERSEY CLUB CHARGES TRANSFER FEES

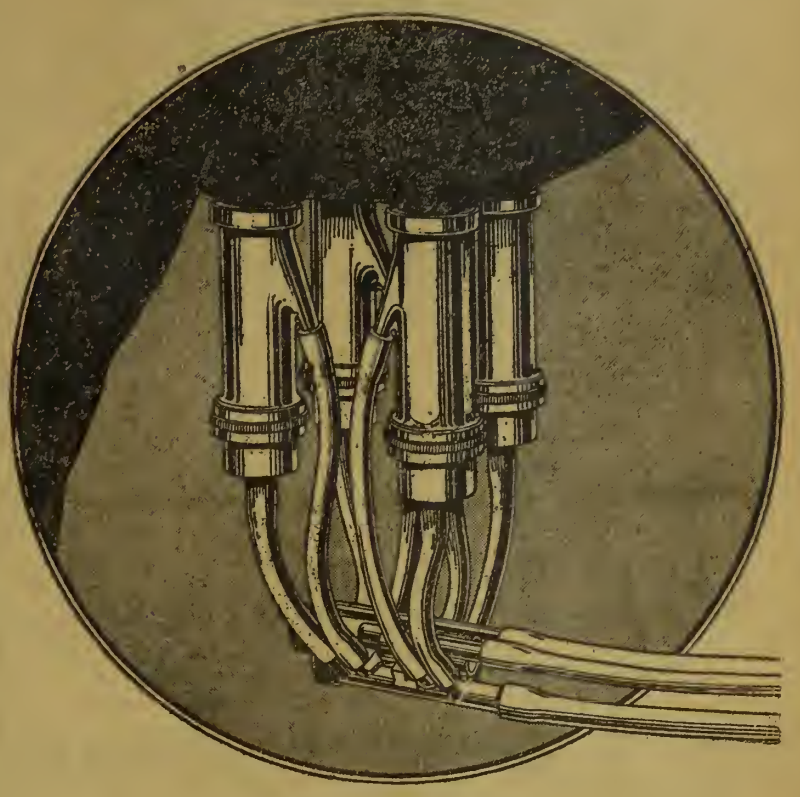
The American Jersey Cattle Club announces that on and after July 1, 1920, transfers will be charged as follows:

All transfers under 90 days from date of delivery and all transfers of animals under two years of age accompanying application for their registry: To members or non-members, $1 each. All transfers presented after 90 days from date of delivery: To members or non-members, $2 each.

The California Dairy Council has just issued a 24 page booklet, "The Food Values of Dairy Products," that is a most complete treatise on the subject. It is the intention of the California Dairy Council to place these booklets in the hands of every teacher of home economics and physical education in the schools of California, as well as many doctors and leaders in welfare and child hygiene work. Such publicity will result in stimulating a wider and more stable market for all dairy products.

Thirty-five cars of whiteface steers were recently shipped from the Horseshoe Ranch near Prescott and 15 cars from the Charles T. Mullen ranch, Skull Valley. These all go to big feeders of Denver, Colorado.

The De Laval Milker



De Laval Udder Pulsator--the Only Pulsator Close to Udder

Among the many new and exclusive advantages in the construction of the De Laval Milker, particular attention is called to the Udder Pulsator and the teat-cups.

The Udder Pulsator is located within a few inches of the cow's udder, which insures positive and snappy action in the teat-cups. The action is uniform, gentle and pleasing to the cow. The only moving part in the pulsator is a small, plain piston which requires no oiling, adjusting or repairing.

The weight of the teat cups and Udder Pulsator has been carefully and scientifically worked out to produce the best and most satisfactory results. The De Laval teat-cups are self-adjusting and made in one size only, which fits all teats.

The construction is so simple that they can be easily taken apart, cleaned and put together. No metal touches the teats, and the only rubber part is the liner, a straight piece of pure rubber tubing. Every other part of the De Laval Milker is equally simple, practical and efficient.

The name "De Laval" is insurance of satisfaction.

Write to nearest De Laval Office for Milker Catalog, mentioning number of cows milked

De Laval Dairy Supply Co.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

61 Beale Street San Francisco, Cal.

GREAT SENSATION 3rd

The Highest Priced Boar of Any Breed Ever Sold by a Western Breeder

Walter Dupee, premier Guernsey breeder of the world, bought Great Sensation 3rd from us for **$8000**

Great Sensation 3rd

A Few Outside Sows

Winsor Ranch will breed a few outside sows to him during the next 30 days at a moderate fee.

Two Coast Records

Winsor Ranch has sold the highest priced sow ($2,000) and the highest priced boar ($8,000) ever sold by a western breeder.

WINSOR RANCH, BONITA, CAL.

Winsor Ranch

— Duroc-Jersey —

Bred Sow Sale

— At Los Angeles — July 28 —

The Greatest Bred Sow Sale Ever Held in the West

Write For Catalog

Sows by the world's foremost sires, including Great Orion Sensation, Orion Sensation and Pathfinder, bred to the two best sires on the coast, WINSORS GIANT ORION, the largest O. C. K. boar in the world and Great Sensation 3rd, the record boar of the Pacific Coast.

Winsor Ranch

Morris C. Allen Address BONITA, CAL. R. K. Walke

GREAT SENSATION 3rd

The Record Duroc of the West

Great Sensation 3rd

He cost $8,000. The highest price ever paid for a Western boar of any breed.

I bought him because he has proven himself a sire of the correct type of Big Durocs.

See The Pigs on Edgemoore Farms Sired by Great Sensation 3rd

EDGEMOORE FARMS

Walter Dupee Santee, Cal.

THE VICTORY HERD—Holsteins and Duroc-Jerseys

Holsteins of known value, headed by Sir Plebe De Kol Segis Pontiac, a son of King Segis Pontiac Count, acknowledged one of the breed's greatest sires. A young bull from this herd is bound to prove a profitable investment.

HILLCREST FARM, H. E. Spires, Mgr., Caruthers, Cal.

Duroc-Jersey Swine of Highest Quality

When Writing Advertisers Mention California Cultivator

California State Dairy Cow Competition

Announcement has been made of a competition that will be of direct interest to all dairy farmers and breeders of dairy cattle in the state. The college of agriculture of the University of California will conduct the competition as a part of its educational work for the advancement of the dairying industry of the state. It has been rendered possible by the generous assistance of interested parties, who have contributed large amounts of money for a cash prize fund, or will give registered dairy bull calves and silver trophies to be awarded as special prizes.

Competition open to all cows in the state, irrespective of their breeding. There are four competing classes: pure bred Jerseys and Guernseys, pure bred Holsteins, pure bred Ayrshires and Dairy Shorthorns, and grade or common milk cows. Grade and common cows of mixed breeding will therefore not compete with pure breds, but only among themselves.

Prizes will be awarded for records of production of butterfat during ten consecutive months by ten cows in a herd and by individual cows, for the highest monthly production by single grade cows and by five grade cows in a herd, for records made by herds owned by members of a cow testing association.

Prizes

The cash prize fund so far subscribed to be distributed amounts to $3,825 in all, which will be awarded in 32 different prizes ranging from $25 to $300 each. Ten special prizes, valued at nearly $2,000, will be awarded, viz., three pure bred dairy bull calves and six silver trophies and two gold medals. Cash prizes aggregating about $1,000 in value and nearly all the special prizes will be awarded for records of production made by grade or common cows only.

Determining the Production of Cows

The production of milk and butterfat by the cows in the competition will be determined by the system of semi-official testing of dairy cows. Supervisors of dairy tests employed by the college will each month make two day tests of the cows entered and certify to their production of milk and butterfat for this period. In the case of grade herds, tests of one day's duration only are required. Tests for members of cow testing associations are made by the association tester, except twice during the record period, when supervisors of dairy tests regularly employed by the college will conduct the tests.

Expenses

The two day tests cost $10 each, and the one day tests $7.50 each, making the total expenses for the ten month testing period $100 for two day and $75 for one day tests. These amounts are the only direct expenses connected with the competition; in addition, farmers provide room and board for supervisors while on duty, and transportation to and from the nearest railroad station or ranch where tests are conducted. Herds owned by members of a cow testing association may be tested at an extra expense of $15 for the entire record period.

Maximum Tested at a Time

When milked twice a day, 15 cows; three times a day, ten cows; and four times a day, eight cows.

The competition will commence September 1, 1920, and will close January 31, 1922. Entries will close April 1, 1921. Entry blanks and further information concerning the competition may be secured by addressing Professor F. W. Woll, Superintendent of Dairy Tests, University Farm, Davis.

A $50,000 Holstein Sale

By T. J. Hitte

The C. W. Anderson dispersal sale of Holstein cattle at Burbank, June 17, proved an outstanding event. It was conducted by C. L. Hughes, sales manager for the California Breeders Sales and Pedigree Company, with Col. Ben A. Rhoades and assistants doing the block and ring work.

At the opening of the sale Mr. Hughes emphasized three features of this herd—uniformity of type, high production, and rugged health. That the point was well taken may be gathered from the snappy character of the sale.

Sixty-four females, including a number of untried heifers and two or three unweaned calves, sold for a total of $49,312, making a general average of $770.50 per head. A half dozen or more heifer calves were also sold separate from dam at an average of around $300. These do not appear in sale list.

A feature of the buying was the three angled contest for many attractive offerings waged by the Hartsook Ranch, Lankershim, the Sunshine Ranch, San Fernando, and the Santa Anita Rancho, Santa Anita. The high mark for the day was made on the great four year old Mabel De Kol Niko 2d, she going at $1,750 to the bid of Earl Sturgis for the Santa Anita Rancho. Lots 40 and 52 were secured by Fred Hartsook at $1,550 and $1,600, respectively, they being close up descendants of the great sires Beryl Luecke De Kol and Roderick Lincoln, that have made famous the great herd of cattle owned by H. Renaud at Phoenix, Arizona, the source of much of the Anderson foundation stock. The Sunshine Ranch purchases were largely along these same popular blood lines.

Prof. Gordon H. True of Davis was a liberal buyer of young cattle for foundation stock in the Hawaiian Islands.

A fine two year old daughter of Prince Gelsche Walker went at $950 to W. J. Higdon for his Tulare Holstein Farm herd. R. F. Guerin of Visalia was a strong bidder on some of the more valuable lots. Mrs. D. G. Maxwell of Burbank made some good selections early in the sale.

The sale was held in the shade of the big walnut trees of Edgemont Farm, and a large crowd was in attendance, many ladies being present. The barbecue lunch was of the very finest.

Below is detailed statement of all catalogued sales:

1, Beryl Mortum Luecke De Kol, May 27, 1916; Fred Hartsook, Lankershim, $800.
2, Mabel De Kol Niko 2nd, February 1, 1916; Santa Anita Rancho, Santa Anita, $1,750.
3, Burbank Mabel De Kol Niko, April 19, 1919; Santa Anita, $1,100.
4, Pauline Piebe Lincoln, September 20 1916, Sunshine Ranch, San Fernando, $900.
5, Queen of Fairlawn Lincoln, October 14, 1915, Burr Farm, Los Angeles, $650.
6, Split Silk Piebe Roderick, May 27, 1918; Pellisier Bros., Whittier, $300.
7, Banostine Mechthildc, May 2, 1918; Sunshine, $900.
8, Pauline Banostine Butter Boy, November 12, 1917; G. H. True, Davis, $500.
9, Mercedes Banostine Butter Boy, November 22, 1917; Mrs. D. G. Maxwell, Burbank, $775.
10, Beryl Janie Lincoln, April 17, 1916; Sunshine, $1,100.
11, Aralia Roderick De Kol, December 12, 1916; Santa Anita, $1,075.
12, Aaggie Banostine Butter Boy, December 11, 1917; Sunshine, $750.
13, Uneeda Roderick Beryl, January 11, 1917; Robert N. Clapp, Nuevo, $325.
14, Athenia Witkop Roderick, March 4, 1916; True, $500.
15, Split Silk Luecke De Kol, May 1, 1915; True, $400.
16, Burbank Split Silk Girl, April 11 1919; H. Michael, Santa Ana, $575.
17, Queen Roderick De Kol, September 28, 1913; R. G. Zeleden, Lamanda Park $600.
18, Lila Banostine, October 23, 1917, True, $725.
19, Senorita Athena Roxano 2nd, April 11, 1915; Mrs. D. G. Maxwell, $750.
20, (Heifer not catalogued), Santa Anita, $450.
22, Piebe Luecke, September 26, 1917; Hartsook, $800.
23, Aaggie Luecke Witkop, January 16 1917; Sunshine, $875.
24, Jewel Piebe Luecke De Kol, October, 20, 1916; True, $575.
25, Pauline Lueeke Niko De Kol Piebe, October 9, 1913; A. H. Moore, Huntington Beach, $625.
26, Athenia Roderick Maricopa, December 11, 1913; Sunshine, $775.
27, Burbank Aaggie Lincoln, May 20, 1914; Santa Anita, $650.
28, Roderick De Kol Lincoln, July 8, 1915; R. W. Reynolds, Los Angeles, $190
29, Abyla Lueeke Aaggie De Kol, January 7, 1916; Santa Anita, $1,175.
30, Burbank Aaggie De Kol, April 17, 1919; Sunshine, $925.
31, Gerben Piebe Roderick, September 18, 1916; Burr Farm, $875.
32, Beryl Niko De Kol, March 30, 1916; Los Angeles County Farm, Hondo, $875.
33, Burbank Niko De Kol, July 4, 1919, H. Michael, Santa Monica, $800.

34, Jewel Piebe 2nd, September 21, 1915; Hartsook, $800.
35, Saraphine Aaggie Beryl, December 16, 1916; Burr Farm, $875.
36, Burbank Roderick Banostine, May 26, 1919; Los Angeles County, $650.
37, Piebe Gerben 2nd, February 21, 1914; True ,$550.
38, Burbank Piebe Gerben, May 22, 1919; Los Angeles County, $500.
39, Athenia Papoose 2nd, January 31, 1915; Hartsook, $800.
40, Athenia Roderick Luecke, November 28, 1916; Hartsook, $1,550.
41, Burbank Roderick Aralia De Kol, May 20, 1919; Santa Anita, $1,000.
42, Beryl Uneeda Maid, November 18, 1915; Burr, $1,000.
42, (Heifer of above dam), Hartsook, $850.
43, (Heifer calf above dam), Hartsook, $400.
43, Piebe June De Kol 2nd, March 11, 1914; Jas. J. Jeffries, Burbank, $700.
45, Jewel Roderick Mechthilde, October, 27, 1913; Hartsook, $1,100.
46, Henrietta Roderick, January 3, 1916; Hartsook, $1,000.
47, Johanna Gelsche Stalker, March 14, 1918; W. J. Higdon, Tulare, $950.
48, Juliane Sadie Vale Pet, December 5, 1917; Hartsook, $1,000.
49, Joy Walker Burke, April 22, 1918; Santa Anita, $1,050.
50, Dora Abbekerk Sadie Vale, August 21, 1918; Sunshine, $550.
51, Lady Artis Segis Pontiac, April 5, 1917; Hartsook, $600.
52, Roma Abyle Luecke, February 11, 1916; Hartsook, $1,600.
52, (Heifer calf above dam), Hartsook, $650.
53, Jewel Abyla Roderick, January 24, 1916; Hartsook, $900.
54, Lady Abyla Luecke, February 28, 1916; Sunshine, $1,100.
56, Burbank Lady Juliana, November 15, 1916; Hartsook, $800.
57, Burbank Duchess Ormsby, April 10, 1919; Sunshine, $900.
58, Segis Fobes Tritomia, August 14, 1919; Jeffries, $700.
59, Juanita Uneeda Luecke Roxana, June 28, 1918; Maxwell, $450.
62, Guajalote De Kol Mechthilde, November 26, 1917; True, $325.
63, Florecita Bodera De Kol, March 30, 1912; Michael, $600.
64, Fen Pietertje Korndyke, June 28, 1916; Hartsook, $400.

LIVESTOCK DECREASING

A falling off in the numbers of cattle and hogs in the United States occurred during the first four months of this year, as compared with the like period last year, according to reports of special livestock reporters of the bureau of crop estimates, United States department of agriculture.

In the case of hogs, the births during January, February, March and April were about ten per cent fewer than in the same months last year. The marketings have fallen off about 15 per cent. The farm slaughter was about the same in both seasons, but the deaths on farms this year are over 40 per cent heavier than last year to May 1. Taking into consideration both the births and the deaths (from all causes), it appears that there has been a relative reduction of about five per cent during the first four months of this year as compared with the trend during the first four months of last year.

The births of calves from January 1 to May 1 were about 22 per cent fewer this year than last year. The net disposition of cattle by marketings, farm slaughter, and deaths was about nine per cent greater than last year; it appears that there has been a relative reduction of about six per cent in total number of cattle as compared with last year during the four months January 1 to May 1.

THE MAGIC OF MILK

The National Dairy Council is doing some exceptionally fine publicity work for milk and in fact all dairy products. One of its slogans is "At least a quart of milk per day per child"; another, "The milk way is the health way"; and there are others equally as catchy. Its latest piece of fine work is "The Magic of Milk," a 64 page well illustrated booklet showing a magician emptying the milk bottle of health and strength, of growth, of laughter and of sleep. The book contains 150 dairy dish and milk drink recipes. There are recipes for butter sauces, cheese sauces, cereals and other cheese dishes, together with ice creams, milk desserts, drinks and sweets.

Owing to the decrease in the number of dairy cattle in the Salt River Valley the Pacific Creamery Company has closed its condensing plant at Glendale. The condensary at Tempe was closed more than a year ago. This leaves only one small condensary in Arizona. The greatly increased acreage of cotton in the Salt River Valley has resulted in a loss of dairy cottle. Most of these have been shipped out. The owners of the condensed milk plants state that they will not be dismantled, as they expect that within a short time the dairy industry will be again revived and both plants will be operating.

MULE MARKET STAPLE

Compact, blocky mules of good proportions, with good life and quality,, are selling quickly and profitably, no matter what their size, says Wayne Dinsmore, secretary of the Horse Association of America. The top prices go for mules standing 15.3 hands and weighing 1,200-1,250 pounds. The market for them is as staple as for wheat and corn.

Farmer producers are selling ordinary mule colts at weaning time at prices ranging from $65 to $125, before incurring any appreciable expense for feed. At three years the mule standing 15.3 hands, weighing 1,250 pounds, easily brings from two to three hundred dollars, and at five a big sugar mule commands $500 or more.

Nor does there seem to be any risk to raising them. Mule colts are hardy, are not subject to blindness, sidebones, or other unsoundness common to horses. They are also capable of self protection from the time they stand on four legs until they retire from active service via burial.

D. E. Van Pelt, a farmer near Glenwood, Iowa, makes good use of their marketability. He says: "I take advantage of the fact that the heaviest demand for mules comes at a time when I can spare them. I buy eight big mining mules in winter, out of season, for about $450 a pair, to do my spring work. When the busy season is over, I sell them at $500 to $550 a pair. Then a little before I sell these mine mules I buy eight big mare mules for the sugar trade. I buy them thin at about $450 to $475. About January 1 I sell them. Last spring (1919), I bought two pair at $500 and $550, and sold them in January (1920) for a total of $1,700. They did summer and fall work and made me a profit of $550 besides."

HALF MILLION CATTLE TESTED FOR TB

From time to time the bureau of animal industry publishes a "communique" showing conditions along the wide battlefront where the allied forces of federal and state authorities are fighting cattle tuberculosis.

The latest report indicates that since the beginning of the movement in 1917 the owners of 500,000 cattle have placed their herds under supervision.

On April 10, 1920, 25,793 herds scattered throughout the United States, with a total of 537,240 cattle, were under the cooperative supervision of the department of agriculture and state veterinarians. There were 2,230 accredited herds—60,237 cattle known to be free from the plague. Over 115,000 cattle were on the waiting list to be tested as soon as the veterinarians can work with them. Still another lot of 58,331 cattle have passed through the first stage of the test without showing any dangerous symptoms. The least optimistic estimate indicates that two-thirds of this number will conclude the test satisfactorily, and add 170,000 cattle to the accredited column.

GROW STEERS

Shorthorn breeders are encouraged to grow more steers. In every herd are bull calves that would make greater profits if grown out as steers. Some may be of undesirable markings but of great quality. These will attract much favorable attention if finished as steers and give to the owner more publicity than if they are developed as bulls. Steers are handled easily on the farm and never fail to arouse the enthusiastic admiration of those who visit the herd. The American Shorthorn Breeders Association invites the Shorthorn breeders to consider this advantage which they have in their own hands. Nothing will do more to increase the interest in this breed than the developing of a few high class steers in the various pure bred herds each year.

The Marin County farm bureau has a committee in charge of a better bull campaign and in connection with the Sonoma County farm bureau is planning for a dairy bull sale to be held at Petaluma in September.

F. C. Fairbanks Ranch Hampshires
The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows.
HARVEY'S CHOICE Grand Champion Boar at Los Angeles 1919
LOOKOUT CHEROKEE Grand Champion at Liberty Fair
SIOUX QUEEN Grand Champion at P.P.I.E.
18 High Class Brood Sows in herd—young stock for sale.
A. E. Harvey, Manager Redlands, Cal.

O.U.R. Hampshire Swine
Ortega-Underhill-Rancho
Thos. T. Dinsmore, Mgr., Santa Barbara, Cal.

A-1 Duroc Ranch
Where one of the state's greatest herds of Duroc-Jerseys is maintained. For years our Durocs have proven profitable to farmer and breeder alike. Better place your order now for spring pigs as what we will be able to spare will go quickly. Remember, this is the home of the state's highest priced ($1500) and most valuable Duroc-Jersey sow.
J. P. Walker, RFD 1, Box 40½, Visalia, Cal.

Sows and Gilts---GET ONE
Bred to farrow next two months. We are making an extremely low price on these to reduce our herd. At the price we won't keep them long. Write today. Quick, before they are all gone.
H. P. Slocum, Willows, Cal.

The Greatest Duroc Boar of His Age!
Choice Wonder 3d
a winner at the 1919 Iowa State fair, sired by the great boar, Mahaska Wonder, and a litter mate to the first prize junior boar of Iowa, heads our herd. He is the largest, heaviest boned, best footed boar in the state and he is being mated to the sows that have made this herd famous for futurity winners. Get your order in early for his pigs. Prices are most moderate. Satisfaction guaranteed.
JUNE ACRES STOCK FARM V. F. Dolcini, Davis, Cal.

Lamb's Complete Duroc Dispersion Sale
Wednesday, July 21st, 1920
Principal blood lines, Pathfinder, Orion Cherry King and Golden Model. Write for catalog and information. A few weanling pigs, both sexes, at private treaty prior to sale day.
ELMER LAMB, Ceres, Cal.

Italian Vineyard Company
Guasti Berkshires
Weaned pigs, both sexes, from sows that farrow large litters and raise them. Priced at a figure any farmer can afford and that will show him a profit.
BIG PUBLIC SALE OF BERKSHIRE SOWS AUGUST 14TH
Alex. Wilson, Supt., Guasti, Cal.

Bastanchury Better Berkshires
LA HABRA, CAL.
E. N. WHITTEMORE, MGR.
Bred Gilts, Open Gilts
Young Boars
Young Sows
At Reasonable Prices

BERMA RANCH
Size and quality predominate in our big type Poland Chinas. No better big type sows are found in the state. Buy Berma Poland Chinas and you buy wisely.
C. E. DACK R. H. Box 196 Fresno, Cal.

BERNSTEIN'S RANCH
Home of King's Big Ben, where he is siring those early developing big type Poland Chinas that are ready for the market at 6 mo. They have size, bone, quality and are from the easy feeding families.
W. Bernstein Hanford, Cal.

When Writing Advertisers Mention California Cultivator

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Duroc-Jerseys

July 21, Elmer Lamb, Ceres.
July 29, Conejo Ranch, Newbury Park.
July 28, Winsor Ranch at Los Angeles.

Hampshires

July 30, Conejo Ranch, Newbury Park.

Poland Chinas

August 21, Merced County Poland China Breeders' Association, Merced.
September 27, Hugh C. Shinn, A. J. Elliott and Alex D. McCarty, Tulare.

Shropshire Sheep

August 11, Butte City Ranch.

Shorthorns

August 11, Butte City Ranch.

Berkshires

August 11, Butte City Ranch.

The latest calf club to be organized in this state has just been started by the Petaluma chamber of commerce with the following boys and girls enrolled as members: Raymond Gambonini, Oscar Petersen, Everett King, Max Flohr, Albert L. Clark, Andrew J. Ayres, David A. Sweeney, Leslie Schwobeda. Florence McDowell, Charles Hinshaw, Wilmer Blanchard, Thomas Putnam, Sam Nisson, Robert Martinelli, Evelyn Foster, James D. Harris, V. Martinelli.

Caledonia Farms, West Sacramento, has just sold to James Barry, well known cattleman of Cottonwood, Shasta County, ten registered yearling Shorthorn bulls. The ones selected by Barry represent an extremely high class lot. Three were sired by Pine Grove King, two by Sultan's Marvel, two by Pine Grove Marvel, a son of Pine Grove King, two by Winsome Prince and one by Ringleader's King. Mr. Barry is one of the progressive cattlemen who believes in the use of well bred bulls and claims that production costs can be definitely lowered through the use of such bulls.

Roy M. Hagan, who is in charge of the club work carried on by the University of California in Northern California, last week selected a number of registered Shorthorn calves from the following herds: Edinger-Johnston Company, Hood; Senator Benjamin Rush, Suisun, and J. D. Rowe and Sons, Davis. From the latter herd five milking Shorthorn calves were secured. In addition to the Shorthorn calves two Holstein calves were purchased from J. M. Henderson of Sacramento.

Cattle Superintendent Condee of George Junior Republic, Chino, reports the junior two year old heifer Queen Lyon Segis as having just completed a 20 pound record for seven days butter production. She was bred and raised at the farm.

Sterling Smith, Route 1, San Diego, is known among Duroc breeders as a stickler for type and correct blood lines. The Smith foundation is direct from leading herds of the Middle West and stands favorable comparison with the best the breed produces in size, smoothness and proper underpinning. Some excellent December and March boars of Pathfinder blood are to be seen at the ranch.

Kyne and Cash, Perris, have secured a 16 months son of King Segis Pontiac Jannek, the Jeffries bull, to place at head of their herd of Holsteins at Sierra Vista Ranch. This young bull is to be dubbed Cappy Ricks.

E. R. Stalder, Wineland, is owner of the 1,800 pound Holstein cow Josie De Kol Fobes Tritomia. Mr. Stalder was pleased, accordingly, to see her ten months old heifer sell in the C. W. Anderson sale ring at $700. Her sire was King Segis Pontiac Jannek.

Earl Sturgis of the Santa Anita Rancho, Santa Anita, reports the recent sale of two young Poland China boars and one gilt to go to Walter L. Vail Jr., Colombia, South America. These March boars were the get of the two big type boars Orange Boy and Quality Bob, while the gilt was sired by Anokia Chief 1st.

R. W. Reynolds, Los Angeles, advises us that he was the buyer of the

The Youngest of Tilly's Family

The son of Tilly Alcartra and Carnation King Sylvia from the herd of A. W. Morris & Sons, Woodland, and for which A. C. Hardy and W. R. Shaw, Ontario, Canada, paid $50,000.

$1,200 cow in the recent Van Blaricon Holstein sale at El Monte. Glad to have the correction.

The San Fernando Valley Duroc Breeders Association held its regular monthly meeting at the Van Nuys high school building on Wednesday, June 16. George Waltemeyer of the Conejo Ranch gave a very interesting talk on growing out breeding stock in general and on developing the young boar in particular. The association also took this occasion to present a beautiful cup to be competed for by the pig clubs of the valley.

JUDGE OF POLAND CHINAS

When the Poland China Journal was informed that Prof. L. A. Weaver of the animal husbandry department of the Missouri University will judge the Poland China classes at the California state fair this fall, that very excellent journal said: "Professor Weaver is regarded as one of the best judges of hogs in America, and his selection as the man to tie the ribbons at the California state fair shows that the breeders on the Pacific Coast have been using their heads. They could not have made a better choice for this important work. Indeed, it is well known that Professor Weaver's name was under consideration at one time for the appointment as judge at the National Swine Show this year, but conditions were such that he could not accept. In a field where there are many new breeders, such as found in California, the selection of a judge for an event of this character is of the highest importance to the industry. A false step in selecting the prize winners is more likely in such a field to create a wrong impression than where the distinction between the types is more generally understood, as is the case in the Cornbelt. For that reason the action of the breeders and the California state fair management in selecting Professor Weaver to officiate as judge will be welcome news to breeders east of the Rocky Mountains who are looking to the Pacific Coast as a great undeveloped field for the extension of the Poland China breed. Professor Weaver was judge at the California state fair in 1918."

CANVASS OF LIVESTOCK BREEDS

Here are the relative standings in percentages and numbers of livestock breeds in the United States, as shown by an investigation recently made by the bureau of crop estimates, United States departmcnt of agriculture. Shorthorn cattle, Duroc-Jersey hogs and Merino sheep lead all other breeds in numbers. This information is brought out by replies received from an inquiry sent to 14,000 special livestock reporters of the bureau. The inquiry called for the following information: "Letting 100 represent the total number in your locality, what proportion of the total belongs to the breeds named? Grades and scrubs should be included in the breed in which the type predominates."

From the percentages thus obtained the figures representing the number of each breed have been determined from the January 1 estimates of livestock on farms. The numbers and percentages for the United States are as follows: For cattle, Shorthorn (Durham), the number is 15,429,000, or 22.6 per cent of the whole number of cattle; Herefords, 14,302,000, or 21 per cent; Holstein, 11,069,000, or 16.2 per cent; Jersey, 9,554,000, or 14 per cent; Aberdeen Angus, 2,479,000, or 3.6 per cent; Guernsey, 1,993,000, or 2.9 per cent; Red Polled, 1,772,000, or 2.6 per cent; Polled Durham, 1,033,000, or 1.5 per cent; Galloway, 534,000, or 0.8 per cent; Ayrshire, 412,000, or 0.6 per cent; Brown Swiss, 170,000, or 0.3 per cent; Devons, 175,000, or 0.3 per cent; Dutch Belted, 157,000, or 0.2 per cent; others, 2,107,000, or 3.1 per cent; nondescript (unclassified), 7,044,000, or 10.3 per cent; total, 68,232,000, or 100 per cent.

Beef Breeds Predominate

It will be observed that the beef breeds preponderated over the milk breeds. Holsteins are most numerous of the milk breeds; in the Northern states they are two to three times as numerous as the Jerseys; in the Southern states, however, the Jersey is three to five times as numerous as the Holstein; in other words, the Holstein decreases in relative numbers from north to south, and the Jersey increases relatively in going from north to south.

The relative rank of swine breeds is as follows: Duroc-Jersey, 24,914,000, or 34.2 per cent of all swine; Poland China, 20,308,000, or 27.9 per cent; Chester White, 7,788,000, or 10.7 per cent; Berkshire, 6,719,000, or 9.2 per cent; Razorbacks, 3,061,000, or 4.2 per cent; Hampshire, 2,834,000, or 3.9 per cent; Tamworth, 508,000, or 0.7 per cent; Yorkshire, 471,000, or 0.6 per cent; Cheshire, 248,000, or 0.3 per cent; others, 1,997,000, or 2.7 per cent; nondescripts, 4,061,000, or 5.6 per cent; total, 72,909,000, or 100 per cent.

Among the sheep the rank is as follows: Merino, 12,364,000, or 25.4 per cent of all sheep; Shropshire, 11,253,000, or 23.2 per cent; Rambouillet, 6,455,000, or 13.3 per cent; Cotswold, 3,504,000, or 7.2 per cent; Hampshire, 2,968,000, or 6.1 per cent; Southdown, 2,984,000, or 6.1 per cent; Lincoln, 1,862,000, or 3.8 per cent; Oxforddown, 935,000, or 1.9 per cent; Dorset, 357,000, or 0.7 per cent; Cheviot, 140,000, or 0.3 per cent; Leicester, 135,000, or 0.3 per cent; Tunis, 37,000, or 0.1 per cent; others, 1,681,000, or 3.5 per cent; nondescript, 3,941,000, or 8.1 per cent; total, 48,615,000, or 100 per cent. The Merino predominate in the Western range states, but the Shropshire largely predominate on the farms in the Eastern states.

CARE OF COWS AT CALVING TIME

For best results in milk production a cow should be in good flesh at the time of calving. Less trouble is experienced in parturition and from retention of the afterbirth when the animal is in good order, says D. G. Sullins of the Georgia experiment station. To bring about this condition at calving time requires care in feeding while the cow is dry or during pregnancy. The ration should be sufficient to get her into proper condition. The average length of pregnancy is 285 days, and as parturition approaches the cow should be on a laxative ration if not on pasture. If on pasture no special attention need be given to the feed.

Milking before calving is desirable only with the heaviest milkers, when it is evident that they are suffering greatly from the extension of the udder. Some claim that milking prior to calving helps to prevent milk fever, while others never milk a cow before calving. If milking is begun it must be continued regularly.

Complications seldom arise if the cow has been dry for a month and has had sufficient food to get her in good condition at calving time. When the cow is about to calve she should be looked after at least twice per day. If she is on pasture it is well to let her remain there, otherwise she should be in a box stall large enough to enable her to move about freely. The time of parturition will be indicated by the udder becoming distended and hard, and the relaxation of muscles and tendons on either side of the rump, leaving a hollow appearance on either side of the tail head. With these indications pronounced, parturition may be expected within 24 hours.

Unless assistance is evidently necessary the cow should be left alone at calving. As a rule the calf will be born within half an hour. If the calf is not expelled after an hour or two an examination should be made to see if the position of the calf is abnormal, in which case the services of a qualified veterinarian should be secured to assist in the delivery of the calf. The normal position is forefect first with front of the hoofs and knees upward, while the nose lies between the knees.

The cow is especially subject to retention of the afterbirth, and special attention must be given that it comes away. The afterbirth is usually expelled within a few hours after the calf when the cow is in good condition. Cows far along in years or in poor health are especially subject to this trouble. The feeder should avoid giving cold water or cold feed within the first 24 hours after calving. If the afterbirth is retained a serious condition of the cow is brought about

A Great Santa Anita Producer

Anoakia Pontiac Beets produced butter, 7 days, 25.26; milk, 560. She is now on semi-official test and making a very good record. She won third place as a three-year old in the Los Angeles Livestock Show in 1919. Property of Santa Anita Rancho.

by the absorption of poisons from the decomposing tissues. The fetid products that escape, and the offensive odors, make this condition easily known. In such condition a cow becomes thin and produces but little milk, which of course is unfit for food.

Effort should be made to prevent the retention of the afterbirth so far as possible. However, it may occur frequently in all herds. If it does not come away within 24 hours it should be removed by hand. There is no drug that can be used for the purpose. An inexperienced person should secure the service of a veterinarian as soon as it is evident that afterbirth will not be expelled. To delay gives time for the mouth of the womb to close, making it difficult to introduce the hand.

It should be borne in mind that the vitality of the cow is low following parturition. She should have careful attention and be brought to full feed gradually. For the first few days the ration should be light in character and in small amounts. A small amount of wheat bran with good hay has proved satisfactory in the experiment station herd.

CONEJO SALE

About 50 pure bred Duroc-Jerseys and the same number of Hampshires will be included in the big two day sale which has been announced by the Janss Investment Company on their Conejo Ranch for July 29 and 30. This will be one of the largest two day sales ever held in California and arrangements are completed for taking care of a very large crowd. A barbecue will be served each day of the sale, and special arrangements have been made by the company to provide transportation from their offices in Los Angeles.

The first day will be devoted to the Duroc-Jerseys, the second to the Hampshires. The Hampshire sale will include brood sows, bred gilts and open gilts. With Giant Wonder, sire Great Wonder and dam Grand Lady 6th; Big Model, sire Oakdale Model and dam Great Wonder's Lady; Pathfinder's Pride, sire Pathfinder and dam Pride of Elba, all recognized leaders, at the head of the Conejo Duroc herd, there is no doubt about the class of animals to be offered at this sale. The Conejo Ranch has furnished foundation herds for many of the biggest hog raising ranches in California. These sales include a foundation herd to F. E. Lewis of the Diamond Bar Ranch, consisting of 63 Durocs; a foundation herd to King C. Gillette of 28 Hampshires; Imperial Development Company, ten boars, Durocs; S. W. Greer of the "525" Ranch, 21 Duroc boars; a foundation herd to J. W. Jameson of 80 head of Hampshires; Willits, Patterson and Green, seven Duroc boars, and the Fontana Land Company, four Duroc boars.

GOVERNOR OF THE CHENE, FIRST GUERNSEY CENTURY SIRE

The Guernsey breed has its first century sire in Governor of the Chene. The one hundredth daughter of this famous sire to complete an advanced register record is Imp. Nellie's Gem des Blancs Bois, a six year old cow owned and tested by J. L. Austin of Pennsylvania. She was officially entered in the Advanced Register on June 2, 1920.

Governor of the Chene attained unusual fame in the dairy world through his own show winnings and through the Advanced Register work and the show winnings of his descendants. There are today registered in the herd books of The American Guernsey Cattle Club 264 daughters, and the even hundred of these in the Advanced Register have completed a total of 118 records. Fourteen daughters have completed two records each and two have completed three records each. The largest record was made by Imp Nettie of the Hupits, that produced 12,556.9 pounds of milk and 718.9 pounds of butter fat in Class C. Thirty-four records were completed in the two year old classes, 24 in the three year old classes, 24 in the four year old classes, and 36 by mature cows. The average of the 118 records is 9,288.7 pounds of milk and 453.11 pounds of butterfat. Twenty-two daughters have not been tested for the Advanced Register, but have daughters that have qualified for the Advanced Register.

Sixty-eight sons have been recorded in the American herd books and 28 of these have qualified for the Advanced Register. Thirteen other sons have one Advanced Register daughter each.

Governor of the Chene was dropped September 25, 1900. He was bred and owned on the Island of Guernsey. Several American importers made liberal offers for the purpose of bringing him to this country, but his owner, Thomas Le Prevost, l'Etienerle, consistently refused to part with him. He kept Governor of the Chene until 1915, when this famous sire, known wherever Guernseys are owned, unfortunately died, but probably no other Guernsey bull has more descendants living after him.

AYRSHIRE BREEDERS' ANNUAL

The 45th annual meeting of the Ayrshire Breeders Association was held at Springfield, Massachusetts, on June 9, 1920. Capt. A. Henry Higginson of South Lincoln, Massachusetts, was elected president for the ensuing year; vice-presidents, Percival Roberts, Jr., Narbeth, Pennsylvania, John Linn, Manhattan, Kansas, J. Henry Meyer, San Francisco, and Hugh J. Chisholm, Port Chester, New York; secretary-treasurer, J. G. Watson, Brandon, Vermont; directors for a period of three years, Geo. E. Pike, Gouverneur, New York, W. T. Tonner, Torresdale, Pennsylvania, R. L. Knight, Hope, Rhode Island, M. A. Towle, Boston, Massachusetts, Geo. McFadden, Rosemont, Pennsylvania, H. W. Gossard, Chicago, Illinois, J. Henry Stewart, Bath, New York, and John R. Valentine, Bryn Mawr, Pennsylvania. W. P. Schanck of Avon, New York, was elected to the board of directors to fill vacancy caused by election of Capt. A. Henry Higginson to presidency. A. H. Sagendorph, Spencer, Massachusetts, (chairman), Stephen Bull, Racine, Wisconsin, John R. Valentine, Bryn Mawr, Pennsylvania, L. W. Newton, Ashburnham, Massachusetts, and W. P. Schanck, Avon, New York, were elected executive committee by board of directors.

NATIONAL AYRSHIRE SALE

The second national Ayrshire sale was held at Springfield, Mass., on June 10 and drew a large and representative attendance. Forty-four head sold for a total of $42,490, or an average of $965. Henderson's Betty, a mature cow, topped the sale at $4,100, being purchased by Peter Bradley, Weymouth Farms, North Weymouth, Massachusetts.

BETTER SIRES TO APPEAR IN MOVIES

The department of agriculture is preparing a series of motion pictures and stereopticon slides for use in the "Better Sires" campaign. The interest aroused among the breeders of the United States is taking the form of requests upon the department of agriculture for information which, it is hoped, the film feature will be able to satisfy. It is probable that the motion picture will be ready for issue next fall.

A PRESCRIPTION

If you are poor—work.

If you are rich—continue to work.

If you are burdened with seemingly unfair responsibilities—work.

If you are happy—keep right on working. Idleness gives room for doubts and fears.

If disappointments come—work.

If sorrow overwhelms you and loved ones seem not true—work.

If health is threatened—work.

When faith falters and reason fails—just work.

When dreams are shattered and hope seems dead—work. Work as if your life were in peril. It really is.

No matter what alls you—work. Work faithfully—work with faith.

Work is the greatest material remedy available.

Work will cure both mental and physical afflictions.—The Silent Partner.

DIFFERENCE OF OPINION

"What did you think of the senator's speech?" asked the low browed citizen.

"I thought it was rather tautological," replied the high browed person.

"Well, if it taught you anything that's more than it did for me."—Birmingham Age-Herald.

Veterinary

Sliver in Hock

Some three weeks ago one of our cows ran a two inch sliver in her left hind leg around the hock joint. We lanced it and got the splinter out. It drained well and healed. Then after a week or ten days she was unable to put that foot to the ground. I rubbed the leg with some liniment, with no results; also made a slight incision to see if any pus was there, but found none. She is due to be fresh this week. She fell down on her milk after being injured, so we dried her up, as the milk seemed to be full of long, white, stringy matter. If you can tell me what to do, will be very grateful.—Subscriber, Newhall.

It is rather difficult from the information available to determine the exact cause of the trouble which prevents your cow from putting her foot to the ground. If you are sure that no other trouble has arisen with the foot or any other portion of the leg, it would then seem possible that a portion of the sliver which was run into the leg near the hock joint was not all removed. This sliver may have migrated to some other portion of the leg where it is causing the trouble. I would suggest that you examine the leg carefully to determine if any portion of the leg is sensitive and would look for the trouble in that part. The trouble in the milk may be attributed to the fact that the animal was probably feverish, due to the above mentioned difficulty. If you cannot determine the trouble yourself from a closer examination, it would perhaps be desirable for you to consult a veterinarian that could give the animal an examination.—G. E. G.

CANADIAN WHEAT PRICES

The value to farmers of being strongly organized is very nicely illustrated by the experience of the Canadian farmers in selling their wheat.

In Canada, as in the United States, the government took control of the wheat. In Canada, however, organized farmers were given representation on the control board. The Canadian farmers had competent men to represent them on this board—men who really understood the game. The minimum price of wheat was fixed for the year 1919 at $2.15, and this was paid in cash when the farmer delivered the wheat to the elevator. At the same time he received his check he was given also a participation certificate, which showed the number of bushels of wheat he had sold at $2.15 and which indicated his right to participate in profits over and above this minimum price.

The wheat board was able to sell the wheat considerably above the minimum price. Mr. Lambert, the secretary of the Canadian council of agriture, told us recently that these participation certificates given to the farmers would be worth between 50 and 60 cents a bushel. That is, the farmer got an original price of $2.15 in cash at the time of delivery, and now he will be able to cash in his participation certificates for an additional price of between 50 and 60 cents for every bushel of wheat he sold. Mr. Lambert said the certificates might be worth even more than the figure he indicated. That means that the farmers of Canada will get between 90 and 100 million dollars more for their 1919 wheat crop than the minimum price of $2.15.

The farmers of the United States sold their wheat on the basis of $2.26 per bushel. They got no participation certificates. Whatever profit above the minimum price was made on the wheat grown in the United States was made by some one other than the producers.

This is a very fine illustration of the efficiency of a real farmers' organization.

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Value of Soil Analysis in Determining Fertilizer Needs

By Myron R. Harris

It is sometimes well for those of us who are engaged in the fierce fight of producing successful crops to halt a moment and look at the elementary or academic side of some of the questions whose solution is vital to our success. So we are glad to give a very short extract from thesis of a young man who has made a special study of soil questions in the California college of agriculture. Myron R. Harris, member of Dr. Coit's citriculture classes, has made extensive study of the question of Fertilization of Citrus Crops. So long as the matter of soil analysis has been so generally misunderstood, we quote from his manuscripts as to analysis and the value of knowledge in determining the necessary fertilizer elements, both inorganic and organic.

THE subject of citrus fertilization is one which has been much discussed but about which there has been little accurate knowledge. The systems in use by growers vary between the widest limits. There is a tendency often for a man to get started on one method of fertilization and stick to it whether good or bad results are obtained. He rides his hobby to death. This naturally retards advancement of knowledge.

It is becoming better and better understood that more is necessary than the mere addition of the plant food elements to the soil in the amounts taken out by the crop or crops. It has been found that the state in which the elements are present and the condition of the soil itself are as important and even more important than the actual amounts.

It was believed at one time that the fertilization of a soil could be determined by chemical analysis; that a sample of soil could be sent to a chemist and from its analysis could be determined the amount of each fertilizing element present and the amounts of each which should be applied

Various methods of extraction were used Solvents tried out were strong hydrochloric acid, dilute hydrochloric acid, carbonic acid and distilled water. It was attempted to use solvents that would take out just those elements and the same amounts that the natural soil solution would contain. It was found impossible, however, to exactly duplicate it. Recourse has been had to physical methods of extracting the soil solution itself by a centrifuge and by means of pressure, but these were unsatisfactory, giving abnormal soil conditions.

The actual amounts of plant foods are not so important as the state in which they are present. They may be present in any one of three states: soluble and available for the plant immediately; insoluble and not available but easily and quickly changed into an available form; and unavailable form from which a change is a slow process—a state of storage.

Inorganic Soil Constituents

The soil is largely made up of elements which are not necessary to support plant life. Oxygen, silicon and aluminum make up over 83 per cent of the rock constituents from which the soil is formed. Calcium is the necessary element occurring in the largest amounts, 3.5 per cent. Potassium comes next with 2.3 per cent, and phosphorus next with less than one per cent.

Calcium occurs mostly as calcium carbonate and to a much less extent as the nitrate, phosphate, sulphate and complex silicates. It ranges from less than one per cent to over 50 per cent. There should generally be more than one per cent present for crops. Coarse sands, peats and clays are often deficient in lime.

Lime is not a fertilizer element in the strict sense of the word. Its great function is improving the physical condition of the soil, neutralizing acid soil and increasing the availability of the other elements.

Potassium in available form is present as the sulphate, chloride and nitrate. It is also in the soil as complex silicates. The minimum for a good soil is two per cent; it is highest generally in fine clay soils. In alkali soils it has been known to be as high as 17 per cent. This element is not easily removed by leaching.

Phosphorus is present only in very small amounts. A total content of 0.25 per cent is very good, the usual amount being between 0.11 and 0.03 per cent. Of this only a part is available. It is generally present as phosphates of calcium, iron, magnesium and aluminum. The iron and aluminum compounds are insoluble and unavailable. Tri-calcium phosphate is more readily available. The presence in considerable amounts of iron and aluminum compounds causes the formation from phosphorus fertilizers of iron and aluminum phosphates unless considerable lime is present. Soluble phosphates are not removed to any great extent by leaching.

Organic matter is present also in the soil to a greater or less extent. Its presence is due to accumulations from native vegetation and from animal remains, and in agricultural soils from the leaves, stems and roots of crops, green manures, farm manures, and various waste animal and plant materials.

This material is found, then in the soil in all stages of decay, from the fresh, unchanged forms to a dark, structureless mass of humus.

It is of great importance in the soil, since it is a source of plant food, facilitates necessary chemical reactions in the formation of other plant foods, improves the physical condition of the soil, and on the other hand may result in the presence of plant poisons.

This vegetable and animal matter contains, besides a small amount of inorganic salts of calcium, magnesium and potassium, and some carbonates, sulphates and phosphates, organic compounds of two kinds. These are nitrogen free compounds which make up the greater part and consist of carbohydrates, fats, oils and organic acids; and a much smaller amount of nitrogen compounds containing nitrogen, sulphur and phosphorus, besides carbon, hydrogen and oxygen.

These organic materials decompose more or less rapidly in the soil according to their composition and the condition of the soil. In the presence of air they slowly oxidize, finally disappearing entirely except for the mineral residue. This action takes place more rapidly in light, well drained and well aerated soil, especially so in a warm, dry cimate, than in wet, heavy soil. In the absence of air only partial decomposition takes place, and that at a very slow rate. The most easiy decomposed parts decompose first. The hydrogen and oxygen go off much faster than carbon and nitrogen, resulting in the accumulation of these elements. The nitrogen passes into insoluble forms which are less available as plant food. The names applied to the various stages in the decomposition are: leafmold, the half decomposed material, and humus, a more advanced stage in the decay. Peat is an early stage of decomposition in the absence of air, usually under water and at considerable depths. Further decomposition may have been stopped by the accumulation of acid which killed the decay organisms. The plant food contained in peat is not in an available form. Muck is a more advanced stage in the decomposition than peat, showing much less of plant structure and containing plant food somewhat more available than that of peat.

The organic matter in the soil is of considerable importance in the chemical reactions in the soil which make the plant foods available. Its effect is shown in the following ways:

Insoluble forms of potash are changed into available forms as nitrates, carbonates and organic compounds.

Insoluble forms of phosphorus are changed into soluble forms.

The organic matter reacts with calcium and magnesium to form insoluble compounds preventing the loss of organic matter by leaching.

Nitric acid combines with alkali metals to form nitrates.

Carbon dioxide in water aids in the solution of various elements and making them available.

Due to the preponderance of carbohydrates in plants and of nitrogen compounds in animal manures, the former tends to make the soil acid and the latter to make it alkaline. Nitric acid is formed from the latter in the later stages of decomposition, but is used so quickly by the plant that it has little permanent effect in making the soil acid. It has more effect in dissolving insoluble potassium and phosphorus compounds than the weak organic acids from carbohydrates which are not considered as plant foods. Carbohydrates, on the other hand, have more permanent effect on the soil.

Basic compounds are necessary in the soil. Those commonly found in soils are calcium carbonate and smaller amounts of magnesium carbonate, besides the carbonate, oxides and hydroxides of iron. These neutralize acidity and when they are used up the soil becomes acid or sour. In this condition the necessary reactions do not take place as they should, oxidation of nitrogen is hindered, the bacteria in legumes are inhibited, the basic compounds facilitate the changing of materials into available forms for plants and improve the soil's physical condition.

Cross-Inoculation of Legumes

In "Soil Science" Koch and Butler suggest that when a mixture of various Leguminosae seeds is sown it is of great practical value to know to what extent a crop containing a single variety of root nodule microorganisms is capable of inoculating all the different seeds simultaneously—in other words, if the root microorganisms of one species of Leguminosae can be inoculated satisfactorily into another species (cross-inoculation).

To throw light on this question a series of cross-inoculation experiments was made with the following four groups of Leguminosae.

Alfalfa group, including cultivated alfalfa (Medicago sativa), bur clover (Medicago denticulata and Medicago maculata), and sweet clover (Melilotus alba).

Clover group, including four clovers —crimson, alsike, red and white (Trifolium incarnatum, T. hybridum, T. repens, and T. pratense).

Pea-vetch group, including the garden pea (Pisum sativum), Canadian field pea (Pisum arvense).

Cowpea group, including the cowpea (Vigna Catjang), Japan clover (Lespedeza striata), and the velvet bean (Mucuna pruriens).

Results

Bacillus radicicola, isolated from roots of alfalfa, bur clover, and sweet clover respectively, is adapted to cross-inoculation, but the microorganisms of alfalfa and sweet clover only infected the roots of bur clover very slightly.

The micro-organisms isolated from the four clovers caused, when cross-inoculated, nodules as vigorous as those obtained by direct inoculation on the original plant.

The microorganisms of the four plants of the pea-vetch group respectively may be used for cross-inoculation. In the garden pea and the field pea, however, the nodules produced by cross-inoculation were not so vigorous as those caused by direct inoculation of the specific organism.

In the cowpea group cross-inoculation produced nodules in each case except when Japan clover was inoculated with the microorganisms of the cowpea. In all cases the roots of Japan clover produced few nodules.

ALFALFA AND COTTON INCREASE IN SALT RIVER VALLEY

The annual report of the Salt River Valley Water Users Association, covering lands under the project which represents about two-thirds of the acreage in Maricopa County, or one-third of the entire acreage in the state, shows that the acreage of alfalfa has decreased from 65,000 to 25,000 last year and that the cotton acreage has increased from 66,000 to 140,000. There is a marked decrease in the acreage of grain also. While there has been a decrease in the number of dairy and beef cattle there has been a considerable increase in the number of silos. The number now on the project is 379, with a capacity of 33,407 tons.

STORING SEED POTATOES

In a recent report on a series of experiments it is stated that potatoes generally lose from ten to 16 per cent of their weight when preserved, and the tubers germinate for a long time before it is possible to plant them. The author attempted to discover what factors might be applied in order to reduce the loss in weight and retard germination, and found them to be the temperature, oxygen supply, and the moisture of the air.

At a temperature of 8.82 degrees Centigrade the loss in weight of potatoes increases rapidly with the number of days they are preserved, but at a temperature of 3.74 degrees Centigrade the loss in weight practically ceases after the 120th day. This may be attributed to the fact that the starch is rapidly hydrolysed when the temperature sinks below eight degrees Centigrade, thus compensating more or less largely for the losses in weight due to transpiration and respiration by gains in weight resulting from the accumulation of sugar. From the point of view of loss in weight it is, therefore, advantageous to store seed potatoes at a low temperature.

Both an excessively saturated and an excessively dry atmosphere must be avoided, the first because it induces too intense a transpiration, the second because it causes the vapor to condense on the surface of the tuber, thus favoring the development of molds.

PLOWSOLES

In the citrus orchards of Southern California where the soil is cultivated during the irrigation period, a plowsole forms immediately beneath the plowed soil. The depth of this layer may vary from a few inches to two feet, but is rarely more than 18 inches below the surface. The hardness varies from that of a crust to that of a layer difficult to break with a spade. Immediately after irrigation the plowsole is usually soft enough to break easily, but becomes hard as it dries.

Plowsoles form during the irrigation season. They do not, however, form in mulched soils which are rarely plowed, and pressure from the plows and tools does not appear to be necessary to their formation. As plowsoles limit the growth of the roots and prevent the penetration of the irrigation water, it is important to control them. To overcome the plowsoles mechanically a subsoiler is used. Chemical action is induced by applying ground lime, ground sulphur and gypsum. The introduction of organic matter deep down in the soil is undoubtedly the best deterrent to formation of plowsole.

IMMUNE WOODEN PILING

As ornamentals we of California have grown several species of a conifer with real leaves (not "needles"), known as podocarpus. The one most common with us in P. macrophylla, often passing as P. Japonica through being native to Japan. It is a very slow growing tree, but eventually attains to 50 feet. There are other faster growing species, and two of these, P. elongata and P. tracilier, from Africa, are recommended for many uses. A government report states:

"The wood is very even grained, with few knots. Builders in South Africa are fully conversant with its qualities for house construction work, such as flooring and lining boards. It also makes good railway sleepers and construction timbers when creosoted. Timber merchants anticipate a great future for it. A firm of railway and dock constructors reported as follows after using this timber on harbor works at Kilindini: To test whether this timber is affected by teredo, a log was moored to float under the false work of the pier. It was left there for a year and then found perfectly sound and good, whereas the baulks of the false work of pitch pine were quite eaten through by teredo in the same time."

VALUE OF FARM MANURE

In the Journal of Agricultural Research C. S. Scofield gives the results of interesting experiments on the effect of farm manure in stimulating the yields of irrigated field crops.

The experiments described were carried out in three stations with irrigated soil under semi-arid climatic conditions in order to study the effect of farmyard manure on the production and quality of sugar beets and potatoes. The experiments lasted six years, from 1912 to 1917, in rotations of two to six years with oats and alfalfa. The manure was applied at the rate of 12 tons an acre for each rotation.

The application of manure to potatoes increased the crop by about 40 bushels an acre and at the same time raised the proportion of marketable potatoes by eight per cent. The yield of sugar beets was also raised by 4.3 tons without any appreciable increase in the percentage of sugar. In five out of seven rotations the manure was applied to the experimental crop, and in two others to the preceding crop. In both cases the beneficial action of the manure is appreciable for two years or more after its application, both for the crops studied and for the other rotation crops.

AGRICULTURAL TRAINING IN ARIZONA

Arizona students of agriculture under the vocational agricultural training work are cultivating a total of 774 acres of different kinds of crops and are caring for 168 head of live-stock, 488 chickens and 272 stands of bees. Carey Bowles, supervisor of agriculture of the state department of vacational education, says: "The projects which go to make up these totals are distriuted over seven of Arizona's 14 counties. They represent the practical application of vocational agricultural instruction in 16 schools. All project work is done under the supervision of local teachers of agriculture who are employed for 12 months of the year. A complete set of records and accounts is kept for each project, and at the end of the crop year the boys will know the exact amount of their profit or loss after rent, labor, and other operating expenses have been paid."

FAIR DATES

Sonoma County Fair, Santa Rosa, August 25-29. Secretary J. Francis O'Connor.
Patterson Fair, Patterson, August 26-28. Secretary T. J. Moe.
California State Fair, Sacramento, September 4-12. Secretary Chas. W. Paine.
Tulare County Livestock and Agricultural Show, Tulare, September 14-18. Secretary John A. Rollins.
San Fernando Valley Fair and Market, Owensmouth, September 15-18, Secretary Chas. L. Schufeldt.
Kings County Fair, Hanford, September 21-25, Secretary Frank C. Russell.
Ventura County Fair, Ventura, September 22-25, Secretary L. P. Hathaway.
Glenn County Livestock and Agricultural Association, Orland, September 27-October 2. Secretary E. A. Kirk.
Fresno District Fair, Fresno, September 28-October 2, Secretary Walter C. Ficklin.
Los Angeles Livestock Show, Los Angeles, October 2-10, Secretary C. R. Thomas.
Siskiyou County Fair, Yreka, October 5-9, Secretary Claude R. Gillis.
Southern California Fair, Riverside, October 13-19. Secretary W. W. Van Pelt.
Western Royal Livestock Show, Spokane, Washington, November 1-5. Secretary Bert L. Hilborn.
Pacific International Livestock Show, Portland, Oregon, November 15-19.

NITROGEN IN SOILS

Recent experiments were made in Kansas to determine the nitrogen content of soils in old alfalfa fields as compared with soils continually cropped and those in native sod. Alfalfa fields contained 30 per cent more than cropped soils and 15 per cent more than native sod soils. The report states: "The increased crop production which is usually obtained on alfalfa fields when they are plowed up is probably due to the large amount of available nitrogen they contain."

The National Research Council organized at the beginning of the war under the auspices of the National Academy of Sciences in order to mobilize the scientific resources of America for work on war problems has now been organized and will now cooperate with the scientific bureaus in investigating the resources of this country. It is now endowed with $5,000,000 by the Carnegie corporation.

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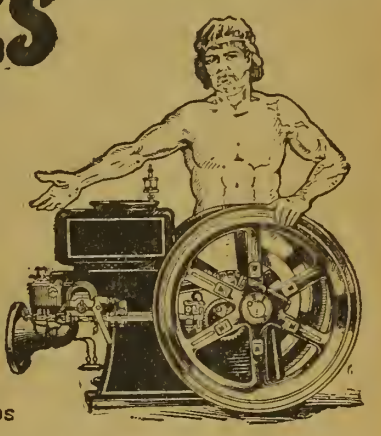

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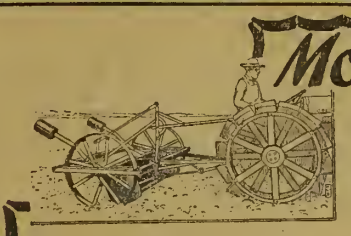

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A Fireless Brooder with every order of one hundred chicks. We ship in the brooder, thus there is no chance of chilling in transit and you have an excellent way to raise them. We have the following varieties of thoroughbred chicks every week: Anconas, Barred Rocks and R. I. Reds, $20.00 hundred. Extra fancy dark R. I. Reds and White Rocks at $25.00 a hundred. White Leghorns $17.50. We guarantee safe delivery. Every one a strong, healthy chick. Orange County Hatchery, 403 E. Santa Clara, Santa Ana, California.

Spring Baby Chicks For Sale—400,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) Stock. Price during May and June, 25, $5.00; 50, $9.00; 100, $14.00. Special prices 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition; no money in advance, pay on delivery. Shipped safely anywhere west of the Rockies. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., PETALUMA, CALIF., 438 Seventh St.

Barred Plymouth Rocks—"Nothing Better in Poultry," wonderful layers. Choice hens and pullets for sale, also fine cockerels that will improve your flock. Now booking orders for hatching eggs. I have bred Barred Rocks exclusively for over twenty-two years. "That's Why" our birds win at all the leading shows. Catalog free. Charles H. Vodden, Los Gatos, California.

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Baby Chicks from my carefully selected, thoroughbred flock of S. C. White Leghorns. May, June and July delivery at $13.00 per 100. Good, strong chicks at this reasonable price. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

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For Sale—Thoroubhbred Brown Leghorn hens, year old in March. Fine cockerels and pullets hatched first of March. Also some R. I. Reds, cockerels and pullets. Eva V. Conklin, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

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White Minorca Baby Chicks and Hatching Eggs — Dark Cornish and Silver Campine eggs. Folder Leech Poultry Yards, Baldwin Park, California.

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Buy cheap, good alfalfa and fruit land in the easy lift water district near improved dairy and hog ranches. $50 to $75 an acre, one-fifth cash. Send for circulars. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

For Sale—30 acres level, rich valley land in Arroyo Grande Valley. All in alfalfa. Plenty of water, gravity system. 12 acres in 15 year old walnut trees. For full particulars write J. E. Parrish, Arroyo Grande, R. D. Box 12, California.

Canadian Wheat Land — 160 acres improved, 1½ miles from town of 4000. $50 per acre. Terms. P. O. Box 98. Merced Falls, California.

44 Acres dry land, producing 90 tons oat hay in Orange belt between Riverside and Bloomington, 40-inch well guaranteed. Address Box 633, San Jacinto, California.

If interested in securing farm lands or have same for sale write me. John G. Mee, St. Helena, California.

Diversified Farming Lands—Natomas Irrigated, Sacramento County; terms. Alex. Murdock, 38 S. Sutter, Stockton.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

Best Cheapest orchard berry and range lands. John F. Beckett, Arroyo Grande, California.

For Sale—Paso Robles orchard lands, $75 acre. J. L. Taylor, Paso Robles.

MACHINERY

FOR SALE—USED RANCH MATERIAL
WE SELL FOR LESS. SEE US.
WHY PAY MORE?
REBUILT WINDMILLS.

8, 10, 12-ft. sizes, with or without towers. Used Redwood TANKS: 2000-gal., $38; 5000, $68; 6000, $78; 25,000, $195. Many others, used GALV. TANKS; corrugated, 16,000 gal., $325; 3000, with top, $95; 2000, with top, $52.50; 1500, with top, $38; new 1000 gal., $43.75; 2000 gal., $59.75.

PUMPS

Large Bulldozer, $135; No. 3 horizontal centrifugal, $65; duplex boost pump, $49; No. 3 double-acting AMES, $375; rods, cylinders extra; many other snaps. Complete PUMPING PLANT, 15 h.p. Western gas engine with deep well double-acting AMES pump, rods, pipe, cylinder, belt, complete, $950; guaranteed good shape.

SPECIAL BARGAINS

4-gang Stockton plow, $28; potato planter, $65.00; 4-row beet planter, $25; 2-row bean cultivator, $35; 3 four-gang disc plows, $85 to $140. WHY PAY MORE?

IRRIGATING PIPE.

3-in., 17c; new light weight, 4-in., 20c; 170 ft. 8-in., steel riveted with flanges, 50c. We don't keep material; we SELL IT. Material guaranteed as represented or money back. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

For Sale — Bean Tractor in first class condition. Used about forty days. Engine has just been overhauled. Price $600.00 cash. J. N. Thille, Santa Paula, California.

For Sale—New Beeman Tractor—does the work of one horse. Cost $450.00, sell at 10 per cent discount. No use for it; have team. Deliver anywhere in Southern California. L. C. Alles, Carlsbad, California.

For Sale—Samson Tractor, Model S.25 G. M. C. 1918, worked 50 days, with 14 inch extension wheels, perfect condition, for $800.00, F. O. B. Los Alamos. J. de Longueuil, Los Alamos, California.

For Sale—Holt 45 Tractor, two engine plows and tank wagon, all in good condition. Price $2500.00. Will trade for heifers. W. R. Mayo, Compton, California.

For Sale—Calf-way milking machine, De Laval separator. James Mills Orchards Corporation, Hamilton City, California.

GOATS

For Sale—Pure bred registered Toggenburg Goats as follows: A Three year old doe, a sixteen months old buck. A doc kid and 2 buck kids. All naturally hornless except doe kid. Prices reasonable. C. U. Widmer, Upland, California.

RABBITS

Pedigreed Flemish Giants; also utility stock. No fancy prices Maud Beechling, 1578 W. 46th Street, Los Angeles.

New Zealand Reds—Young stock. Reasonable prices. Josephine Spencer, 1915 21st St., Sacramento

PIGEONS

For Sale—White King Pigeons. Old mated breeding birds, $3 a pair; unmated birds $2 a pair. Paradise Valley Poultry Ranch, National City, California.

WANTED

Wanted—A working foreman for 35 acre dairy ranch, with 116 acres pasture land. First class wages to a first class man, 40 cows, milking machine, 5 room modern house, good school near, 3½ miles from Santa Ana. Address 1324 Spurgeon St., Santa Ana, California.

Situation Wanted—By experienced horticulturist. Is graduate of Pomologic and Pathologic University. Good propagator and budder. Will consider big proposition only. Married with one child. Finest references furnished. Box 19, Cultivator, Los Angeles.

Wanted—First class nurseryman on private estate near Los Angeles; one who thoroughly understands propagation and care of plants, shrubs and trees in California. Box D. M. J., Cultivator, Los Angeles.

Wanted—Dairyman to take charge of herd of about 75 Ayrshires in Santa Barbara County. State experience, wages expected and religious affiliation if any in letter. Box G. B., Cultivator, Los Angeles.

Wanted—A Kirstin or other good hand power stump puller. Write particulars fully. Wm. T. Mantz, R. D. No. 2, San Luis Obispo, California.

Married Dairyman desires position on ranch; purebreds preferred. Educated; lifetime experience. Box S. R., care California Cultivator, Los Angeles.

Wanted—To hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

Wanted—Immediately, experienced budders and tiers. Address or phone Kirkman Nurseries, Fresno.

PAINTS

Roof Leaks Stopped Quickly, permanently. Our guaranteed roof paint and cement, ready for use, does not settle, thinning unnecessary. Exclusive territory to dependable dealers considered. Dept. 38, Martinek Paint Co., 405 Lexington Avenue, New York City.

HOME CANNING NECESSARY THIS YEAR

Home canning—of utmost importance during the war—will be just as important this year, according to present indications as they are viewed by the United States department of agriculture. The shortage of labor on the farms makes it necessary for the canneries to pay high prices for the commodities that will be canned later in the season. Labor in the canning factories is expensive and difficult to obtain. Everything, from cans to cartage costs, has increased in price, and transportation is slow and more expensive than it was in war times. All this increase must be paid by the ultimate consumer, and there is not even assurance that there will be enough canned products to go around. The solution is home canning.

That sugar is higher in price than it has been hitherto is advanced by some as a reason for canning either less fruit or nothing but vegetables; but unless one intends to give up sweets altogether there seems no good reason for not using canned fruit on account of high priced sugar. There are few desserts that do not take from one-half to one cup of sugar, and no dessert is more healthful than fruit. It is not necessary to use such thick syrup as was used in the days of plenty. A ten per cent syrup made of one part sugar and nine parts water will make palatable any of the acid fruits Such fruits as apples, pineapples and the like can be canned without sugar In fact, ordinary glucose or corn syrup may be substituted for sugar in making the syrup. A palatable syrup is made by mixing one-half cup sugar, one cup glucose and eight cups of water.

It requires about seven ounces of sugar for a pint jar. One cup of sugar will make ten cups of syrup. A pound of sugar will make 20 cups. This last amount will be sufficient for 20 pints of canned fruit. Where the ten per cent syrup is used the cost of the sugar to can a pint jar is one and one-half cents with sugar at 30 cents a pound. It is not so expensive after all.

YOU FURNISH YOUR OWN MATERIAL

There were stories told at the annual meeting of the Travelers Aid meeting at the Princess Theater the other day that were too good to be lost. One by President S. I. Cox of the Silk Travelers Association is specially interesting in these days when everyone seems to be thinking more or less of the life hereafter. Someone had gone to the pastor of Mr. Cox's church to ask his idea of heaven and in answer he related a dream told him by another member of the church, a man of prominence and high financial standing. This gentleman in his dream had died, reached the gates of heaven, was admitted and courteously taken on a personally conducted tour through the pearly streets of the country now to be his home. A number of houses were in process of construction, and a large one was pointed out as being the future home of the man who on earth had been the new arrival's gardener.

"For my gardener!" exclaimed the gentleman in surprise. "Why, on earth he lived in such a small house! He needn't have done so, of course, but he never had anything; he gave everything away. He lived in the little lodge at the entrance to my grounds."

The guide assented to the truth of this statement and the personally conducted tour was continued until they came to another house in process of erection, so small that the new arrival asked curiously for whom it was intended, and was amazed upon being told that that was to be his own home.

"I am to live in that little place, when on earth I had such a great house!" he exclaimed.

"Yes," said the guide, "but you see here we have to use the materials we have on hand, and when you were on earth you sent very little over."

STARLING MOCKED SPARROWS

The sense of humor is usually regarded as exclusively human. But I am not sure that it is, writes "L. F." Yesterday I was privy to an incident in the bird world which raises doubts Perched on a plane tree in Kensington gardens was a starling occupied in turning over his wet and disheveled feathers in the sun, for he had been bathing in the Serpentine. Presently a party of sparrows near by began a noisy dispute—keeping up the sort of shrill cheep-cheep-cheep that one associates with the housetop at five oclock in the morning. This starling at once left off his laundry work and listened, with his head comically tossed so far back that his yellow bill pointed skyward. Then he executed a little warble—in a couple of bars, subdued and sweet. But the next instant, opening his bill to its widest gape, he broke out into that same shrill, five-in-the-morning cheep-cheep-cheep. Then he returned to his feathers.

The sparrows persisted. Again the head was thrown back and the mockery repeated. Again and again it was done, each imitation, curiously enough, being prefaced by the melodious little prelude. So exactly was the sparrows' chirp mimicked—in pitch, volume, timbre and rhythm—as to be quite indistinguishable from the original. If the starling has not the sense of humor, he appears at least to have a nice sense of the ridiculous that lies in mimicry.—Manchester Guardian.

The man who seems to know most about the problem of capital and labor and to do most of the talking about it is the one who never had any capital and never would labor.

The Balance of Rations

Your hens are literally an "egg machine" and the correct feeding furnishes the raw material for eggs. Into this feed LACTEIN should enter, as it furnishes the balance to the food—and it furnishes the nourishment for the egg-producing organs—keeps the body in firm flesh and keeps the organs clean and healthy. LACTIC ACID, which is developed to the highest degree in LACTEIN, is of great assistance in assimilation and digestion of food—it enables the laying hen to get every morsel of nourishment from the feed.

Lactein

CONDENSED BUTTERMILK

also furnishes a great share of Protein for the white and fat for the yolk of the egg—LACTEIN brings the hens through the moulting season earlier, and it also causes pullets to begin laying earlier.

GIVE YOUR FLOCK THE BALANCE OF LACTEIN

Start now with this pure food and tonic for poultry and hogs. It represents an investment of real profit.

Lactein Company

Modesto

Main Office and Factory

FOR GREATER EGG PRODUCTION FEED— COULSONS EGG FOOD

FULL PARTICULARS IN OUR FREE BOOK "CHICKENS FROM SHELL TO MARKET"

Coulson Co. PETALUMA, CAL.

The California Cultivator Costs Only $1 Yearly

Picking the Layers by Elimination

By Jean A. Koethen

HOW shall we detect with certainty the heavy producing hen? The trapnest will do it, but not every poultryman is in a position to trapnest. There are many who have not the time themselves and do not feel justified in hiring the necessary labor for watching trapnests. Is there any way of finding the layers without trapnesting?

A good many men are working on this problem, and some of our young men especially are putting a good deal of time and study upon it. If in any flock we can put our finger on the high producer, the rest is easy, for like produces like.

Eggs and Walnuts

Fifty Dollars' worth of walnuts came from the trees in these yards. Photo by Mrs. Koethen.

One young man who has worked out a definite and ingenious system of picking the layers is B. S. Smallwood of the Mountain Ranch at Upland. A description of his methods will, I am sure, be of great interest just now, at the beginning of the culling season.

All the Mountain Ranch pullets are put in one house at the beginning of the season, and from the start all sick and defective birds are removed as soon as they are seen. This leaves a flock of vigorous birds to begin on.

Broodies First

Last year Mr. Smallwood began with a flock of 1,600 pullets. By the end of the year he had culled it down to 650 layers.

Obviously, the first hens to be gotten rid of in any flock are those addicted to broodiness. Broodiness can be condoned in Rocks and Reds, but not in Leghorns. No Leghorn that goes broody ever makes a very high record. In this flock every hen that goes broody before July 1 is removed and sent to market. The mere fact that she has gone broody is sufficient. If a pullet does not go broody till after July 1 it is plain that broodiness will never greatly affect her egg record, and she is left in the flock, but in the lowest grade—every pullet that has not gone broody by July 1 is banded on the left leg. This is the first step in Mr. Smallwood's system of banding. A different color is selected for each year's bands, so that he may see at a glance in what year the pullet was hatched and whether or not she has ever gone broody. A pullet without a band is therefore under suspicion. She has gone broody once, and she may go broody again. The pullets that receive bands July 1 are promoted into the lowest breeding pen.

Watch the Comb

It is assumed that every pullet is laying by December 1. Most of them are laying considerably earlier than this, according to the date of hatching. Mr. Smallwood prefers that they should not lay under six months of age, but they are hatched early enough to make it certain that every pullet with a capacity for heavy production is laying by December. After December 1 every pullet that stops laying is removed and marketed. How does he know that she has stopped laying? Here is the secret of the success of many men who have bred up heavy laying flocks. He visits the roosts at night with a lantern and picks out every hen with a wilted comb. To make assurance doubly sure he feels the pelvic bones, but the comb usually tells the tale. In nearly every case the wilted or dry looking comb is accompanied by pelvic bones too close together to permit an egg to pass between them. If at least three fingers cannot be placed between these bones it is evident that the hen is not doing much laying. This is a new way of playing the old game of "counting out." It is, "one, two three, out goes she," and the hen that quits, like the hen that goes broody is discarded forthwith. Every week one of these night visits is made to the hen house and every week the discarded hens are sent to market.

"Too heroic," do you say, this summary treatment of laggards? Not a bit of it. Feed is too expensive and time too valuable to permit the waste of either. The hen that stops in the middle of the season will not be in haste to begin again. Let her go.

By this constant elimination of the unfit Mr. Smallwood keeps his percentage of production steady at from 50 to 70 per cent. In the spring he expects it to be better than 60 per cent and he does not care to have it go much higher. A hen that lays from 75 to 80 per cent loses her surplus fat and with it her vigor and will be an easy prey to disease. The amount of hard grain fed from day to day is a sort of regulating screw to keep production steady. When it goes too high more grain is fed and less mash. When it runs low the amount of mash is increased and the grain feed diminished.

Trapnesting the Layers

Trapnest makes work, but picks out the layers and gives away the loafers.

Grading by the Molt

Every hen that stops laying before September 1 is removed and marketed. In July the roosts are visited again with a lantern and every hen that has commenced to molt is removed. This system of elimination is very largely a molting test. The early molter, like the broody, is one of the unfit, and out she goes.

After September 1 all hens regardless of age are kept another year unless they have gone broody. Broodiness is the unpardonable sin. After all this culling the flock that remains September 1 consists exclusively of hens that are laying. Early molters are gone; broodies are gone; the sick are always removed promptly.

On October 1 Mr. Smallwood and his helper go through the flock again and separate the pullets that are laying from those that are not laying. The hens that stop laying in September stop because they have commenced to molt. These hens are not discarded. They are kept, but marked. The pullets that have stopped laying in September are banded on the right leg. Those that are still laying are banded on the left leg. Do you see the point? The pullets with right leg bands are pullets that have stood several tests but that have molted too early to belong to the highest grade. The pullets with left bands now have two on the same leg, one to show that they did not go broody before July 1 and one to show that they were still laying October 1.

November 1 the flock is combed again, the pullets that are still laying November I get a band on both legs. These are what Mr. Smallwood calls "Long Distance Layers." They have laid since they began a year ago or longer, without stopping. Some of these hens lay 16 months or more without stopping—in fact, there were hens in the flock in April, 1920, that had been laying since December 1, 1918, without any perceptible molt. They were rusty and ragged, but still alert. When such hens do molt, it is usually a feather at a time and does not interfere greatly with production.

The hens are now segregated into three grades; those that laid nine months without stopping; those that laid ten months, and those that laid 11 months. The hens that laid 11 months before they began to molt are in the highest grade. Eighty-eight hens, ranging in age from one and one-half to three years, are in this grade, and the day I was there they laid 65 eggs.

This culling and banding looks like a good deal of work, but I was assured it is not. "We only handle the hens twice," said Mr. Smallwood, "on October 1 and November 1," and only our best hens. Early molters have already been eliminated or marked, and the number eligible to the rank of breeders has been greatly reduced."

When new blood is to be introduced the pullets are proved by the above method, and the best, when they are yearling hens, are mated to the best cockerels from the flock and used in the cockerel breeding pen.

Double Yarding.

A very satisfactory system of double yards has been in use for several years on the Mountain Ranch. The space in front of the long houses is divided into two yards and that in the rear remains one. These yards are planted in alternation to barley and Sudan grass, the barley being used in winter and the Sudan in summer. The birds are not turned on either crop till it has grown to its full height and been cut for feeding three or four times. Then they are turned on, not for green feed, for there is not much left, and it would not last if there were, but to get the benefit to be derived from clean soil. The purpose of this cropping is two fold: first, to purify the soil, and second, to use the manure in the soil for growing green feed.

GLOBE "A1" FEEDS

Judge them on Business Principles!

FEED FOR SWINE, STOCK AND POULTRY

ASK YOUR DEALER

Cement Droppings Boards

Mr. Smallwood says he is the first man in Southern California to use cement droppings boards. The cement is put on over the old wooden droppings boards, with a layer of waterproof building paper between. Cement is spread on the paper to a depth of from three-quarters of an inch to an inch. The cement does not warp nor crack and is easier to keep clean than wooden boards. All houses have cement floors.

To Control Toe Picking

The sight of the hundreds of chicks in the long brooder house reminded me of that oft repeated query, "How shall we control toe picking in young Leghorns?" On this ranch it is controlled by not allowing the sun to shine directly on the floor of the brooder house. The house fronts east so that it gets the direct sun only in the early morning, and the straw litter is always in the shade. The first week the chicks are kept in out of the outside run, and by the time they get out their shining toes have no longer any attraction. In some cases toe picking may be due to lack of salt. If the chicks show any disposition to indulge in the practice salt is added to the mash and a little salt pork is hung up in the run for them to peck at.

Teaching Returned Soldiers

A very interesting part of Mr. Smallwood's work, and something of which there may be more to be said later, is his class in poultry culture at Chaffey high school—or is it Chaffey agricultural college? In this class of 14 there are 12 soldier boys—lads of a little past 20—who are receiving vocational training at the hands of the government. These young fellows, broken in health but anxious to qualify for earning an outdoor living, are studying Harry Lewis' "Progressive Poultry Husbandry," and visiting poultry ranches under Mr. Smallwood's guidance, and he counts it a privilege to turn their thoughts into such a practical channel.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, June 7, 1920. Report for the week ending June 4, 1920.

The Leghorns in the laying contest at Storrs are coming into their own. In the thirty-first week a pen of Blacks entered by F. A. Brizzee, Oswego, Pennsylvania, finished in first place with a yield of 59 eggs. Two pens of Whites owned by Hollywood Farm, Hollywood, Washington, and C. Rasmussen from Dover, New Jersey, tied for second place with 58 eggs each. Barred Rocks that have been leading the contest for so many weeks managed to squeeze into third place, but this is the only mention they get. It was Oneck Farm's pen from Westhampton Beach, Long Island, that laid 56 eggs. The total production for all pens was 4,188 eggs, or a yield of nearly 60 per cent.

Higher egg prices seem almost inevitable. Feed and labor are two big factors in the cost of egg production, and both of these are at present higher in price than during the war. It would therefore appear that the poultryman must get more money for his eggs or else reduce the cost by getting more eggs per hen. From time to time there have been made in these columns several suggestions which ought to make for better egg production. A partial summary of those factors that can be almost entirely controlled by the poultryman includes segregation of the males after the hatching season, providing an abundance of green food in summer as well as in winter, a close inspection of the poultry houses to guard against red mites, making sure that the birds have a bountiful supply of clean, fresh water; all of which are an aid in getting the maximum number of eggs from any given flock of hens. A great many hens in Connecticut are laying around eight or nine dozen eggs a year, and this is not enough. The successful poultryman will have to get at least two or three more eggs a month, which would mean ten to 11 dozen eggs a year, on the average from each hen.

The three best pens in each of the principal varieties are as follows:

Plymouth Rocks

Jules F. Francais (Barred), 1,317; Oneck Farm (Barred), 1.290; Merritt M. Clark (Barred), 1,186.

White Wyandottes

Mrs. R. W. Stevens, 1,085; Herbert L. Warren, 1,058; Applecrest Farm Company, 1,033.

Rhode Island Reds

Pinecrest Orchards, 1,308; Jacob E. Jansen, 1,171; Charles H. Lane, 1,156.

White Leghorns

George Phillips, 1,260; Glenhope Farm, 1,233; E. A. Ballard, 1,196.

Miscellaneous

A. L. Anderson (R. I. Whites), 1,198; A. E. Hampton (Black Leghorns), 1,165; H. P. Cloyes (Buff Wyandottes), 1,069.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

By Max Kortum

For the week ending June 12 the 340 contesting hens laid 1,397 eggs, or a production of 58.5 per cent.

High pens for the week are: Gibson, 53 eggs; Bellows, 53; Stalling, 51; Gibson, 49; Binney, 49; Barker, 48; Enterprise, 47; Rose, 47; Schlink, 46; Wood, 45; Gray, 45; Clark, 45.

DON'T EXPECT TOO MUCH FROM HATCHING EGGS

The poultryman who sells natching eggs is too often blamed for poor hatches. Aside from irregular management of the incubator, weather conditions during transit and the temperature in which eggs are kept before placing them in the machine may affect hatchability. Eggs will incubate in a temperature of 70 degrees. If they are subjected to that temperature for any length of time and subsequently brought into a cooler temperature before being placed in the incubator, dead germs are likely to result.

It is wise to figure conservatively on the results to expect. About five times as many eggs should be incubated as one expects to have mature pullets in the fall. After April 1 90 per cent fertility may be expected for Leghorn eggs and 80 per cent for the heavier breeds. A 60 per cent hatch of fertile eggs is a good one. About ten per cent of the chicks may be lost on range. Of the remainder there should be approximately an equal number of cockerels and pullets.

NO SOAP

George Horace Lorimer, the Philadelphia editor, has an almost insane hatred of the Bolsheviki, and at a dinner in Overbrook the other evening a lady said to him:

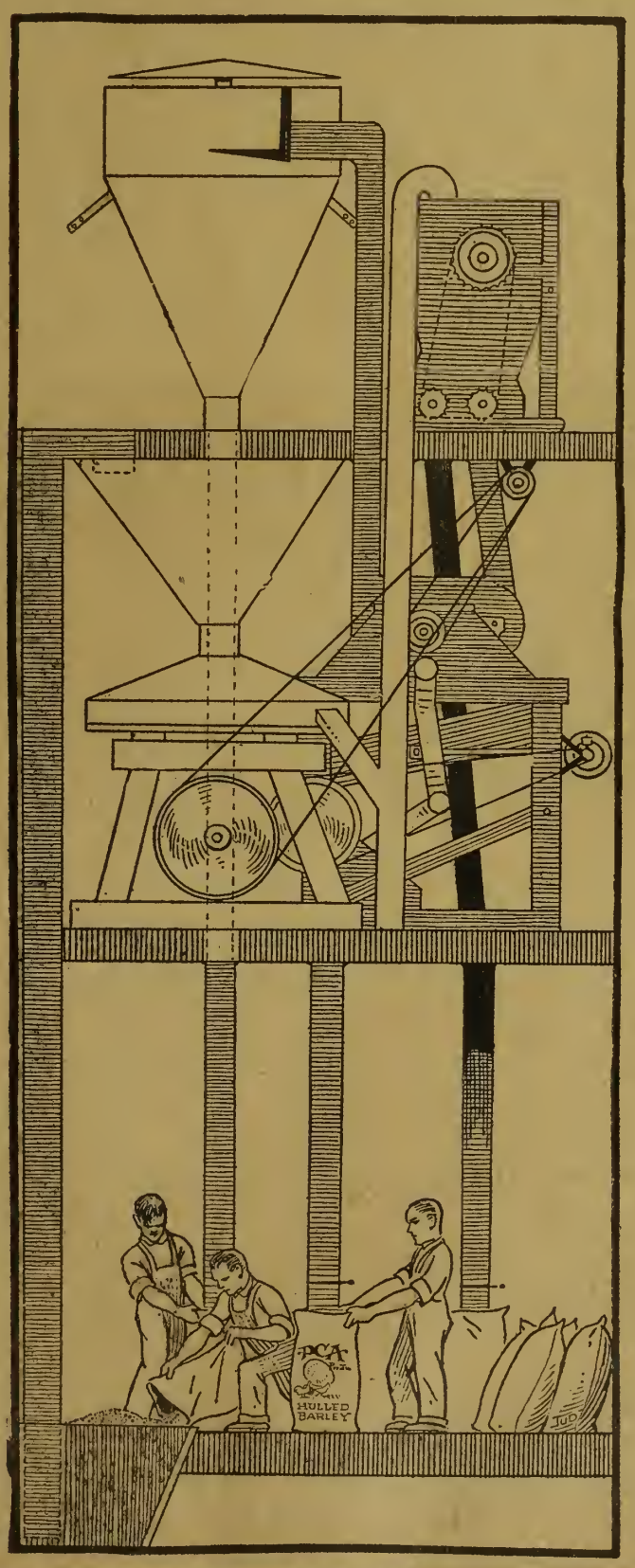
"I'm glad to see that you give the Bolsheviki the Old Harry in your paper. Some of these Bolshevikistic sheets make me sick. They are full of such wishy-washy talk about bolshevism."

"Wishy, perhaps, madam," said Lorimer, with a laugh, "but from the Bolsheviki habits, certainly not washy."

"My boy," said a father to his son, "treat everybody with politeness, even those who are rude to you; for remember, that you show courtesy to others, not because they are gentlemen, but because you are."—Our Dumb Animals.

This Great Machine Works

To Help Poultrymen



Present high prices of wheat with every indication of still further increases are awakening poultrymen to the value of hulled barley in feeding poultry.

The Poultrymen's Co-operative Milling Association has installed the latest type of barley hulling machine, a diagram of which is shown herewith. This machine—the largest of its kind in Los Angeles—renders more barley available as a lower cost poultry food and will help solve a difficult feeding problem.

PCA

Hulled Barley— An Economical Wheat Substitute

To compare favorably with wheat in nutriment the barley should be separated from the hulls by a special process, which will not grind off the valuable outer protein layers on the barley kernels. This process is effectually carried out by our new huller, so that P.C.A. hulled barley contains the maximum proportion of protein.

Poultrymen are urged to investigate the merits of hulled barley as a substantial poultry feed with the same values as wheat.

Ask your dealer for quotations on P.C.A. Hulled Barley, or write to us direct.

Poultrymen's Co-Operative Milling Association

1516 Industrial Street, Los Angeles, Cal.

Manufacturers of

Celebrated P.C.A. Dry Mash

Phone 12076 Main 2935

Los Angeles Markets

Los Angeles, June 23, 1920.

BUTTER

Butter, creamery extras. Produce Exchange price 61 cents.

Dairy Exchange prices last week on extras:

June	16	17	18	19	21	22
'20 ...	60	60	60	60	61	61

CHEESE

Brokers' prices:
California flats, 30 per lb.

EGGS

Fresh extras, cases included: Produce Exchange closing price, 47 per dozen; case count Prod. Exch. closing price, 45. per dozen; pullets, Produce Exchange closing price 40 per dozen; pewee pullets, 30.

Dairy Exchange prices last week on extras:

June	16	17	18	19	21	22
'20 ...	47	47	47	47	47	47

POULTRY

Price to producers: Hens, lt., 18; heavy, 24; broilers, 20@24; roasters, 38; old roosters, 14; fryers, 32; ducks, old, 17, ducklings, Pekin, 3½ up, 20; others, 17; geese, 25; turkeys, live, young tom, 44; dr., 50; old, live, 40; dr., 41; hens, live, 40; dr., 41; squabs, 45@47; pigeons, doz., 1.00.

Belgian hares, live, 16; old, 9.

LIVESTOCK

Los Angeles, June 22 — Weighed and delivered off cars without food or water:

Hogs (hard-grain, 125 to 175 lbs., 15.50; 175 to 225 lbs., 16.50.

Cattle (on foot, gross weight)—Steers, good, 11.00@11.50; medium, 10.50@11.00; cows, good, 9.00@9.50; medium, 8.50@9.00; bulls and stags, 6.00; calves, 125 to 150 lbs., 12.00; 175 to 225 lbs., 11.50.

Sheep—Ewes, 8.50@9.00; lambs, 14.50@15.00.

POTATOES AND ONIONS

Potatoes show slight decline during week. Commission houses have been willing to accept $1 lower price than a week ago.

These are the actual prices obtained between 7 and 8 o'clock, June 22 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Old stock: Practically no supplies; too few sales to establish market. New stock. Market unsettled. Local Early and White Rose No. 1's, mostly 2.40@2.75. No. 2's, 1.00@1.75 per lug, according to size; 100 lbs. sacked, No. 1's, 6.50@7.25.

Carlots: Supplies liberal. Market easier. Sales to jobbers: New stock: White Rose No. 1, sacked mostly 6.25@6.60 per cwt.; lugs, 2.25@2.40.

Onions: Supplies of Wax, heavy; Yellow, light; wide range in quality; some slippery; demand and movement slow; market steady. New stock: Coachella Valley: Wide range in prices. Bermudas, best, 1.25@1.50 per crate; lugs, 75@1.10. Crystal Whites, per crate, mostly 1.50; lugs, mostly 85@1.00; sunburned and decayed stock at all prices.

Carlots: Demand and movement slow; wide range in condition; many sunburned; market improving. Coachella Valley: Standard crates, Yellow Bermudas and Crystal Wax, sales to jobbers, best, 1.00@1.25; poorer low as 75.

Garlic: lb., 30@35.

VEGETABLES

These are the actual prices obtained June. 22 by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., best, 60@80.

Asparagus: Supplies liberal. Market steady. Delta section: Best 12@15; local, 17@20.

Beans: Ky. Wonder, 6@9.

Beets: Doz., 45@55; sk., 2.25@2.50.

Cabbage: Supplies moderate, market steady, movement good, wide range in quality. Best mostly 2 per lb., per field crate, best, 1.75@2.25; poorer, low as 1.00.

Carlots: Demand pood; movement limited; market steady. Carloads, f. o. b., usual terms. Cannonball and Winningstadt, per ton, mixed cars, 30.00@40.00.

Carrots: doz.,40@50; sk., 2.50@2.75.

Corn: Local, 1.75@2.00 per box.

Cucumbers: Market steady; local, best, lug, 1.25@1.50.

Egg Plant: Best, lb., 8@15.

Lettuce: Supplies, moderate. Crates, best, 75@1.00.

Carlots: Few shipments, mostly on consignment; market steady. Few sales mixed cars; 1.50@1.75 per crate.

Parsnips: Lugs, 1.00@1.50; sacks, 3.00@3.25.

Peas: Northern: lb., 9@10.

Rhubarb: Strawberry, bx., 1.00@1.25.

Spinach: Doz., 20@30: lb., 2.

Squash: Local summer, large lugs, 60@80; flats, 50@60.

Tomatoes: Imperial and Coachella, supplies moderate; market steady; cr., best, 1.75@2.00.

Turnips: Per dozen, 30@40; per sack, 1.00@1.25.

DECIDUOUS FRUITS

These are the actual prices obtained June 22 by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Apricots: Northern: 5@7; local lugs, 1.50@2.00.

Bananas, 10@11.

Blackberries: Supplies light; per crate, mostly 3.00@3.50.

Cantaloupes: Market strong; supplies light. Imperial Valley: Standard, mostly 4.50; Ponies, 3.75@4.00; flats mostly 1.75.

Carlots: (Direct wire from Brawley) Hauling heavy, increasing. Demand good, market steady, prices declining. Quality and condition fair to good. Carloads f. o. b. cash track. Standards, 45's, 3.00@3.50; mostly $3.25; ponys, 2.50@3.00; flats, 1.15@1.75, mostly 1.30@1.40. Yesterday's shipments, 240.

Cherries: Supplies liberal; market strong; various varieties, best, mostly 15@18 per lb.; poorer, low as 10.

Gooseberries: lb., 10@12.

Peaches: Supplies liberal, wide range in quality. Various varieties, lb., 5@10.

Raspberries: cr., 3.50@4.00.

Rhubarb: Local, 1.00@1.25 box.

Strawberries: cr., 3.50@4.00.

Watermelons: Supplies liberal. Mostly 2@3 per lb., according to size.

Carlots: (Imperial Valley section)—Demand and movement good; market firm. Carloads f. o. b. cash track, Brawley and El Centro; 32.50@40.00 per ton according to size and quality.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 2.25@2.75; special packed brands, 3.00@3.25.

Lemons: Market unsetled, wide range in prices. Local Stock: packed, 3.75@4.50; loose, 1.25@2.25.

Oranges: Supplies liberal. Valencias: packed special brands, 100's, 4.50@4.75; 126's, 5.00@5.25; 150's to 176's, 5.25@5.50. Local packed, 3.75@4.25.

HONEY

Old honey practically exhausted, new supply light; few sales; demand good; movement limited. Carloads f. o. b., usual terms. New crop orange, 21; Hawaiian lt. amber, 17½. Old crop white amber sage, 19; wh. alfalfa, 19½. Beeswax, 42.

HAY

Alfalfa Growers of California, under-date of June 23, says:

The market for alfalfa hay ruled strong this week under active demand for spot as well as for lots to be shipped. Sales would hape been larger if not been compelled to turn down offers for round lots, on account of having disposed of all that the members listed this week for sale at current prices.

Present prices appear decidedly reasonable considering cost of production, and still more so in view of the probable light total production in the state. A feature of this year's distribution is that on account of the larger requirements in the northern part of the state, where the shortage is most pronounced, a good deal of hay from sections in the San Joaquin Valley which formerly went to Southern California markets, is going north. Large shipments of grain hay and alfalfa have come into the southern market this week but prices have held strong on all high grades. The lower grades containing foreign grasses have sold off and the supply is limited. The millers of alfalfa meal are showing a disposition to buy good green alfalfa! Market as a whole strong.

Prices in California today are as follows in southern districts:

Choice alfalfa, 40.00 per ton, No. 1 dairy, 36.00; standard dairy, 32.00, stock alfalfa, 29.00.

GRAIN AND FEEDS

Barley: Stiff export demand has given great interest to barley movement. There is a great range in price because of vast difference in quality. Forty-nine lb. bright barley is readily commanding 3.30, while a 41 lb. barley, more or less stained, may run as low as 2.82½.

Milo: Good bright, local grown milo is commanding 3.20 and Eastern milo is running as low at 2.92@2.95.

Wheat: Utah-Idaho Milling, 6.00; feed wheat is running around 4.45@4.55.

Corn: Sacked, Yellow, 3.85@3.91¼.

Price bid local grain exch. cwt., June 22: Barley: 2.81¼@2.83¾. Milo: Carlots, 2.86¼; Eastern, 2.92½. Kafir: Eastern, 3.12½.

San Francisco Markets

San Francisco, June 22, 1920.

BUTTER

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

Dairy Exchange quotations, lb.:

Extras	59½
Prime Firsts	56½

June	15	16	17	18	19	21
'20 ...	57½	58	58½	58½	59	59½
'19 ...	57	57½	..	57	57	57½

Rcts. wk. ending June 21, 4,954 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	23@26
Cal. Y. A.	30
Ore. Trips	30
Cal. Flats	33

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	46½
Extra Pullets	37½
Undersized	31

Extras past week and year ago:

June	15	16	17	18	19	21
'20 ...	49½	48½	47½	47	47	46½
'19 ...	52	51	52	52½	53½	53½

Rcts. wk. ending June 21, 512,644 doz.

POULTRY

Wholesale prices are:

Leghorn, 23@25; large, 32@33; roosters, young, 45@50; old, 18@20; broilers, 25@30; fryers, 33@35; turkeys, live, 37@40.

Ducks: Indian Runner, 21@23; Pekin, 22@25. Squabs, 55@60; pigeons, doz., 2.35@2.50.

Belgian hares, live, 15@17; Jack rabbits, dozen, 1.50@3.50.

LIVESTOCK

Western Meat Company prices are:

Cattle: Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 9@10½; do, 1,200 to 1,400 lbs., 8@9; do, second quality, 7@8; thin, 6@7. Bulls and stags: Good, 3½@4; fair, 3@3½.

Cows and heifers: No. 1, 7½@8½; second quality, 6@7; common to thin, 2@4.

Calves: Lightweight, 10@11; medium, 8@9; heavy, 7@8.

Lambs: Milk, 10@10½; yearlings, 8@8½.

Sheep: Wethers, 7½@8; ewes, 6@6½.

Hogs: Weighing 100 to 150 lbs., 15; 150 to 225 lbs., 15½; 225 to 300 lbs., 15; 300 to 400 lbs., 14.

Virden Packing Company quotes prices on livestock, weighed and delivered off cars at its plant, South San Francisco, as follows:

Cattle: Good steers, 1,000 to 1,100 lbs., 9½@10; top steers, 1,100 to 1,200 lbs, 8½@9; good heifers, 1,200 lbs. and over, market price; good cows and heifers, 7@7½; No. 2 cows and heifers, 6@6½; good bulls, 4@4½.

Calves: Light, 13@14.

Hogs: Top packer, hard and well finished, 100 to 150 lbs., 14¾; 150 to 225 lbs., 15¾; 225 to 300 lbs., 14¾; over 300 lbs., 14; under 100 lbs., 13½.

Ewes: Full wool, 7@7½.

Wethers: Full wool, 8@8½.

Yearlings: 9½@10.

POTATOES

New, 6.50@7.50 cwt.

ONIONS

Onions: New reds, 70@80; whites, 75 cr.; green onions, 1.40@1.75. Garlic, new, 9@11.

VEGETABLES

Wholesale selling price:

Asparagus: lb., white, 6½@7½; graded, 10@12.

Beans: lb., String, 8@12½; Wax, 7@8.

Cucumbers: Eng., doz., 1.25; other, 1.80@2.25 per bx.

Corn: Sack,5.00@7.50.

Eggplant: Livingston, 17@20; So., 12½@15.

Okra: Green, 9@11.

Peppers: Bells, 15@20 for large, 5@10

Peas: lb., green, 2½@4.

Radish, 7@9 doz. bunches.

Spinach: lb., 4@5.

Squash: Summer, cr., 75@1.00; Sacramento, lug, 2.50@2.75.

Tomatoes: Brawley, cr., 1.25@2.15.

DECIDUOUS FRUITS

Apricots: Imperial Valley, Los Angeles lugs, 5@10 per lb.; 1.00@1.75 per crate.

Bananas: lb., 8@9½.

Cantaloupes: Ponies, 2.00@2.50; ;standards, 3.00@3.50; flats, 1.00@1.25.

Cherries: Black, 1.50@1.75 per drawer; loose, white, 3@5; blacks, 6@9 lb., according to quality; Royal Annes, lb., 10@14.

Currants: 50@75 dr.; 6.50@9.00 ch.

Figs: 1.00@1.25 for white and Brunswick per box of one layer.

Gooseberries: lb., 5@6.

Loganberries: Red, dr., 50@75.

Peaches: 1.25@1.75 per crate; boxes, 1.50@1.75.

Pineapples: Doz., 2.75@4.25.

Plums: Apex, 1.25@2.00 per crate; Beauty, 1.50@2.00; Climax, 1.50@2.00; Clyman, 1.25@1.75.

Raspberries: dr., 1.25@1.50; cr., 3.00@3.25.

Strawberries: Peninsula, dr., large, 75@1.15; small, 50@75.

Watermelons: Imperial Valley, lb., 3½@4; Honey Dew, cr., 1.00@1.50.

CITRUS

Box: Lemons, standards, 2.50@4.75; lemonettes, 1.25@2.00; grapefruit, 2.00@3.50; navel oranges, 4.00@6.00.

BEANS AND PEAS

California Bean Growers Association, San Francisco, June 21:

The market remains unchanged, except there is considerable inquiry for July, August and September business, indicating that trading will shortly be resumed.

Quotations this date:

Large Whites	6.25@ 6.40
Small Whites	5.75@ 6.10
Pinks	6.30@ 6.50
Cranberries	6.75@ 7.00
Black Eyes	8.25@ 8.50
Red Mexicans	8.50@ 8.75
Red Kidneys	14.00@14.50
Bayos	10.25@10.50

HOPS

1919 crop, 85@1.00 per lb. Prices to growers for 1920 crop, 65@80 per lb.

HONEY

Reported by Rafael & Wing:

Very little honey arriving. Not enough sales to establish prices. White orange offering in this market at 20@21. No change in wax. It is bringing from 40 to 42. From all indications, there will be a very good honey crop from the San Joaquin and Sacramento valleys. The sage crop in Santa Clara and San Benito counties is practically a failure. Some Honolulu honey offering, but not enough to affect the market.

GRAIN

Wheat: No quotations obtainable.

Oats: Red feed, 3.15@3.25.

Corn: California Yellow, 3.70@3.80 per cental; Egyptian White, 4.00@4.10; California milo maize, 3.40@3.50.

Barley: No. 1 feed, 3.00@3.10.

HAY

Under date of June 19, A. W. Scott Co. says:

Receipts past week 1,598 tons. The market in San Francisco has ben extremely dull. Old hay practically cleaned up, probably never has the supply of old hay been so completely exhausted in California. Much of the supplies coming in here during the last week have been for export and for government contracts. New hay has not commenced to come in sufficient range or variety to fix stable quotations. Throughout the country there seems to be a fixed impression on the part of the farmer and determination to ask $30 per ton for almost any quality of grain hay. The prices asked are so far in excess of the ideas of the consumers here that they decline to purchase with the result that there is practically no trading done and may not be until conditions of supply and demand bring closer harmony of ideas. What purchasing of new hay has been done has only been from hand to mouth in cases where it was absolutely needed. Shipping conditions through the state are improving but still far from satisfactory, and it may be sometime yet before any regular service can be obtained. Dealers have made no purchases as yet of any consequence as the feeling seems to be that it is a little early to determine the amount of shortage in some sections and extra production in others. Much delay of baling is caused by scarcity of wire.

We quote today wholesale prices in carload lots (old crop) as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.)

Old Hay:	
Fancy wheat hay (light 5 wire bales)	38.00@41.00
No. 1 Wheat and Wheat and Oat hay	35.00@38.00
No. 2 Wheat and Wheat and Oat hay	32.00@35.00
Choice Tame Oat hay	37.00@40.00
Wild Oat hay	Nominal
Other Tame Oat hay	33.00@37.00
Barley hay	Nominal
Alfalfa hay new	25.00@30.00
Alfalfa hay, old	30.00@32.00
Stock hay	29.00@32.00
Oregon Cheat and Oat hay	29.00@32.00
No. 1 Barley straw, bale	70@1.00
Stock Hay	20.00@25.00
No. 1 Barley Straw, per bale	.70@ 1.00
New Hay:	
Wheat Hay	No Arrivals
Tame Oat Hay	No Arrivals
Wild Oat Hay	22.00@25.00
Barley Hay	22.00@25.00
Alfalfa Haf, first cutting	20.00@25.00
Alfalfa Hay, second cutting	25.00@30.00

Alfalfa Growers of California quote prices for Northern Districts:

No. 1 Dairy Alfalfa	32.00
Standard Dairy	30.00
Stock Alfalfa	27.00

Citrus Markets

Los Angeles, June 23, 1920.

The orange market continues strong; some sales in auctions going above the $8 mark. Fresh deciduous fruits are filling the market but oranges are still in keen demand.

On the other hand the lemon market continues flat, first class stock being held in packing houses unless around 4.50 f. o. b. California may be had. Number foreigns available for market within next 30 days said to be in excess of 200,000 boxes.

Shipments

Shipments of oranges to date from Southern California since November 1, 1919: Oranges, 22,329 cars; lemons, 5,539; total, 27,868. To same date last season: Oranges, 26,009; lemons, 6,943; total, 32,952. From Central California to date this season: Oranges, 5,368; lemons, 288; total, 5,656. To same date last season: Oranges, 3,691; lemons, 251; total, 3,942. Northern California this season: Oranges, 260; lemons, 20; total, 280. To same date last season: Oranges, 234.

AT THE AUCTIONS

June 17

New York: 36 or., 1 lem. Val. 2.40-8.55, Nav. 3.00-7.15, Sweets 1.30-2.70, St. Mikes 1.45-5.75, Seeds 1.95-4.75, Grapefruit 1.40-2.65, lem. 1.00-3.05.

Philadelphia: 10 or., 3 lem. Val. 3.35-6.60, Nav. 4.30, Seeds, 3.10-4.65, lem. 1.35-3.45.

June 18

New York: 20 or. and grapefruit, 2 lem. Val. 3.50-6.95, Nav. 4.00-7.45, Sweets 3.00-4.40, Grapefruit 1.70-2.35.

Boston: 10 or., 6 lem. Val. 3.45-5.95, Nav. 3.50-5.30, St. Mikes 5.90, lem. 50 cents-4.55.

Cincinnati: 3 or., 3 lem. Val. 4.50-5.60, lem. 3.90-5.10.

Pittsburgh: 5 or., 1 lem. Val. 4.05-5.60, lem. 1.60-2.75.

St. Louis: 5 or., 4 lem. Val. 4.15-6.80, lem. 4.05-5.30.

June 21

Boston: 17 or., 5 lem. Val. 3.70-6.25, Nav. 6.60-7.40, lem. 1.40-4.30, Grapefruit, 1.15-2.75.

New York: 43 or. and Grapefruit, 5 lem. Val. 3.15-8.80, Sweets 2.35-3.80, Seeds 3.55-5.45, Bloods 3.80-4.95, Grapefruit 1.15-3.15, lem. 1.60-3.10.

Philadelphia: 15 or., 2 lem. Val. 3.60-6.20, Sweets 4.10, St. Mikes 4.85-7.30, Grapefruit 1.85, lem. 1.95-3.05.

Cleveland: 7 or., 4 lem. Val. 4.75-7.40, Nav. 3.90, lem. 1.65-5.15.

St. Louis: 8 or., 5 lem. Val. 5.25-6.35, Sweets 4.75-5.45, lem. 2.80-4.75

June 22

New York: 25 or. and grapefruit, 3 lem. Val. 3.75-8.35, Nav. 4.40-7.90, Seeds 3.40, grapefruit 1.90-2.35, lem. 35-2.85.

Boston: 15 or., 5 lem. Val. 3.60-6.30, grapefruit 2.30-2.65, lem. 1.80-5.00.

Philadelphia: 4 or., 1 lem. Val. 4.35-7.55, Sweets 4.55-5.30, Mikes 6.00-6.55, lem. 1.90-3.75.

THE SPICE BOX OF THE WORLD

Pepper, cloves, and coffee—the fragrant kind of coffee that your mother saves for her very special guests—all come from Malaysia, the world's great spice box.

Malaysia is a land of perfume and brightness, a land of wonder and of endless change. New Guinea, the least known part of the East Indies, is the largest island in the world, and no doubt the smallest one could also be located in this region; for the face of the waters is speckled with countless islands of every size and shape. They cut up the channels of the sea with their many hidden reefs and shoals and make sailing more dangerous here than in almost any other part of the world. Then there are the "typhoons" which rise like a whirlwind and sweep across the waters, destroying everything in their path. And yet the sailor does not stay away from Malaysia. Malacca, Penang, Singapore, with their mystery and their beauty, keep calling him to return.

Some of the greatest sea stories in literature have been written about these waters—Everyland.

ECONOMIZING IN DRESS

By A. M. H.

One of the best ways of economizing in dress is to learn the art of coloring both wool and cotton goods, for when once learned, one can save many a dollar and with very little work.

When black goods has become soiled and rusty, wash clean, then dip in a weak dye made from one package, letting the cloth soak in this hot black dye for half an hour, stirring constantly. Do not let boil. Rinse well, hang out to dry, and press on the wrong side before quite dry. This method renews black goods beautifully.

If the small girl's cotton and muslin dresses are faded and outgrown, but the material is still good, rip them apart, piece out to make plenty large enough, boil in strong suds to remove the remaining color, then color any hade wanted with a good dye for cotton. Boy's waists and faded house dresses can be renewed in the same way.

To make an excellent cleaner for black goods not soiled enough to be washed put five cents worth of borax and ten cents worth of camphor gum chipped fine in a large bowl and pour in a quart of boiling water and stir vigorously. When it is cool put in a bottle. When wishing to use it pour a portion into a basin and dilute with half the quantity of cold water, and use an old tooth brush or black cloth for cleaning the goods.

Silk hose last about three times as long if they are rinsed out each time after being worn, in water softened with a little borax, as the rinsing removes the perspiration which causes the silk to rot and soon give way. And fine lingerie waists, collars and handkerchiefs last twice as long if they are put to soak in warm water softened with a little of the powder as they need no rubbing after the soaking.

To make white straw hats look like new, prepare a weak solution of warm water and oxalic acid. Lay hat on clean table and give it a vigorous rubbing with an old nail brush. Rinse well with clear water, wipe this off, scatter precipitate of sulphur all over the surface and place in the sun. When dry brush off with a stiff brush. Any old hat at all wearable may be utilized this spring, and if you have saved good trimmings you can have a satisfactory hat without any outlay of money.

WEATHER REPORT

San Francisco, California, June 19, 1920.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.38	23.93	45.84	66	48
Red Bluff	.66	11.26	24.94	100	58
Sacramento	.03	8.88	20.09	104	50
San Francisco	.04	10.46	22.27	92	50
San Jose	.20	8.83	16.79	102	46
Fresno	.02	8.23	9.68	104	54
San Luis Obispo	.05	14.86	20.51	100	44
Los Angeles	.00	12.52	15.64	82	58
San Diego	.02	9.91	10.01	70	59

Photography For the Farmer

We will tell you how to make good pictures on the farm. Take pictures of your livestock, your children, your crops, your home. Watch the progress you are making with certain work.

Then send the roll of films to us for development and printing.

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Save 1-2 on Fuel

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The Sievert Oil Burner burns either distillate or kerosene oil in cook stoves, heaters, furnaces, pasteurizers, boilers, prune dippers, dairy sterilizers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Install it yourself. Write for circular and prices on different sizes. Address Sievert Oil Burner Co., 710 North Main St., Los Angeles.

Household Department

I WISH I WERE SETTING OUT TO SEA

I wish I were setting out to sea,
Under an evening sky,
With the wet wind blowing against my face,
And the spray unspringing like fairy lace
As we went hurrying by.
The swing of the waves would bring me peace—
Swaying now low, now high.

I wish I were setting out to sea,
Bound for a far off shore,
And watching the twinkling coast lights glow,
Fainter and paler, as on we'd go,
Until they could show no more.
The wail of the wind would send me to sleep.
Sweeter than e'er before.

I wish I were setting out to sea,
Hearing the throbbing screw
Dim through my dreaming the whole night long,
With its low, monotonous humming song,
While the miles beyond us grew,
The sea and the wind, and the song all three,
Would gird my soul anew.—Ethel Wolff in New York Times.

MR. MARSH'S MIGHTY SWORD

BABBIE was eight years old, and Mr. Marsh, who lived in the Old Folks' Home, was 80 years young. Since the difference in their ages was zero, they understood each other well and were remarkably good friends. Mr. Marsh had explained to Babbie why he hated to live in the Home.

"It's this way, Babbie," he told her, "the Home is for the old and the poor and the weak—"

Babbie knew. "Like Uncle Peter."

Uncle Peter was the oldest and weakest of them all.

"But look at me, Ladybug"—Mr. Marsh often called her Ladyburg—"you look at me! These good victuals they have been afeeding me have put meat on my bones. If I could only get me a job now, some other chap could have my place here."

"I would be pretty lonesome, Mr. Marsh, if you went away," Babbie consoled him.

"Well, I cannot get a job," Mr. Marsh admitted ruefully, "because everybody says I'm too old. If they would give me a chance I would show them quick enough."

"I guess you would, the way you work in the garden so hard."

Mr. Marsh always smiled when he thought of his garden.

"Come and see my strawberries, Babbie. I should be ashamed to be agrumbling this way. I ought to be athanking the good Lord that I live in California where I can grub in the dirt all the year round."

For a long time after that conversation Babbie had urged her father to find a place for Mr. Marsh to work, and had even appealed to Mrs. Sallie Scott, the pretty young woman who lived in the cunning little bungalow across the street from the Home. But it was no use—until she and her brother Bob made up their scheme.

* * * * *

It was one morning about a week before Christmas, when Babbie removed the loose picket with a mighty jerk, looking around to make sure that no one saw her, and wedged her plump little body through the gap in the fence. She gave a gurgle of contentment. She was in the Old Folks' garden.

"Hello, little Ladybug," cried old Mr. Marsh, putting down his hoe and searching through his pockets. "I whittled you another pistol last night."

"Oh, goody!"

She snatched the tiny weapon he held out to her and examined it greedily. "It's grand! Why, it looks like a regular shooter.

Mr. Marsh nodded his white head. "It is a sight safer than a regular shooter." Babbie rubbed her rose petal cheek against the smooth wood and then slipped the pistol into her gingham apron pocket.

"Mr. Marsh," she wheedled, drawing her eyebrows together and establishing herself comfortably on an overturned flower pot, "let's play supposing."

"That is a fine game," agreed Mr. Marsh, picking up his hoe again. "What shall we 'spose? 'Sposing you were Little Red Riding Hood and I was—"

"No," she interrupted him. 'Supposing I had $25. You suppose first.'

"All right. I would buy six bucketfuls of pep'mint candy, and you and Bob and I would have a party."

"You are not playing so very fair," Babbie said reproachfully, "because I meant really, truly."

"Oh, excuse me, Babbie." Mr. Marsh was quite humble. "'Sposing I had that money, I would buy me a pair of shiny shoes, so as to look kinder prosperous, and I would go to visit my nephew out in Idaho, like he asked me to."

For a moment the old man's shoulders straightened, and a spark of hope lit up his faded blue eyes.

"Go on," sighed Babbie, "and then—"

"And then, by cracky! when I got there I would make myself so mighty useful they would beg me to stay."

"I know," put in Babbie hastily. "You said you would take care of the babies so his wife could go to church, and you would wipe the dishes and feed the chickens, and keep the yard as neat as neat"

Mr. Marsh fell to hoeing very hard indeed.

"But it's no use 'sposing, Babbie," he said. "You and me do not have that $25."

"Supposing," ventured Babbie, "supposing we had Bob write and tell your nephew—" "Hush, child!" Mr. Marsh's voice was quite stern. "My nephew Emmett, he does not know how as I am in a Home, and we are not agoing to tell him how poor I am. Why, when Emmett was a little boy he thought pretty near as much of me as he did of his own pa."

Babbie stared up at her friend, round eyed and wondering.

"Oh!" she said.

Mr. Marsh laughed. "There, Ladybug! Did I kinder scare you? Never mind. As I was acoming out into the garden I smelled cookies."

"Oh!"

"You had better run in and see the old ladies for a little spell."

Babbie hesitated. Those hot cookies would taste delectable. But she shook her head, putting her hand into her pocket to feel the smooth wooden pistol.

"Bob will want to see my new pistol," she explained. "Goodby, Mr. Marsh.'

And she darted through the fence and disappeared among the rose bushes in her own yard.

"Bob! Bob!" she called lustily.

In the distance a door banged, and presently, heralded by a shrill whistle, into the arbor came a boy. Like Babbie he was plump and blond and rosy.

"What did he give you this time, Babbie?"

"Another shooter, Bob. It is a dandy. Let's get them all out and count them up again." "Well, keep pretty still, if you can, Babbie. Here." Very cautiously the two children opened a box that was ostentatiously serving as a dolls' dining table and took out a collection of whittled toys.

"Here," said Bob, "here are three swords and four guns and a six shooter and three automatics, besides this new pistol and the stick ponies."

"It's 15," reported Babbie, triumphantly. "Will it be enough, Bob?" Bob chuckled. "Sure, Babbie. We will do it this afternoon. But I'll bet Mr. Marsh thinks we are regular pigs, the way we have begged these."

"Listen," hissed Babbie. "Jigger!" whispered Bob. Like a flash the whole armament was concealed in the innocent looking box.

"Aw, Babbie, it's nobody. You are such a fraid cat!"

"Bob Eldridge, I am not!" she stamped, facing him defiantly. "But if mother finds out, you know very

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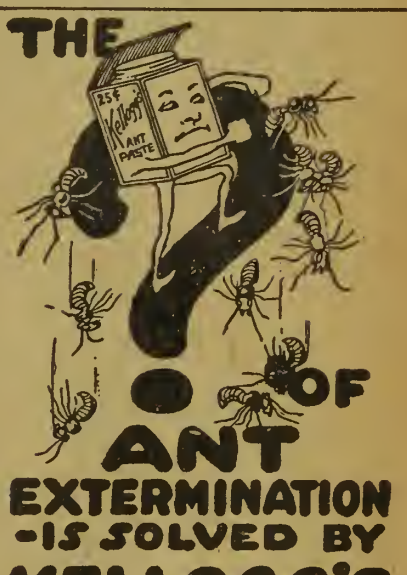

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3255. A Charming Gown. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch eize will require 7⅓ yards of 40 inch material. The width of the ekirt at lower edge, ie 1⅞ yards. Price, 10 cents.

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3258. Night Dress and Cap. Cut in 4 elzes: Small, 32-34;; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. Size Medium requires 4⅛ yards of 36 inch material for the gown, and ⅞ yard for the cap. Price, 10 cents.

3272. Boys' Suit. Cut in 5 sizee: 2, 3, 4, 5, and 6 yeare. A 4 year eize will require 2 yarde of 27 inch material for the blouse, and 2⅝ yards for the trousers. Price, 10 cents.

3256-2746. A Dressy Frock. Waiet 3256 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 2746 cut in 7 sizee: 22, 24, 26, 28, 30, 32, and 34 inchee waist measure. Width of ekirt at lower edge is 1¾ yards. A medium size will require 7¾ yards of 36 inch material. Two eeparate patterne, 10 cente for each pattern. Note that both cost 20 cents.

2911. Girl's Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. Size 8 will require 3¼ yards of 44-inch material. Price, 10 cents.

3254. A Dainty Apron. Cut in 3 sizes: Small, Medium and Large. A Medium eize will require 2½ yards of 36 inch material. Price, 10 cents.

2924. Child's Dress. Cut in 4 sizee: 2, 4, 6 and 8 years. Size 4 will require 2⅝ yards of 36 inch material. Price, 10 cente.

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PATTERN DEPARTMENT
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well she will not let us sell them down on the corner, and then how will Mr. Marsh ever go to see his nephew? You tell me that!"

"Gee, Bab, no use to get so mad." Then changing the subject with great tact, "I bet you we will get more than anl old $25 for them."

Late that afternoon Ned Scott and his wife Sallie were strolling along the shady street, discussing the very interesting topic of Christmas presents. It was a very important discussion, for it was only their second Christmas to select presents for each other, and they had almost decided to put their funds together and buy something for the new little bungalow after all. A rug, or a big easy chair.

"Look, Ned," cried Mrs. Scott, stopping suddenly. "What can be the matter? Those are the little youngsters that live next door to the Old Folks' Home!"

"Are you sure, Sallie? We will have to investigate."

Slouched down in a disconsolate heap on a little wagon by the edge of the sidewalk was Bob, his hands deep in his pockets, his cap pulled rakishly over one eye. But Babbie stood stiffly beside him, a large wooden sword in her hand. Huge tears rolled down her apple cheeks, and her soft little hands were clenched.

"Bob," she said, "we have got to have that $25." The last word was a sob.

"Aw, hush up, you cry baby!" growled Bob.

"Hush up yourself. I'm not cr-crying!" sobbed Babbie, turning upon him fiercely.

"Why, hello!" called Mrs. Sallie, gaily, at this critical moment. And she knelt down on the pavement, regardless of the glory of new tailored suit, and took the weeping Babbie in her arms.

"Babbie, dear," she coaxed, "let's all go over there and eat some ice cream,"

But Bob stopped her. "We can't—we have to sell Mr. Marsh's sword first," he explained, sulkily.

Babbie nodded a quick assent.

"But why?" begged Mrs. Sallie. "What do you mean?"

"We sold the beautiful stick ponies and the guns and we have only $2.43," sobbed Babbie, "and that won't even buy a pair of shoes."

"Shoes?" repeated Mr. Sallie, glancing from Bob's stout boots to Babbie's dainty slippers.

"Shriny shoes," almost groaned Babbie, trying unsuccessfully to choke back the sobs. "He can't—look prosperous—without shiny shoes."

"They want the shoes for Mr. Marsh," guessed Ned Scott. "Does he know?"

"Nobody knows. Not mother, nor nobody."

Then they tried to explain, but Mrs. Sallie could not wait until they were through with their story. Mr. Marsh was her friend, too.

"I have found the Christmas present I want, Ned," she cried, her blue eyes dancing, although there were tears in them. "I want Mr. Marsh's sword!"

"The sword," said Bob, taking a sudden interest and trying to use a businesslike tone; "this sword is 25 cents."

"Oh, no, not so cheap, Bob. For see, it is such a beautiful sword. And it just fits my hand."

"Of course," agreed Ned Scott, smiling down at the three of them, you must mean $25."

Gravely he counted the golden coins into Babbie's plump hand and watched her, as with a sigh of relief she put them into her red pocketbook and stuffed that into Bob's pocket.

"Let's have that ice cream now, people," laughed Mrs. Sallie, pointing toward the corner drug store and waiving her sword gallantly. "Now that you know Mr. Marsh can have his prosperous shoes, perhaps you can pause to eat."

"Strawberry ice cream soda," agreed Mr. Ned Scott. "We will drink to the health of the new shoes."

"I guess," murmured Babbie, contentedly, when they were all perched on the high stools, watching the brisk, white coated boy as he handed them their glasses overflowing with luscious pink foam, "I guess, of course, Mr. Marsh will be pretty much surprised."

"Right you are Babbie," grinned Mr. Ned Scott. Then suddenly, "And, Babbie, if I were you I would not tell him what I paid for the sword. Just let him think you charged a little more for everything."

"I know," sighed Babbie, spreading a generous spoonful of cream over her face. "He would think we cheated you."

"You remember I said 25 cents, didn't I, Mrs. Scott?" reminded Bob, with his mouth very full. "I said, 'This sword'"—

"See here, young man," said Ned Scott, do you think I would give Sallie a 25 cent Christmas present?" Then he added confidentially, "Really, I had almost decided to give her a gold—piano!"

"Oh, oh!" chuckled Babbie, giving Mr. Ned Scott a rapturous albeit sticky hug, as she slipped down from her stool, "there are no gold pianos, and you are just making believe!"

* * * * *

After what seemed an eternity, but was in reality only three days, Babbie and Bob were going over to the Old Folks' Home to tell Mr. Marsh goodby. For Mr. Marsh had telegraphed to his nephew Emmett, and everything was arranged.

"I do hope," confided Babbie, just as she rang the bell; "I do hope that his shoes are awfully shiny."

"Prosperous," amended Bob, and then Mr. Marsh himself opened the door.

But though his shoes were black and very shiny, anyone could see at a glance that they were his same old shoes, with a patch on one toe, and they did not look at all prosperous.

"Oh, goodness!" gasped Babbie. "Mr. Marsh, did you forget to put on your new shoees?"

"Sh-hush," whispered Mr. Marsh, winking slyly first at her and then at Bob. "Don't say a word."

Then "Come in, come right in," he added in a very loud voice. "Everybody is acoming to see me today. Mr. and Mrs. Scott, and everybody. Coming to see me and Uncle Peter."

There sat Uncle Peter, the center of an admiring group, with his feet in gloriously brilliant tan colored shoes—shoes that were screamingly new, stretched out before him.

"But where," asked Bob, in a funny, sad little voice, "how did you get them, Uncle Peter?"

Uncle Peter chuckled softly. "I do not know. Some one found them on the door step, quite early this morning. There was a note in one of them that said 'For Uncle Peter' and a note in the other one that said 'From a very old friend' Maybe they came from Heaven." He laughed again. "I guess, most likely, Heaven sent them."

Then Mr. Marsh nudged Bob and winked again. His blue eyes were twinkling.

"Oh, Mr. Marsh," whispered Babbie, with her soft little arms around his neck, her moist, warm little mouth close to his ear, "How could you give him your prosperous shoes?"

"By Jimminy, Babbie," Mr. Marsh whispered back, smoothing her silky hair with his rough hand, isn't it a fine joke on Uncle Peter? And isn't he tickled? And come to think about it, good old patched shoes are agoing to look a sight more prosperous than such brand new ones" And he wagged his white head wisely. "You ask your pa if they don't."

"It is time for you to start," cried Mrs. Sallie, straightening Mr. Marsh's tie, and brushing an imaginary bit of dust off his coat. "Dear people, you will simply have to stop looking at Uncle Peter's beautiful shoes before your eyes wear holes in them, and tell Mr. Marsh goodby."

At that Ned Scott seized the old suit case that held all Mr. Marsh's worldly possessions, while Mr. Marsh himself, his head high and his lips smiling, walked down the path and out of the old gate, with Babbie and Bob clinging to his hands. His pockets bulged comically with odd, pathetic last minute remembrances from the other old people, but his eyes were confident, as though he already saw the little home in Idaho, and his tall nephew Emmett with his pretty young wife, begging him to stay on and on—because he had "made himself so mighty useful they did not know how they could ever get along without him!"—Successful Farming.

If a glass stopper sticks tight in a bottle, carefully expand the neck of the bottle by turning it and heating it gradually in a small flame, say a piece of kindling wood.

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THE HOMIEST HOME

By Subscriber, Riverside

It seems to me there is something hardly definable in the matter of what constitutes the homiest home. There are so many things that minister to our comfort and convenience, so many that minister to our love for the beautiful in nature and in art, that, given the proper atmosphere that should be in every home, and lacking this atmosphere it is only a place to stay, but if there is one thing in our home we would part with last it would be the couch. There the tired man can rest for a few minutes at the noon hour, the weary housewife find a few minutes of rest and refreshment; the grandchildren when tired of romping and play drop down to get their breath; and the dear baby take his nap instead of being put away in a cold room when he comes to visit his "Bama."

I cast my vote for the dear old comfort, the couch.

THE KEY TO THE HEART

By Franklin Anderson, Santa Barbara

To me the piano is the homiest thing. It always has some cheerful music. When we come in from our day's toil we feel tired out and the piano seems to strengthen us up so we can go to bed with a happy feeling in our minds. It seems also that we have happier dreams in our sleep. On Sunday it is useful for church songs and also evenings when the family gather around it and sing some cheerful and lively songs. Music is the key to the heart.

THIS WEEK'S PATTERNS

The first gown shown is a charming style for a foulard or figured voile, so popular this year. A fine organdie collar with simple embroidery may be made detachable and kept freshly laundered and dainty at all times.

3256-2746—Note this requires two patterns, each ten cents, equally suitable for a gingham or lawn or for a sport silk. The fluted ruffle on the long, graceful collar and cuffs gives the last touch of daintiness.

The girls' dress, 2911, with kilted skirt, is just the thing for a beach outing or vacation trip. Made of substantial wool, it will save laundering and give good service in cool climates. Of Devonshire, Kindergarten or similar firm cotton weave, it will be suitable for warm days. Where mother has time to give it the care, a white wool would be the very loveliest ever.

3258 is pattern of a simple night dress which one should always have on hand.

The forehanded woman who starts making Christmas gifts in the summer vacation days will see the possibilities in apron pattern 3254. It has uncommonly graceful and quaint lines and is made for service. The good old substantial rickrack edging is popular again and very dainty in effect.

The little boy's suit, 3272, is very new in effect and the little girl's dress, 2924, is as lovely as it is simple. The ducky little pockets make its charm and will make any small girl's heart happy.

BEAN RECIPES

Bean Loaf

4 cups cooked beans, 1 cup strained cooked tomatoes, 1 cup dry bread crumbs, 1 well beaten egg, 1 minced onion, 1 teaspoon chopped parsley.

Beans must be well cooked and thoroughly drained. Press through sieve and mix with other ingredients. Salt and pepper to taste. Place in a well greased roasting tin and allow to cook for ten minutes in moderately hot oven; then add one tablespoon butter and a half cup of hot water, basting frequently during a half hour's cooking. The loaf should be well browned. Served with tomato sauce.

Chile Con Carne and Beans

½ pound pink beans, ⅛ teaspoon soda, ¼ pound well seasoned hamburg steak or chopped left over meat, 1½ teaspoon salt, 1 clove garlic or 1 chopped onion, small slice fat pork, 1 tablespoon flour, ½ cup chopped canned green chile, 1 can tomato sauce.

Soak beans over night and in morning add salt and soda and boil until beans are tender. Cut pork into small pieces and fry until fat is tried out; add steak or left over meat, sprinkle with flour and brown. Add chopped chile, tomato sauce, onion or garlic and one cup of water. Bake in moderate oven for one hour, adding more water if necessary.

Spanish Beans No. 2

1 quart kidney beans, 1 quart tomatoes, 1 clove garlic, 2 tablespoons Spanish pepper, ¼ teaspoon tabasco sauce, 1 pound cooked pickled pork, 2 large onions, ½ can pimentos, ¼ teaspoon nutmeg, 2 tablespoons sugar.

Soak the kidney beans over night and boil until tender. Add the pickled pork, which has been previously cooked, and put through grinder. Add tomatoes, onions chopped fine, garlic and chopped pimentos, Spanish pepper, tabasco sauce, nutmeg, sugar and salt to taste. Bake in moderate oven four hours.

Bean Souffle

1 pint hot boiled bean pulp, 1 teaspoon onion juice, 2 eggs, 2 tablespoons finely chopped parsley.

Beat yolk of egg and add to above ingredients. Fold in the well beaten whites of the eggs. Heap mixture lightly in a baking dish. Bake in slow oven for about 20 minutes, or until it is set. Serve immediately.

Bean Crust

One cup boiled pink beans, 1 teaspoon baking powder, 2 tablespoons melted fat, ½ teaspoon salt, 1 egg, flour to make soft dough.

Combine above and roll out mixture to about one-eighth inch thick on well floured board. Cut strips of suitable size when folded for individual pies. Fill pies with chopped cooked meat or vegetables. Fold crust over and press along edges. Bake in moderate oven until well browned.

BABY TEETH SHOULD NOT BE PULLED

Milk teeth or baby teeth are cut between six months and three years of age. These teeth should be left in as good condition as possible, if for no other reason, for the effect on the permanent teeth which follow. The roots of the milk teeth are absorbed, and the material used for strengthening the permanent teeth growing beneath. They should not be pulled until loosened by the growing tooth beneath. Teething is no longer considered a factor of disease. It may cause fretfulness but never serious stomach or intestinal trouble or convulsions.

LIKED HER MOTHER

Six year old Margaret often played with Nellie, a neighbor's little girl. One rainy day the two were just starting across the clean kitchen floor at Margaret's home when the latter's mother, seeing their muddy shoes, headed them off and sent them out to play on the porch. After a moment Nellie remarked:

"My mother don't care how much I run over the kitchen floor."

There was quite a long interval of silence. Then Margaret said:

"I wish I had a nice, dirty mother like you've got, Nellie."—Galveston News.

AFTER MANY TRIALS

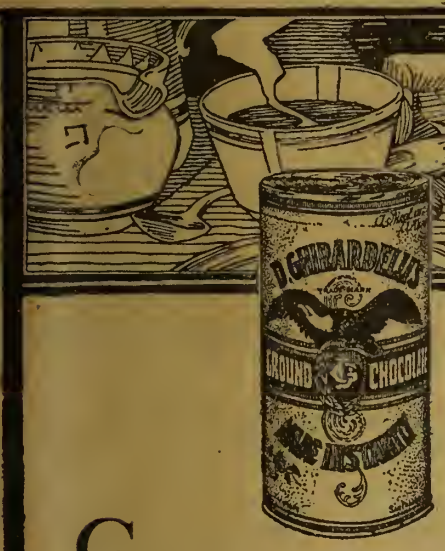
"He took my ball," said a youngster when reproved for fighting with another boy.

"Did you try to get it from him peaceably?"

"Yes'm."

"How many times did you try?"

"I tried once, twice thrice and force, and I didn't get it until the last time."—Boston Transcript.



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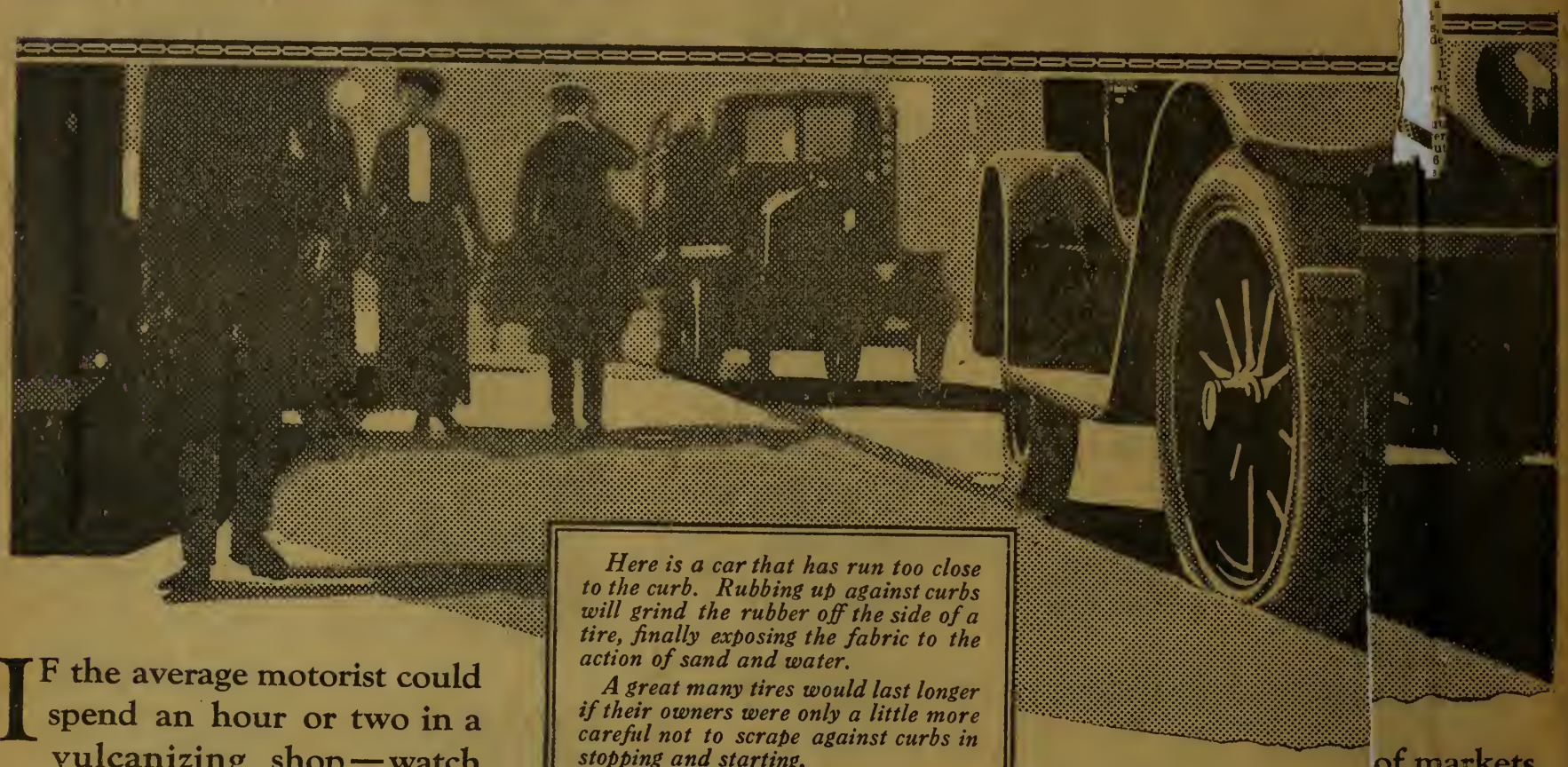
Forty million tires for 19[illegible]20 What kind of tires are th[illegible]ey



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He would see what comes of thinking too much in terms of "concessions" and "allowances."

* * *

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